



RP 9.0: MINIMUM STANDARDS FOR DERRICK EGRESS

A Recommended Practice (RP) for the
Canadian Land-Based Drilling and Well
Servicing Industry

CANADIAN ASSOCIATION OF OILWELL DRILLING CONTRACTORS
RECOMMENDED PRACTICE 9.0
MINIMUM STANDARDS FOR DERRICK EGRESS (DR/SR)

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INTRODUCTION

The Canadian Association of Oilwell Drilling Contractors (CAODC) Engineering & Technical (E&T) Committee has developed a Recommended Practice (RP) for implementing a repeatable derrick escape system from both the racking board and rod basket for land based operations. This document dated August 2006 supersedes all prior editions of this Recommended Practice.

The information contained herein is a recommendation only of certification schedules for derrick egress currently utilized in the Canadian drilling industry. An attempt has been made to establish some practical recommended operating practices for derrick egress equipment in the Canadian drilling and well servicing industry.

The recommendations contained in this document should be considered in conjunction with the requirements of the original equipment manufacturers (OEM). Companies should operate and maintain the equipment within the operating limitations, such as load ratings, as designed by the OEM.

If the OEM stipulates increased levels of inspection or accelerated inspection/certification cycles, the contractors must follow the OEM guidelines unless granted approval to follow this CAODC Recommended Practice by a Professional Engineer (P. Eng).

CAODC has produced this Recommended Practice based on industry experience. However, this document should be considered in conjunction with all relevant legislation and the requirements of provincial regulatory authorities. This document should not be construed as a legal opinion, and users are advised to seek legal counsel to address their specific facts and circumstances.

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REVIEW PROCESS

CAODC Recommended Practices are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Email any comments or items of concern to rpfeedback@caodc.ca.

1. **DEFINITIONS**

1.1 **BARRIER**

A physical separation placed to the underside of the diving board (inclusive of drainage provision) or rod basket and in addition continues the separation vertically from the center of the racking area to the escape point for drilling racking boards.

1.2 **DERRICK EGRESS**

An escape system used primarily to evacuate a person from the racking area or rod basket when a safety risk and/or well control issue arises.

1.3 **ESCAPE POINT**

Entry to egress system.

1.4 **EXIT PATH**

The path leading from the primary working position to the rear center of the racking area or rod basket away from well center, and which continues directly to the escape point.

1.5 **LOW RISK OPERATIONS**

Are defined as those that pose minimal risk, and may include: WOC, nipple- up of BOP's, prior to rigging in, or prior to pulling rod strings or other similar low risk activities.

1.6 **NON-USER OPERATED**

An escape system that does not rely on the user to control the descent rate, yet still provides a controlled, safe decent.

1.7 **ORIGINAL EQUIPMENT MANUFACTURER (OEM)**

An OEM that provides a comprehensive egress system that is suitable for oilfield use, and is certified for such use by a Professional Engineer.

1.8 **REPEATABLE**

An escape system that can accommodate one person, and is easily used multiple times within its certification period.

1.9 **SELF ENERGIZED**

A braking system that automatically energizes to produce friction and reduces fall speed.

1.10 **SIMULATED LAUNCH**

The process of undertaking all sequence steps and activities up to but prior to an actual launch of the egress system.

1.11 **SYSTEM CAPACITY**

Refers to the payload capacity for one person fully equipped with Personal Protective Equipment (PPE).

1.12 TRAINING

Communicates and reconciles the process steps of rigging in, inspecting and the use of the egress system and documents the understanding of this training.

1.13 FALL PROTECTION PLAN

Fall protection plan should be specific to each operating location and should address terrain, operation, environment, and placement of existing production equipment, flare/choke lines, flare pit/stack, and any other drilling/well servicing equipment. These considerations allow a site-specific landing location determination and are considered critical to implementing this RP.

2. APPLICATION ATTRIBUTES

2.1 PROTECTED EXIT METHOD

An Egress system provides where possible, a barrier leading from the primary working position to the escape point. This barrier provides additional protection from well bore materials that may potentially eject from the well.

2.2 PERSONNEL WEIGHT & PPE

System load capacity should be clearly posted and referred to in the Fall Protection Plan, and placed at the exit base of mast ladders.

2.3 TIME TO EXIT

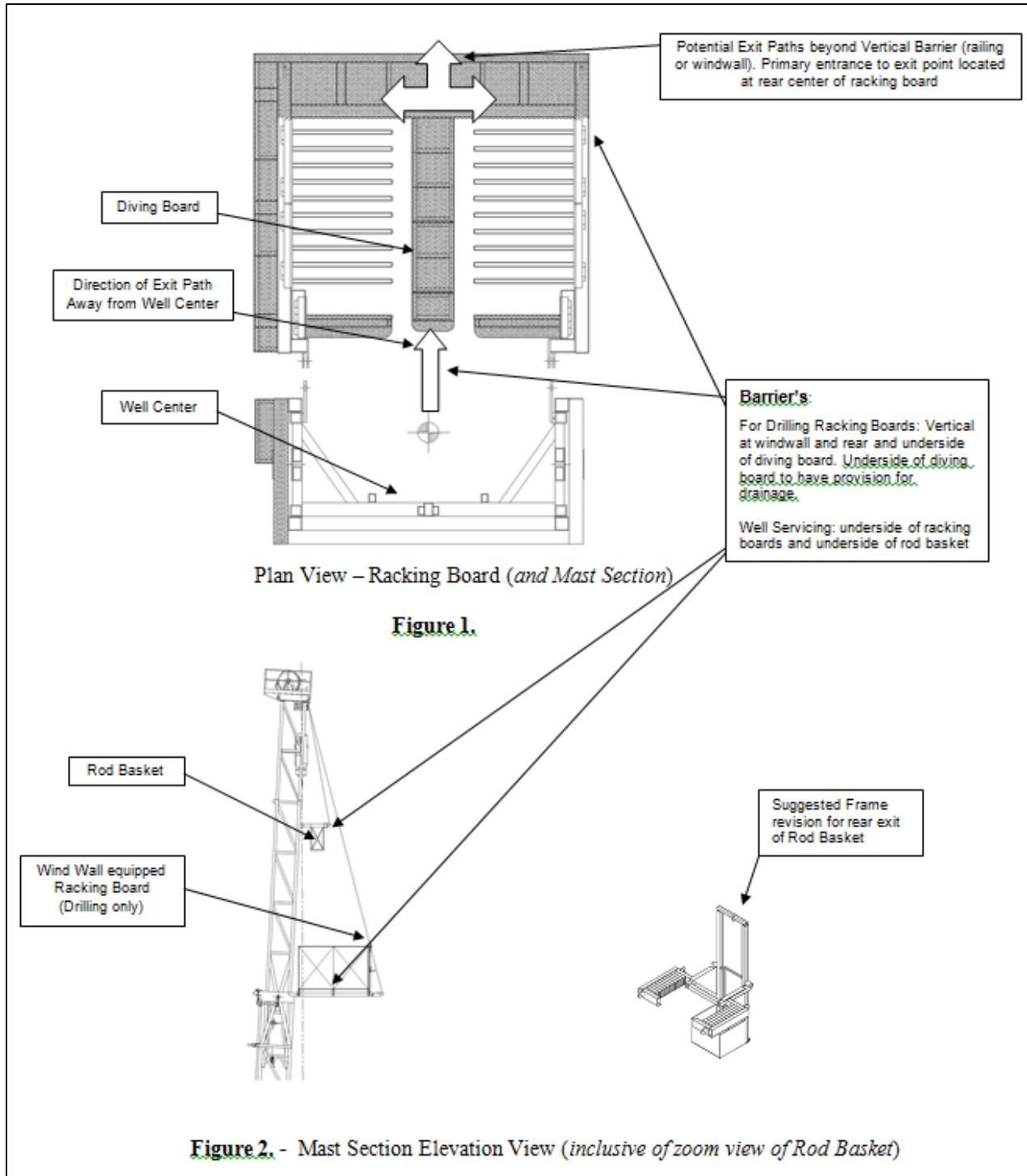
Launch preparation requirements should be simple and take as little time as possible. To ensure this is the case, consider the design and function of work positioning lanyards and primary fall arrest attachments. These should be designed for quick and complete disengagement. Their design should not impede exit or contribute to a partial exit that cannot be easily reversed.

2.4 EGRESS EXIT POINT

The egress exit point may be any point outside board or frame perimeter that preferably provides some separation protection. This may produce a path that terminates directly at the rear center of the racking board or at either diagonal corner of the racking area. The illustration in Figure 1 provides a plan view that identifies the exit path and potential exit points.

2.5 DESCENT PATH

The descent path leads from the exit point to the termination point. It is critical that the descent path does not interfere with production equipment, or in the case of departures from the rod basket, does not conflict with the upper edge of racking area wind walls, or mast/racking board guy lines. Refer to the elevation view in Figure 2.



2.6 TERMINATION POINT

The egress system termination point is where the egress system anchors. The egress system conveys the user to the termination point.

3. **MAST LOADS**

3.1 **ATTACHMENT METHODS**

Whenever possible, contractors should consider using permanent mounting systems. If permanent mounting systems are not practical, give due care to each attachment scenario. Ensure the attachment methods are compatible with the selected egress system, and receive appropriate engineering review.

3.2 **RAISING LOADS**

If the egress system is permanently mounted on the racking board or is part of the racking board, consider effects of its weight on the mast raising system. Ensure appropriate engineering review is undertaken.

3.3 **OPERATING LOADS**

Operating loads and reaction forces that include weight of the egress system require appropriate engineering review.

3.4 **WIND LOADING**

Consider any wind load effects of the selected egress system, and ensure the appropriate engineering review is applied.

3.5 **ENVIRONMENTAL CONSTRAINTS**

Consider the effects of low temperature conditions on operating factors and material selection. Ensure these considerations receive appropriate engineering review.

3.6 **ANCHOR METHODS**

Engineered anchor solutions provided by the OEM must be in full compliance as set out by the Provincial and Territorial OH&S jurisdictions. Seasonal effects of ground conditions must be considered.

3.7 **USER RESTRAINT**

Must provide a means to restrain user during descent such that user cannot fall off or out of.

3.8 **CONTROLLED DESCENT**

System must integrate either a non-user operated or self-energized braking system to provide a safe rate of descent and landing.

3.9 **MULTI-USE CAPABLE**

The egress system must be capable of repeated use. System inspection by the user is mandated and defined by the OEM.

3.10 **CONTROL OF STATIC ELECTRICITY**

Consideration must be given for static electricity developed from use of the exit system. Bonding may be required.

3.11 LIGHTING

Provide appropriate lighting necessary to illuminate the escape point and landing areas.

4. DRILLING & WELL SERVICING STRUCTURES

4.1 OPERATIONS AFFECTED

4.1.1 RACKING OF TUBULARS

Egress system must be fully accessible with full setback.

4.1.2 HANGING ROD STRINGS

Egress system must provide access to the exit point.

4.1.3 OTHER

Temporary above floor work areas outside of the racking board or rod basket must have a defined method of escape as defined within the fall protection plan. Any operation performed in the mast structure that is not addressed specifically by the Egress RP requires a hazard assessment.

5. APPLICABLE MAST STRUCTURE TYPES

5.1.1 LAND BASED DRILLING STRUCTURES - MASTS

Applies to triple, double, range III singles and single masts equipped with racking boards.

5.1.2 WELL SERVICING STRUCTURES - MASTS

Applies to slant service rig masts, doubles, and singles equipped with racking boards and rod baskets. Consideration should be made for providing clearance to production equipment for single service rigs (heavy oil), and slant service rigs that incorporate unique racking systems.

6. SELECTION CRITERIA/GUIDELINE

6.1 CERTIFICATION

6.1.1 QUALIFICATION

Certification must demonstrate the adequacy of components and integrity of the system. It must include guidelines for installation, operation, interface effects, and must detail limitations of the system. All certification and documentation must be authored by a qualified OEM or Professional Engineer.

6.1.2 INSPECTION GUIDELINES

Inspection of the egress system will be governed by the same criteria as set out in the CAODC Recommended Practice for drilling and well servicing masts. (RP 1.0 and RP 4.0)

A minimum of once per month, or at each rig-up, a rig crew member, preferably the user, must undertake a simulated launch of the egress equipment, under the supervision of the Driller or Rig Manager. The operator must be fully dressed and equipped with site specific PPE. This event must be recorded and made accessible.

7. TRAINING

Egress system training must include; setup method, rig in, and pre-operating inspection. It will also include the operation of the system. System maintenance must be defined in the documentation provided by the OEM.

Training instructions must apply to the specific device in use. The worker must be trained and demonstrate competency in using the egress system. Documentation of the training/competency must be recorded. Key areas include:

- Rig in;
- Inspection;
- Maintenance;
- Use.

Training qualifies the user and is mandatory. It will be comprised of the information provided by the OEM (DVD and/or document) and a simulated launch with sign-off by the user and Driller or Rig Manager.

8. IMPLEMENTATION

Compliance with the recommendations contained in this RP should be achieved before the date of the next scheduled Level IV inspection or within 5 years from the date of this RP, whichever is less. Additionally, consideration and priority should be given to equipment involved in high-risk operations.