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NOSSA INSTRUCTION 8023.11B

From: Commanding Officer, Naval Ordnance Safety and Security Activity

Subj: DON STANDARD OPERATING PROCEDURES DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE FOR AMMUNITION AND EXPLOSIVES

Ref: (a) OPNAVINST 8020.14/Marine Corps Order P8020.11
(b) NAVSEA OP 5 VOL 1
(c) NOSSAINST 8020.15C
(d) OPNAVINST 3500.39C/MCO 3500.27B
(e) DDESB Technical Paper 18

Encl: (1) Definitions of Basic Terms
(2) Standard Operating Procedure Format and Content Requirements

1. Purpose. To provide Navy/Marine Corps the policy, responsibility, and procedure for developing, implementing, and maintaining Standard Operating Procedures (SOPs) for operations involving ammunition or explosives in accordance with references (a), (b), and (c).

2. Cancellation. NOSSAINST 8023.11A of 20 August 2004. This instruction has been revised substantially and should be reviewed in its entirety.

3. Background. Reference (b) requires that all Navy and Marine Corps activities have written procedures prior to starting any operations involving ammunition or explosives. This instruction provides a standard for writing SOPs. While SOPs are not intended as a substitute for other technical documentation, they encompass the pertinent information from the technical documentation and provide safety directions specific to the task and operations to be performed at a site.

4. Scope. The requirement for approved written procedures applies to Ammunition and Explosives (A&E) operations, as well

as those operations involving Material Potentially Presenting an Explosive Hazard (MPPEH) and Munitions and Explosives of Concern (MEC), whether work is performed by Navy and Marine Corps military or civilian personnel, and by other military and civil service and contractor personnel under contract to either service, regardless of location.

a. The guidance of this instruction applies to:

(1) Navy/Marine Corps personnel at Navy/Marine Corps activities.

(2) Navy/Marine Corps personnel performing operations off Navy/Marine Corps property or at other government activities.

(3) Contractor personnel performing operations integrated with Navy/Marine Corps personnel.

(4) Government-Owned, Contractor-Operated (GOCO) facilities.

(5) Contractor personnel performing munitions response operations involving known or suspect Munitions and Explosives of Concern (MEC) and/or MPPEH on or off the installation.

b. The requirement for SOPs applies to the following:

(1) Recurring processing of A&E and/or their components intended for Fleet issue. This includes the processing of parts or ingredients intended to be used in the complete round or components.

(2) Recurring or non-recurring operations performed on A&E for purposes of research, development, test, and evaluation (RDT&E), except non-recurring RDT&E operations governed by reference (b), Appendix G.

(3) Recurring or non-recurring operations involving the testing of A&E, except non-recurring test operations governed by reference (b), Appendix G.

(4) Demilitarization or disposal operations involving A&E, MPPEH, and/or MEC.

(5) Recurring operations involving the handling, transporting, and storing of A&E, MPPEH, and/or MEC, including magazine inspections where these are stored.

(6) Non-emergency Explosive Ordnance Disposal (EOD) operations.

(7) Training involving live A&E.

(8) Operations at a Munitions Response Site (MRS).

(9) Recurring or non-recurring operations involving detonation of bulk explosives not otherwise addressed in this instruction.

c. The following are exempt from the specific provisions of this instruction because they are covered by other written procedures, but remain subject to the requirements of reference (b).

(1) Emergency responses performed by EOD personnel.

(2) Operations performed by operating forces afloat governed by NAVSEA OP4, forward deployed ashore, or performed at the organizational squadron level aboard Navy or Marine Corps Air Stations.

(3) Operations involving ordnance material - Cartridge Actuated Devices (CADs), Aircrew Escape Propulsion Systems (AEPs), and pyrotechnics performed by Navy, Marine Corps and Civilian personnel in association with a Fleet Readiness Center (FRC) or Marine Aviation Logistics Squadrons (MALS), respectively.

(a) The ordnance operations described above are normally performed in a Seat Shop, PARALOFT, and Aviation Life Support System (ALSS) work environment with procedures detailed in the appropriate NAVAIRSYSCOM Organizational or Intermediate (O/I) level maintenance check sheet and/or technical directive. The operations typically involve ordnance handling (removal/replacement operations) associated with maintenance work performed in parachutes, life-rafts, life vests, flotation devices and seats.

(b) Note that ordnance receipt, storage, issue, handling and transport operations conducted by FRC and MALS personnel in support of FRC and MALS aviation maintenance operations are not governed by O/I level check sheets/directives. Support operations of this kind require that SOPs be developed and in place.

(4) Navy/Marine Corps forces conducting formal field training, which are covered by technical directives, NAVSEA/NAVAIR checklists, and/or Field Manuals (FMs).

(5) Training exercise (operational range) support units who solely transport, store and handle limited quantities of Hazard Class 1 Division 4 (C/D 1.4) items between ready service storage facilities, transport vehicles and small boats.

5. Definition of Terms. Enclosure (1) lists definitions of basic terms used in this instruction.

6. Policy. Activities shall conduct operations involving A&E, MPPEH, and/or MEC, in the safest manner possible consistent with efficient operations and after the assessment of potential hazards. SOPs are the step-by step procedural documents used to ensure compliance with technical, explosives safety, personal protective equipment, federal, state and local environmental protection, and information/physical security requirements.

a. Per references (a) and (b), the Commanding Officer (CO) of a Navy or Marine Corps host activity is responsible for explosives safety throughout the installation. It is the host activity CO's responsibility to require personnel, including DOD and non-DOD tenants and contractors, while on the installation under their command, to conduct their activities in accordance with established safety rules. The host CO is ultimately responsible for the development, validation, review, approval, and use of SOPs for A&E, MPPEH, and/or MEC operations under their cognizance to include tenant and contractor operations. This responsibility may be delegated to tenant commands possessing established explosives safety programs through formal agreements.

b. Tenant COs/Officers in Charge (OICs) who have been formally delegated authority by the host CO to manage SOPs under their cognizance may delegate the management and approval of

SOPs to senior managers consistent with "By direction" signature authority, and shall maintain visibility of SOP management and effectiveness through their command's Explosives Safety Officer (ESO). Senior managers authorized to approve SOPs in lieu of the CO/OIC must be designated in writing by the current CO.

c. In accordance with reference (b), paragraph 1-4.4.1.e, designated ESOs (host, or tenant if a formal agreement is in place) are responsible for ensuring all A&E SOPs meet the requirements of this instruction.

d. The Process Supervisor is responsible to the Command for operations covered by an SOP. The Process Supervisor is responsible for:

(1) Ensuring that all persons assigned to a process have read and understand the requirements of the SOP.

(2) Stopping a process if unexpected safety, health or environmental hazards are found, or if significant deviations from the SOP are necessary in order to conduct the process.

(3) Continuously reviewing SOPs during recurring processes to ensure that they are changed as necessary to reflect current procedures, and changes to reference documents.

e. The SOP user (worker/operator) is responsible for reading, understanding, and following the SOP. If the worker/operator identifies a hazard or operation not addressed in the SOP, or encounters an operation user does not understand, the user will stop the process and notify the supervisor of the problem.

(NOTE: All participants are responsible for stopping a process until the process can be conducted in accordance with an approved SOP.)

7. SOP Requirements.

a. SOPs shall include all the elements outlined in enclosure (2).

b. SOPs, along with applicable reference publications, shall be kept in the work area with the procedures readily

available for the use of the workers/operators performing the process.

c. SOPs may contain technical instructions for which changes are expected to be routine (mix sheets, processing sheets, etc.). SOPs may be written to allow for approved variations in the operation as long as the safety and technical requirements are met. SOPs must document both the allowable variation limits and the process of approval for variations within the limits authorized by the SOP.

8. SOP Development, Review, Validation and Approval.

a. The host activity CO is the approval authority for all A&E SOPs under his cognizance, and ultimately is responsible for development, review, validation, approval, and use of SOPs for A&E operations. This authority may be delegated in writing according to paragraph 6.a of this instruction.

b. Contractors are responsible for development, review, validation, approval, and use of SOPs for A&E, MPPEH, and/or MEC operations wholly under their control (see paragraphs 4.a(4) and (5) of this instruction). Cognizant Navy/Marine Corps personnel shall provide appropriate oversight as specified in contractual requirements.

c. Host/tenant agreements must include provisions for the host activity ESO to review and/or have access to tenant Command and on-site contractor SOPs that pertain to A&E.

9. Operational Risk Management (ORM). As part of SOP development, the ORM process, per reference (d), shall be conducted, and the resulting hazard analysis and risk assessment shall be used as a basis for developing the SOP. The purpose of ORM is to clearly identify, assess, and manage existing and potential hazards inherent in handling and processing A&E, MPPEH, and/or MEC. The ORM is the means to identify and assess the hazards, make risk decisions, implement control, and supervise through the use of the SOP. The ORM methodology and analysis developed for the SOP must be made available on request or included as an element of the SOP.

a. A preliminary hazard analysis and risk assessment to support SOP development is appropriate for the level of ORM per

reference (d). Reference (b) provides guidance for hazard analysis at the required level of a Mishap Risk Assessment for operations involving production, maintenance, and renovation of A&E and reference (c) for operations involving recovery, handling, storage, and transportation of MEC and/or MPPEH. The hazard analysis results shall be a permanent part of the SOP as a hazard control brief and shall be included as an element of the SOP.

b. At least one worker/operator who will be performing the operation covered by the SOP shall take part in the hazard analysis and risk assessment.

c. A hazard control briefing will be prepared, taking into account the results of the hazard analysis and risk assessment. The briefing will be given to all employees using the SOP prior to initial use of the SOP. The briefing may be repeated as often as necessary based on the work supervisor's analysis of its effectiveness. The current briefing will be a permanent part of the SOP. The hazard control briefing will also be given to all visitors and other transients/observers to the A&E, MPPEH, and/or MEC location. Records documenting recipients of the hazard control briefings shall be maintained for a minimum of one year after the date the briefing was given.

d. At a minimum, hazard control briefings will address the following:

(1) Hazardous materials used, consumed, or produced in the process.

(2) The ways in which exposure to hazards and hazardous materials are avoided or minimized, including the use of personal protective equipment.

(3) Signs of unacceptable exposure to the worker/operator/visitor, or damage to the equipment, from the hazardous materials being processed.

(4) First aid or other actions to be taken immediately should exposure to an unacceptable hazard or hazardous material occur.

(5) SOP hazard analysis results. (Documentation leading to results, including process/methodology, mishap triggering events, projected potential mishaps, initial and final risk index, must be readily available on request.)

10. Security. SOPs will provide personnel with all of the procedures necessary to maintain physical security, accountability and disposition control of A&E, MPPEH, and/or MEC. It will also provide the worker/operator with procedures adequate to prevent unauthorized disclosure of classified information if so required.

11. Review and Expiration Requirements.

a. The following personnel will review SOPs prior to initial use at Navy/Marine Corps activities/tenant Commands:

(1) Personnel who may be responsible for the technical requirements and execution of the process (e.g., supervisors and operators).

(2) Personnel responsible for support of the process in accordance with sections of the SOP, including mishap responses.

(3) Occupational safety and health, medical (e.g., industrial hygiene), and environmental personnel if the process involves or may potentially involve any applicable procedures.

(4) Designated command ESO (host command, or tenant ESO if a formal host/tenant agreement is in place).

(5) Host activity CO or designated representative, or tenant CO if a formal host/tenant agreement is in place.

b. Continuous review. SOPs shall reflect current procedures. Personnel responsible for the technical requirements and execution of the process must ensure that SOPs are reviewed and changed as necessary, but at a minimum annually, to reflect changes. The person responsible and/or supervisor for the process must document the date of annual review.

(1) All major changes to SOPs must be controlled and subjected to an appropriate level of review. Minor changes may have a lower level of review than major changes if appropriate.

(2) Collect and destroy field copies of superseded SOPs.

c. Contractors shall review their SOPs using a similar chain of contractor personnel with a similar scope of authority. Note that for SOPs to be used at an MRS, this review must be conducted by personnel who are appropriately qualified per reference (e).

d. SOPs expire four years from date of approval and require review by all applicable personnel identified in paragraph 11.a of this instruction, as well as new approval signatures, prior to reissue.

12. Validation. The supervisor will oversee the performance of SOP validations with the necessary workers/operators and other personnel to ensure complete understanding at all levels. The supervisor should request assistance from other authorities when needed. The supervisor and workers/operators, before the initial use, shall conduct a validation of applicable sections of an SOP, or whenever there is a major change to the operation, process, or facility. All validations will be documented, signed and dated by all persons performing the validation.

13. Action. Host and tenant CO/OICs, or designee, of each Navy/Marine Corps activity under the scope of this instruction shall ensure full compliance with the policy, guidance, and direction in this instruction.

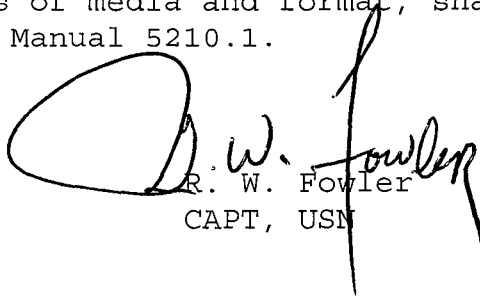
14. Implementation. Within one year of the date of this instruction, ensure all new SOPs and major changes to SOPs are developed, approved, and maintained in accordance with this instruction. Within three years of the date of this instruction, all active A&E processes will have SOPs in accordance with this instruction.

15. Amplifying Directives. Amplifying directives in potential conflict with this instruction are not authorized nor permitted.

16. Inspection. Compliance with this instruction and the effectiveness of each activity's SOP program will be assessed

during NOSSA shore station explosives safety inspections. For MRS operations, compliance may also be assessed during audits performed in accordance with reference (c).

17. Records Management. Records created as a result of this instruction, regardless of media and format, shall be managed in accordance with SECNAV Manual 5210.1.



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DEFINITIONS OF BASIC TERMS

Ammunition and Explosives (A&E). All items of ammunition; propellants, liquid and solid, high explosives; guided missiles; warheads; devices; pyrotechnics; chemical agents; their components, and associated substances, presenting real or potential hazards to life and property.

Designated Representative. An individual designated in writing to have been delegated authority from the host/tenant Commanding Officer, or host/tenant Explosives Safety Officer, as appropriate.

Host Commanding Officer. Commander, Commanding Officer, Officer in Charge, or other senior officer of the host activity having final responsibility for explosives safety of the operation. Included are the responsibilities where subdivisions of authority such as regionalization, host-tenant agreements, inter-service support agreements, or contracts, are in effect for SOP development.

Hazard Control Brief. Is designed to protect personnel against injuries by ensuring that employers and employees are provided with sufficient information to recognize hazards and take appropriate protective measures. In order to be effective, the hazard control brief must be complete and accurate. Thus it is critically important to obtain comprehensive and correct information, using Hazard Risk Analysis and Operation Risk Management (ORM), about the hazards associated with particular process.

Major Change. Change to Standard Operating Procedure (SOP) that adds operational hazards, or new hazardous items. Change to or revision of supplemental documents could be classified as major change, if the change or revision modifies the operational procedures to the point that safety is affected, or the change or revision introduces new hazards.

Material Potentially Presenting an Explosive Hazard (MPPEH). Material owned or controlled by the Department of Defense that, prior to determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal;

and range-related debris) or potentially contains a high enough concentration of explosives that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization, or disposal operations). Excluded from MPPEH are munitions within the DOD-established munitions management system and other items that may present explosion hazards (e.g., gasoline cans and compressed gas cylinders) that are not munitions and are not intended for use as munitions.

Minor Change. Change to SOP that does not provide additional hazards, additions of new hazardous items, or changes in methods used to eliminate or mitigate hazards. (Examples: name, code, or telephone number changes, spelling corrections, referenced documents location.)

Munitions and Explosives of Concern (MEC). Distinguishes specific categories of military munitions that may pose unique explosives safety hazards/risks and means Unexploded Ordnance (UXO), Discarded Military Munitions (DMM), or Munitions Constituents (MC) (such as TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Response Area (MRA). Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges, munitions burial areas, and explosive processing facilities. An MRA is comprised of one or more Munitions Response Sites (MRSs).

Munitions Response Site (MRS). A discrete location within an MRA that is known to require a munitions response.

Non-Recurring Process. A process which is being developed and which is not yet standardized. This may be a Research and Development (R&D) process or a change to an existing process when the product is not intended for Fleet issue.

Operation. Any action to be performed on or to A&E, MPPEH and/or MEC. Normally, a series of operations is considered to be a process.

Operational Risk Management (ORM) and Hazard Control Brief. Includes the details of the ORM completed in developing the SOP.

Also included are the results of the hazard analysis and risk assessment, and the resulting Hazard Control Brief. The ORM developed for the SOP must be made available on request. The Hazard Control Brief must be up-to-date and be a permanent part of the SOP.

Procedure. A series of steps in a regular, definite order.

Process. A series of operations on A&E related to manufacture; explosive loading, assembly, and packing (LAP); maintenance, reconditioning, renovation, rework, and repair; modification and conversion; receipt, storage, segregation, and issue (RSS&I); handling, shipping, loading, and unloading; research, development, test, and evaluation (RDT&E) of ordnance end items or explosive components; demilitarization; disposal, munitions response operations, and MPPEH processing.

Process Supervisor. The supervisor responsible for managing the A&E operation and for ensuring the associated SOP is accurate and current.

Recurring Process or Operation. A process that is well developed and is intended to be performed by a constant set of procedures. All operations intended to result in, or contribute to, A&E for Fleet issue are considered to be recurring operations.

Review. The process of technical consideration and assessment of the content of the document by appropriate personnel.

Risk Assessment. A structured process to identify and assess hazards. An expression of potential harm, described in terms of hazard severity, accident probability, and exposure to hazards.

Standard Operating Procedures (SOPs). The required document providing detailed, step-by-step instructions for conducting safe processing of A&E, MPPEH, and/or MEC which ensures compliance with the following:

- Technical requirements
- Explosives safety standards
- NAVOSH standards
- Federal, state, local environmental protection standards

- Security and physical security directives
- Other factors as determined by the host activity

Technical Requirements. Those requirements stated in the official technical data package for an item. Includes technical manuals, drawings, specifications, etc. and is the responsibility of the program manager.

Validation. Validation is a demonstration that the SOP is correct and will result in a safe, effective, and efficient operation. An appropriate validation consists of a careful step-by-step dry run of the process, usually with inert material, using the SOP.

Work Area. A designated area assigned to a specific operation involved in the processing of A&E, MPPEH, and/or MEC. For example, in buildings with multiple bays in which different operations are performed, each bay is a work area. At an MRS an investigation or remediation grid is a typical work area.

STANDARD OPERATING PROCEDURE FORMAT AND CONTENT REQUIREMENTS

The Standard Operating Procedure (SOP) shall contain the following elements:

1. Title page. The page at the beginning of the SOP that identifies the SOP name and number.
2. References. A list of all current applicable references including NOSSAINST 8023.11 (Series).
3. Table of contents. A concise list of elements within the SOP.
4. Record of development, review, validation and approval. This record provides signatures and dates of personnel, who developed, reviewed, validated and approved the SOP. It must also include a space to document the command Explosives Safety Officer (ESO) review and Commanding Officer (or designated representative) approval. Development, review and validation shall take place prior to approval.

For contractor operations under paragraph 8.b of this instruction, the equivalent levels of review would be, for example, Site Health and Safety Supervisor or Senior Unexploded Ordnance Supervisor, and Site Superintendent of the contractor.

5. Supervisor's statement. This record provides signature and date of the supervisor(s) who is responsible for managing the operation, and is responsible for making sure that the SOP is up to date. This record maintains the list of qualified people with up to date training. A suggested supervisor's statement follows:

PROCESS SUPERVISOR'S STATEMENT

I have read and understand this SOP. To the best of my knowledge, the processing described within this SOP can be done in a safe, healthful and environmentally sound manner. I have made sure all persons assigned to this process are qualified, have read and understand the requirements of this SOP, and have signed the worker's/operator's statement for this process. I will ensure the SOP has current procedures. If a major change to the SOP is necessary, I will ensure that the process is stopped until the SOP is revised and approved. If unexpected safety, health, or environmental hazards are found, I will make sure the process is stopped until the hazards have been eliminated.

Supervisor's Name

Signature

Date

6. Worker's/Operator's statement. This statement indicates that the worker/operator clearly understands his/her duties regarding the operations in the SOP. The worker/operator and supervisor must review the SOP and sign and date the statement to be authorized to work under the SOP. A suggested Worker's/Operator's Statement follows:

WORKER'S/OPERATOR'S STATEMENT

I have read this SOP and I have received adequate training to perform the process according to the SOP. I will follow the SOP unless I identify a hazard not addressed in it or encounter an operation I cannot perform according to the SOP. If that occurs, I will stop the process and notify my immediate supervisor of the problem.

Worker's/Operator's Name,
Date, and Signature

Supervisor's Name, Date,
and Signature

7. Step-by-step procedures. This is the most important section of the SOP. The procedures should be written so that a person unfamiliar with the operation could perform a validation of the process.

a. Provide the worker/operator with clear and concise step-by-step instructions for performing the process.

b. Do not include instructions for operations not relevant to the SOP.

c. The worker/operator must not be required to leave the work area to locate other references nor jump from section to section in the SOP to perform the process safely and correctly.

d. Use of technical manuals as part of the step-by-step procedures is encouraged.

e. Always use warnings, cautions, and notes at the first occurrence of critical steps. The word "WARNING" shall be used in cases of potential personnel death or injury. The word "CAUTION" shall be used in cases of potential equipment or facility damage. The word "NOTE" shall be used in cases that affect product or process quality.

f. If applicable, include procedures for routine decontamination and restoration of equipment and facilities to a safe working condition should the process have been stopped due to an unacceptable hazard or other unforeseen event.

g. Include procedures for disposition and management of any scrap or wastes, including waste military munitions, which may be generated by the operation.

8. Hazard Analysis/Risk Assessment and Hazard Control Brief.

This is the section containing the completed Hazard Analysis/Risk Assessment, where the basis of developing the SOP was utilized to clearly identify and minimize the existing and potential hazards of the operation to be performed. The Hazard Control Brief is the result of the Hazard Analysis and Risk Assessment. The Operational Risk Management (ORM) methodology and analysis must be made available on request and/or be incorporated into the SOP. The Hazard Control Brief must be up to date and a permanent part of the SOP, and must include the hazard analysis results.

9. Diagrams.

a. Building or Site Diagram.

(1) A diagram of the building or site showing the location of operation related items is to be included in the SOP (see next paragraph for exception). The diagram shall include location of safety related items such as fire extinguishers, fire suppression systems, eye wash stations, emergency showers, first aid kits, spill cleanup kits, ventilation systems or stations, emergency breathing devices, etc. The diagram must illustrate explosive and personnel limits, evacuation routes, and emergency exits.

(2) Building diagrams are optional for inclusion in the SOP if a diagram approved by the process supervisor is posted at the facility.

(3) Site diagrams must be included in the SOP for temporary and/or field operations to include explosives routes if applicable.

(4) This requirement does not apply to storage magazines or magazine areas.

b. Processing Diagrams. This includes any information needed to clarify or amplify the information provided in the step-by-step procedures. Often this will take the form of diagrams to indicate steps in the operation. Illustrations showing details of processing, material handling, excavating, and other equipment, block diagrams of processing and workflow and other illustrative graphic materials are appropriate.

10. Equipment lists.

a. Equipment and Supplies List (if applicable). Provide a list of all the special and/or critical tools, equipment, and supplies used in the process.

NOTE: To avoid misuse, tools not specifically referred to in the SOP shall not be in the immediate vicinity of the operation.

b. Safety Equipment List. Provide a list of all the special or mandatory safety equipment (including personal protective equipment) and systems, which must be in place and working properly in order to protect the safety of personnel, equipment, facilities, and the environment during the processing.

11. Emergency response procedures. The required hazard analysis of a process will identify any potential fire, spill, explosion, runaway reaction, release of hazardous vapors, mechanical failure, injury, etc., which could occur during processing and which would require immediate action to control. Procedures for responding to these emergency events will be provided as step-by-step procedures, and used for rehearsal of emergency response. The emergency response procedures (which may be incorporated as part of the step-by-step instructions for the process) include:

a. A single point of contact to notify in case of an incident.

b. Initial and follow-up actions that the worker/operator must take in case of an incident.