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| | Hibernia Management and Development Company Ltd. | **RQF#** | **RQF-HIB-498** |
| | **REGULATORY QUERY FORM** | **DATE** | **13 December 2023** |
| **TITLE: CSE – Mud Pit Isolation** | | | |

## RQF CATEGORY

☐ Request for regulatory clarification

☐ Application for exemption

☒ Application for use of alternative, codes, standards or methods

| Regulatory Approvals Required | Certifying Authority Required |
|---|---|
| ☒ C-NLOPB | ☐ Yes |
| | ☒ No |

## 1. REGULATION(s) Current and Proposed

### Canada-Newfoundland and Labrador Offshore Occupational Health and Safety Regulations

133 (1) Every employer must ensure that no person enters or remains in a confined space at a workplace under its control unless

(d) any mechanical and electrical equipment that is in the confined space but not required to carry out any work there is:
- i. disconnected from its energy source, and;
- ii. isolated, locked out and tagged in accordance with Part 27.

(g) engineering controls are in place to prevent any inadvertent discharge from any source, including a pipe or other supply line, that may be hazardous to the health or safety of any person in the confined space;

133 (2) The engineering controls referred to in paragraph (1) (g) must, with respect to a pipe containing a hazardous substance or a substance under pressure or at a high temperature, consist of a blank or blind in conjunction with valves or other blocking seals that are secured in the closed position — using a positive mechanical device that is designed to resist being opened inadvertently, other than as a result of excessive force — to prevent the substance from reaching the blank or blind. The employer must ensure that the pipe is clearly marked to indicate the location of the blank or blind and that the valves or seals are clearly marked as being closed.

## 2. PROPOSAL

HMDC is aligned with use of Positive Isolation methods (Blind, Blank or Physical Disconnection) as the most effective way to manage energy isolation hazards associated with Confined Space Entry (CSE). In the case of the East and West Mud Pits, there is no ability to achieve positive mechanical isolation of the mud trough plug valves due to the inability to blind, blank or physically separate the flow of fluids from the mud trough to the pits (the valve seats are bevelled and sit into an opposite bevel in the bottom of the trough, so there is not a flanged connection to install spades or blinds). This could pose a risk of rainwater or deluge entering the mud troughs and flowing to mud pits through the mud system piping.

As such, HMDC proposes the use of our Work Management System Best Practice [redacted]) and 'Work Management System Addendum - Isolation of Piping OSH Regulation Requirements' [redacted]) for Confined Space Entry. As per the Best Practice for CSEs that cannot achieve positive isolation, a Risk Screening will be conducted identifying any other potential isolation locations/method that could be used, mitigating controls and approval authority to be documented based on residual risk.

## 3. JUSTIFICATION and RATIONALE

HMDC currently has corrective work orders in SAP to address work scopes in the Mud Pits (and may have more in the future). These scopes will require CSE and corresponding isolations will be required. CSE into the Mud Pits will occur when the system is inactive and therefore there will be no mud flow through the mud pit areas. Also, additional controls will be implemented to mitigate the potential of rainwater or deluge entering the mud troughs and mud pits.

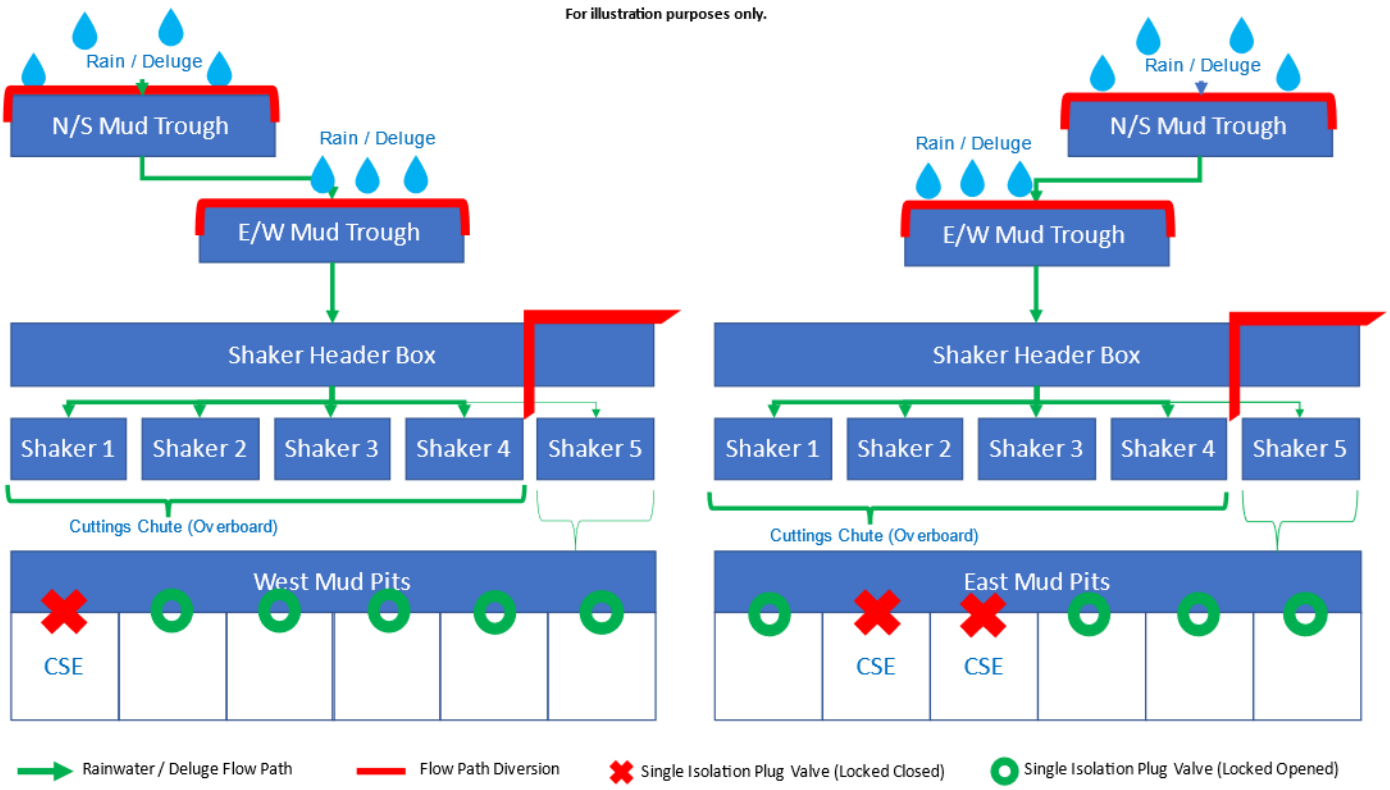
Examples of work scopes in the Mud Pits include the following:

1. **Clean cement residue from bottom of pit**
    - **a.** Begin scope by breaking up residue cement in order to be able to handle cement debris with the use of shovels and buckets. After cement debris has been removed, utilize pit cleaning pump assembly to wash down tank to ensure any residual cement can be removed by means of vacuum.
2. **Replace leaking pit equalization valve**
    - a. Remove valve stem/extension handle followed by unbolting valve flange on internal pit nozzle. Install new valve assembly onto pit nozzle after which valve stem/extension handle can be reinstalled.

Entry into the East/West Mud Pits is a low risk activity when managed appropriately. HMDC proposes that the following minimum controls and mitigations be followed to complete CSE into the mud pits:

1. Risk Screening completed per WMS Best Practice
2. CSE to be complete when the rig / mud system is positively isolated from the mud pits (e.g. End of Well Maintenance periods).
    a. Source fluid will be removed.
    b. Troughs / pits to be cleaned of residual drilling product prior to executing scope.
3. Consult weather forecasts and real-time weather conditions to avoid CSE during heavy rainfall.
4. Persons entering confined spaces will be confirmed trained and competent.
5. Rescue plan to be developed for the job and reviewed with crews before CSE and at each shift change, as required.
6. CSE Permit, Rescue plan, equipment & personnel available and radio communication used.
7. Initial gas test before confined space entry and continuous gas monitoring.
8. PPE to be utilized (includes respiratory protection if deemed necessary and personal gas monitor).
9. SIMOPS – Deluge isolated in the area and communicated to personal while CSE in Mud Pits is ongoing.
10. CSE Safety Attendant at access ways for all entries.
11. Fluid Barriers:
    a. Achieve positive isolation of the inlet and outlet piping of the mud pits via blinding.
    b. Isolate across the middle of the shakers (flow diverts into cuttings ditch).
        i. Isolate applicable shaker with a side plate to stop any flow to the return trough.
        ii. De-isolate gates in middle of the shakers to divert flow into cuttings ditch.
    c. Divert any potential flow into other pits (plug valves open to receiving pit).
    d. Plug valves to be closed for pits under CSE (or adjacent pits).
    e. Trough covers will be installed on all outside troughs to avoid rain water entering the system.
    f. Deluge will be isolated (with 1 attendant) to the area the CSE is taking place.
12. Spotter to be positioned in shakers at return through to spot any fluid if it happens to go past the side plate. NOTE: If spotter observes water bypassing barrier 1 (down return trough, toward pits) spotter will call an all stop to the job.

As an example, the below illustration outlines the possible flow path for rainwater, as well as the barriers in place to mitigate potential ingress into a tank under CSE.




## 4. PRECEDENTS

- RQF-HIB-489 (Piping Isolation for NHODT tank F-5101)
- RQF-HIB-496 (CSE – Intermodular Zones)
- RQF-HIB-497 (CSE – Piping Isolation for M30 Seal Pot Pits)

## 5. REFERENCES

- Canada-Newfoundland and Labrador Offshore Occupational Health and Safety Regulations, Section 133 (2)
- 'Work Management System Addendum - Isolation of Piping OSH Regulation Requirements' ([redacted])

## 6. ATTACHMENTS

| | | | |
|---|---|---|---|
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| | REGULATORY QUERY FORM | DATE | 13 December 2023 |
| TITLE: CSE – Mud Pit Isolation | | | |

## RQF Originator

| | Signatures | Date |
|---|---|---|
| RQF Originator ([redacted]) | DocuSigned by: [redacted] A9313D870F94442... | December 13, 2023 |
| RQF Originator Supervisor ([redacted]) | [redacted] D02E0960D1CD4B8... | December 13, 2023 |
| Integrity and Maintenance Systems Supervisor ([redacted]) | DocuSigned by: [redacted] | December 15, 2023 |
| HMDC SSHE Supervisor ([redacted]) | DocuSigned by: [redacted] | December 15, 2023 |
| Hibernia OIM ([redacted]) | DocuSigned by: [redacted] 8422648B010A471... | December 20, 2023 |
| Asset Manager / HMDC President ([redacted]) | DocuSigned by: [redacted] 8422648B010A471... | December 22, 2023 |

## Certifying Authority Endorsement

**Project Manager - N/A**

## C-NLOPB Review and Decision

| Decision | | Title: C-NLOPB Chief Safety Officer |
|---|---|---|
| Approved | ☐ | Date: |
| Approved with Conditions | ☐ | |
| Rejected | ☐ | |
| Decision Details Attached? | Yes ☐ | Signature: |