



BUFFER ZONES & BARRICADES PROCEDURE



BUFFER ZONES & BARRICADES PROCEDURE

CONTENTS

SCOPE AND APPLICATION	2
DEFINITIONS	2
GENERAL REQUIREMENTS	2
BARRIER LOCATIONS	3
DRILLING OPERATIONS	3
RIG MOVES	4
ALL TIMES REGARDLESS OF RIG OPERATIONS	4
ELECTRICAL	5
BARRIER LOCATIONS DIAGRAM	5
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Flex 5	6
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Flex 3	7
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Walking Flex 3	8
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Walking Flex4M	9
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Conventional Rig	10
ELECTRICAL BARRIER LOCATIONS DIAGRAM – Flex 3k (rig 900)	11



SCOPE AND APPLICATION

This document establishes best practices and standards for Buffer Zones and Barricades in all areas and activities on the FlexRig® fleet.

DEFINITIONS

- A. Barrier/Barricade – a physical block or reminder to better manage entry into a high-risk Buffer Zone
- B. Buffer Zone – an understood area not to be entered or to be avoided for personal safety
- C. Color Meaning
 - a. **YELLOW BARRIER** – area that can be entered after being briefed by supervisor. (Yellow chain / rope / tape with “Entry Restricted” signage)
 - b. **RED BARRIER** – NO ACCESS. (Red chain / rope / tape with “No Entry” signage)
 - i. If entry into a red barricaded area is required for any reason, site level approval is required per HSE 009 Permitted Operations Management System.

GENERAL REQUIREMENTS

- A. The Barrier Locations Tables below should be printed and laminated and posted in the change house, driller’s cabin, and HSE trailer.
- B. Rig Manager should make sure there is sufficient yellow and red chain / rope to erect the barricades noted in this procedure as well as spare chain / rope of each color for temporary barricades as needed.
- C. Signage will be displayed in areas required as outlined in the tables below.
- D. This Procedure is to be kept in the Driller’s Cabin and Rig Manager’s trailer.
- E. Operator Representative will direct personnel that need to be on location outside of “trailer row” or the safety briefing area to visit with the Rig Manager or Driller to be briefed about hazardous work areas and sign in.
- F. Rig Managers or Drillers should be ready to brief personnel needing to access any area of the rig on current operations, regardless of task or barriers, as well as understand where those personnel intend to work while on location.
- G. H&P personnel assigned to the rig must be aware of current operations and also help direct other personnel to the Supervisor on duty for a briefing before beginning work.



BUFFER ZONES & BARRICADES PROCEDURE

BARRIER LOCATIONS

DRILLING OPERATIONS

When or Where	Barrier or Barrier or Labeling	Barricades or Buffer Zones	Management of Area
Dual Fuel Operations	Barrier	Concrete barricades will be placed around dual fuel gas lines to protect against vehicle or forklift contact	Cement barriers should be used around any live gas lines that are routed across or stubbed up on location for dual fuel rigs
All Well Cellars on Location	Barrier / Sign	Barricade cellar area (current well), all other cellars completely covered or barricaded. If unable to be covered, rigid barricades will be installed	Panels or fencing with yellow tape and signs
Around Catwalk / Pipe Handling System (especially running casing) *Shall be honored when PDS trough is in use and when hoist lines / lay down lines are in use	Barrier / Sign	Barricades will start at both corners the PDS furthest from the rig, extend 45' perpendicular on both sides then parallel to the PDS terminating at the substructure	45 feet minimum buffer zone marked by yellow chain / rope or tape and signs on both sides of catwalk, extending from the substructure the length of the PDS. Any stairs that are included within the area will also be barricaded at the upper landing of the stairs opening away from the stairs, marked with signage to check for PDS in operation prior to using stairs
Back Yard	Barrier / Sign	Barricade the entry points while loading / unloading or excavation equipment are operating	Yellow chain / rope and signs around work area
Cementing	Barrier / Sign	Barricade all lines, truck and pumping equipment, and rig floor (F3). F4, F5 leave one set of stairs on the Driller Side accessible to get to and from drillers cabin without crossing the rig floor	Red chain / rope and signs on all access points to rig floor (F3, F4, F5). Erect red barricade 25 feet around cementing equipment
Damaged / Missing Safeguards	Barrier / Sign	Barricade area	Red chain / rope or tape and signs
F5/F3W Emergency Descent Line Skid	Barrier / Sign	5 feet out from edges of skid	Yellow chain / rope, signs and cones 5 feet around skid
Flare Stack	Barrier / Sign	Barricade as large an area around stack – 25' minimum required	Red chain / rope or tape and signs
Jarring / Stuck Pipe/ Rough Drilling	Barrier / Sign	Barricade substructure and rig floor (F3), BOP Deck and rig floor (F4, F5). (F4, F5) leave one set of stairs on the Driller side accessible to get to and from drillers cabin without crossing the rig floor	Yellow chain / rope and signs on all access points to rig floor (F3, F4, F5), BOP deck (F4, F5) and substructure (F3). *Rough Drilling - barricades will not be removed until a Rough Drilling/Jarring Inspection has been completed and rough/erratic drilling conditions no longer exist
Live Wells and/or Gas Lines on Location	Barrier / Sign	Physical ("Jersey" type or equivalent) barricade required around all well heads on location and any wells in the vicinity of the pad that could be struck by trucks or equipment	Physical ("Jersey" type or equivalent) barricade required around all well heads on location and any wells in the vicinity of the pad that could be struck by trucks or equipment
Open Holes (Rig wide)	Barrier / Sign	In case hole must be left open, need to establish buffer / barrier (ex. Mud tank style cages around hole)	If hole cannot be covered, barricade off with yellow chain / rope or tape and signs
Overhead Operations	Barrier / Sign	Yellow caution tape around work area	Yellow tape and signs below work area
Reserve Pit / Open Pits	Barrier / Sign	Yellow chain or rope, and signs around pits	Yellow chain or rope, and signs
Wire Line / Logging	Barrier / Sign	Barricade all lines, truck and wireline equipment, barricade rig floor (F3), BOP Deck and rig floor (F4, F5). (F4, F5) leave one set of stairs on the Drillers Side accessible to get to and from drillers cabin without crossing the rig floor	Red chain / rope and signs on all access points to rig floor (F3, F4, F5), BOP deck (F4, F5) and substructure (F3). Erect red barricade 25 feet around wire line truck and equipment
Mud Pumps	Buffer	Be aware of high pressure / high temperature fluids.	
Well Control Operations	Buffer	Limit non-essential personnel on the rig floor or around well control equipment. No personnel are allowed on the rig floor when drilling without returns. Signs and barricades erected as needed	Gate guard or notification at location entrance, limit non-essential personnel from entering location. Local management will determine where barricades can or should be used
3rd Party Equipment	Buffer	Stay away from non-H&P equipment	
Energized cables, wire trays, drag chains, suitcases, etc.	Barrier / Sign	Barricading any energized cables from energy sources to the rig. This should include wire trays, drag chains, suitcases	Use fencing with red tape of all areas with exposed wires. Linebackers are considered a barricade for wires laid on the ground



BUFFER ZONES & BARRICADES PROCEDURE

BARRIER LOCATIONS

RIG MOVES

When or Where	Buffer or Barrier or Labeling	Barricades or Buffer Zones	Management of Area
Mast Operations (Dressing / Undressing, Raising / Lowering and Repair Work on Ground)	Buffer	Buffer Zone 20' around derrick, ensure all parties know of current operations	
Changing out drill line with the mast raised	Barrier	Red chain or tape inside the mast and racking area	Reference picture on "Barrier Locations Diagram" page
Overhead Power Lines	Barrier / Sign	Barricade marking 20' buffer zone away from outer most power lines	Red chain / rope, cones and signage marking 20' buffer zone away from outer most power lines, refer to S&G for individual pieces of equipment during rig moves
Raising / Lowering Skids (Subs, shakers, Driller's Cabin)	Buffer	Buffer zone minimum should be equal to footprint of equipment being handled	All personnel will be completely off of skid while raising or lowering (i.e. Gas buster)
Crane Work	Buffer	Buffer zone inside counterweight swing radius, boom and load, and always utilize a flagger	Always utilize a flagger

ALL TIMES REGARDLESS OF RIG OPERATIONS

When or Where	Buffer or Barrier or Labeling	Barricades or Buffer Zones	Management of Area
Suspended Loads	Buffer	Buffer zone minimum should be equal to height of equipment whenever possible	Tag lines are always required to be used on suspended loads
Manlifts, Backhoe, Trackhoe, Crane, Vehicles	Buffer	15 feet (5 meters) from the equipment while lifting or moving equipment. Personnel on the ground will control imbalanced loads with a tagline, if necessary	When performing operations in tight quarters or conducting a blind lift a designated flagger will be assigned. The designated flagger will not engage in any other tasks while flagging
Forklift Operations	Buffer	Buffer zones will be honored and enforced as required by forklift operation: <ul style="list-style-type: none"> • Driving • Stationary • Handling Tubulars 	<p>While forklift is driving – 15 feet (5 meters)</p> <p>While forklift is stationary:</p> <ul style="list-style-type: none"> o Carriage/attachment is moving - 5 feet to manipulate loads/equipment into place – excluding tubulars. Use taglines whenever possible to maintain buffer zone o Carriage/attachment is not moving but elevated – No buffer zone only while attaching rigging, manipulating fork spacing, and/or securing attachments/loads, excluding tubulars (personal will never enter buffer zone if tubulars are on elevated forks/attachments) o Carriage/attachment is not moving but elevated – 5 feet for all other tasks o Carriage/attachment lowered – no buffer zone required <p>When handling tubulars – equal to or greater than the length of the tubular (i.e. 30 ft./9 meters for drill pipe and 45 ft./14 meters for casing) (personal will never enter buffer zone if tubulars are on elevated forks/attachments)</p>
Working Under Loads	Barrier / Sign	An attendant and/or orange cone surrounding area	An attendant will be present and/or 4 cones minimum to alert everyone that work is being performed in that area
Testing BOP/Casing	Barrier / Sign	Barricade all lines, truck and equipment being tested, barricade off substructure and rig floor (F3), BOP Deck and rig floor (F4, F5). (F4, F5) leave one set of stairs on the DS accessible to get to and from drillers cabin without crossing the rig floor	Red chain / rope and signs on all access points to rig floor (F3, F4, F5), BOP deck (F4, F5) and substructure (F3). Erect red barricade 25' around testing equipment and tested equipment. WF3 – barricaded area is 10' when testing the choke manifold offline
Overhead Power Lines	Barrier / Sign	Red chain / rope, cones and signage marking 20' buffer zone away from all overhead power lines that cross a location or present a potential exposure risk on pad	Barricade marking 20' buffer zone away from all overhead power lines that cross a location or present a potential exposure risk on pad



BUFFER ZONES & BARRICADES PROCEDURE

BARRIER LOCATIONS

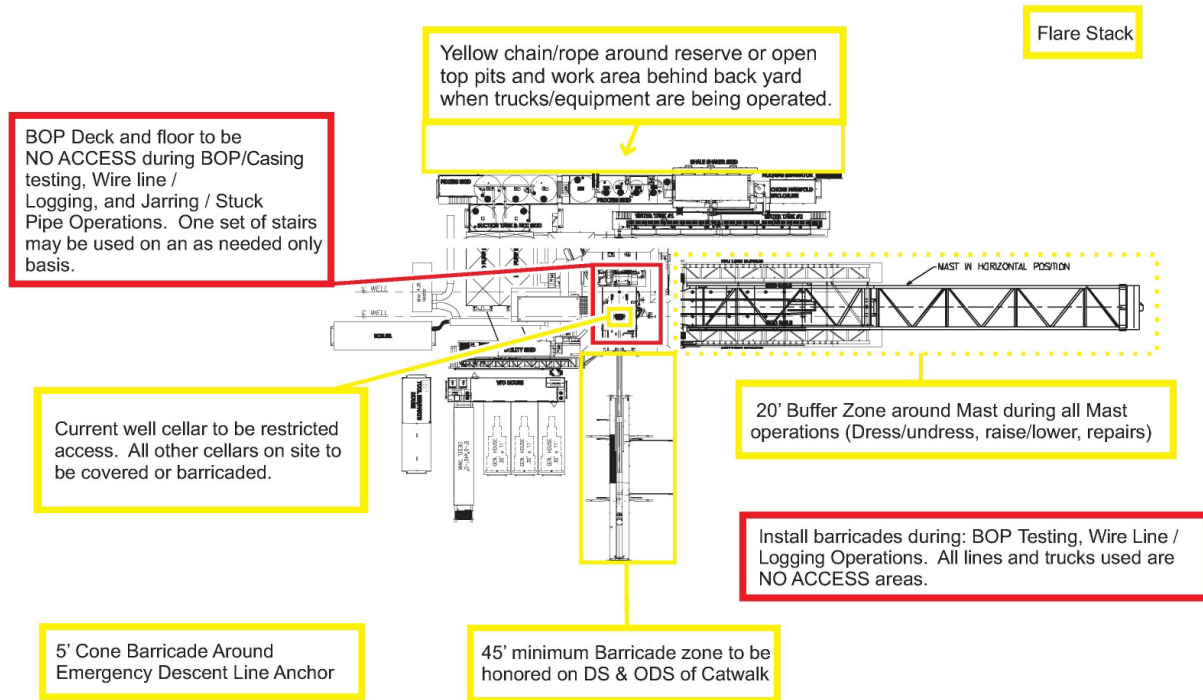
ELECTRICAL

When or Where	Barrier or Barrier or Labeling	Barricades or Buffer Zones	Management of Area
All Electrical Cables	Barrier / Sign	Barricading any electrical cables from energy sources to the rig	Red chain / rope, and cones. Linebackers are considered a barricade for wires laid on the ground
Drag Chains	Barrier / Sign	Barricade drag chain area	Red chain / rope, and cones
Exposed Cable Trays	Barrier / Sign	Barricade Exposed Cable Trays	Red chain / rope, and cones
Plug Panels / vaults / junction boxes	Barrier / Sign	Barricade MCC Plug Panels / Vaults / Junction Boxes	Red chain / rope, and cones

*The diagrams shown below do not represent all rig class variations. Some rigs may need additional barricades to protect against electrical exposures.

BARRIER LOCATIONS DIAGRAM

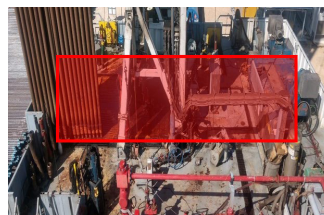
Buffer Zones and Barricades



Barricade and Buffer Zones - Generic Rigsite Layout Shown - Locations will differ by rig class.



PDS barricades will start at both corners on the PDS furthest from the rig, extend 45' perpendicular then parallel to the PDS terminating at the substructure – NOT the base of the catwalk



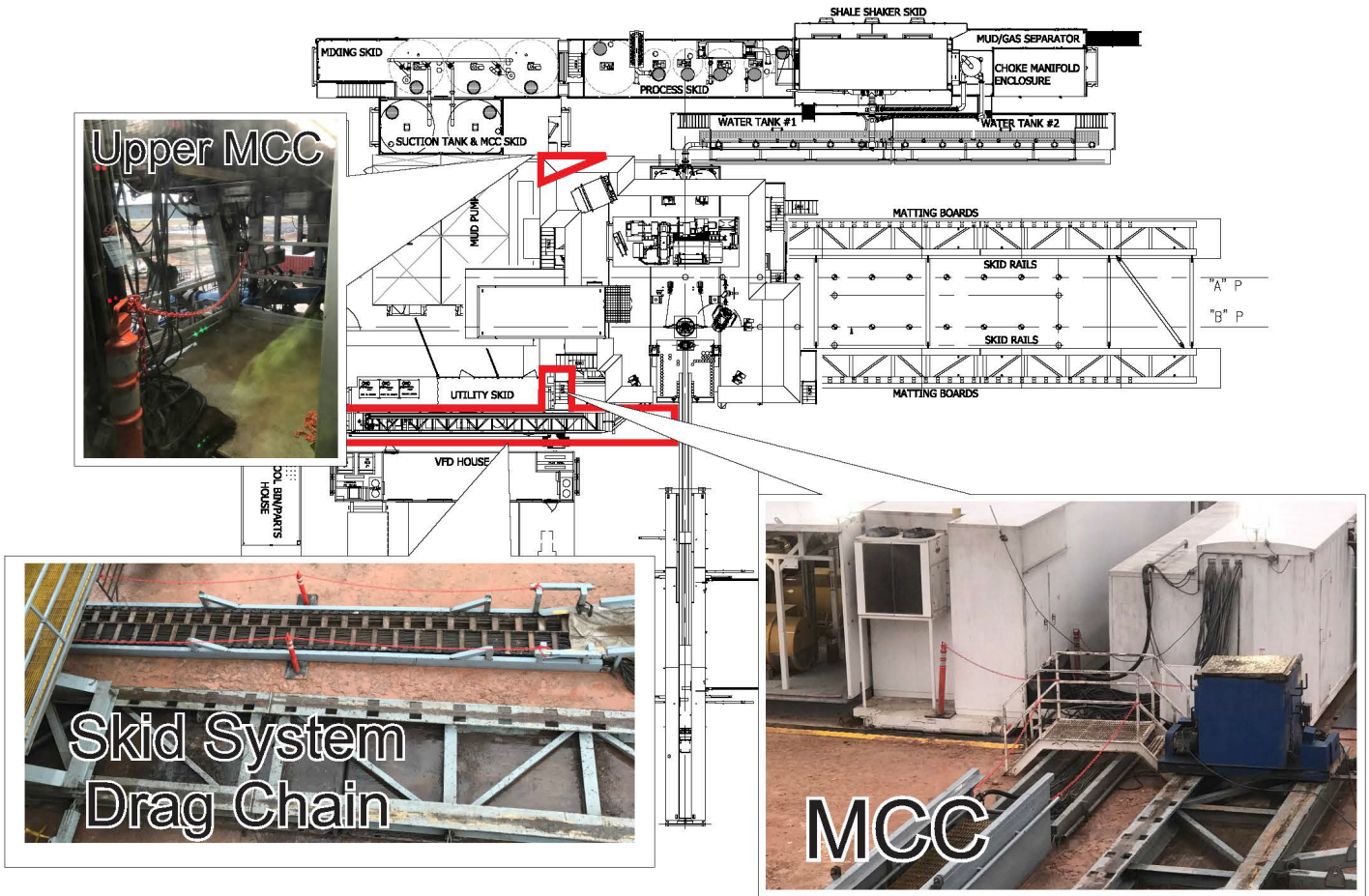
When changing out drill line with the mast raised, a physical barricade (red chain or tape) will be installed as shown to prevent personnel from entering the potential fall area.



BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – FLEX 5

F5 - Barricades for Electric Conduits

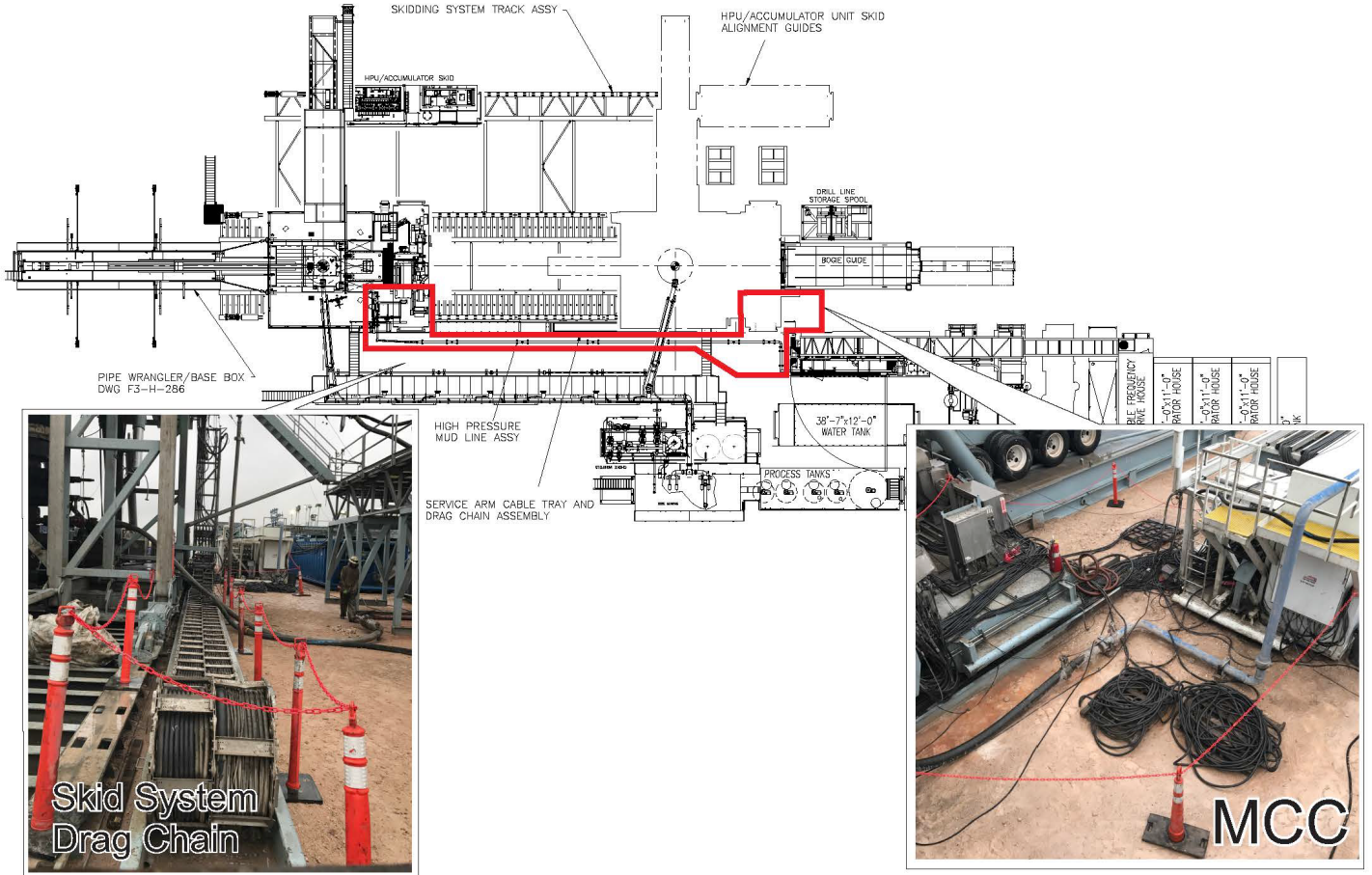




BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – FLEX 3

F3 - Barricades for Electric Conduits

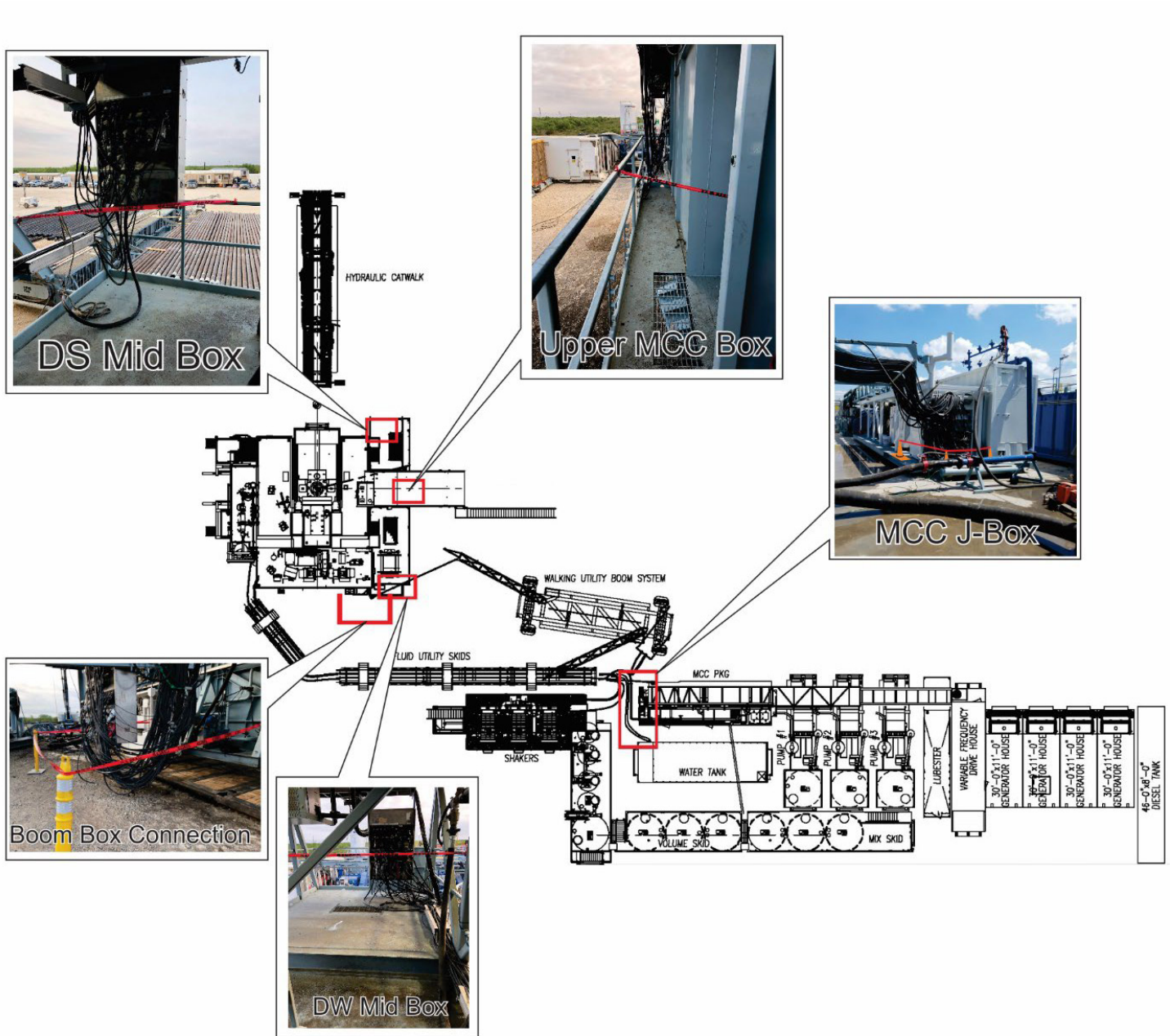




BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – WALKING FLEX 3

WF3 - Barricades for Electric Conduits

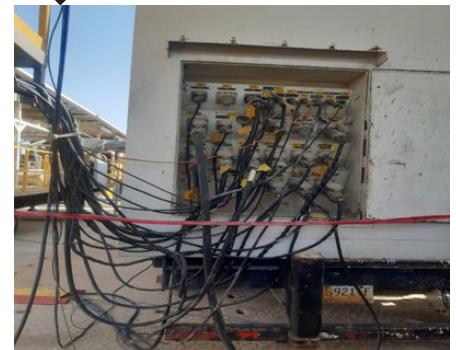
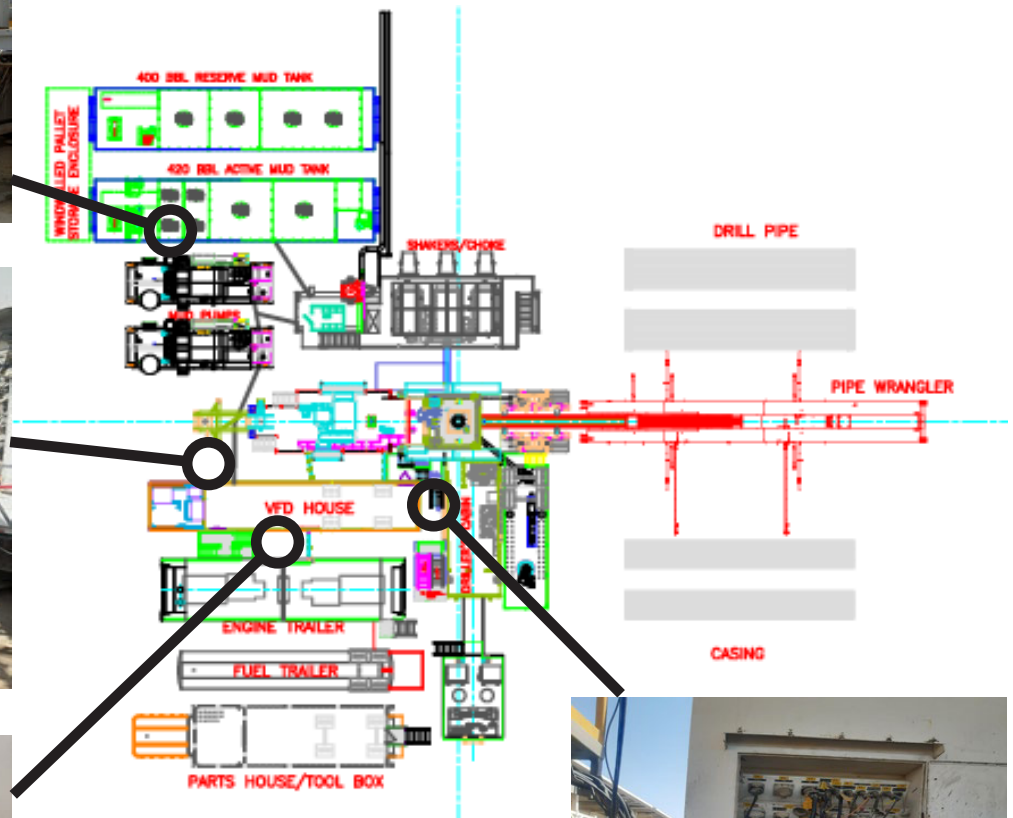
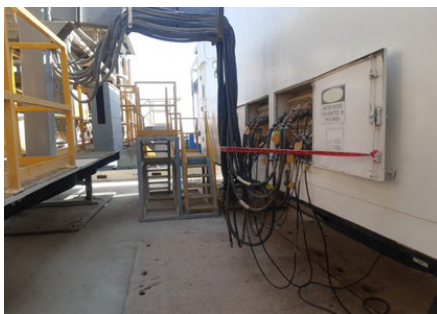




BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – WALKING FLEX4M

F4M – Barricades for Electric Conduits

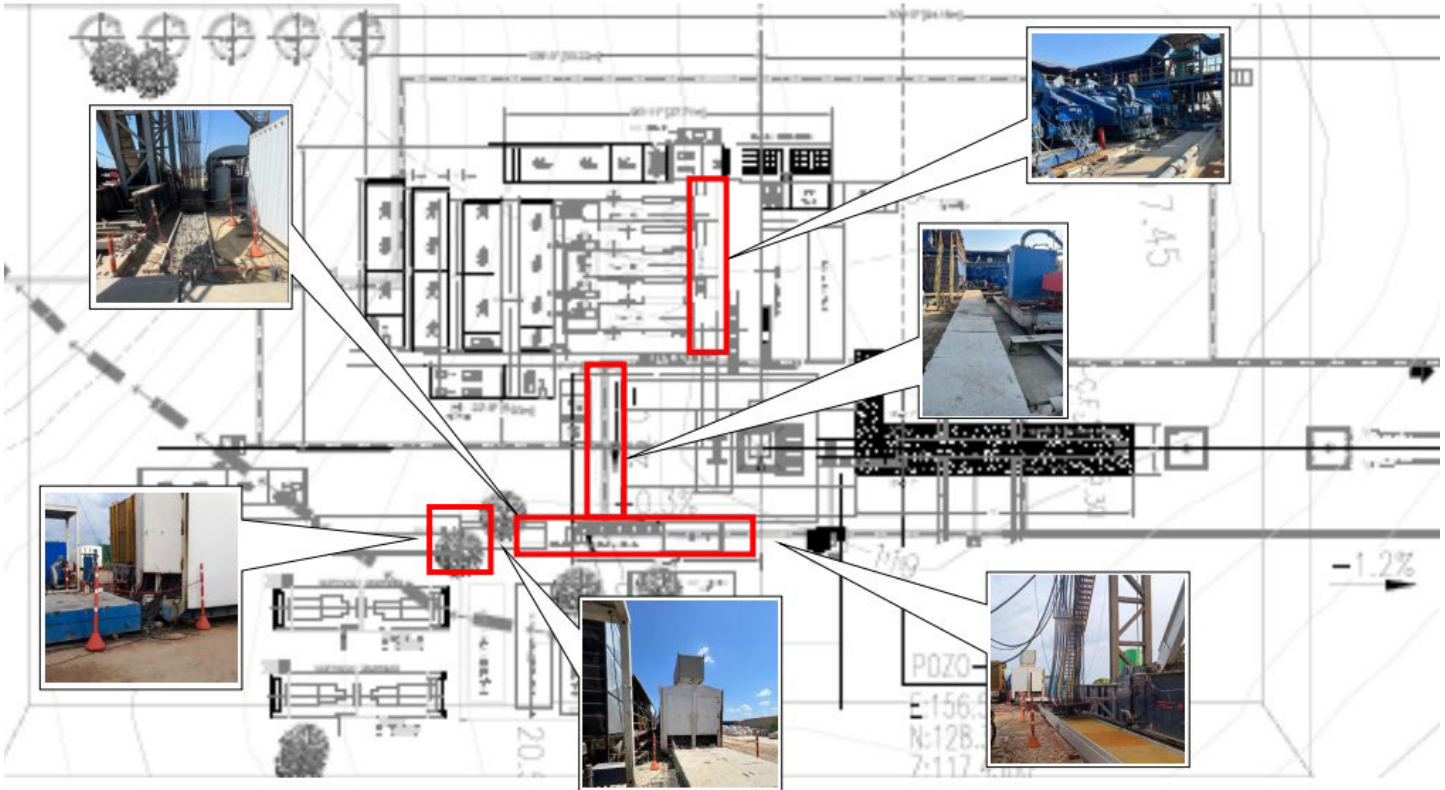




BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – CONVENTIONAL RIG

Conventional Rig – Barricades for Electric Conduits

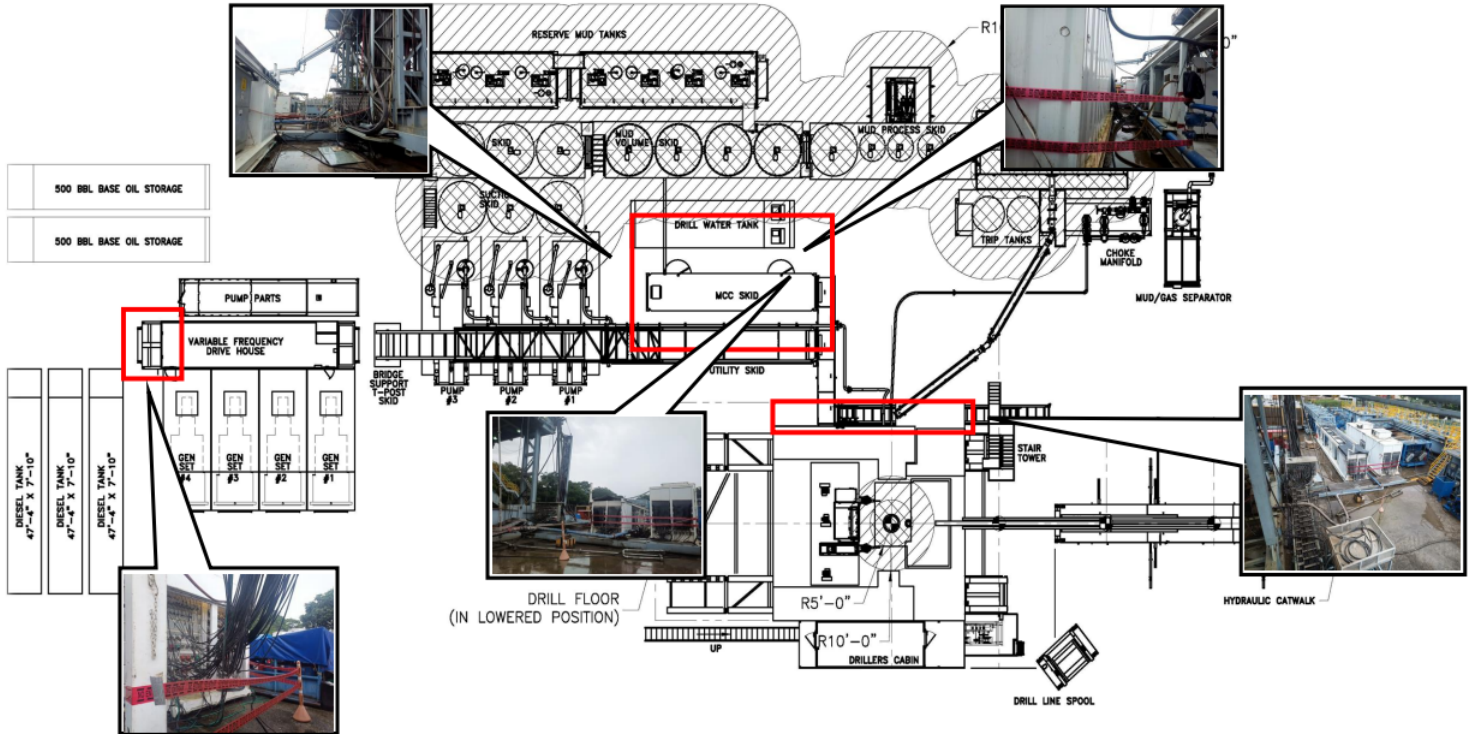




BUFFER ZONES & BARRICADES PROCEDURE

ELECTRICAL BARRIER LOCATIONS DIAGRAM – FLEX 3K (RIG 900)

Flex 3K (Rig 900) – Barricades for Electric Conduits



By utilizing the materials provided herein, the user agrees H&P does not provide or purport to provide any goods, services, or direction regarding the user's specific work environment. The information included herein is continually under development and is subject to change at any time, therefore users must exercise their own independent judgment to evaluate their use of and reliance on these materials. The implementation of any practices described herein is at user's own discretion and risk. H&P assumes no liability for any losses, (including, without limitation, incidental, special, punitive, or consequential damages), arising in any manner from user's reliance on or implementation of the materials or practices included herein. H&P makes no representations or warranties with respect to the accuracy, reliability, sufficiency, or completeness of the materials set forth herein, including, without limitation, any implied warranties of merchantability or fitness for any particular purpose. Copyright ©2020 Helmerich & Payne