



SPILL PREVENTION PRINCIPLES



SPILL PREVENTION IS EVERYONE'S RESPONSIBILITY

- minimize our impact on the environment
- maintain Encana's license to operate
- share best practices with employees and service providers

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FLUID TRANSFER

- never leave fluid transfers unattended
- conduct regular tank truck inspections
- ensure valves are in the correct position

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EQUIPMENT INTEGRITY

- verify that tanks, pipes, valves and hoses are installed, inspected, tested and maintained
- ensure high level alarms are fully functioning

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PROCEDURES

- develop and follow procedures
 - pay particular attention during start up and shut down of equipment or job
 - do not take shortcuts
- if you observe a situation or observe something that could lead to a spill, stop the job

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SITE DESIGN

- ensure loading/unloading facilities incorporate spill prevention
- use impervious engineered controls/secondary containment to minimize environmental impact

SPILL PREVENTION SOLUTIONS

FLUID TRANSFER

WHAT CHECKS ARE IN PLACE TO REDUCE SPILLS RELATED TO FLUID TRANSFER?

- use secondary securement (i.e. zip ties, locking arms, cotter pins, Velcro straps, etc.)
- label tanks correctly
- monitor tank gauges
- use wheel chocks
- consider automated loading calculator
- utilize video surveillance (where appropriate)
- hold spill stewardship meetings with service providers
- look for fluid transfer coaching opportunities

EQUIPMENT INTEGRITY

HOW CAN I ENSURE EQUIPMENT IS INSTALLED, INSPECTED, TESTED AND MAINTAINED?

- complete frequent visual inspections
- test high level alarms regularly
 - mock shut downs
 - blow down floats
- use in-service hoses rated for transfer
- inspect for missing bull plugs
- consider spring loaded valves (actuator handles); zero tolerance for rigging device open
- ensure pumps, hoses and valves are used within specifications



PROCEDURES

HOW DOES DEVIATING FROM THE PROCEDURE COMPROMISE SPILL PREVENTION?

- ensure procedures are easily accessible (i.e. laminate at loading and unloading points)
- adapt procedures to weather (i.e. frozen conditions)
- consider use of high level alarm procedure
- include spill prevention discussions during JSA and tailgate meetings
- identify high risk spill zones through the use of spill stickers, signage, etc.
- verify contractor's procedures are in place

SITE DESIGN

WHAT CAN I DO TO THE SITE DESIGN TO PREVENT SPILLS FROM OCCURRING?

- design of loading/unloading facilities
 - raising hoses up onto concrete barriers for easy access
 - away from traffic areas
 - consider weather conditions for attendant during fluid transfer
- secondary containment
 - consider moving load out into secondary containment
 - consider use of lined secondary containment
- tanks
 - consider larger tanks where possible
 - consider additional containment when using above ground double walled tanks
- allow for sufficient response time from high level alarms
- discourage use of hammer union connections