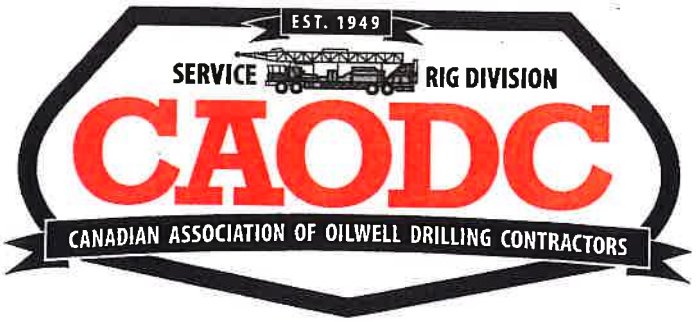

SERVICE RIG DRIVER TRAINING

MODULE #1

CONVOY TRAINING

PUBLICATION: 9.00366
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EDITION: 3
CORRESPONDING EXAM: Edition 7

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This training manual includes information from the documents listed below, for which permission to reproduce has been graciously provided as indicated:

Oil and Gas Industry Cargo Securement Best Practice	CAODC/PSAC
Basic Licence Driver's Handbook	Alberta Transportation
Professional Operator's Licence Information	Alberta Transportation
General Oilfield Driver Improvement (GODI)	Enform
Light Duty Vehicle (LDV) Driver Improvement	Enform
Oilfield Haulers	Enform

DOCUMENT REVISION TRACKING

Amendments to this training manual will result in a re-issue of this training manual in its entirety. The Revision Record Sheet included below records historical changes to the manual as well as the current date of issue.

EDITION #	RELEASE DATE	EDITION NOTE
1	May 2011	Original
2	June 2013	Revised for alignment with Saskatchewan MOA
3	September 2017	Revised

INTRODUCTION

INTRODUCTION: CAODC SERVICE RIG DRIVER TRAINING

The CAODC Service Rig Driver Training program was developed in response to a Memorandum of Agreement established between Alberta Transportation and Saskatchewan Government Insurance (SGI). This agreement allows authorized CAODC service rig members to operate under a permit called the Oil and Gas Well Service Rig Permit which provides legislative and regulatory provisions that allow for:

- A conditional exemption respecting driver licence requirements that allows a driver with a Class 5, 4, 3 or 2 driver's licence to operate a service rig while in a convoy; and
- A conditional exemption extending the expiry date of an inspection conducted under either the Commercial Vehicle Inspection Program (CVIP) or the Periodic Motor Vehicle Inspection (PMVI) program to five years.

In order to comply with the terms and conditions outlined in this permit, drivers are required to complete the CAODC Service Rig Driver Training program, which is comprised of the following three Modules:

I. **MODULE 1: CAODC CONVOY TRAINING** addresses the driver training required to obtain a Convoy Training Certificate (CTC) and prepares drivers for the CAODC Service Rig Convoy Training Certificate Exam;

II. **MODULE 2: CAODC HEAVY DUTY TRAINING** addresses the driver training required to obtain an Heavy Duty Training Certificate (HDTC) and prepares drivers to be evaluated for certification;

III. **MODULE 3: FATIGUE MANAGEMENT AND HOURS OF SERVICE** addresses the driver training required to meet the requirements for fatigue management and hours of service (FM/HOS) training and prepares drivers to complete the fatigue management and hours of service exam.

WORKER RIGHTS

Occupational health and safety legislation provides workers with certain rights. These rights are outlined below:

RIGHTS	DESCRIPTION OF RIGHTS
RIGHT TO KNOW	– Workers have the right to know information that could affect their health and safety in the workplace; – This right is the essence of WHMIS legislation.
RIGHT (AND OBLIGATION) TO REFUSE UNSAFE WORK	– Workers have the right to refuse unsafe work if they believe it will endanger them or another worker; – This right is the essence of the topic: Imminent Danger; – This right is also a worker obligation.
RIGHT TO PARTICIPATE	– Workers have the right to participate in workplace health and safety activities, such as: • Attending safety meetings; • Reporting unsafe conditions; • Expressing concerns about workplace health and safety issues; • Developing or reviewing procedures that affect their job.

WORKER RESPONSIBILITIES

All workers have a number of responsibilities for maintaining a safe work environment. These responsibilities include:

- Taking reasonable care to protect the health and safety of yourself and other workers at the worksite;
- Becoming thoroughly familiar with your company's safety management systems;
- Actively participating in all safety programs;
- Following safety standards and safe work procedures set out by your employer, the client, and government regulations;
- Immediately reporting all potential hazards and incidents to your supervisor (Driller, Rig Manager etc.) and/or the client representative (this is often the Wellsite Supervisor);

- Participating in all training offered by the employer, either on or off the work site;
- Using required personal protective equipment (PPE) and safety equipment;
- Refusing to perform work when unsafe conditions exist. **Note:** *this is part of hazard identification process and should only be used as a last resort).*

A worker must exercise the right to refuse in a responsible manner. Merely refusing to work because you don't want to do the job is not the intent of right to refuse legislation. Exercising the right to refuse work must be done for health and safety reasons only.

WORKER'S OBLIGATION

All workers have a personal obligation for their own safety and that of other workers during work activities. At a minimum you must comply with the following: These responsibilities include:

- Cooperate with your employer for the purpose of protecting yourself and others;
- Report injuries and illnesses to your supervisor and/or client representative;
- Participate in training and safe work procedures;
- Use PPE and safety equipment as required;
- Refuse to carry out work or operate any tool or piece of machinery that presents an immediate danger to the health and safety of any worker.

RIGHT (AND OBLIGATION) TO REFUSE UNSAFE WORK

Your employer's safety management system has been put in place to ensure the safety of all workers at the worksite. In the unlikely event that your company's safety management system has failed to identify a safety concern, you should feel comfortable discussing this with your immediate supervisor and/or client representative to make sure they are aware of the situation.

Your supervisor and/or the client representative then have the responsibility to discuss this issue with you before the work proceeds. If you are not satisfied that your concern has been properly addressed, you have the right to refuse work. Your employer is then obligated to:

- Stop work;
- Investigate and take action to eliminate immediate danger;
- Prepare a report of detailing your notification, the investigation and any action taken;
- Give you a copy of the report;

- If you are satisfied with the outcome, regular work duties can be resumed.

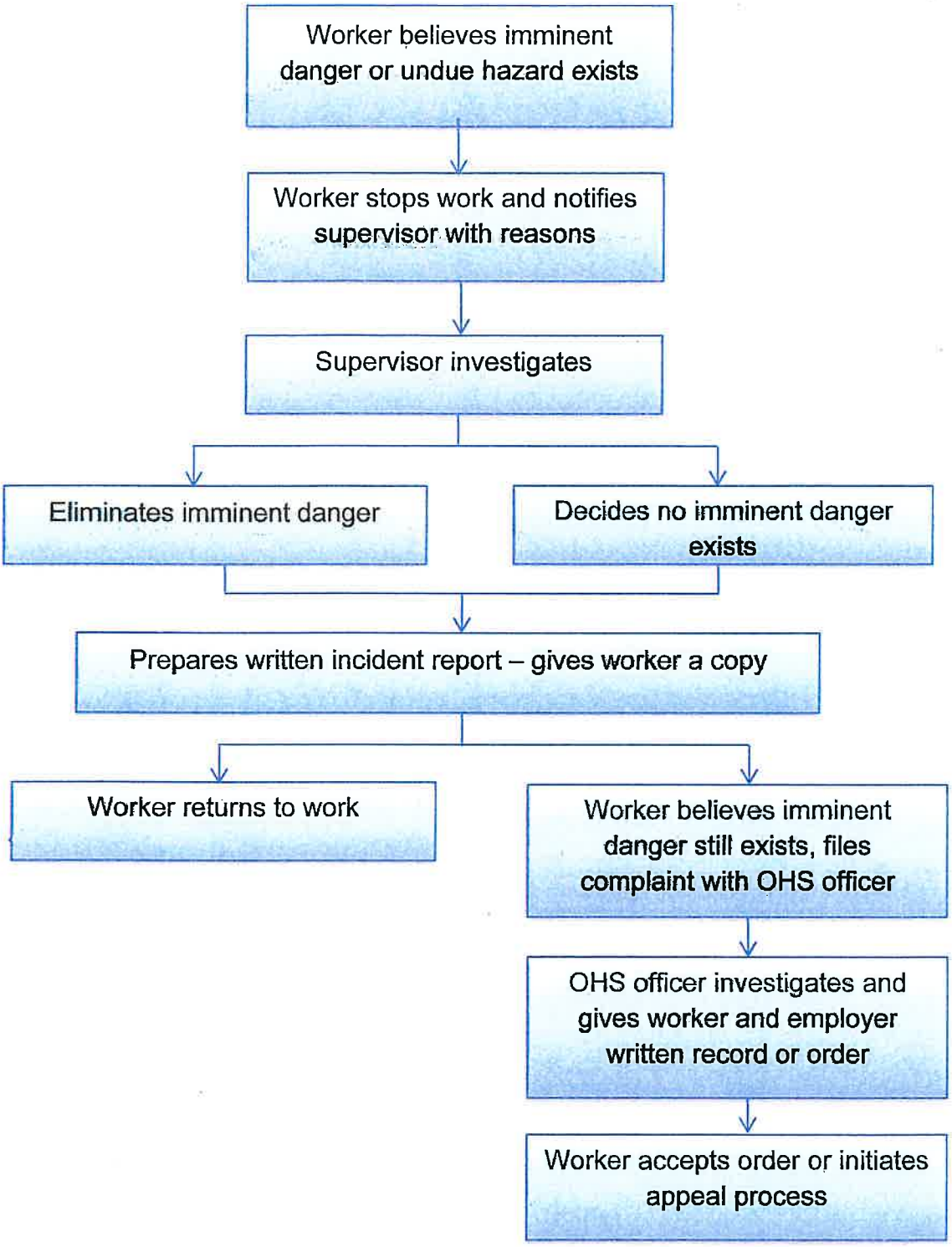
Occupational health and safety legislation states that workers should refuse to complete unsafe work. The purpose of this legislation is to make sure, as a last resort, that your safety and th safety of others is met should all other options available to the worker fail. Legislation mandates that a worker should not carry any work or operate any tool, appliance, or equipment if the worker believes that these actions could create or cause an immediate danger to the worker or to another worker at the worksite.

A worker may not be dismissed or disciplined for complying with OHS legislation.

If you believe something is unsafe at your workplace you can file a complaint with Occupational Health and Safety by completing the form online at http://humanservices.alberta.ca/working-in-alberta/4471.html or calling 1-866-415-8690 (toll free) or (780) 415-8690 in Edmonton.

If you believe something is unsafe at your workplace you can file a complaint with Occupational Health and Safety by calling 1-800-567-7233.

The following diagram shows the sequence of events associated with the right to refuse unsafe work:



UNIT ONE

UNIT ONE: CAODC MEMORANDUM OF AGREEMENT

Provincial governments often issue permits to individual companies or industries for various different reasons. These permits allow for certain exemptions to regulatory requirements.

In this unit you will learn about the Oil and Gas Well Service Rig permit issued to service rig contractors under the CAODC Memorandum of Agreement.

LEARNING OBJECTIVES

Upon completion of this unit you will be able to:

- Describe the licensing provision outlined in the CAODC Memorandum of Agreement;
- Understand the CAODC Driver Training Certificate Requirements.

CAODC OIL AND GAS WELL SERVICE RIG PERMIT

Due to the size, weight and contents of rig equipment moved from site to site, the government originally designated the operation of service rig related vehicles as driving in the "commerci hauler" category.

However, because service rigs and support equipment typically operate within a limited radius and usually travel short distances on highways, spending up to 95% of their total operating time stationary on the site, their exposure to public roads is low.

Because of this the CAODC and government transportation representatives agreed to certain regulatory exemptions that better matched the equipment service rig contractors move and the type of driving they do. These exemptions are listed and described in the Memorandum of Agreement (Appendix I).

A permit called the Oil and Gas Well Service Rig Permit is issued under this Memorandum of Agreement (MOA) and is available to CAODC service rig members. Under strict circumstances and conditions, this permit allows:

- A driver with a Class 5, 4, 3 or 2 driver's licence to operate a service rig while in a convoy;
- An extension to the expiry date of an inspection conducted under either the Commercial Vehicle Inspection Program (CVIP) or the Periodic Motor Vehicle Inspection (PMVI) program to five years.

For the purposes of both MOA's the following definitions apply:

- "Service rig": a mobile service vehicle, composed of a derrick, drawworks and capable of pulling and running jointed tubulars and conventional sucker rods, as well as support vehicles such as pump trucks, winch trucks, portable doghouses (crew change facilities), and a rig manager's vehicle. Examples of vehicles that may meet this definition include:
    - Service rigs;
    - Bed trucks;
    - Power units pulling high-boy trailers outfitted with pump or tank;
    - Stand-alone pump trucks that pull mobile tanks;
    - Sucker rod trucks;
    - Winched-on tanks on pump trucks;

- Air-brake equipped accumulator trailers, bailing cart trailers, doghouse trailers, generator trailers, and
- Other vehicles that are service-rig-attendant support vehicles.

– "Convoy": two or more vehicles travelling at a speed of no more than 80 kilometers per hour and at a distance of no more than 5 minutes apart:

The minimum distance between you and the next vehicle in a convoy should be approximately 300 meters. This allows other traffic to pass and avoids congestion.

CAODC DRIVER TRAINING REQUIREMENTS

All drivers operating under the permit must be properly trained and issued either a CAODC Convoy Training Certificate (CTC) or a Heavy Duty Training Certificate (HDTC). Drivers must carry this certification with them at all times and be able to produce it to a peace officer upon request.

In addition all drivers must possess, at a minimum, a valid Class 5, 4, 3 or 2 operator's licence issued in Alberta, Saskatchewan or equivalent.

Note: *drivers with a valid Class 5, 4, 3 or 2 operator's licence issued in a non-MOA province (i.e. Manitoba, Ontario etc.) are eligible to go through the driver training program and receive an HDTC providing that licence is equivalent to an Alberta or Saskatchewan issued Class 5, 4, 3 or 2 operator's licence.*

In Alberta, if the vehicle being operated is equipped with airbrakes, the driver must have a Q Endorsement.

In Saskatchewan, if the vehicle being operated is equipped with airbrakes, the driver must have an A Endorsement.

CAODC CONVOY TRAINING CERTIFICATE (CTC)

CONVOY TRAINING CERTIFICATE

Company _____

Effective Date _____

Employee Name _____

Employee Operator's Licence # _____

Employee Signature _____

Approved Trainer/Assessor Name _____

Approved Trainer/Assessor Signature _____

_____

Getting a CTC is the first step towards becoming a heavy duty certified driver:

- Drivers are issued a CTC when they have completed Module 1 of the CAODC Driver Training Program and have successfully passed the CAODC Service Rig Convoy Training Certificate Exam (Appendix II);
- A driver with a CTC may form part of the convoy and operate a class of vehicle permitted by their driver's licence (typically a Class 5);
- Drivers with a CTC are eligible to begin heavy duty training and may operate an out of class vehicle under strict conditions and supervision.

In Saskatchewan, a driver must have a "G99 Detail Authority Card (DAC)" issued by SGI before they can begin their heavy duty training. A G99 DAC is a temporary endorsement given to a driver who is in training to operate a heavy duty vehicle.

Drivers with Class 1 or 3 licence must also go through convoy training and possess a CTC while operating in a convoy with other CTC or HDTC drivers.

CAODC HEAVY DUTY TRAINING CERTIFICATE (HDTC)

Drivers are issued an HDTC once they have completed Module 2 of the CAODC Driver Training Program (heavy duty training), and their trip and on-road competency assessment skills have been successfully evaluated:

- A driver in possession of an HDTC is permitted to operate an out of class vehicle while in convoy with a Class 5, 4, 3 or 2 driver's licence;
- A driver holding an HDTC is recognized to hold both levels of certification (CTC and HDTC).

PROBATIONARY DRIVERS AND HDTC'S

Probationary licensing programs restrict certain drivers from obtaining any form of commercial licence. Regardless of issuing province, a person with a GDL or probationary licence ABSOLUTELY CANNOT:

- Receive heavy duty training;
- Be assessed for a heavy duty certificate;
- Be issued a heavy duty certificate; or
- Drive any vehicle other than those allowed under a Class 5 licence.

EVER.

UNIT TWO

UNIT TWO: TRANSPORTATION LEGISLATION AND APPLICABLE CAODC PERMITS

Transportation legislation is a part of everyday life. It ensures the safety of the motoring public, truck drivers and workers and also prevents damage to roads, bridges and the environment. As a professional driver, you must understand and adhere to this legislation for the safety of all concerned. Not doing so may result in injury, death, property damage and/or heavy fines.

In this unit you will learn about your legislative expectations as a service rig driver and the additional permits available to CAODC service rig contractors.

LEARNING OBJECTIVES

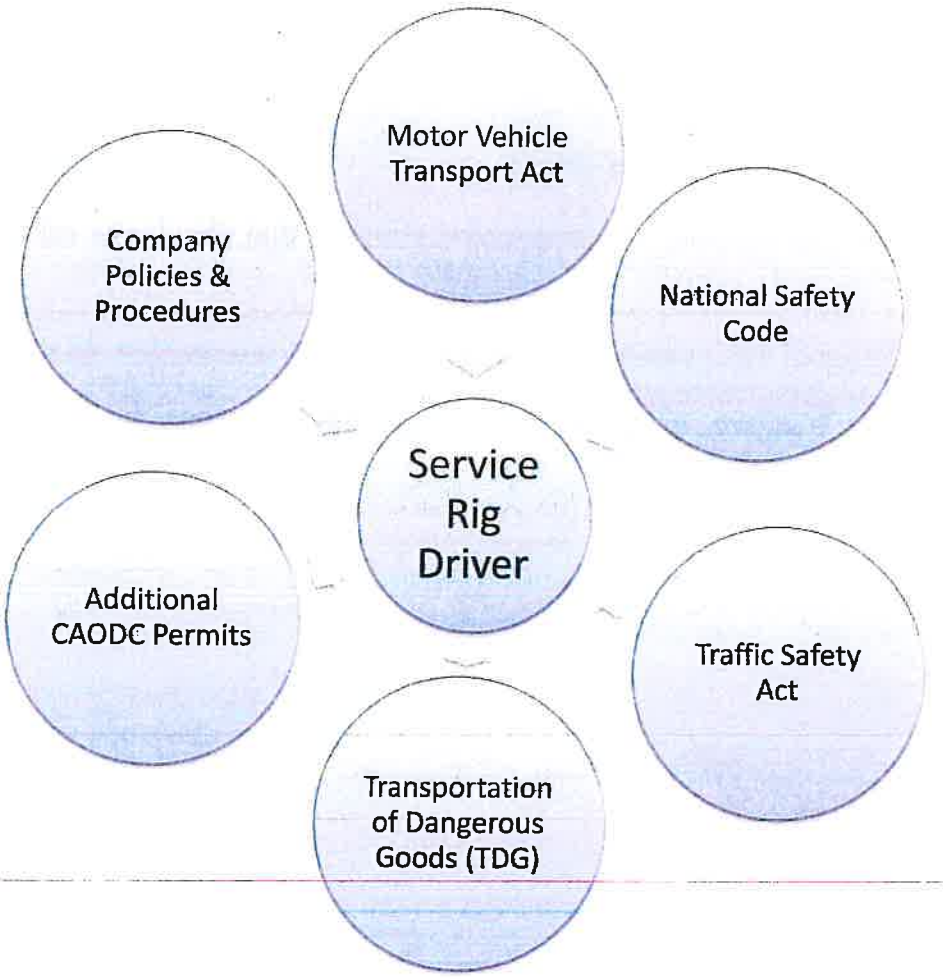
Upon completion of this unit you will be able to:

- Describe the various legislation, regulations and codes that affect your role as a service rig driver;
- Describe the focus of each piece of legislation as it applies to service rig drivers;
- Understand the purpose of the additional permits available to CAODC service rig contractors.

GUIDING LEGISLATION, REGULATIONS AND CODES

The activity of driving for work purposes falls under specific commercial and industry-related vehicle and driving requirements. This means that both federal and provincial governments specify requirements related to on-the-job vehicle use and driving in their legislation, regulations, and codes.

Several government acts and regulations, as well as company policies and procedures, affect your role as a driver. It is important to know how each of these acts, regulations, codes, and permits impact your role as a service rig driver.



Contractors are required to know and follow these obligations regardless of the jurisdiction they, or their workers, are operating in.

MOTOR VEHICLE TRANSPORT ACT (FEDERAL LEGISLATION)

The Motor Vehicle Transport Act is federal legislation that pertains to federal carriers (those that cross provincial borders). Included in this legislation are regulations for Commercial Vehicle Drivers Hours of Service Regulations and Motor Carrier Safety Fitness Certificate Regulations.

Note: *Federal carriers are not exempt from Provincial traffic safety acts.*

TRAFFIC SAFETY ACT (PROVINCIAL LEGISLATION)

Alberta and Saskatchewan each have their own provincial Traffic Safety Act. Each Act is a combined approach to road safety that provides clarity to all road users. It also provides rules for the registration and operation of motor vehicles including administrative matters such as driver licensing, vehicle registration, insurance requirements and demerit point reductions.

NATIONAL SAFETY CODE (NSC)

Provinces of Alberta and Saskatchewan, other Canadian jurisdictions, the Government of Canada, and the Transportation industry developed the National Safety Code (NSC) to help reduce the number and severity of collisions.

The NSC contains 16 standards that are based on a combination of existing provincial and territorial legislation and regulations, improved with new initiatives designed to further enhance safety across the country. Each jurisdiction has used these standards as a guideline when drafting their own transportation safety legislation. A few of these standards, applicable to the well servicing industry, are:

- #2 - Knowledge and Performance Tests (Drivers): a standard which sets out the process for standardized testing of commercial drivers and includes the criteria for both written and road tests. It also identifies the key elements which will be evaluated by government officials charged with administering the tests;
- #4 - Classified Driver Licensing System: a standard which renders more uniform the classification and endorsement system for driver licences and ensures that a licence issued in one province/territory is recognized in all provinces/territories;
- #6 - Medical Standards for Drivers: the CCMTA Medical Standards for Drivers, initially Standard 6 of the National Safety Code for Motor Carriers, sets the medical criteria used to establish whether drivers are medically fit to drive. Addresses both private and commercial drivers;

- #7 - Carrier and Driver Profiles: a standard which is designed to provide jurisdictions with a record of driver and carrier performance in terms of compliance with safety rules and regulations. The standard suppor enforcement activity to remove unsatisfactory drivers and carriers from service, and identifies the type of information which will be maintained on each commercial driver and carrier;
- #9 - Hours of Service: a standard which describes the number of hours a commercial driver can be on duty and operate a commercial vehicle. It outlines the requirement to complete daily logs, describes the various cycles of operation and sets out driver and carrier record keeping requirements;
- #10 - Cargo Securement: a standard which outlines the specific requirements for securing loads to commercial vehicles to ensure they do not shift, move or spill onto the roadway;
- #11 - Commercial Vehicle Maintenance and Inspection (CVIP/PMVI) Standards: a standard which outlines maintenance and periodic inspections;
- #12 - CVSA On-Road Inspections: a standard which contains the Commercial Vehicle Safety Alliance on-road inspection criteria;
- #13 - Trip Inspections: a standard which prescribes daily trip inspection requirements.

TRANSPORTATION OF DANGEROUS GOODS ACT (TDG)

Transportation of Dangerous Goods Act, 1992 (Canada) is federal legislation watched over by Transport Canada. Transport Canada develops safety standards and regulations based on the risks associated with moving or transporting dangerous goods. These standards and regulations apply to all modes of transport – air, marine, road, and rail.

The main sections of the legislation refer to:

- Classification (what kind of dangerous good);
- Documentation (shipping documents);
- Safety Marks (placards, symbols);
- Means of Containment (tank standards);
- Training (requirements for people handling dangerous goods);

- Emergency Response Assistance Plan (ERAPs).

COUNTY AND MUNICIPAL REQUIREMENTS

In addition to federal and provincial legislation, there are other legislative components affecting vehicle weights and dimensions that contractors must follow (and you as a driver for a service rig contractor should be aware of) such as:

- Maximum gross vehicle weights;
- Maximum axle and axle group weight allowances;
- Seasonal axle weight allowances;
- Proper load securement and positioning of loads;
- Truck routes in each municipality travelled;
- Road and bridge restrictions (including road bans), and
- Permit procedures for overweight and over dimensional loads.

UNIT THREE

UNIT THREE: CARGO SECUREMENT

Cargo on all commercial vehicles must be secured. Unsecured cargo may:

- Fall off a vehicle, posing a hazard to other motorists;
- Damage the vehicle carrying any unsecured cargo, or the cargo itself thus posing a hazard to the driver or other workers who have to unload it;
- Cause the vehicle to tip over.

This unit deals with the equipment and methods used to secure cargo for transportation, including load limits and securing devices, tie-down procedures and hazards identification.

LEARNING OBJECTIVES

Upon completion of this unit you will be able to:

- Describe the Oil and Gas Industry Cargo Securement best practice;
- Outline cargo securement risks and hazards;
- Describe the general rules for cargo securement.

OIL AND GAS INDUSTRY CARGO SECUREMENT BEST PRACTICE

Transportation authorities in Alberta, Saskatchewan, and British Columbia, in conjunction with the CAODC and Petroleum Services Association of Canada (PSAC), developed the Oil and Gas Industry Cargo Securement Best Practice (Appendix III) that addresses how to comply with NSC 10, Cargo Securement. This Standard requires all cargo to be contained, immobilized, or secured. Service rig contractors—including their drivers—must comply with the standard at all times.

The Oil and Gas Industry Cargo Securement Best Practice is specific to the transportation of equipment used in Canada's oil and gas industry and has been designed to meet or exceed the requirements of NSC 10: Cargo Securement.

In Saskatchewan, information regarding cargo securement legislation may be found in *The Security of Loads and Trip Inspection Regulations*.

CARGO SECUREMENT RISKS AND HAZARDS

Cargo securement is a very important component for all vehicles that make up part of the convoy. Because there are numerous risks and hazards associated with hauling a load, you must be able to correctly identify some of the common risks associated with improper securement in order to prevent them from occurring. For example:

- Danger to the public and third-party vehicles;
- Possible incident resulting in injury or death;
- Delay of trip due to roadside enforcement;
- Loss of, or damage to, the load;
- Vehicles being placed out of service;
- Impact on your company's carrier profile, and the company's safety fitness rating;
- Impact on the environment due to spills etc.;
- Issuance of fines to the driver and/or service rig contractor;
- Loss of ability for contractor to maintain their Oil and Gas Well Service Rig Permit;
- Damage to the vehicle.

In this section you will learn to identify and eliminate risks and hazards related to:

- Load shifting;
- Height and width restrictions;
- Deficient equipment, and
- Overhead power lines.

LOAD SHIFTING

A load can shift due to road conditions and the way it has been loaded, especially when driving on washboard pavement. The instability can cause the tie-downs securing your load to loosen which can result in your load shifting or coming off the vehicle. To avoid this hazard, slow down, stop and check your tie-downs after driving through a section of washboard pavement.

HEIGHT AND WIDTH RESTRICTIONS

It is extremely important that you know the exact height and width of both your vehicle and your load. If you drive across a bridge that is not wide enough or through an underpass that is not high enough to let your load pass, this could result in physical injury and/or property damage (i.e. a damaged load, vehicle, bridge or underpass). To avoid this hazard, plan your route ahead of time based on the height and width restrictions of both your vehicle and your load.

DEFICIENT EQUIPMENT

If your equipment is faulty you may lose the cargo you're hauling which could result in injury, not only to yourself, but also others. To avoid injury and prevent property damage, inspect your equipment regularly ensuring:

- Deck pins are properly secured to the unit and are maintained in good condition;
- Chains are not rusted, cracked, gouged, nicked, pitted, bent, twisted, stretched, incorrectly repaired or have collapsed links or welds. (To prevent rust, hang all chains on a rack and never leave in standing water);
- Ratchet binders are not rusted, nicked, gouged, pitted, or worn beyond wear limitation embossed by the manufacturer;
- Chains, ratchet binders, wire ropes or straps and anchor points are maintained in good condition (i.e. not cut, nicked, split or knotted);
- Grab hooks have not been spread or disturbed;
- Wire cable does not have any missing strands, wraps or wickers;
- Anchor points have not been weakened by cracks, breaks or distortion;
- Broken lumber is not being used as blocking / planks;
- Bulkheads, side boards, side stakes and end gates are not bent, cracked, split and are securely attached to the vehicle;
- Crushable cargo is secured using tie-downs and not protected by blocking;
- Rub rails are not being used as anchor points, unless specifically designed for that purpose;
- All equipment that is damaged or not in good condition is reported it to your supervisor.

Caution! Do not tamper with or modify equipment by heating or filing it. Doing so will destroy the integrity of the equipment.

OVERHEAD POWER LINES

Not knowing the combined height of your load and vehicle could catch on an overhead power line potentially causing electrocution or property damage. The best way to avoid contacting an energized power line is to have the power company shut off the power to any lines you will be working near. However, this is not always practicable. When it is necessary to work near power lines, have a qualified person stay in direct contact with the operator at all times during the lift.

LIMITS OF APPROACH

Each jurisdiction has safe limits of approach that unauthorized persons may not work within; this includes tools or equipment. Limits of approach for Alberta, Saskatchewan, and federal jurisdictions are listed in the following tables:

SAFE LIMITS OF APPROACH - DISTANCES FROM OVERHEAD POWER LINES FOR PERSONS AND EQUIPMENT:

OPERATING VOLTAGE BETWEEN CONDUCTORS OF OVERHEAD POWER LINES	SAFE LIMITS OF APPROACH DISTANCE FOR PERSONS AND EQUIPMENT
0-750 volts – Insulated or polyethylene-covered conductors	300 millimeters
0-750 volts – Bare, uninsulated	1.0 meter
Above 750 volts – Insulated conductors	1.0 meter
750 volts – 40 kilovolts	3.0 meters
69 kilovolts, 72 kilovolts	3.5 meters
138 kilovolts, 144 kilovolts	4.0 meters
230 kilovolts, 260 kilovolts	5.0 meters
500 kilovolts	7.0 meters

MINIMUM DISTANCES FROM EXPOSED ENERGIZED HIGH VOLTAGE ELECTRICAL CONDUCTORS:

Risk Factor		Minimum Distance for Non-Electrical Workers, Material, Equipment
Voltage Phase to Phase	Voltage to Ground	
kV	kV	Meters
230	133	6.1
138	79.8	4.6
72	41.6	4.6
25	14.4	3
15	8.6	3
4.16	2.4	3

DISTANCE FROM LIVE ELECTRICAL PARTS (FEDERAL):

Distance from Live Electrical Parts	
Voltage Range of Part: Part to Ground	Distance (Meters)
425 to 12,000	3
12,000 to 22,000	3
22,000 to 50,000	3
50,000 to 90,000	4.5
90,000 to 120,000	4.5
120,000 to 150,000	6
150,000 to 250,000	6
250,000 to 300,000	7.5
300,000 to 350,000	7.5
350,000 to 400,000	9

ACCIDENTAL POWER LINE CONTACT

When a live electrical line contacts a piece of equipment or the ground, the electrical current travels in all directions and the voltage decreases as it travels from the source. The current could travel up one leg and down the other causing an electrical shock. If you notice a downed power line, stay away from it and call the electrical utility company immediately.

If your vehicle comes in contact with an overhead power line, stay in the cab until the power has been disconnected. If staying in the cab is not possible (*i.e. a fire*), **do not step from the vehicle to the ground!** Contacting the vehicle and the ground at the same time may result in electrocution. Jump clear of the cab, landing with both feet together. Once on the ground, slowly rabbit hop or shuffle out of the energized zone.

GENERAL RULES FOR CARGO SECUREMENT

All drivers are responsible for the cargo they transport, on or within the vehicle they are operating. In addition, the cargo must remain secure in all conditions that are reasonably expected to occur during normal driving conditions, or when the driver is reacting to an emergency situation, up to but short of, collision situations.

LOADING

Distribution of the weight will depend on the nature of the load and the centre of gravity. One piece of cargo that makes up a full load versus a load made up of several pieces has the potential to present different problems and hazards. To prevent such occurrences, common considerations for the loading of cargo securement include:

- Anchor points;
- Center of gravity/balance;
- Containment;
- Dimensions;
- Friction;
- Housekeeping and organization;
- Load configuration;
- Load inspections;

- Securement devices and effectiveness;
- Structural integrity;
- Transportation performance criteria; and
- Weight.

Cargo must be properly secured so that it does not:

- Leak;
- Spill;
- Blow or fall off of the vehicle;
- Fall through the vehicle;
- Become otherwise dislodged from the vehicle; or
- Shift upon or within the vehicle to such an extent that vehicle stability or manoeuvrability is adversely affected.

EFFECTS OF IMPROPER LOADING

An overloaded vehicle will have excessive tire wear and be much harder to steer and stop. A load that weighs less than the total carrying capacity of the vehicle can also cause damage if the weight of the load is poorly distributed. For example, if a load is placed off to one side of a trailer as opposed to on the center of a trailer it may cause an axle or set of tires to be overloaded. Another effect of this improper load could be undue stress on the frame resulting in permanent damage to the trailer and steering alignment.

Poor weight distribution can also unbalance the vehicle. If the weight is concentrated to one side, there is a much greater chance of the load falling off or the vehicle tipping over when it goes into a corner.

LOAD SECUREMENT CHECKS

You must inspect/re-inspect the security of your load as follows, until you reach your destination:

1. Before driving the vehicle (i.e. prior to departure);
2. When you are no more than 80 kilometres from the point where the cargo was loaded;
3. The vehicle has been driven for 3 hours or 240 kilometres (whichever comes first);
4. There is a change in duty status.

CARGO SECUREMENT DEVICES

Before securing cargo, you must know what devices are available to use and if they are strong enough to do the job. Without this information, it is possible to choose the wrong device to secure a load. This section will cover various types of securing devices and their strengths.

There are four definitions generally applied to cargo securement devices. They are:

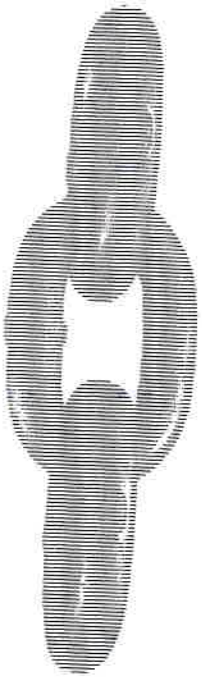
1. **Aggregate Working Load Limit (AWLL)**: of a tie-down is equal to a sum of the working load limits of all devices used to secure an article on a vehicle;
2. **Proof Strength (PS):** typically 50% of the Ultimate Break Strength;
3. **Ultimate Break Strength (UBS)**: the minimum load at which brand new chain, wire rope, strapping, etc. may fail;
4. **Working Load Limit (WLL)**: the maximum load that may be applied to a component of a cargo securement system during normal service, usually assigned by the manufacturer of the component.

   As per NSC 10: Cargo Securement, all securing devices must be marked with a Working Load Limit.

CHAINS

Chains used for cargo securement purposes must meet or exceed [illegible] Standard 10: Cargo Securement. Currently the industry best practice is Grade 70 or better.

Always refer to the manufacturer's specifications. For further information on the Working load limits for chains, please see the table below.



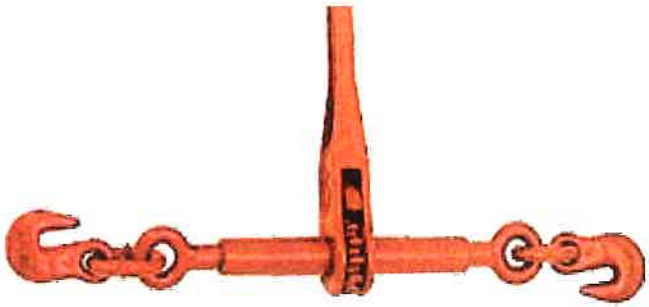
Note: *Grade 80 or better chain is recommended for lifting and hoisting purposes.*

Size mm (in)	Grade 3 Proof Coil	Grade 43 High Test	Grade 70 Transport	Grade 80 Alloy	Grade 100 Alloy
7 mm	580 kg	1180 kg	1430 kg	1570 kg	1950 kg
(1/4 in)	(1300 lb)	(2600 lb)	(3150 lb)	(3500 lb)	(4300 lb)
8 mm	860 kg	1770 kg	2130 kg	2000 kg	2600 kg
(5/16 in)	(1900 lb)	(3900 lb)	(4700 lb)	(4500 lb)	(5700 lb)
10 mm	1200 kg	2450 kg	2990 kg	3200 kg	4000 kg
(3/8 in)	(2650 lb)	(5400 lb)	(6600 lb)	(7100 lb)	(8800 lb)
11 mm	1680 kg	3270 kg	3970 kg	-	-
(7/16 in)	(3700 lb)	(7200 lb)	(8750 lb)		
13 mm	2030 kg	4170 kg	5130 kg	5400 kg	6800 kg
(1/2 in)	(4500 lb)	(9200 lb)	(11300 lb)	(12000 lb)	(15000 lb)
16 mm	3130 kg	5910 kg	7170 kg	8200 kg	10300 kg
(5/8 in)	(6900 lb)	(13000 lb)	(15800 lb)	(18100 lb)	(22600 lb)
Chain Marks	3	4	7	8	10
	30	43	70	80	100
	300	430	700	800	1000

Welded Steel Chain – Working Load Limits

RATCHET BINDERS

Ratchet binders have a hook on either side with a handle sitting in between the hooks. Cranking the ratchet handle pulls the hooks together, tightening the chain and securing the load.



Always refer to the manufacturer's specifications prior to use.

USING CHAINS AND RATCHET BINDERS

Ratchet binder placement depends on the type of cargo.

Try to place ratchet binders where they can be tightened while standing on the ground. Placing them on one side of the cargo makes it safer and easier to do a visual check. If the ratchet binder must be placed higher, put them as close to one side of the cargo as possible.

Do not use a snipe on the handle of a ratchet binder. Keep your body clear of the ratchet binder when tightening the tie-down chain.

HOOKS

Hooks are used to secure a tie-down to an anchor points on a vehicle and are made of Grade "80" alloy steel. There are four types of hooks commonly used for cargo securement purposes:

Clevis Grab Hook

Eye Grab Hook

Clevis Slip Hook

Eye Slip Hook

ATTACHING HOOKS

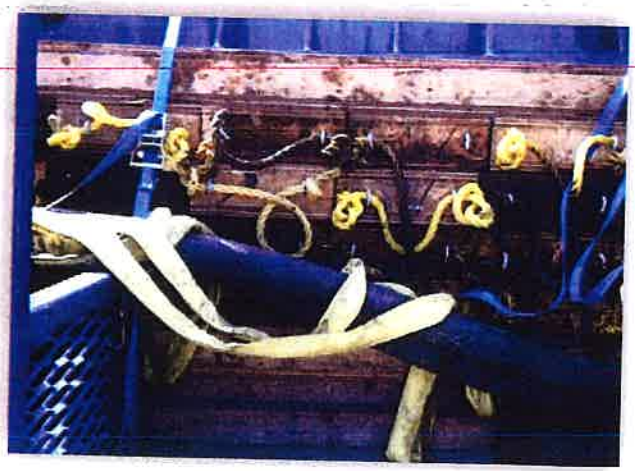
Hooks should be attached to the chain link so the chain is tight and the force of the chain is directly on the main body ("*throat*") of the hook – not on the tip of the hook.

Example of proper chain securement and cross chaining

TIE-DOWNS

Tie-downs are chains or nylon straps used to secure cargo for transportation and must be permanently marked by the manufacturer with the Working Load Limit. Since the strap strength depends not only on its external dimensions, but also on its internal construction, the manufacturer's rating is the only safe method of determining its capacity.

The minimum number of tie-downs required to secure a cargo is based on the length, shape and weight of the cargo to be secured, as well as regulatory requirements.



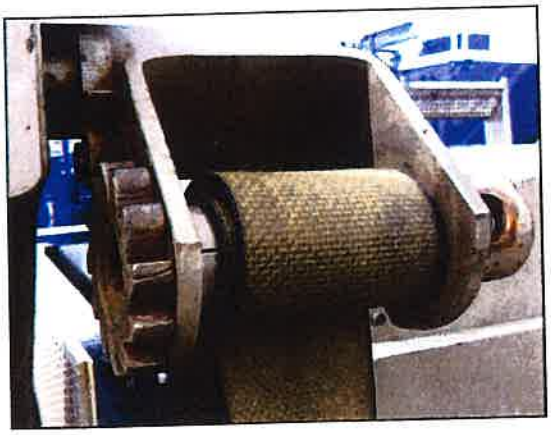
Tie-down straps being used to secure side boards

RATCHET STRAPS

Depending on the shape, dimensions and weight of the cargo, drivers use ratchet straps as a securement method by placing them either over or through items that are being hauled.

Ratchet straps must be load rated.

WINCHES

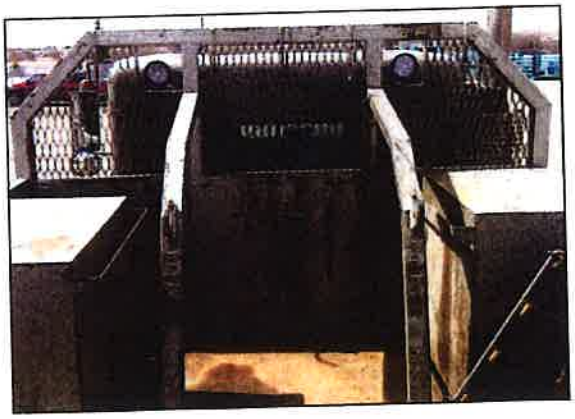


Winches are rotary devices used for tightening nylon straps and wire rope or cable. Winches are mounted on the side of the trailer or flat deck in fixed positions. Adjustable winches are mounted on a slide bar or track.

Fixed ratchet strap (winch)

BULKHEADS

Bulkheads are partitions made of wood or metal and are usually found at the front end of a trailer or flat deck.

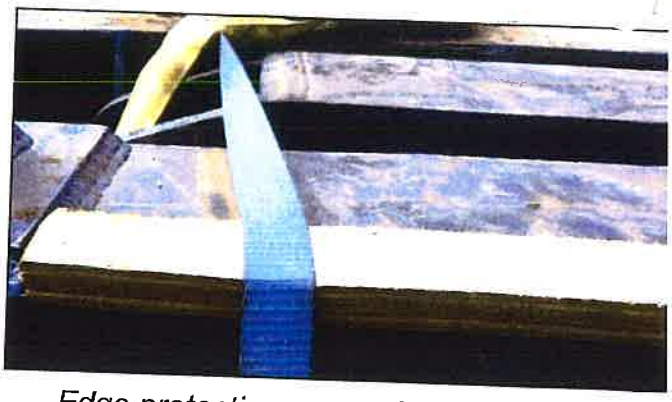


Bulkhead on a flat deck

EDGE PROTECTION

Edge protection includes wood or corner boards used to:

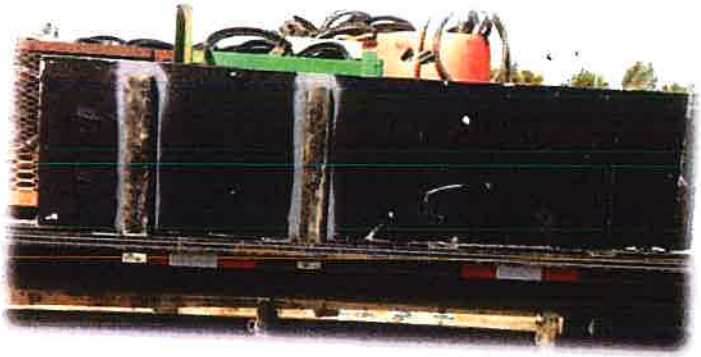
- Distribute cargo from the tie-downs;
- Protect bagged products from being damaged by the tie-downs" and
- Separate layers of cargo like drums and barrels.



Edge protection secured with tie-down

SIDE BOARDS

Side boards are boards placed around the outside edge of a trailer or flat deck to "contain" the cargo. Always make sure sideboards are secured as this will ensure they do not fall off your vehicle.



Trailer side board

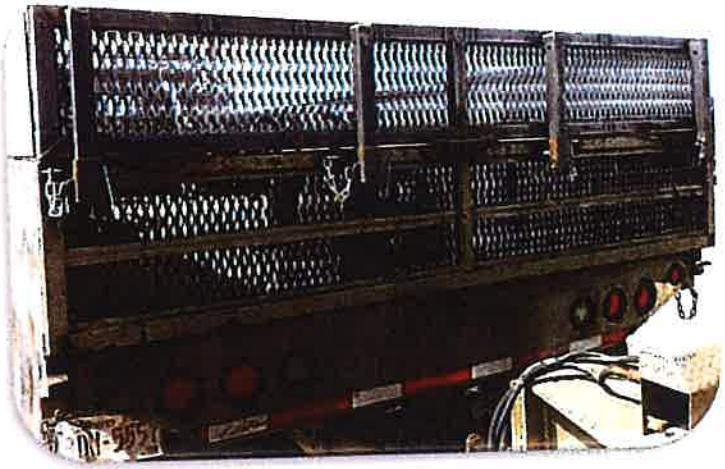
"Contain", with respect to cargo, means:

- The cargo fills a sided-vehicle,
- Every article is in contact with, or close to, a wall or other articles, and
- The cargo cannot move or tip.

END GATES

End gates are wooden or metal gates placed at the end of a trailer or flat deck.

Metal end gates



DECK PINS

Deck pins are made of metal and are placed in pockets on the outside of the trailer deck.

Always make sure that deck pins are strong and high enough to secure the cargo that is being carried. Also ensure they are secured so they do not fall off your vehicle.

TIRE CHAINS

Secured tire chains

RIG SECUREMENT – DERRICK

Strapping derrick to headache rack

Strapping derrick to carrier

BLOCKS

Securing the top of the block

Securing the bottom block

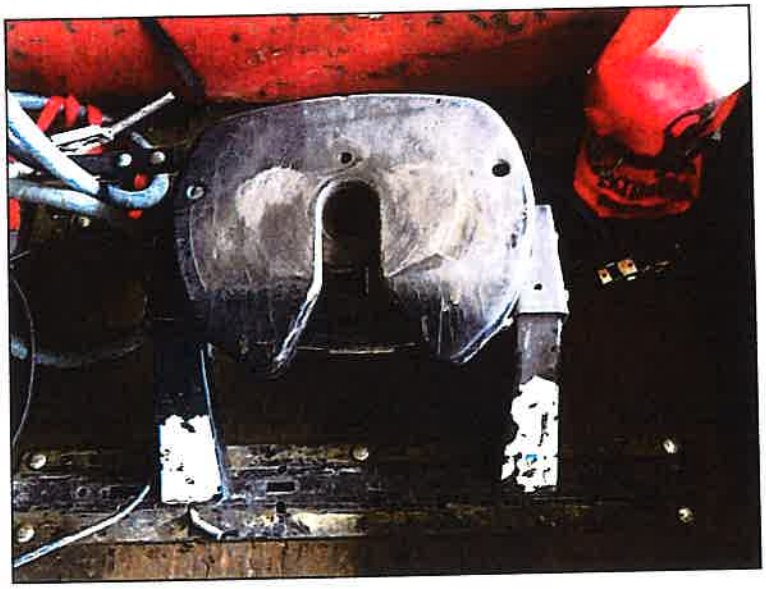
PINTLE HITCH

Pintle hitch & safety chains: criss cross formation

Engaged (locked)

Disengaged (Unlocked)

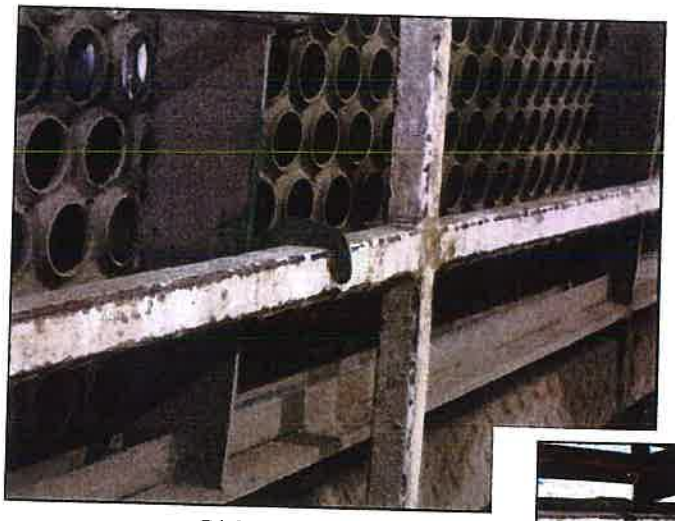
FIFTH WHEEL HITCH



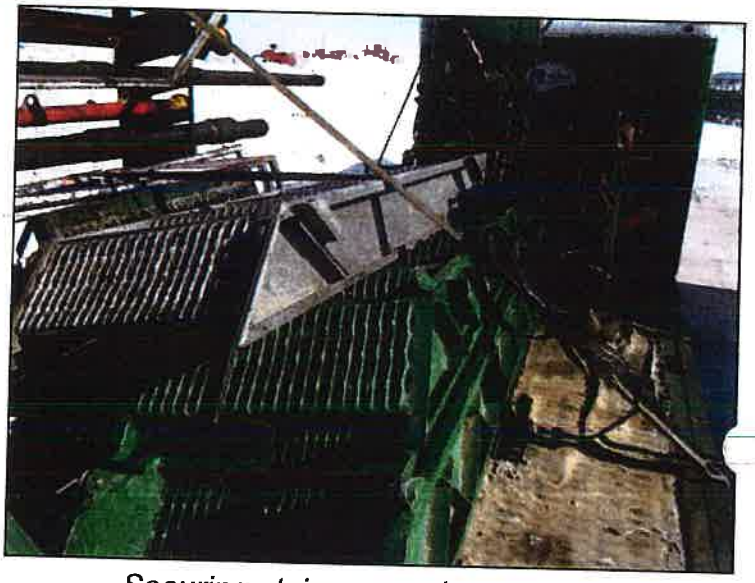
Fifth wheel hitch - pick-up

Fifth wheel hitch – trailer

FLOOR & SIDE RAILS



Side rails on carrier



Securing stairs on equipment truck

Pipe rack

OUTRIGGERS

Pinned in place

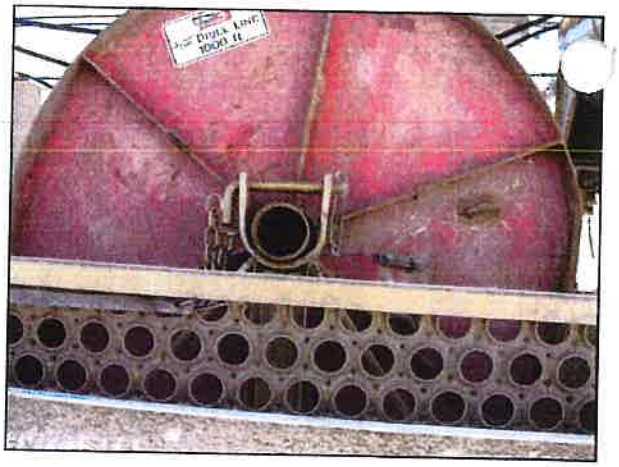
PLANKING

Planking w/ dunnage

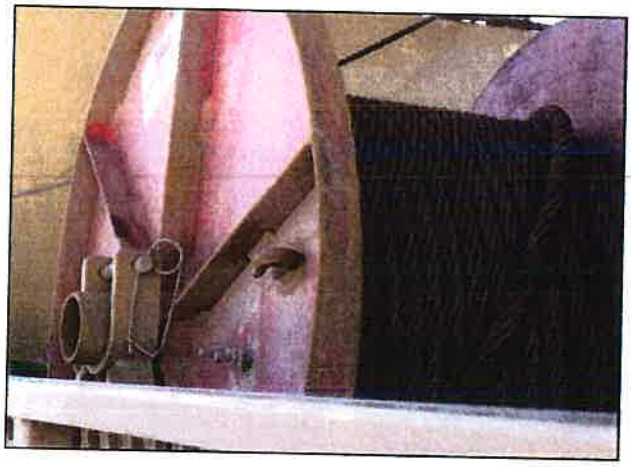
BEAMS

Back of winch

DRILL LINE SPOOL



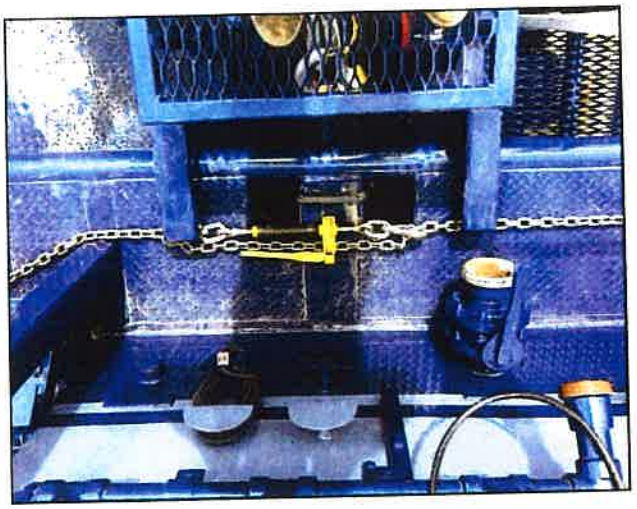
Carrier locked into position and pinned



BINDERS

Secured ratchet binders

RIG TANK



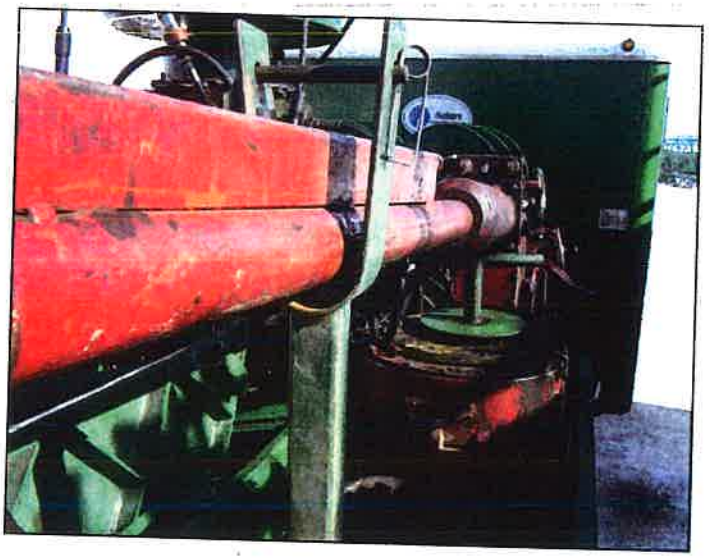
Front chain on rig

Line pipe and hoses

TOP OF TANK

Ready for transport

TONGS

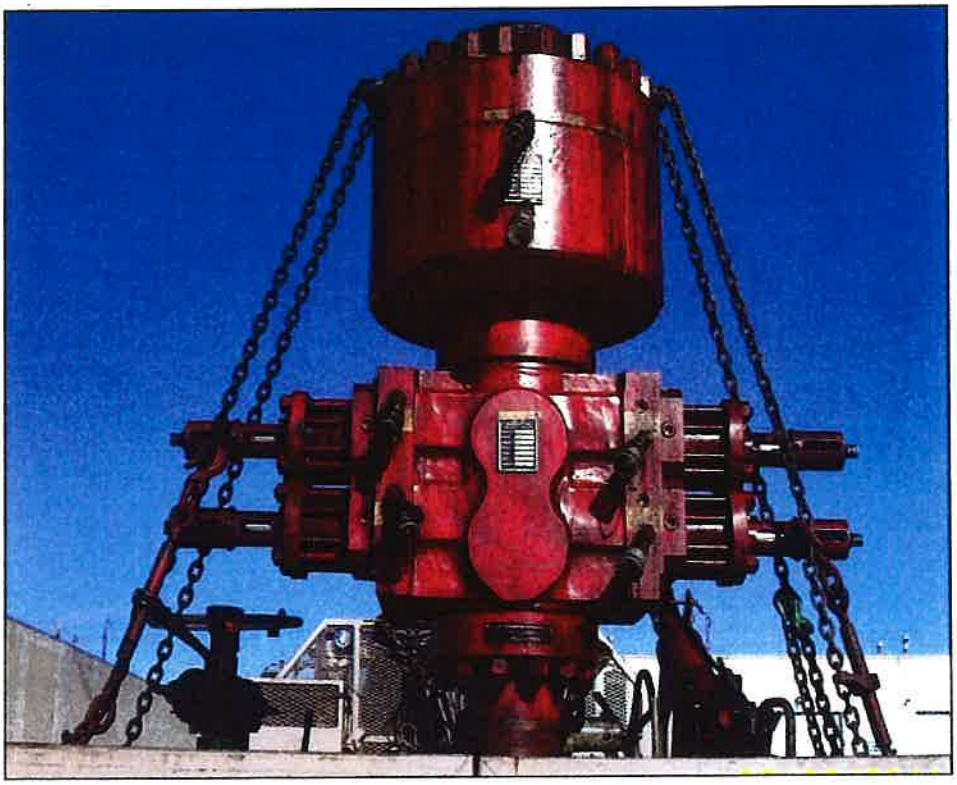


Tong ram pinned in place

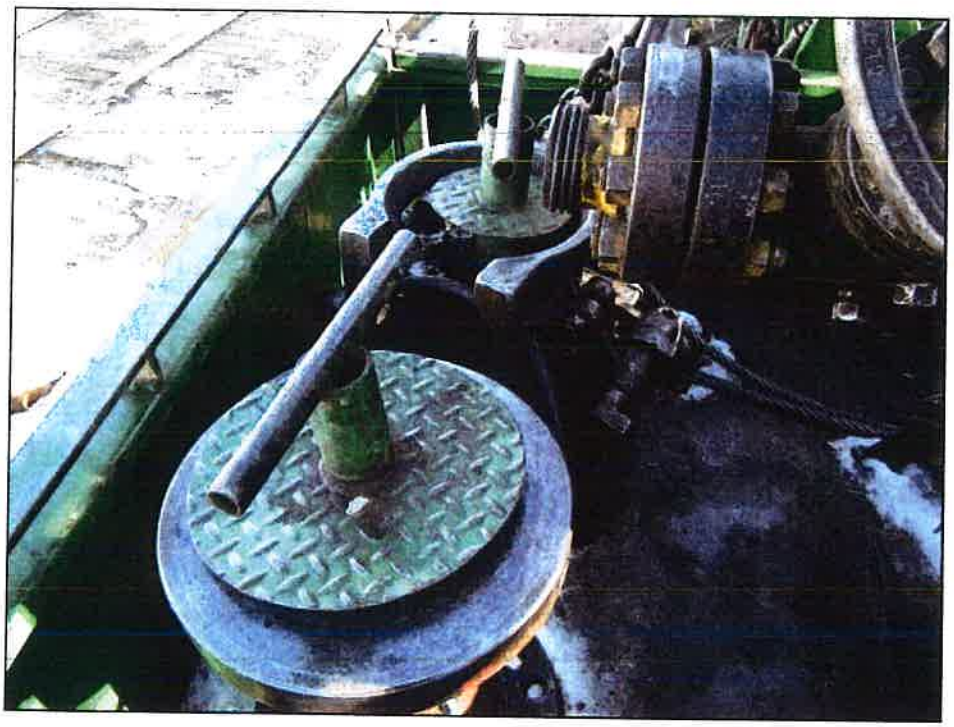
Tong bracket

BLOWOUT PREVENTER (BOP)

Bolted and chained



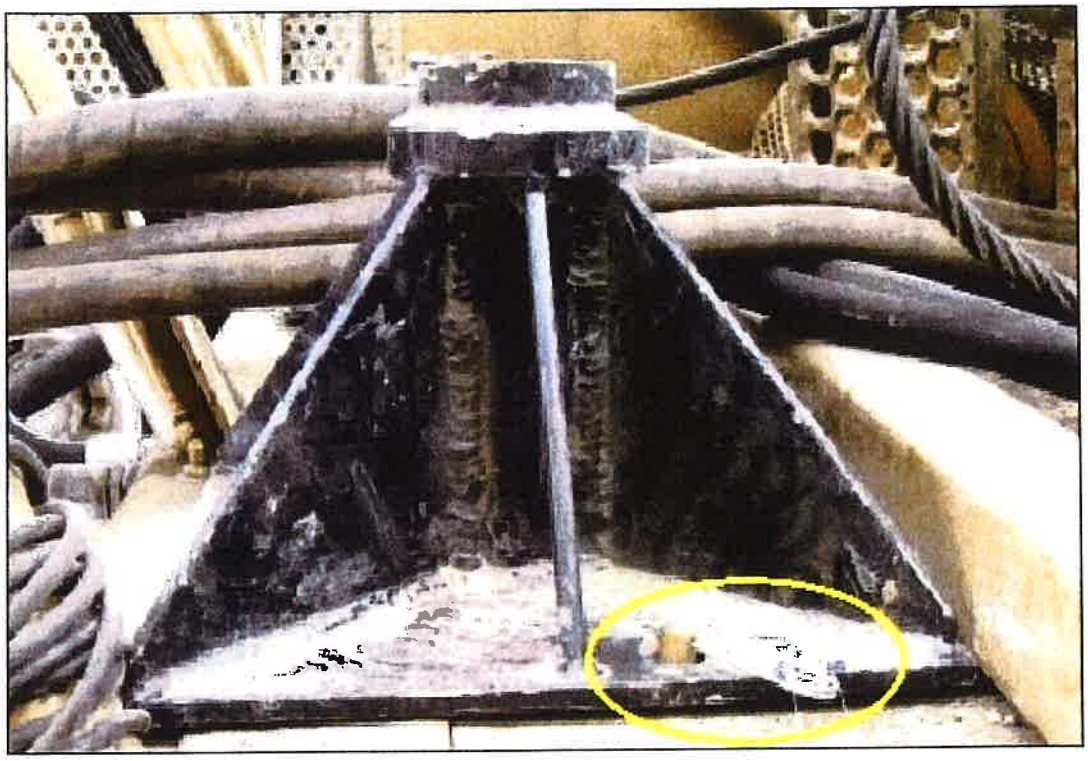
SLIPS & PACK-OFF HEAD



Spare tire

Carrier for securement, locked for theft

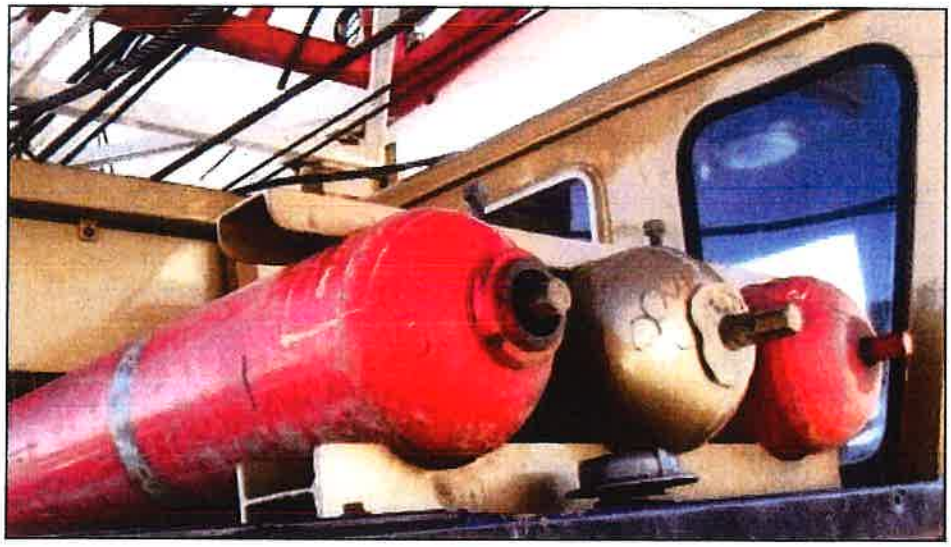
JACK STAND



Pinned in place

NITROGEN BOTTLES

Secured in place



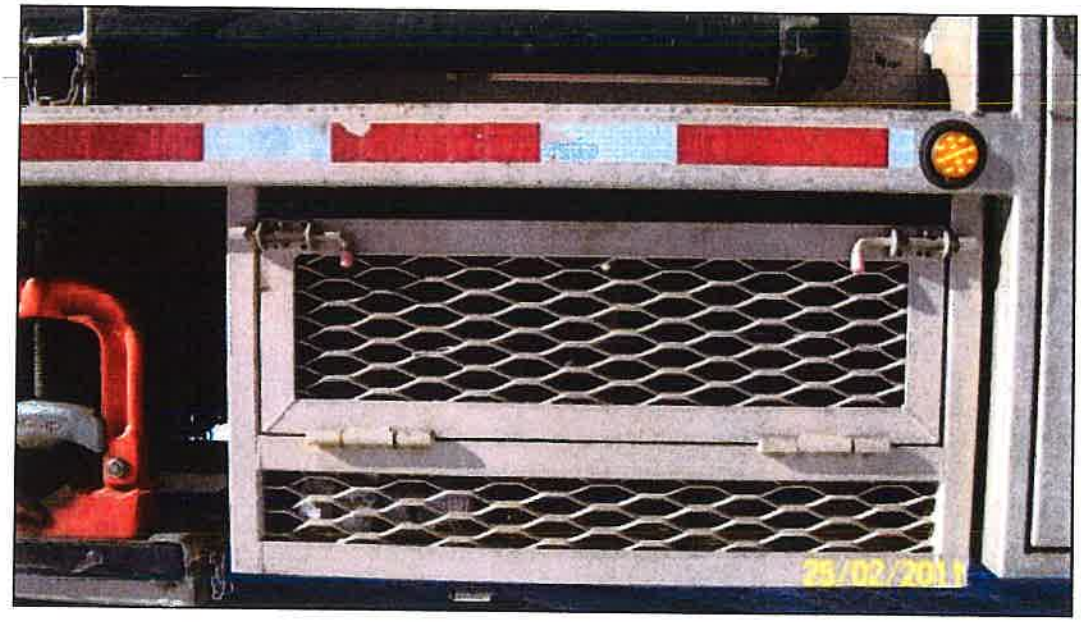
PANS

Drip trays

BUCKETS

Cable swing and clevis clamp

BOXES



Spring loaded

Pinned

UNIT FOUR

UNIT FOUR: VEHICLE INSPECTIONS AND MAINTENANCE

Vehicle inspections and maintenance help to ensure the vehicle you're driving is safe and in proper operating condition. Driving a vehicle without conducting the necessary inspections and/or maintenance can result in injuries, property damage and lost business.

In this unit you will learn about trip inspection requirements and the different types of vehicle inspections and reports you need to be aware of.

LEARNING OBJECTIVES

Upon completion of this unit you will be able to:

- Outline the requirements for trip inspections;
- Outline the requirements for trip inspection reports;
- Describe when vehicle inspections are required to take place;
- Outline the requirements for vehicle inspections;
- Identify the different vehicle inspection certificates;
- Identify the types of inspection reports a service rig driver must be aware of; and
- Describe the procedures for reporting to a vehicle inspection station.

COMMERCIAL VEHICLE INSPECTION REQUIREMENTS

DAILY TRIP INSPECTIONS

Safety is the most important reason to inspect a vehicle. A good trip inspection, dor properly in a systematic manner, takes time. The few minutes spent are a positive investment in safety.

Drivers, or other persons given authorization by the company to do so, must complete a trip inspection on each commercial vehicle operating under the Oil and Gas Well Service Rig permit prior to its use. Trip inspection requirements are based on Schedule 1 of NSC Standard 13: Trip Inspections.

In Alberta, unless a carrier has been specifically exempt, trip inspections are required on all commercial vehicles registered for a weight of 4,500 kgs or greater.

In Saskatchewan, trip inspections are required on all commercial vehicles (and any trailers or semi-trailers they are towing) with a registered GVW over 5,000 kgs.

Driving on a leased or private road does not exempt you from having to complete a trip inspection. Regardless of the road type you're driving on, a trip inspection must always be completed.

TRIP INSPECTION REPORTS

Provincial carriers operating in Alberta only must complete written trip inspection reports on commercial vehicles registered with a weight of 11,794 kgs or greater.

In Alberta, the person completing the trip inspection report must use either the CAODC Service Rig Trip Inspection Form or a form meeting the requirements of *Commercial Vehicle Safety Regulation*, AR 121/2009.

Note: *the exemption issued in Alberta by the Registrar with respect to a person no longer having to carry Schedule 1 or complete a trip inspection report for those vehicles registered under 11,794 kilograms expired on July 1, 2016.*

Carriers operating in Saskatchewan must complete written trip inspection reports on commercial vehicles (and any trailers or semi-trailers they are towing) with a registered GVW over 5,000 kgs.

In Saskatchewan, the person completing the trip inspection report must use either the CAODC Service Rig Trip Inspection Form or a form meeting the requirements of *The Security of Loads and Trip Inspection Regulations* combined with any required Schedules acceptable to the Saskatchewan Ministry of Highways & Infrastructure.

Once completed, these reports are valid for a maximum of 24 hours. This means a trip inspection conducted by one driver may be used by another driver provided it was completed within 24 hours.

It's the drivers responsibility to forward the original inspection report to their home terminal within 20 calendar days of the trip inspection being completed.

Carriers are required to make sure that a copy of the Schedule 1 of NSC Standard 13 Part 2 including any modifications made to the Schedule is located within the vehicle and drivers shall produce this schedule when requested to a peace officer.

MINOR AND MAJOR DEFECTS

A vehicle defect found during an inspection could prevent problems later. A breakdown on the road will cost time and money, or even worse, a crash caused by the defect. It is much less expensive to complete repairs during normal business hours than arrange for a service call on the road. On-road inspectors also may inspect vehicles. If they judge the vehicle to be unsafe, they will put it "out of service" until it is repaired.

When defects are detected during a trip inspection, the person conducting the inspection is required to record these defects on the inspection report and then report them immediately to their supervisor. Major defects are outlined in Schedule 1 of NSC Standard 13.

As the driver of a commercial vehicle you are not allowed to drive a vehicle found to have major defects on a highway, and no one can require or demand you toø either.

CAODC SERVICE RIG TRIP INSPECTION FORM

CAODC Service Rig Trip Inspection Form

Carrier Name: _____ Inspected By: _____

Date of Inspection: _____ Time of Inspection: _____ AM | PM

Location of Inspection: _____

Unit #: _____ Licence Plate #: _____

Odometer Reading: _____ Hubometer Reading: _____

CVIP/PMVI #: _____ CVIP/PMVI Expiry: _____

Trailer Licence Plate #: _____ Trailer CVIP/PMVI #: _____

Trailer CVIP/PMVI Expiry: _____

DOCUMENTATION	YES	NO	N/A
Valid operator's licence	☐	☐	☐
Vehicle registration & insurance*	☐	☐	☐
Vehicle Maintenance & Inspections			
- Valid CVIP/PMVI decal	☐	☐	☐
- Decal correctly displayed on vehicle	☐	☐	☐
- CVIP/PMVI inspection form**	☐	☐	☐
- CAODC Semi-Annual Maintenance Inspection Form (if applicable)***	☐	☐	☐
Applicable Permits****			
- CAODC Oil and Gas Well Service Rig Permit (if applicable)	☐	☐	☐
- Other permits (if applicable)	☐	☐	☐
Logbook*****	☐	☐	☐

Comments: _____

EMERGENCY EQUIP. & SAFETY DEVICES	YES	NO	N/A
Fire Extinguishers:			
- Good condition	☐	☐	☐
- Securely mounted	☐	☐	☐
First Aid Kits:			
- Adequately stocked	☐	☐	☐
- Securely mounted in vehicle cab	☐	☐	☐
Advance Warning Triangles/Reflectors			
- Good condition	☐	☐	☐
- Easily accessible	☐	☐	☐
- Reflector tape, good condition	☐	☐	☐
Wheel Chocks	☐	☐	☐

Comments: _____

MECHANICAL	MINOR	MAJOR	N/A
Air brake system	☐	☐	☐
Cab	☐	☐	☐
Cargo securement	☐	☐	☐
Adequate coolant level	☐	☐	☐
(do not check coolant that is under pressure or hot)			
Coupling devices	☐	☐	☐
Dangerous goods	☐	☐	☐
Driver controls	☐	☐	☐
Driver seat	☐	☐	☐
Electric brake system	☐	☐	☐
Exhaust system	☐	☐	☐
Fan Belts			
- Fan belt condition	☐	☐	☐
- Fan belt tension	☐	☐	☐
Frame and cargo body	☐	☐	☐
Fuel system	☐	☐	☐
- Fuel gauge/level, functional	☐	☐	☐
- Fuel level adequate	☐	☐	☐

MECHANICAL - continued	MINOR	MAJOR	N/A
General	☐	☐	☐
Glass and mirrors	☐	☐	☐
Heater/defroster	☐	☐	☐
Horn	☐	☐	☐
Hydraulic brake system	☐	☐	☐
Lamps and reflectors	☐	☐	☐
Engine Oil			
- Level is adequate	☐	☐	☐
- Check for leaks	☐	☐	☐
- Oil pressure range, acceptable	☐	☐	☐
Steering			
Suspension system	☐	☐	☐
Tires	☐	☐	☐
Wheels, Hubs and Fasteners			
- Hub oil level	☐	☐	☐
- Hub adequately lubricated	☐	☐	☐
- Check hub for leaks	☐	☐	☐
Windshield wiper/washer	☐	☐	☐

MECHANICAL DEFECT(S) FOUND: YES NO

Comments: _____

DECLARATION

I certify the vehicle identified on this trip inspection report has been inspected in accordance with the applicable requirements outlined in Schedule 1 of NSC Standard 13 Part 2:

Inspector's Name _____ Inspector's Signature _____

Driver's Name (if different from above) _____ Driver's Signature _____

9.00446 Revised 02/2017

ANNUAL COMMERCIAL VEHICLE INSPECTION REQUIREMENTS

The Oil and Gas Well Service Rig Permit provides an exemption that extends the expiry date of an inspection conducted under periodic motor vehicle inspections from one to five years:

- Companies that want to use this provision must inspect each vehicle at least every 6-months under their preventative maintenance program;
- The provision also allows service rig members the flexibility of having these inspections done in the field rather than at a registered facility.

Note: *Saskatchewan contractors may opt to inspect their vehicles annually under the PMVI Field Inspection Program.*

Alberta Government

CV5010371

CERTIFICATE NUMBER

Commercial Vehicle Inspection Certificate
Traffic Safety Act

PART 1 - VEHICLE OWNER AND VEHICLE IDENTIFICATION

Vehicle Type:	Truck	Seating Capacity:	
GVW:	34600 kg	Brake Type:	Air
Owner Name:	SAVANNA WELL SERVICING INC		
Address:	1800-311, 6TH AVE. SW.		
City:	CALGARY	Province:	AB
Telephone Number:	(403) 782-0719		
Vehicle Identification Number:	SR04IT000015		
Make:	Irontech	Model:	SR242
Year:	2004	Unit Number:	
Odometer:	26403 KM	Licence Plate Number:	KAD235

IT IS AN OFFENCE TO FALSIFY AN INSPECTION C

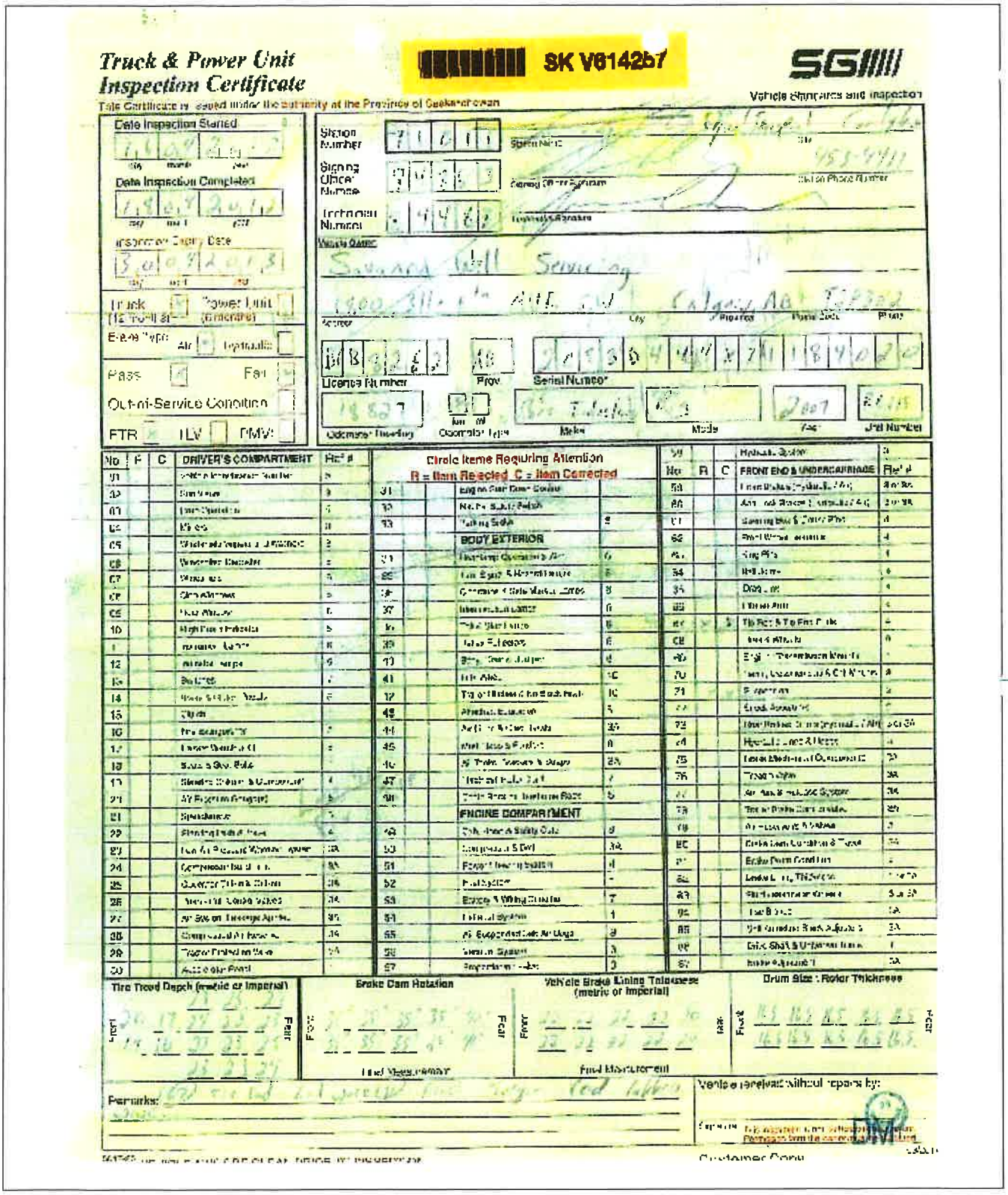
PART 2 - CERTIFICATION

I certify the vehicle described in Part 1 has passed the inspections and tests establi Safety Act for a Commercial Vehicle.

Inspection Facility Name:	Facility Number:
1132290 Alberta Ltd.	15184
Inspection Technician Name:	Technician Number:
David Egilsson	A3758
Inspection Technician Signature:	
Inspection Date:	2012/12/10

Electronic CVIP Certificate

CVIP Certificate



Truck & Power Unit Inspection Certificate

SK V6142b7

SGI

Vehicle Signature and Inspector

This Certificate is issued under the authority of the Province of Saskatchewan

Date Inspection Started

Date Inspection Completed

Inspection Expiry Date

Truck / Power Unit (Trailer)

Brake Type: Air / Hydraulic

Pass / Fail

Out-of-Service Condition

FTR / ILV / PMVI

Station Number

Signing Officer Number

Inspector Number

Licence Number

Prov

Serial Number

Odometer Reading

Km / Mi

Make

Model

Year

Unit Number

Circle Items Requiring Attention
R = Item Rejected C = Item Corrected

No	R	C	DRIVER'S COMPARTMENT	Ref #
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

31				
32				
33				
			BODY EXTERIOR	
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
			ENGINE COMPARTMENT	
49				
50				
51				
52				
53				
54				
55				
56				
57				

No	R	C	FRONT END & UNDERCARRIAGE	Ref #
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
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73				
74				
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76				
77				
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79				
80				
81				
82				
83				
84				
85				
86				
87				

Tire Tread Depth (metric or imperial)

Front / Rear

Brake Cam Rotation

Front / Rear

Final Measurement

Vehicle Brake Lining Thickness (metric or imperial)

Front / Rear

Final Measurement

Drum Size : Rotor Thickness

Front / Rear

Remarks:

Vehicle released without repairs by:

Signature

Customer Copy

Saskatchewan PMVI Certificate

CAODC SEMI-ANNUAL MAINTENANCE INSPECTIONS

At least every six months, all the major operating systems required for transportation of a service rig must be inspected:

- When a contractor has obtained a valid CVIP inspection as required by *The Vehicle Inspection Regulation (AR 211/2006)*, it is considered valid for five years from the inspection date;

- Vehicles registered at a weight of 11,794 kgs or greater must then be inspected every 6-months using the CAODC Semi-Annual Maintenance Inspection Form;

- Copies of the most current CVIP inspection form and the CAODC Semi-Annual Maintenance Inspection Form must be carried in the vehicle.

- Once a valid PMVI inspection has been conducted in accordance with *The Vehicle Inspection Procedure Regulations*, that inspection is considered valid for five years from the inspection date;

- Vehicles with a registered GVW at or above 22,000 kgs (11,794 kgs or greater if the company is federal) must then be inspected:

  - Every 6-months using the CAODC Semi-Annual Maintenance Inspection Form;

    or

  - Annually under the PMVI Field Inspection Program.

- Copies of the most current PMVI inspection form and CAODC Semi-Annual Maintenance Inspection Form and/or Annual PMVI Field Inspection certificate must be carried in the vehicle.

CAODC Semi-Annual Maintenance Inspection Form

Carrier Name: _____ Location of Inspection: _____

Date of Inspection: _____ Time of Inspection: _____ AM | PM

Vehicle Make: _____ Model: _____ Year: _____

Odometer Reading: _____ Hubometer Reading: _____

Licence Plate #: _____ Unit #: _____ Hour Meter: _____

CVIP/PMVI #: _____ CVIP/PMVI Expiry: _____

Inspected By: _____ Journeyperson Certificate #: _____

Signature: _____ Company Name: _____

Phone #: _____

Fax #: _____

Power Train	OK	Repair
Fuel system	☐	☐
Exhaust system	☐	☐
Belts	☐	☐
Drive shafts	☐	☐
Engine / transmission mount	☐	☐
Engine shut down	☐	☐
Neutral safety switch & shift patterns	☐	☐

Comments: _____

Suspension	OK	Repair
Suspension attachments	☐	☐
Springs & attachments	☐	☐
Torsion bar suspension	☐	☐
Tandem axle walking beams	☐	☐
Air suspension	☐	☐
Air suspended non-driving axle	☐	☐
Shock absorbers	☐	☐

Comments: _____

Air Brakes (Record Results)	OK	Repair
Air compressor	☐	☐
Low air pressure warning system	☐	☐
Air system leakage	☐	☐
Compressed air reserve	☐	☐
Air reservoir & check valves	☐	☐
Treadle valve	☐	☐
Quick release valves	☐	☐
Relay valves	☐	☐
Tractor protection valve	☐	☐
Air parking & emerg brake application	☐	☐
Air brake components	☐	☐
Brake mechanical components	☐	☐

Cam rotation test:

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Comments: _____

Instruments & Auxiliary Equip.	OK	Repair
Fire extinguisher	☐	☐
Hazard warning lot	☐	☐
Horn	☐	☐
Speedometer / odometer	☐	☐
Indicator lamps	☐	☐
Instruments	☐	☐
Identification	☐	☐
Auxiliary equipment	☐	☐
First aid	☐	☐

Comments: _____

Electrical System	OK	Repair
Wiring	☐	☐
Battery	☐	☐
Switches	☐	☐

Comments: _____

Brake Adjustment	OK	Repair
Disc brakes	☐	☐
Anti-lock brake system	☐	☐

Comments: _____

Tires & Wheels	OK	Repair
Bump tires / tire pressure	☐	☐
Tread Depth:		
- 4/32 steering (minimum)	☐	☐
- 2/32 rear (minimum)	☐	☐
Condition	☐	☐
Rims & lock rings	☐	☐
Wheel nuts, studs &/or clamps	☐	☐
Wheels	☐	☐

Comments: _____

Body	OK	Repair
Hood / rear engine compartment door	☐	☐
Body	☐	☐
Rear bumper / front bumper	☐	☐
Stepwell (entrance & exit steps)	☐	☐
Floor pan / baggage floor	☐	☐
Doors	☐	☐

Cab mount handle & step	☐	☐
Windshield	☐	☐
Windshield wipers / washer	☐	☐
Side window / rear window	☐	☐
Frame rails & mounts	☐	☐
Sun visors	☐	☐
Exterior rear view mirror	☐	☐
Driver's seat	☐	☐
Seat belt / occupants restraints	☐	☐
Heater	☐	☐
Windshield defroster	☐	☐
Fenders or mud flaps	☐	☐
Frame & cross members	☐	☐
5th wheel	☐	☐

Comments: _____

Steering	OK	Repair
Steering wheel test	☐	☐
Steering lash / travel	☐	☐
Steering linkage	☐	☐
Gauges	☐	☐
Power steering	☐	☐
Ball joints	☐	☐

Comments: _____

Lamps	OK	Repair
Lamps	☐	☐
Instrument lamp	☐	☐
Headlights	☐	☐
Tail lights	☐	☐
Turn signals	☐	☐
4-way emergency	☐	☐
Brake lights	☐	☐
Clearance lights & reflectors	☐	☐

Comments: _____

Documentation	OK	Repair
Vehicle registration & insurance	☐	☐
CVIP/PMVI inspection & cert. (decal)	☐	☐
Other permits (if applicable)	☐	☐

Comments: _____

CAODC 9.00442 Revised 02/2017

CAODC Semi-Annual Maintenance Inspection Form

COMMERCIAL VEHICLE SAFETY ALLIANCE (CVSA) INSPECTIONS

CVSA inspections are conducted on both the vehicles and the drivers of those vehicles by CVSA certified inspectors which includes RCMP and city, municipal and county enforcement.

The inspections are conducted in accordance with the criteria outlined by the Commercial Vehicle Safety Alliance.

VEHICLE INSPECTION STATIONS

Commercial vehicles with a weight of 4,500 kgs or more must report to a vehicle inspection station as required (generally indicated by a sign and/or flashing lights).

Commercial vehicles with a registered GVW of 10,000 kgs or greater must report to a vehicle inspection station as required (generally indicated by a sign and/or flashing lights).

To ensure compliance with regulatory requirements, an officer may conduct an inspection on your vehicle, cargo, equipment and/or your documentation. If the driver or vehicle is unsafe to operate on the highway they will not be permitted to leave the vehicle inspection station until the unsafe issues are resolved.

There are several reports that an officer can complete and give to you, any Commercial Vehicle Inspection Reports (CVIR), Traffic Violation Reports, or Out of Service Reports must be reported to your supervisor immediately.

UNIT

FIVE

UNIT FIVE: VALID/INVALID CONVOY COMBINATIONS

In order to ensure compliance with the Oil and Gas Well Service Rig permit is being achieved, both the service rig contractor and their drivers must understand the difference between a valid and invalid convoy combination.

This unit will provide you with examples of valid and invalid convoy combinations.

LEARNING OBJECTIVES

Upon completion of this unit you will be able to:

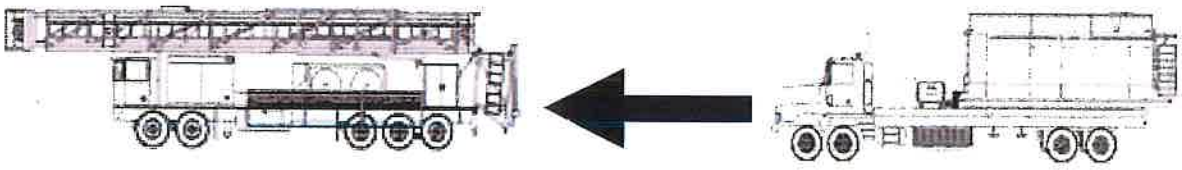
- Understand what makes a convoy valid/invalid;
- Identify valid convoy combinations;
- Identify invalid convoy combinations.

SCENARIO 1

VALID CONVOY

Driver One:
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC

Driver Two:
Class 1 Licence
CAODC CTC



Service Rig

Pump Truck

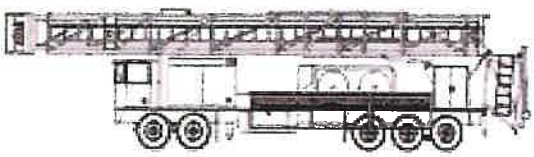
This scenario is correct because driver one has a Class 5 Licence w/Airbrake Endorsement and an HDTC, while driver two has a Class One Licence and a CTC. Together these drivers form a legal convoy.

SCENARIO 2

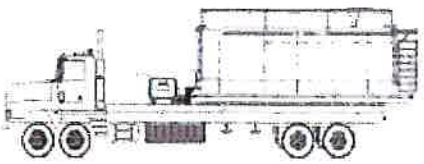
VALID CONVOY

Driver One:
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC

Driver Two:
Class 5 Licence
CAODC HDTC



Service Rig



Pump Truck

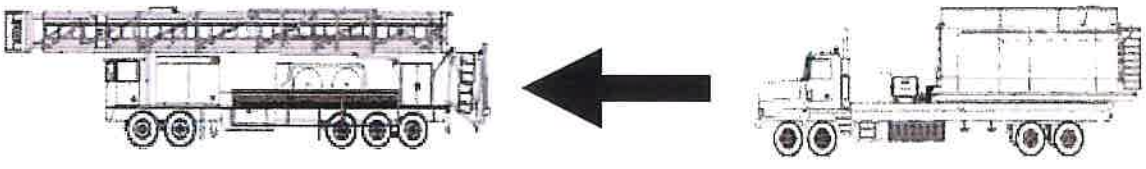
This scenario is correct because both drivers have the proper CAODC training certificates (HDTC). Together these drivers form a legal convoy.

SCENARIO 3

VALID CONVOY

Driver One (Trainee):
Class 5 Licence w/ Airbrake Endorsement
CAODC CTC

Driver Two (Approved Trainer*):
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC



Service Rig

Pump Truck

In this scenario driver two is training driver one. *An Approved Trainer is a person who meets the requirements outlined in Appendix A of the MOA.

This scenario is correct because both drivers have the proper CAODC training certificates (i.e. CTC and HDTC) and driver two is an Approved Trainer as per the requirements outlined in Appendix A of the MOA. Together these drivers form a legal convoy.

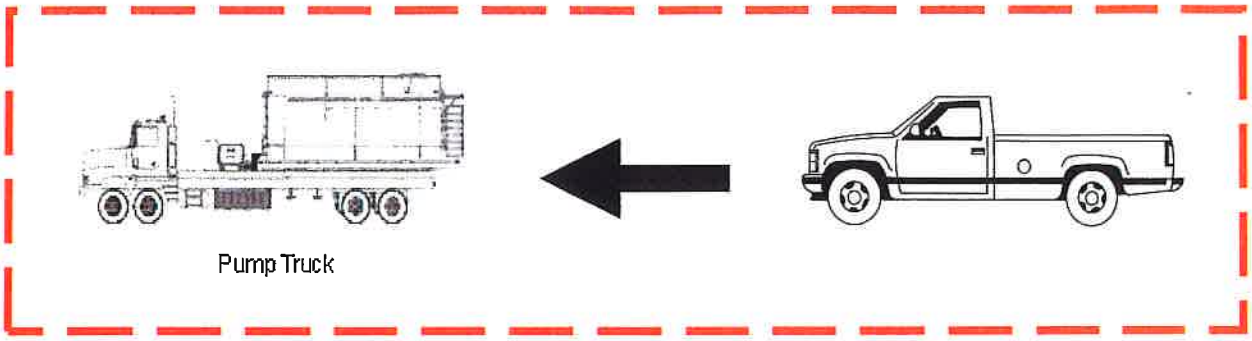
SCENARIO 4

INVALID CONVOY

Driver One (Trainee):
Class 5 Licence w/ Airbrake Endorsement
CAODC CTC

Note: *Pump truck is equipped with 2 seats.*

Driver Two (Approved Trainer*):
Class 5 Licence
CAODC HDTC



In this scenario driver two is training driver one. *An Approved Trainer is a person who meets the requirements outlined in Appendix A of the MOA.

This scenario is incorrect. While both drivers have the proper CAODC training certificates (i.e. CTC and HDTC) and driver two is an Approved Trainer as per the requirements outlined in Appendix A of the MOA, driver one is operating a vehicle that is equipped with 2 seats.

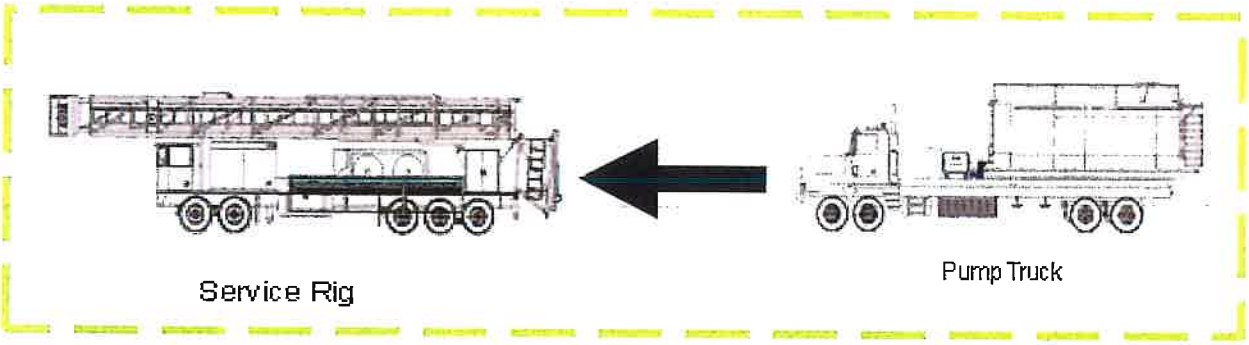
As per the requirements outlined in Appendix A of the MOA: a driver receiving on-road driver training to qualify for an HDTC may operate a service rig possessing only a CTC providing An Approved Trainer is either in the vehicle with the Trainee or, if there is no seat position available, the Approved Trainer follows the Trainee in another vehicle that is in view of the vehicle being operated by the Trainee and is capable of communicating directly with the Trainee via 2-way radio communication device.

SCENARIO 5

VALID CONVOY

Driver One (Trainee):
Class 5 Licence w/ Airbrake Endorsement
CAODC CTC

Driver Two (Approved Trainer*):
Class 1 Licence
CAODC CTC



In this scenario driver two is training driver one. *An Approved Trainer is a person who meet the requirements outlined in Appendix A of the MOA.

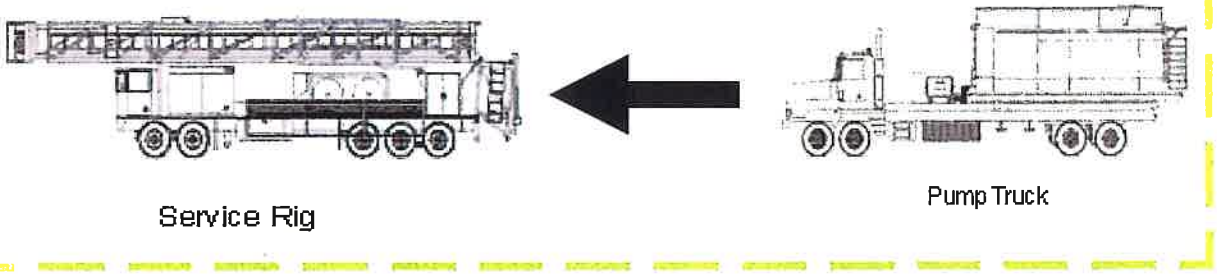
This scenario is correct because both drivers have the proper CAODC training certificates (i.e. HDTC and Class 1 licence w/CAODC CTC) and driver two is an Approved Trainer as per the requirements outlined in Appendix A of the MOA. Together these drivers form a legal convoy.

SCENARIO 6

VALID CONVOY

Driver One:
Class 3 Licence
CAODC CTC

Driver Two:
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC



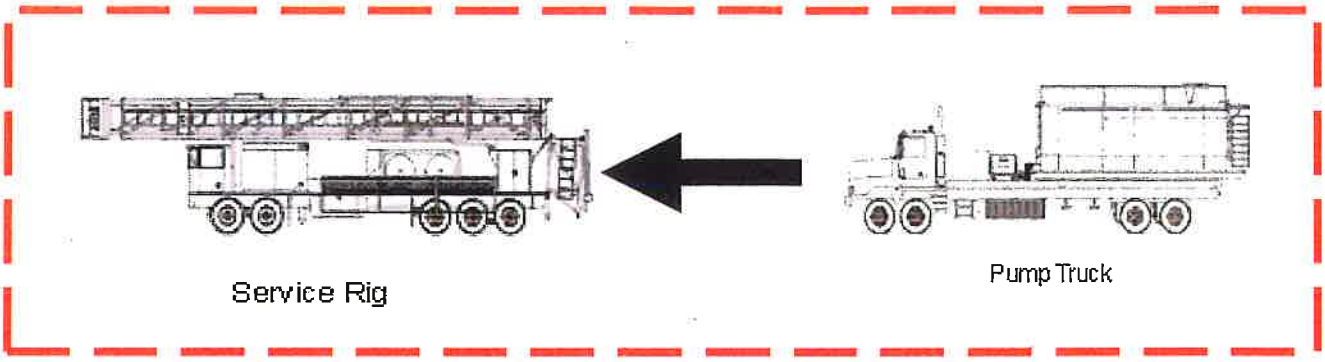
This scenario is correct because driver one has the proper class of licence for the service rig (Class 3) and a CTC, while driver one has a Class 5 licence and an HDTC. Together these drivers form a legal convoy.

SCENARIO 7

INVALID CONVOY

Driver One:
Class 3 Licence
No CAODC CTC

Driver Two
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC



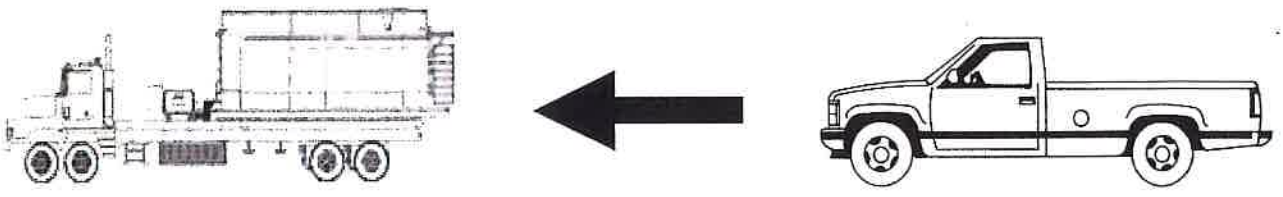
This scenario is incorrect. While driver one has the proper class of licence for the service rig (Class 3), he does not have a CTC and therefore cannot form part of the convoy.

SCENARIO 8

VALID CONVOY

Driver One:
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC

Driver Two:
Class 5 Licence
CAODC CTC



Pump Truck

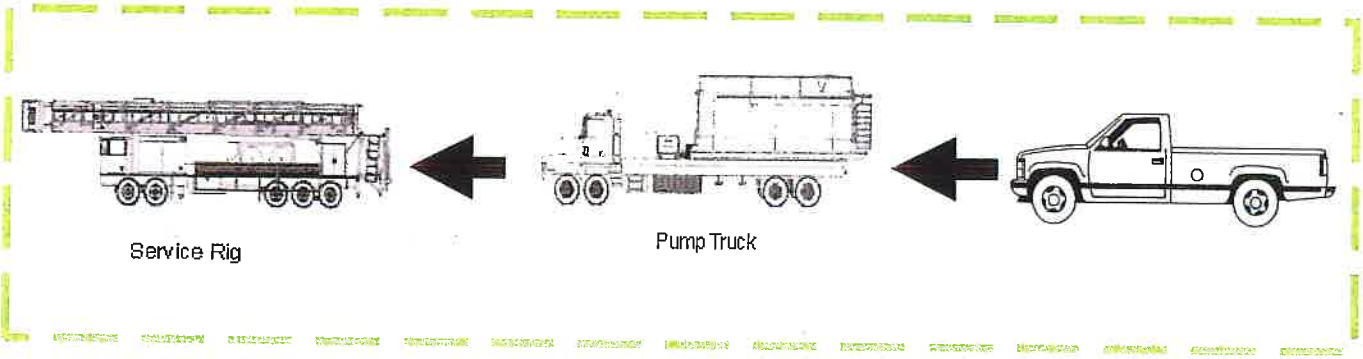
This scenario is correct because both drivers have the proper CAODC training certificates (i.e. HDTC and CTC) and by driver two having a CTC, he creates a valid convoy for driver one. Together these drivers form a legal convoy.

SCENARIO 9

VALID CONVOY

Driver One:
Class 1 Licence
CAODC CTC

Driver Three (Approved Trainer*):
Class 5 Licence
CAODC HDTC



Driver Two (Trainee):
Class 5 Licence w/Airbrake Endorsement
CAODC CTC

Note: *pump truck is equipped with 1 seat.*

In this scenario driver three is training driver two. *An Approved Trainer is a person who meets the requirements outlined in Appendix A of the MOA.

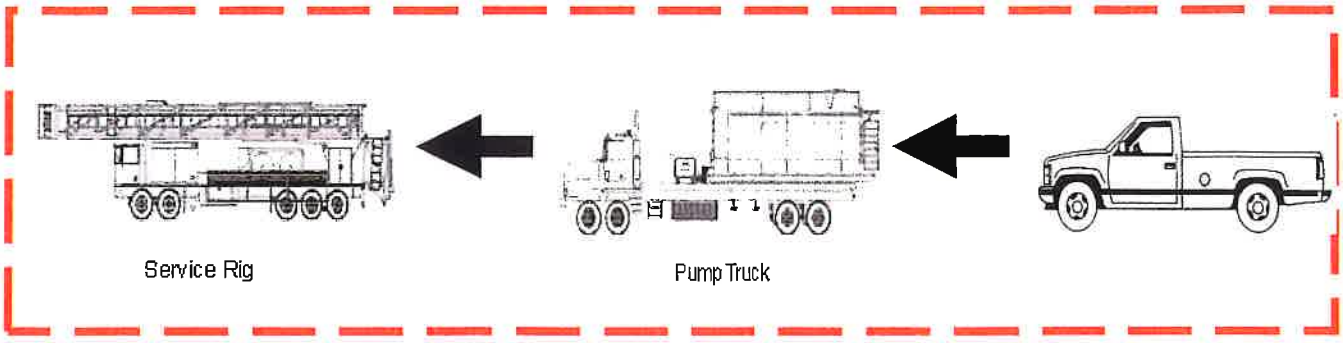
This scenario is correct because all drivers have the proper CAODC training certificates (i.e. HDTC and CTC). In addition driver three is an Approved Trainer following behind the Trainee who is operating a pump truck equipped with only 1 seat.

SCENARIO 10

INVALID CONVOY

Driver One:
Class 1 Licence
CAODC CTC

Driver Three (Approved Trainer*):
Class 5 Licence
CAODC HDTC



Driver Two (Trainee):
Class 5 Licence w/Airbrake Endorsement
CAODC CTC

Note: *pump truck is equipped with 2 seats.*

In this scenario driver three is training driver two. *An Approved Trainer is a person who meets the requirements outlined in Appendix A of the MOA.

This scenario is incorrect. While all drivers have the proper CAODC training certificates (i.e. CTC and HDTC) and driver three is an Approved Trainer as per the requirements outlined in Appendix A of the MOA, driver two is operating a vehicle that is equipped with 2 seats.

As per the requirements outlined in Appendix A of the MOA: a driver receiving on-road driver training to qualify for an HDTC may operate a service rig possessing only a CTC providing An Approved Trainer is either in the vehicle with the Trainee or, if there is no seat position available, the Approved Trainer follows the Trainee in another vehicle that is in view of the vehicle being operated by the Trainee and is capable of communicating directly with the Trainee via 2-way radio communication device.

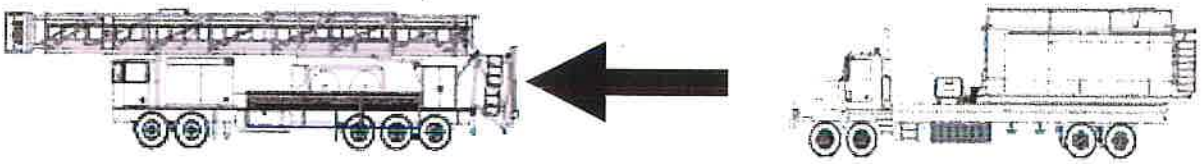
CHECK YOUR UNDERSTANDING

Check your understanding by answering the following questions. When finished, check your answers with the answers key on page 90:

INVALID CONVOY #1

Driver One:
Class 1 Licence
No CAODC CTC

Driver Two:
Class 5 Licence w/ Airbrake Endorsement
CAODC HDTC



Service Rig

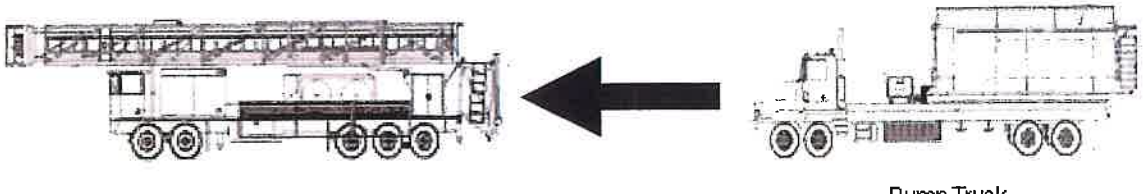
Pump Truck

This is an invalid convoy, why?

INVALID CONVOY #2

Driver One:
Class 5 Licence
CAODC CTC

Driver Two:
Class 5 Licence
CAODC CTC



Service Rig

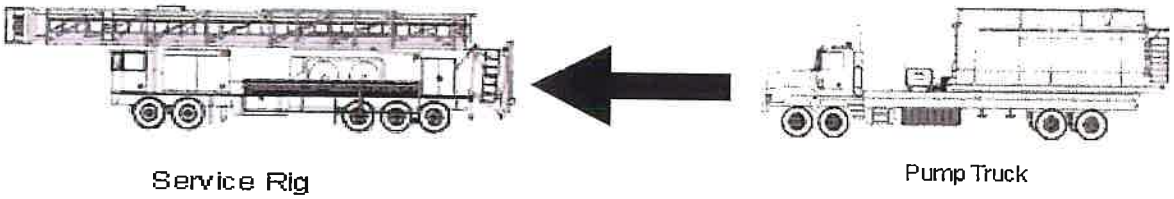
Pump Truck

This is an invalid convoy, why?

INVALID CONVOY #3

Driver One (Approved Trainer):
Class 1 Licence
CAODC CTC

Driver Two (Trainee):
Class 5 Licence w/ Airbrake Endorsement
CAODC CTC



Service Rig

Pump Truck

This is an invalid convoy, why?

CHECK YOUR UNDERSTANDING – ANSWER KEY

INVALID CONVOY #1

Although driver one has a Class 1 licence and is legal to operate the service rig outside of a convoy, he is unable to support a convoy with driver two.

Because driver two holds an HDTC he requires an additional driver that is properly certified in order to form a legal convoy. For this to be a valid convoy combination, driver one must have a CAODC CTC in order to form a legal convoy with driver two.

INVALID CONVOY #2

Neither driver is properly certified (both hold a CTC when they should hold an HDTC), nor does either driver hold the proper class of licence for the vehicle being driven (Class 1 or 3). In addition, neither driver has an airbrake endorsement.

INVALID CONVOY #3

As per the requirements outlined in Appendix A of the MOA, driver one is a Trainee and is therefore required to be in front of the Approved Trainer: *a driver receiving on-road driver training to qualify for an HDTC may operate a service rig possessing only a CTC providing An Approved Trainer is either in the vehicle with the Trainee or, if there is no seat position available, the Approved Trainer follows the Trainee in another vehicle that is in view of the vehicle being operated by the Trainee and is capable of communicating directly with the Trainee via 2-way radio communication device.*

APPENDIX I

MOA

APPENDICES

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is made as of the 15TH day of December, 2015

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA,
as represented by the Minister of Transportation ("Transportation")

And

Canadian Association of Oilwell Drilling Contractors (the "Association")

WHEREAS the Provinces of Alberta, British Columbia and Saskatchewan have entered into the New West Partnership Agreement, an economic partnership Agreement in which the three provinces commit to the reduction of barriers to trade and labour mobility and the promotion of the free movement of goods, services, investment, and people within the western provinces.

AND WHEREAS Transportation and the Association recognize that the service rig industry presents a unique situation with respect to highway transportation safety, in that service rigs and support vehicles as defined in this Agreement operate within a limited radius or within recognized "fields", and as such frequently travel short distances on highways and spend up to 95% of their total operating time stationary or "rigged up" on a site.

AND WHEREAS the operation of Service Rigs and their support vehicles registered in Alberta to members of the Association are regulated by The Traffic Safety Act, Dangerous Goods Transportation and Handling Act or The Transportation of Dangerous Goods Act,1992 (Canada) and The Motor Vehicle Transport Act (Canada) and their regulations.

AND WHEREAS the primary purpose of transportation safety legislation is to protect the motoring public and the operators and passengers of these regulated vehicles.

AND WHEREAS Service Rigs and their support vehicles have unique operating characteristics, are driven at lower than highway posted speeds, and typically travel in convoys.

AND WHEREAS Contractors provide specialized training to drivers of these vehicles.

AND WHEREAS The Traffic Safety Act, Dangerous Goods Transportation and Handling Act or The Transportation of Dangerous Goods Act,1992 (Canada) and The Motor Vehicle Transport Act (Canada) and their regulations provide for the issuance of permits exempting a vehicle or its operation from one or more requirements.

NOW THEREFORE the parties agree as follows:

1. For the purposes of this Agreement:

   (a) "Contractor" means members of the Association who are registered owners of Service Rigs and their support vehicles;

   (b) "Convoy" means two or more Service Rigs, traveling no more than five minutes apart and operating at no more than 80 kilometers per hour;

   (c) "Permit" – means a document signed by the registrar exempting a person or vehicle from one or more requirements of the Traffic Safety Act in accordance with section 62 of the Act.

   (d) "Permit Holder" is a Contractor who holds a permit issued under this Agreement and

   (e) "Service Rig" is defined as a mobile service vehicle composed of a derrick, drawworks and capable of pulling and running jointed tubulars and conventional sucker rods, including support vehicles such as pump trucks, winch trucks, portable doghouses (crew change facilities), and a rig manager's vehicle.

2. Transportation retains the right to regulate and monitor Contactors under its progressive monitoring program and where compliance issues are identified, Transportation may among other actions:

   - Refuse to issue a permit identified under this Agreement;
   - Remove one or more conditional exemptions set out in a permit;
   - Cancel or suspend a permit identified under this Agreement;
   - Change a Contractor's safety fitness rating; or
   - Cancel or suspend their Safety Fitness Certificate.

3. Permits issued pursuant to this Agreement shall be valid only in Alberta and for a maximum period of five (5) years.

4. The permit will be valid for a maximum of five years at a cost of $100.00. The permit fee remains a $100.00 regardless of the length time the permit is valid.

5. Each Contractor shall be responsible for applying to the Registrar for a Permit.

6. A Permit issued pursuant to this Agreement shall allow a driver with a Class 5, 4, 3, or 2 operator's licence to operate a Service Rig in a convoy provided that the Contractor and driver have:

- Complied with requirements prescribed in Appendix A of the permit;
- Complied with the permit conditions; and
- Complied with the guidelines identified in the CAODC Service Rig Vehicle & Driver Standards Guide.

7. Unless specifically stated otherwise in the Permit the expiry date of an inspection conducted under the Commercial Vehicle Inspection Program (CVIP) shall be extended to five (5) years provided that the Contractor and driver have:

   - Complied with the requirements prescribed in Appendix B of the permit;
   - Complied with the permit conditions; and
   - Complied with the guidelines identified in the CAODC Service Rig Vehicle & Driver Standards Guide.

8. Transportation and the Association will continue to discuss the development of a process setting out the conditions to be met for a driver seeking to operate a vehicle for which a Class 1 or Class 3 operator's licence is required where the driver does not hold the proper Class of operator's licence.

9. Permit application forms referenced in this Agreement must be submitted by each individual Contractor and completed in a manner acceptable to Transportation. To qualify for and maintain a permit, Contractors must meet Transportation's criteria to hold a permit.

10. Only drivers and vehicles registered in the name of the Permit Holder may operate under the authority of the Permit.

    - Notwithstanding the above statement; providing the Permit Holder and driver have met all requirements outlined in Appendix A of this permit, and providing the driver is an employee of the Permit Holder, the Permit Holder may allow that driver to operate a commercial vehicle that is registered in the driver's name.

11. Transportation may conduct an audit or investigation of a Contractor to measure their compliance with transportation safety legislation, the regulations, a permit, or the requirements of this Agreement.

    In the case of a Contractor who resides outside of Alberta, Transportation may request the assistance of another jurisdiction. The cost of an investigation or audit where a third party auditor is used will be the responsibility of the Contractor.

12. Transportation will require that a CAODC MOA Audit be conducted by a third party at least once every three years to measure the Contractor's compliance with the

permit conditions and this Agreement. The three year period will start from the completion date of the previous audit, or in the case of a new permit, the date the permit was issued.

A valid audit must be:

- Completed by an auditor that has been approved by Transportation and the Association;
- Conducted based on the criteria approved by Transportation, and;
- Recorded on a form acceptable to Transportation.

The cost of the audit will be the responsibility of the Contractor. The audit may be conducted in conjunction with the Certificate of Recognition (COR) program.

13. Where a valid CAODC MOA Audit is not submitted to Transportation within 30 days after the due date, the permit will be cancelled.

14. For a Contractor to be eligible for permit renewal, they must submit a completed permit application form and application processing fee to Transportation.

    Where a completed permit application form and application processing fee is not received by Transportation on or before the permit expiration date, the permit will be cancelled.

15. Transportation agrees to notify each Permit Holder prior to the alteration, cancellation or expiry of a permit issued under this Agreement.

16. Transportation agrees to inform the Association if:

    - A Contractor is refused issue of a permit identified under this Agreement;
    - One or more of the conditional exemptions set out in the Contractors permit is removed;
    - A Contractors permit identified under this Agreement is cancelled or suspended;
    - There is a change to the Contractor's safety fitness rating, or the Contractor's Safety Fitness Certificate is cancelled or suspended.
    - Receives an unacceptable score on any audit conducted by or on behalf of Transportation;
    - Receives a "Conditional" or "Unsatisfactory" Safety Fitness Rating.

17. The Association agrees to:

- Support the identified goals of this Agreement,
- Promote transportation compliance and safety among all of its members, and
- Support the education of its members in the applicable aspects of Alberta's transportation legislation and this Agreement.

18. This Agreement will be reviewed at least once annually or earlier if requested by either of the parties.

19. The parties agree that any dispute that arises between the identified parties of this Agreement will initially be attempted to be resolved through collaborative negotiations.

This Agreement will take effect on January 1, 2016

IN WITNESS WHEREOF the parties have executed this Memorandum of Agreement as of the day and year first above written.

Canadian Association of Oilwell Drilling Contractors

Mark Scholz
President

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA,
as represented by the Minister of Transportation

Greg Bass
Deputy Minister of Transportation

Appendix A

Driver Training and Certification - Performance Standards and Measures

CONDITIONAL EXEMPTION	PERFORMANCE STANDARD	PERFORMANCE MEASURE
To allow a driver with a Class 5, 4, 3 or 2 operator's licence to operate a service rig as defined under the Alberta Memorandum of Agreement (ABMOA). **Note for clarification:** As per Section 27 of The Operator Licensing and Vehicle Control Regulation (AR 320/2002), all drivers that operate a vehicle equipped with air brakes must have a Q Endorsement.	When issuing a CAODC Heavy Duty Training Certificate (HDTC), a Contractor must conduct adequate training, evaluation, and certification of their drivers based on: • The Alberta Memorandum of Agreement (ABMOA); • Appendix A – Driver Training and Certification Performance Standards and Measure; • The permit conditions and; • The CAODC Service Rig Vehicle & Drivers Standards Guide. **A. TRAINING** Contractors shall, in addition to complying with motor transport regulatory legislation as defined in Section 130(1)(g) of The Traffic Safety Act and attendant regulations, provide training in: • The Contractor's Safety and Maintenance plans; • Cargo Securement using the Oil and Gas Industry Cargo Securement Best Practice (see Annex 1); • General safety by viewing CAODC's Service Rig Driver Safety Training Video; • The operation of a service rig where the driver has a valid Class 5, 4, 3 or 2 operator's licence but requires a Class 3 or 1 licence.	**A. TRAINING** For each driver operating under the permit, the Contractor shall maintain a record of training that documents the following: • The content of each course completed; • The date(s) and duration(time) of the courses taken (class room and behind the wheel); and • The name of the person who conducted the training; • Cargo Securement; • Viewing of the CAODC's Service Rig Driver Safety video.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	Training must, at a minimum, include all items noted in the CAODC's Service Rig Vehicle & Driver Standards Guide. Training must include both theory and behind-the-wheel training.	All training shall meet the performance standards outlined in this Appendix.
	B. DRIVER EVALUATION AND CERTIFICATION Contractors shall, in addition to complying with the requirements prescribed in The Traffic Safety Act and attendant regulations, conduct driver evaluations that meet the following:	**B. DRIVER EVALUATION AND CERTIFICATION**
	For Convoy Training Certification (CTC), a Contractor must: • Verify the driver has a valid Class 5, 4, 3, 2 or 1 operator's licence, and • Administer the CAODC Service Rig Convoy Training Certificate Exam.	For those drivers holding a CTC, the Contractor shall have on file a copy of the driver's completed CAODC Service Rig Convoy Training Certificate Exam. The driver must have passed the exam with a score of 85% or greater.
	For Heavy Duty Training Certification (HDTC), a Contractor must: • Ensure that a driver does not hold a Class 5 Probationary Operator's (Graduated Driver's) Licence as defined in Section 33 of The Operator Licensing and Vehicle Control Regulation (AR 320/2002); • Ensure the driver holds a CTC; • Complete a trip inspection assessment of the driver's skills; and	For drivers that have obtained an HDTC by completing the CAODC Driver Training program, the Contractor shall have on file: • A completed copy of the CAODC Trip Inspection Competency Assessment Form (see Annex 2); • A completed copy of the CAODC On-Road Competency Assessment Form (see Annex 3). To be considered complete, all forms must be fully completed in a legible manner and be signed and dated by all parties.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	• Conduct an on-road competency assessment of the driver's skills.	For each driver issued a CTC or HDTC, a copy of the certificate(s) shall be placed in the employee's file.
	C. PREVIOUS TRAINING BY ANOTHER CONTRACTOR Notwithstanding the driver training requirements set out in this Appendix, where a driver has been issued either a CTC or an HDTC by a previous employer, the Contractor presently employing that driver will have been deemed to meet all training requirements if: • A copy of the CTC or HDTC issued by the previous employer is filed in the driver's employee file. (If the driver's previous certificate is not on file, the driver and Contractor must comply with this Appendix before a training certificate is to be issued), and • A new CTC or HDTC is issued to the driver and a copy of that certificate is filed in the driver's employee file.	**C. PREVIOUS TRAINING BY ANOTHER CONTRACTOR** When a driver holds either a CTC or an HDTC issued by a previous employer, the Contractor must document the following: • The driver's CTC or HDTC issued by the previous employer and; • A copy of the driver's current CTC or HDTC issued by the current employer (Contractor). Contractors are not obligated to accept a previously issued CTC or HDTC and have the option to require a driver be re-evaluated if they so choose. If the driver cannot produce either a CTC or an HDTC issued by a previous employer, they are required to repeat training as outlined in this Appendix. **Note:** *A driver holding an HDTC is recognized to hold both levels of certification (CTC and HDTC).*
	D. ON-ROAD DRIVER TRAINING AND APPROVED TRAINER QUALIFICATIONS A driver receiving on-road driver training to qualify for an HDTC may operate a service rig possessing only a CTC providing:	**D. ON-ROAD DRIVER TRAINING AND APPROVED TRAINER QUALIFICATIONS** Compliance verified at roadside.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	• They carry and produce, on demand of a peace officer, their CTC; • The Trainee is not operating under a Probationary Operator's (Graduated Driver's) Licence; An Approved Trainer is either in the vehicle with the Trainee or, if the vehicle being operated has been manufactured without a secondary seat position, the Approved Trainer follows the Trainee in another vehicle that is in view of the vehicle being operated by the Trainee and is capable of communicating directly with the Trainee via 2-way radio communication device. An Approved Trainer may conduct on-road driver training to Trainees qualifying for an HDTC and possessing only a CTC providing: • The Approved Trainer holds the proper Class of operator's licence for the vehicle being operated by the Trainee, and a CTC (when training in convoy); or • The Approved Trainer holds a valid Class 5, 4, 3 or 2 operator's licence and an HDTC. o In the case where the Approved Trainer holds an HDTC, they shall also hold a senior position in the company such as a Driller/Operator, Rig Manager and Field Superintendent or equivalent; When conducting on-road training the Approved Trainer must carry and produce, on demand of a peace officer, their HDTC.	The person conducting on-road driver training must meet the performance standards outlined in this Appendix or be otherwise approved by Transportation.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	E. ON-ROAD COMPETENCY ASSESSMENTS AND APPROVED ASSESSORS' QUALIFICATIONS A driver undergoing an assessment to receive their HDTC may operate a service rig under the authority of a CTC providing they carry and produce their CTC on demand of a peace officer. Approved Assessors may conduct on-road competency assessments to drivers qualifying for an HDTC providing: • The Approved Assessor holds the proper Class of operator's licence for the vehicle being operated by the Trainee and a CTC (when assessing in convoy); or • The Approved Assessor holds a valid Class 5, 4, 3 or 2 operator's licence and an HDTC. In the case where the Approved Assessor holds an HDTC, they shall also hold a senior position in the company such as a Driller/Operator, Rig Manager and Field Superintendent or equivalent. When conducting on-road training the Approved Assessor must carry and produce, on demand of a peace officer, their HDTC. Approved Assessors must also meet one of the following qualifications: • Be an Enform Certified Assessor who has completed Enform's Service Rig Competency Assessor course; • Possess a valid Class 1 operator's licence for at least two years;	**E. ON-ROAD COMPETENCY ASSESSMENTS AND APPROVED ASSESSORS' QUALIFICATIONS** The person conducting on-road assessments must meet the performance standards outlined in this Appendix or be otherwise approved by Transportation. Where the Approved Assessor is an employee of the Contractor, their qualifications must be documented in their employee file, including title with the company and a copy of their driver's abstracts dated within six months prior to any assessment conducted within the past three years.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	• Be employed as a driver trainer at the time of the assessment with an institution that has been licensed for that function by Transportation, or • Be otherwise approved by Carrier Services, Transportation.	Where the Approved Assessor is not an employee of the Contractor, evidence of their qualifications must be documented and produced as required. The requirement to obtain and review a Commercial Driver Abstract does not apply to an Approved Assessor that, at the time of the assessment, was licensed for that function by Alberta Transportation. Where an Approved Assessor has been otherwise approved by Carrier Services, a letter from Carrier Services must be on file.
	No Approved Assessor shall have more than seven demerit points on their operator's licence at the time of an assessment.	No Approved Assessor shall conduct an assessment if they have more than seven demerit points on their operator's licence.
	F. Monitoring (Commercial Driver's Abstracts and Carrier Profile) **Note:** *effective July 1, 2013 contractors must obtain Commercial Driver Abstracts (CDA) on all drivers operating under the ABMOA. Standard Abstracts will no longer be an acceptable form of driver monitoring.* At least every six months the Contractor shall obtain and review: • CDAs on all drivers that operate vehicles under the permit and;	**F. Monitoring (Commercial Driver's Abstracts and Carrier Profile)** Standard abstracts obtained before July 1, 2013 will be accepted to satisfy the conditions of Section 41(1)(c) of The Commercial Vehicle Certificate and Insurance Regulation. The CDA shall be reviewed to ensure drivers have the proper class of licence, the licence is valid and, for those drivers that have been issued an HDTC, the licence it is not a Probationary Operator's (Graduated Driver's) Licence. A driver's employee file shall contain copies of their CDA which have been obtained for at least six month intervals.

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
		CDA's must be retained from the date the driver obtained a CTC, HDTC or for five years, whichever is less.
	• Carrier Profile reports to identify drivers who have committed a violation.	The Contractor shall maintain on file copies of their Carrier Profile reports that are dated at no more than six month intervals. The reports shall be maintained on file for at least three years. The person reviewing the commercial driver abstract (CDA) shall ensure that: • The driver has a valid Class 5, 4, 3 or 2 operator's licence; • Drivers who hold an HDTC do not hold a Probationary Operator's (Graduated Driver's) Licence.
	Note: *The initial review of the above can be completed by administrative staff.*	
	Where a CDA or Carrier Profile identifies a violation of a safety law or a collision while an employee is driving one of the Contractor's vehicles, the event must be investigated and discussed with the driver. The review shall be conducted by a Safety Officer or a Manager, and remedial action must be documented in the employee's file.	Each profile event documented on the CDA, that was identified while the driver was operating one of the Contractor's vehicles, must be: • Investigated by a Safety Officer or Manager; • Discussed with the driver. In such circumstances, appropriate action must be taken and the process and/or any outcomes, documented in the driver's employee file.
	Where an event has been investigated and signed off previously, it does not have to be reinvestigation and signed off a second time.	A Contractor must be able to show that each profile event (conviction, CVSA inspection, collision and violation) on their profile has been: • Investigated by a Safety Officer or Manager; • Discussed with the driver;

Appendix A

Driver Training and Certification - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
		• Appropriate action has been taken; and • The process and/or outcomes documented in the driver's employee file.
	G. DRIVER TRAINING - GRANDFATHERING PROVISION Notwithstanding the driver training requirements set out in this Appendix, drivers who have met one of the following requirements under this grandfathering provision are deemed to have met the standards set out in this Appendix:	**G. DRIVER TRAINING - GRANDFATHERING PROVISION** Drivers who have been grandfathered under any of referenced provisions must have a current HDTC in their employee file.
	G1 The driver possessed a CAODC Driver Training Certificate (CDTC);	
	G2 The driver was employed with the Contractor since November 1, 2010 and successfully completed the CAODC Service Rig Vehicle Driver Competency Evaluation;	For drivers who have been grandfathered under G.2, a completed copy of a CAODC On-Road Assessment Evaluation Competencies form (see Annex 4), and a copy of their current HDTC must be in their employee file.
	G3 Prior to June 1, 2011, been issued an HDTC and obtained one of the following Enform certifications: • Derrickhand Competency; • Driller Competency; or • Well Servicing BOP.	For drivers who have been grandfathered under G.3, a copy of their Enform certificate and a copy of their current HDTC must be in their employee file.

Appendix B

Extension of Commercial Vehicle Inspection Certificate to a Maximum of Five Years - Performance Standards and Measures

CONDITIONAL EXEMPTION	PERFORMANCE STANDARD	PERFORMANCE MEASURE
Expiry date of inspections conducted under the Commercial Vehicle Inspections Program (CVIP) extended to up to five years. **Note for clarification:** 1. Contractors obtaining CVIP inspections as per regulatory requirements do not need to comply with this Appendix; 2. Daily trip inspection report forms and the semi-annual internal vehicle inspection report forms must be maintained in the Contractor's vehicle maintenance file at the Contractor's principal place of business in Alberta as defined in The Commercial Vehicle Safety Regulation (AR 121/2009)	In addition to meeting all regulatory requirements regarding implementation of a written maintenance program, daily trip inspection requirements and record keeping, Contractors must also complete semi-annual internal vehicle inspections. **A. DAILY TRIP INSPECTIONS** The driver of a vehicle, or a person designated by the Contractor to do so, shall complete a daily trip inspection as per regulatory requirements. If operating under this permit, the person completing the daily trip inspection shall use the CAODC Service Rig Trip Inspection Form (see Annex 1) or a form meeting the requirements of *Commercial Vehicle Safety Regulation*, AR 121/2009.	**A. DAILY TRIP INSPECTIONS** CAODC Service Rig Trip Inspection Forms or forms meeting the requirements of the *Commercial Vehicle Safety Regulation*, AR 121/2009 must be completed and retained by the Contractor for six months as per regulatory requirements.

Appendix B

Extension of Commercial Vehicle Inspection Certificate to a Maximum of Five Years - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
		All other daily trip inspection forms completed within the past six months must be maintained in the Contractor's vehicle maintenance file at their principal place of business in Alberta as per regulatory requirements.
	B. SEMI-ANNUAL MAINTENANCE INSPECTIONS Where required by Alberta Regulation, the Contractor must have obtained a CVIP inspection on their service rigs. When exercising the CVIP extension provided for in this Appendix, the Contractor must not use a CVIP inspection form that was completed under a different registered owner. For those vehicles registered at a weight of 11,794 kgs or greater, Contractors must inspect each vehicle at least every 6-months (semi-annually) under their preventative maintenance program. Semi-annual inspections must be documented on a CAODC Semi-Annual Maintenance Inspection Form (see Annex 2). All items on the form must be inspected to CVIP standards.	**B. SEMI-ANNUAL MAINTENANCE INSPECTIONS** Once the Permit Holder has obtained a valid CVIP inspection as required The Vehicle Inspection Regulation (AR 211/2006), the inspection shall be valid for five years from the inspection date. This initial CVIP inspection must be performed to the following standards: • Completed by a technician as defined by The Vehicle Inspection Regulation (AR 211/2006); • CVIP inspections performed by a technician must be conducted in a registered and valid CVIP facility. Contractors must have all CVIP forms, or a copy thereof, issued for each service rig in the past five years in their vehicle maintenance file. All CVIP forms must be issued in the Contractor's name. The most current CAODC Semi-Annual Maintenance Inspection Form must be carried in the vehicle and a copy filed in the Contractor's vehicle maintenance file. CAODC Semi-Annual Maintenance Inspection Forms, or copies thereof, must be retained for at least five years from the inspection date and maintained in the Contractor's vehicle maintenance file at their principal place of business in Alberta.

Appendix B

Extension of Commercial Vehicle Inspection Certificate to a Maximum of Five Years - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	Semi-annual inspections are not required on vehicles that have been placed not in service.	Contractors must have a process in place that documents vehicles that have been placed not in service (e.g. the date the vehicle was placed not in service, why the vehicle was placed not in service, and the date the vehicle was returned to service). This record must be filed in the Contractor's vehicle maintenance file. Any vehicle that has been identified as not in service must not be operated on a highway until a CAODC Semi-Annual Maintenance Inspection Form has been completed. Contractors must have a process in place to ensure any vehicle defects identified are repaired and signed off. Any vehicle that has been identified as not in service must not be operated on a highway until repairs are made. Where an employee, Contractor, or peace officer has detected a vehicle defect, the defect shall be noted in the Contractor's vehicle maintenance file. Once repaired, the person completing the repairs shall sign off that repairs have been completed. The notice of repair shall be retained for 5 years from the inspection date.
	A person conducting the semi-annual maintenance inspection shall be one of the following: 1. A certified Heavy Equipment Technician - Truck and Transport Mechanic journeyperson as defined in the Apprentices Program Regulation (AR 258/2000); or	Where a certified Heavy Equipment Technician - Truck and Transport Mechanic journeyperson has conducted the semi-annual preventative maintenance inspection, their journeyperson certificate number must be documented on the inspection form.

Appendix B

Extension of Commercial Vehicle Inspection Certificate to a Maximum of Five Years - Performance Standards and Measures

	PERFORMANCE STANDARD	PERFORMANCE MEASURE
	2. An employee of the Contractor approved in writing by a Heavy Equipment Technician - Truck and Transport Mechanic journeyperson as competent of completing the semi-annual maintenance inspection to CVIP standards. The journeyperson shall specify an expiration date of their choosing to a maximum of three years that the consent form was signed.	Where approval is given to an employee of the Contractor by a journeyperson, a completed CAODC Semi-Annual Maintenance Inspection – Consent Form (see Annex 3) must be in that employee's file stating they have been trained and are competent in inspecting all items on the CAODC Semi-Annual Maintenance Inspection form to CVIP standards. The Consent Form must be signed, dated and placed in the employee's file. Incomplete forms will not be considered as valid. A journeyperson's approval expires on the date provided on the Semi-Annual Maintenance Inspection – Consent Form and must be refreshed by completing a new Consent Form before that time expires.

APPENDIX III

CARGO/SECURE

Oil and Gas Industry

Cargo Securement

Best Practice

June 2006

PSAC
Petroleum Services Association of Canada

CAODC

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Cargo Securement Best Practice

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Disclaimer

Every effort has been made to ensure completeness, accuracy, and reliability of the data contained in this Best Practice. The Petroleum Services Association of Canada (PSAC) and the Canadian Association of Oilwell Drilling Contractors (CAODC), its subcommittees, and individual members make no representation, warranty, or guarantee in connection with this Best Practice or any publication referred to therein. They hereby disclaim liability or responsibility for loss or damage resulting from the use of this Best Practice or for violation of any statutory or regulatory requirement with which this Best Practice may conflict. In the case of inconsistency or conflict between this Best Practice and applicable legislative requirements, the legislative requirements shall prevail. This Best Practice is meant to provide clarification and interpretation of the regulators' requirements. Final interpretation and enforcement are the jurisdiction of the appropriate regulatory body.

It is the joint responsibility of the carrier, owner, and shipper to ensure the cargo securement systems are properly designed, engineered, installed and used to ensure cargo, meaning equipment used in the oil and gas industry, is safely secured whenever it is on a highway. The regulatory authorities in Alberta, British Columbia and Saskatchewan by reviewing this document are not certifying the design, engineering, or use of these cargo securement systems, or indemnifying PSAC, CAODC, carriers, shippers or vehicle operators in any way.

PSAC and the CAODC do not endorse the use of any particular manufacturer's product. Any descriptions of product types or any schematics of components that bear resemblance to a specific manufacturer's product are provided strictly in the generic sense.

Introduction

The Canadian Association of Oilwell Drilling Contractors (CAODC), the Petroleum Services Association of Canada (PSAC) and transportation authorities in Alberta, British Columbia, and Saskatchewan, together with industry, have developed this Best Practice to address compliance with the North American Cargo Securement Standard (the "Standard") introduced in January 2005. The full Standard is available online at http://www.ccmta.ca/english/pdf/nsc10_e_sept04.PDF

This Best Practice is specific to the transportation of equipment used in Canada's oil and gas industry, and has been designed to meet or exceed the requirements of the Standard. The Best Practice is intended as a compliment to the Standard and not a replacement for it.

Owners/Shippers/Carriers MUST be in compliance with the Standard at all times.

Part 1 - General Provisions - Division 1 - Application of the Standard states:

(1) A carrier shall not permit a driver to operate a vehicle where the cargo transported in or on the vehicle is not contained, immobilized or secured in accordance with this Standard.

(2) A driver shall not operate a vehicle where the cargo transported in or on the vehicle is not contained, immobilized or secured in accordance with this Standard.

There is also a responsibility on the part of the owner/shipper to ensure that their equipment is designed and/or adapted in such a way that it meets the requirements of the Standard.

Part 1 - General Provisions - Division 2 – General Performance Criteria states:

5(1) The cargo securement system shall be capable of withstanding the forces that result if the vehicle is subjected to each of the following accelerations:

(a) 0.8 g deceleration in a forward direction;

(b) 0.5 g deceleration in a rearward direction;

(c) 0.5 g acceleration in either sideways direction.

5(2) The cargo securement system shall provide a downward force equal to at least 20% of the weight of an article of cargo if the article is not fully contained within the structure of the vehicle.

5(3)The load on a component of a cargo securement system that reacts to a force referred to in subsection (1) or (2), shall not exceed the working load limit of the component.

Reference should also be made to the following web site for interpretations guides for the Standard: www.ccmta.ca/english/cargo/interpretation.htm

Production Equipment

Photo courtesy of CAODC

Introduction

Examples of Production Equipment Include:

- Compressors
- Pipe clusters
- Treaters

Key Considerations

Dimensions
Weight
Structural Integrity
Centre of Gravity/Balance

Securement Considerations

Anchor Points
Friction
Securement Devices
Containment
Transportation Performance Criteria

Manufacturers must ensure that all new equipment can be shipped in compliance with the Standard. Anchor points must be present, clearly identified, with the rating clearly stated.

Equipment currently in use still needs to be moved and carriers will have to develop ways to meet the requirements of the Standard by cross chaining loads, using lift points

as tie down points, using friction mats, etc. In cases where equipment cannot be transported in compliance with the Standard, the owners of the equipment will have to retrofit it to ensure compliance before it can be transported.

Best Practice

Equipment manufacturers and carriers will have to work together to ensure compliance with the Standard and manufacturers should consult with carriers during the equipment design stage. Manufacturers can also assist in retrofitting existing equipment. In many cases, manufacturers are currently required to identify and rate tie down points for shipments overseas and this information could be made available for shipments within Canada. In cases where equipment cannot be tied down in a manner that complies with the Standard, manufacturers or owners will have to provide a container to house the equipment for transport.

The Standard specifies that by 2010, all tiedowns, or components of a tie down must be marked by the manufacturer with respect to the working load limit. No distinction is made between new and existing equipment. Carriers will not be able to use any tie downs that are not clearly marked.

Education and enforcement will be key in ensuring compliance with the Standard. Carriers must refuse to transport equipment that cannot be transported in compliance with the Standard. There must be no exceptions.

Links to Transport Canada's Standard 905 and TSD 905:

http://www.tc.gc.ca/acts-regulations/GENERAL/m/mvsa/regulations/mvsrg/900/mvsr905.html

http://www.tc.gc.ca/roadsafety/mvstm_tsd/tm/9050_e.htm

Coil Tubing Operations

Photo courtesy of Sanjel Corporation

Introduction

Examples of Coil Tubing Equipment Include:

- Injectors
- Reels
- Accessories & Tools
- Well Control Equipment

Key Considerations

- Containment
- Dimensions
- Weight
- Structural Integrity

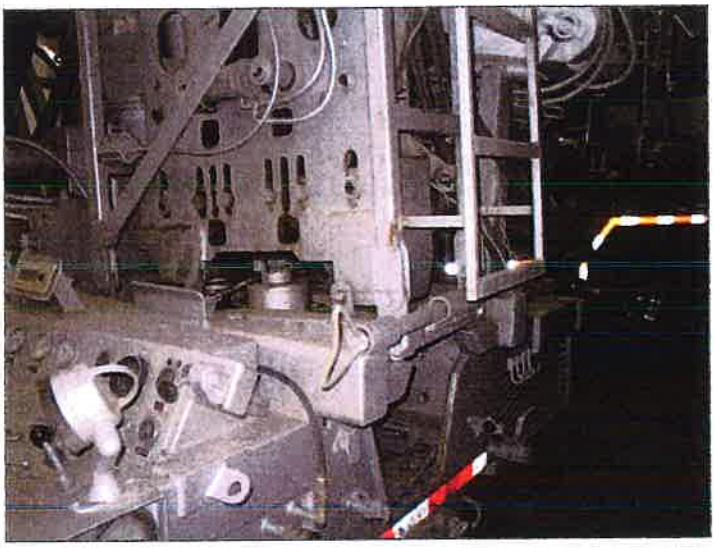
Securement Considerations

- Securement Devices
- Containment

Securement of Injectors

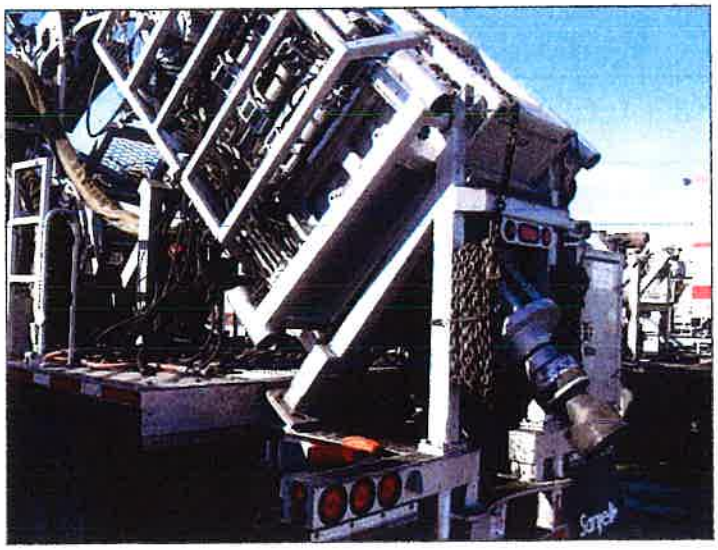
The vehicles in these examples have been specifically designed to carry this equipment. The onus is on the manufacturer to ensure that performance criteria have been met. If they are properly maintained, then they should be in compliance with the Standard.

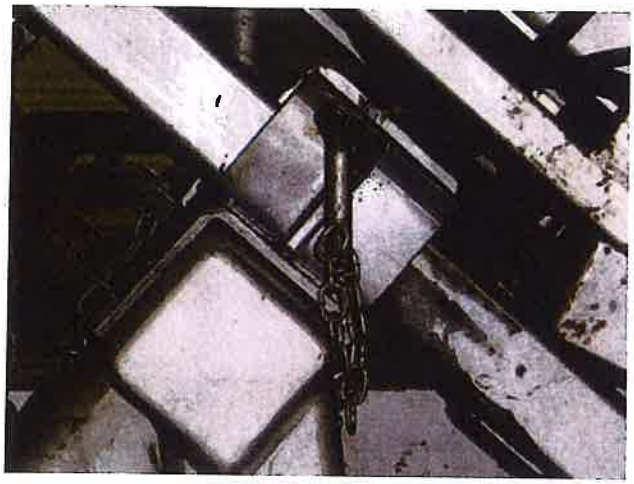
This first injector rests on a saddle and is angled towards the front of the vehicle. A locking pin is placed across the injector using the chassis to keep the injector in place.

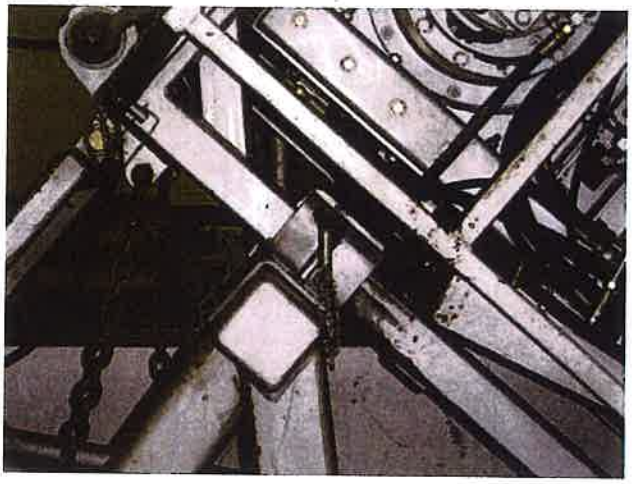


Photos courtesy of Sanjel Corporation

The second type of injector is saddled in place at a steeper angle than the first. It is held in place using 2 pins located at the upper right hand corner.







Photos courtesy of Sanjel Corporation

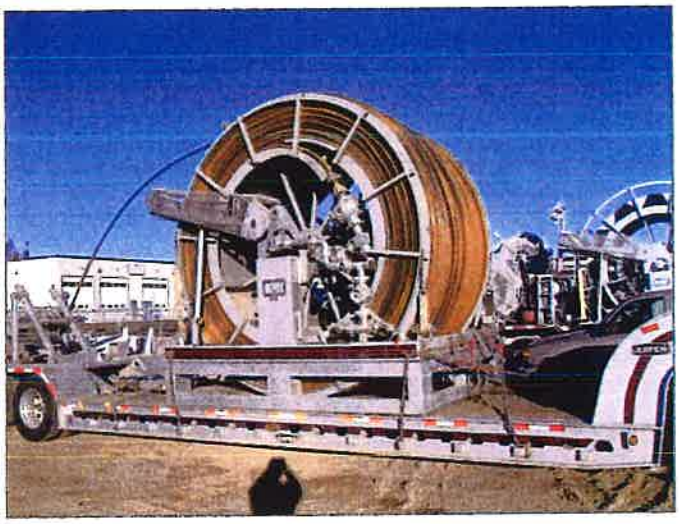
The above photos show the locking pins used to hold down the injector.

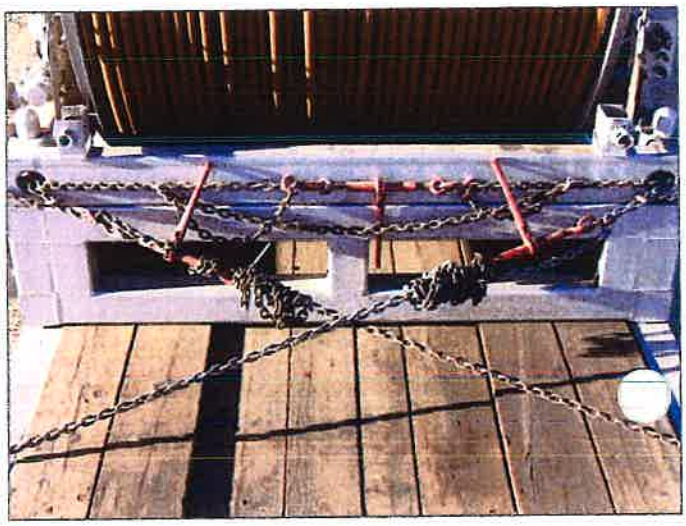
Additional securement on the front (chains, straps and additional securement pins) could be used in the event there is any question as to whether or not these units can meet the requirements for 0.5g deceleration in a rearward direction set out in the Standard.

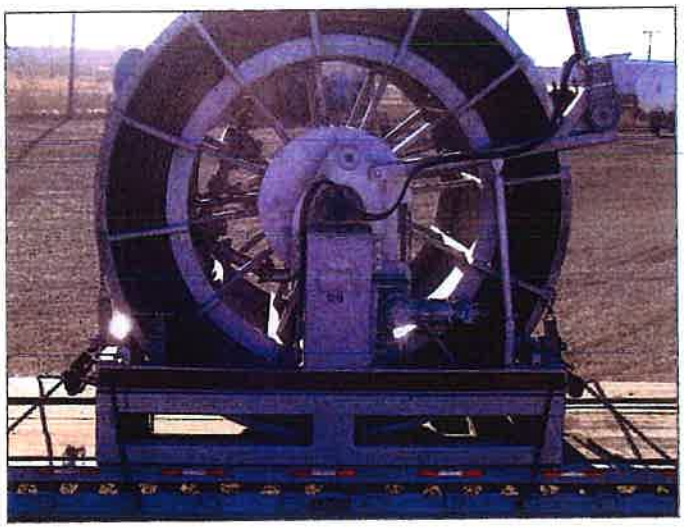
Securement of Coil Tubing Reels

The photos on this page show a coil tubing reel on a lowboy trailer. The coil tubing unit is pinned to a skid – another option is to bolt the unit to the skid. The onus is on the manufacturer of the unit to ensure that it has been properly designed.

The reel has been cross-chained for transport. The pins, number and strength of tiedowns must meet the requirements of the Standard. Chains must be properly placed.







Photos courtesy of Sanjel Corporation

Vacuum Truck Operations

Introduction

Examples of Vacuum Truck Equipment Include:

- Hoses
- Accessories & Tools

Key Considerations

- Accessories & Hoses

Securement Considerations

- Securement Devices
- Containment

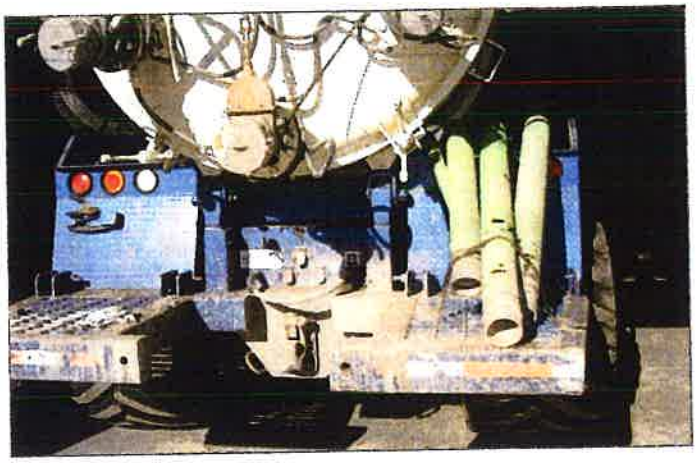
Vacuum trucks such as the one shown here have been designed and engineered to carry specialized equipment. The onus is on the manufacturer to ensure that hoses etc. can be secured in compliance with the Standard.

Best Practice requires that hoses be secured in such a way that they do not fall off or obscure the lights or vehicle licence plate.

Photos Courtesy of Wellco Energy Services Trust

Not in Compliance

In this photo, the hoses drape over the back, obscuring the lights. Hoses must not drape over the back of the vehicle.



Not In Compliance

Any items placed in with the hoses must be firmly secured. The hitch assembly placed on top of the hoses is too heavy for the tarp strap being used to secure it. The hoses themselves are not enough to hold other items in place.

Hoses are flexible tubes, and the problem is that they can, and do flex. Hoses must be immobilized.

Photos courtesy of Wellco Energy Services Trust

This photo does not show a vacuum truck. However, it makes the point that hoses are cargo. They must not come loose. The hoses pictured here are secured to sides of the vehicle with locking pins. Tarp straps may be used as a secondary source of securement.

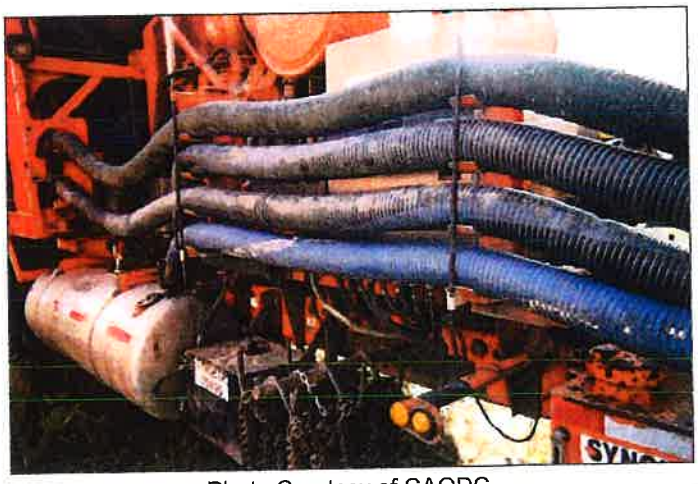


Photo Courtesy of CAODC

If tarp straps are used, they must be in good working order - no knots or damaged or weakened components.

Section 4 (2) of the Standard specifies that all components of a cargo securement system must be in good working order.

Drilling and Service Rig Tubulars

Introduction

Examples of Drilling and Service Rig Tubulars Include:

- Drill pipe
- Drill collars
- Tubing

Key Considerations

- Containment
- Weight
- Bulkheads

Securement Considerations

- Securement Devices
- Containment
- Securement Effectiveness

The transportation of tubular products can be a high risk and challenging operation if not carried out correctly. This is particularly so when transporting mixed or miscellaneous loads. These loads, which may contain tubular products of different length and diameter, pose significant securement challenges.

Refer also to the Section of this Best Practice dealing with "Other Tubular Products".

Pipe Tubs

Photo courtesy of PSAC

Best Practice

Due to the hazardous nature of this type of cargo, loose pipe must be secured to the trailer in accordance with the requirements of the Standard. Pipe in tubs or on tables must be secured to the tub or table, and the tub or table must then be secured to the trailer in accordance with the Standard.

If a pipe tub/table is being used to transport pipe, the pipe must be placed in the tub/table with the least amount of room possible between the ends of the pipe and the bulkhead. The pipe must then be secured in the pipe tub/table and the pipe tub/table secured to the trailer in accordance with the requirements of the Standard.

For pipe longer than 3.04 meters two tie-downs are required for the first 3.04 meters and one extra tie-down is required for each additional 3.04 meters or fraction of 3.04 meters. If the friction between the pipes is not sufficient to immobilize the pipe during transport consideration must be given to using a bulkhead as a secondary means of containment.

Not in Compliance

Loose items being transported on top of tubulars must be secured according the Standard. The use of a basket is recommended. The basket in this photograph has not been secured in compliance with the Standard.

Photo courtesy of PSAC and CAODC

Pipe Tables

Not in Compliance: More straps will be needed to meet the 3.04 meter requirement

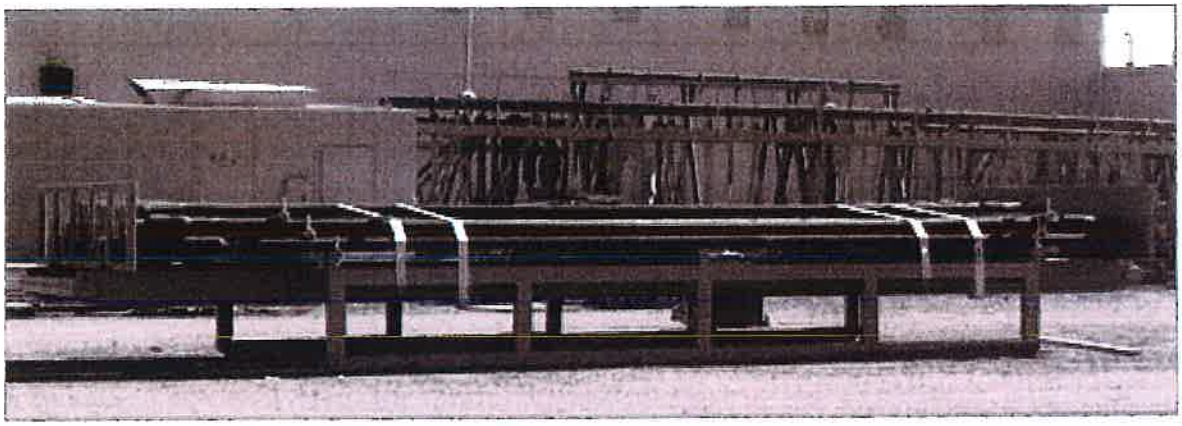


Photo courtesy of PSAC and CAODC

Pipe tables, such as the one shown above are widely used throughout industry and can be transported in a manner that complies with the requirements of the Standard. One of the significant challenges with pipe tables is their width. With a width of 3.04 meters, it is difficult, if not impossible, to secure the centre of the table. As a secondary means of containment, pipe tables must have bulkheads to stop forward and rearward movement. The pipe must then be placed as close to the bulkhead as possible. The pipe must then be strapped to the pipe table according to the requirement for straps contained in the Standard and the table must be secured to the vehicle in accordance with requirements for skidded loads.

Not In Compliance

This photo shows various sizes of pipe stored under the catwalk and is an example of non-compliant transportation of tubulars. However, if the owner of the equipment contained the pipe so as not to affect the stability or manoeuvrability of the load, it *could* become a compliant load.

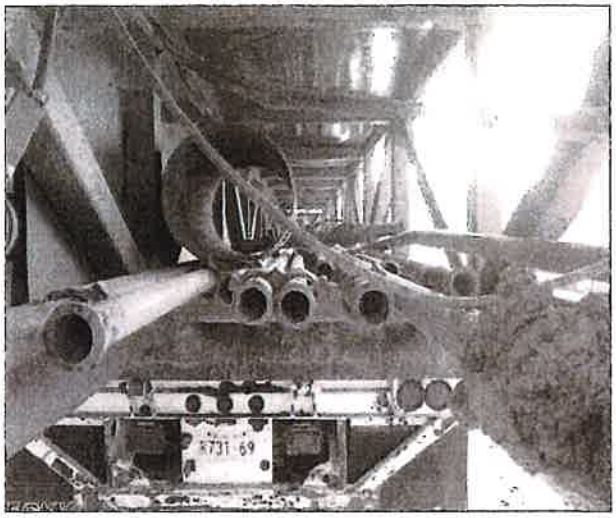


Photo courtesy of PSAC and CAODC

Photo courtesy of PSAC and CAODC

Not in Compliance

This photo illustrates the difficulty of securing pipe of different lengths. Even with the required number of straps, the pipe cannot be properly secured to this pipe rack in such a way as to prevent shifting or movement. Additionally, the lumber placed on top of the pipe is not properly contained and the pipe cannot act as a stable base for loose items to be secured to.

In cases where these types of loads cannot be transported in accordance with the requirements of the Standard, owners/shippers must provide a skidded and enclosed storage container similar to a "Sea Can" to contain the load.

Refer also to Division 6 of the Standard dealing with "Intermodal Containers".

Rig Moving

Introduction

Examples of Rig Equipment Include:

- Masts (Derricks)
- Skidded and Enclosed Loads
- Skidded and Non-Enclosed Loads
- Miscellaneous and Loose Equipment

Key Considerations

- Containment
- Weight
- Dimensions (irregular shapes)
- Housekeeping and Organization

Securement Considerations

- Anchor points
- Securement Devices
- Containment
- Securement Effectiveness

Photo courtesy of F.S.J. Land Transport LP

Masts

Photos courtesy of F.S.J. Land Transport LP

In moving a mast such as the one shown above, the issue is containment of other items. Everything inside the mast (e.g. blocks, drilling line, cables, sheaves, monkey board, etc.) has to be secured. Systems and appliances must be designed to ensure that the items are secured within the confines of the mast. Other non- compliance issues can result from housekeeping; ropes, etc. must be in good repair and tied properly.

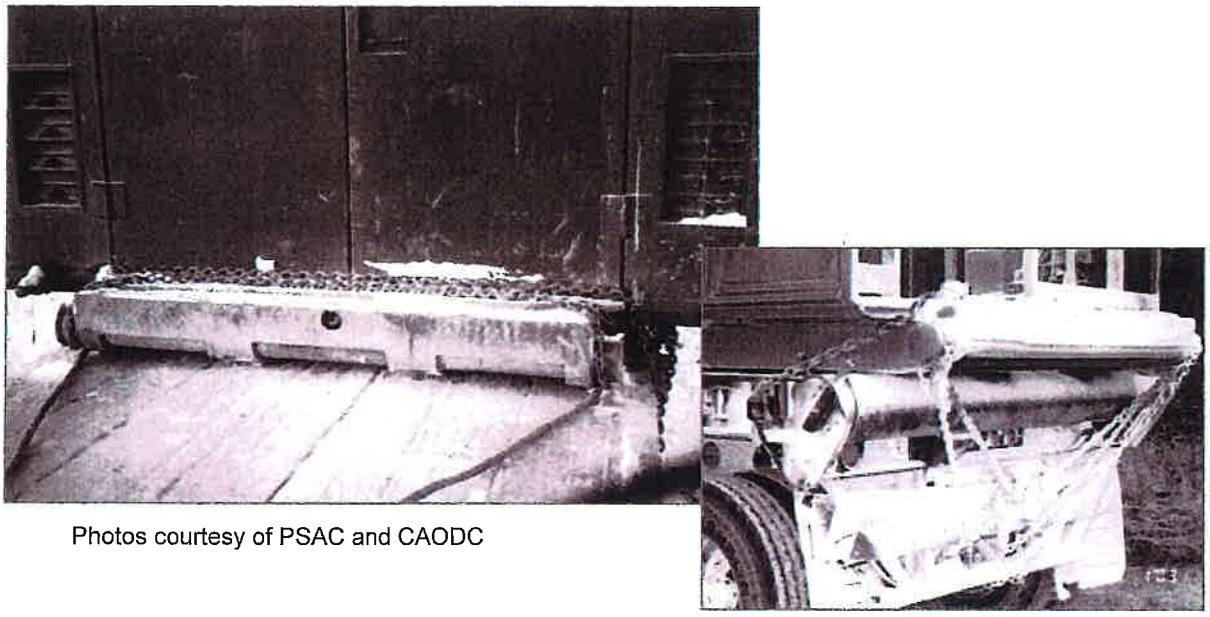
The Standard provides two options for securing the mast to deck/carrier. In some situations, securement may be used every 3.04 meters (as per the Standard) to meet the number of tie-downs required for the length of the mast. In other situations, the weight of the mast may be used to satisfy the requirements in Section 5(1) of the

Standard relating to "Performance Criteria" relating to 0.8 g deceleration in a forward direction, 0.5 g in a rearward direction and 0.5 g acceleration in either sideways direction and 0.2 g in an upward direction.

For drilling and service rig moves, most equipment can be classified into the following categories:

- Skidded and enclosed loads (e.g. pump houses, light plants, etc.)
- Skidded and non-enclosed loads (e.g. mud tanks, centrifuges, etc.)
- Non-Skidded and non-enclosed loads (e.g. matting, junk boxes, etc.)

Skidded and Enclosed Loads (e.g. pump houses, light plants, etc.)



Photos courtesy of PSAC and CAODC

Compliance Standards

The key issues are weight, dimension and anchor points. For example, if the gross weight of the load were 45 000 kg and the nature of its construction factored in, i.e. indivisible load with front and rear anchor points, a securement application would be required to achieve a static force preventing the load from shifting when subjected to a deceleration force of 0.8 g in a forward direction, 0.5 g in a rearward direction, acceleration of 0.5 g acceleration in either sideways direction, and 0.2 g in an upward direction.

This requirement could be achieved by using any one of a combination of accepted securement appliances or systems. Because the full weight of the cargo is making

contact with the deck/carrier, an additional minimum aggregate securement device consisting of a weight load limit of 50% of the cargo weight will be required e.g. bulk head; block and brace; chains; webbing, etc.

For example and taking into account the "friction" factor* and provided that the has the proper securement points (standard oilfield skid pick up throats front and rear) five 13 mm Grade 70 Transport Chains each rated at 5 130 kg for a total of 25 650 could be used to secure this load in compliance with the requirements of the Standard. Three chains could be used at the front of the load - two chains secured directly from the load to the deck anchor points (cross chained) applying a force rearward and one indirect chain applying force downward (gut wrap). The other two chains would be applied to the rear of the load in a directly applied configuration applying the force downward.

* Friction is a variable securement application that must be applied with caution. Contamination of the two contacting surfaces can greatly reduce the amount of friction created. Oil, ice and water to name a few contaminants can reduce the friction between the two surfaces to the extent that there is no friction at all and in essence will compromise the integrity of the securement. Additional securement devices must be used whenever the friction is compromised in this manner.

Refer also to page 43 of the Standard for working load limits for welded steel chain.

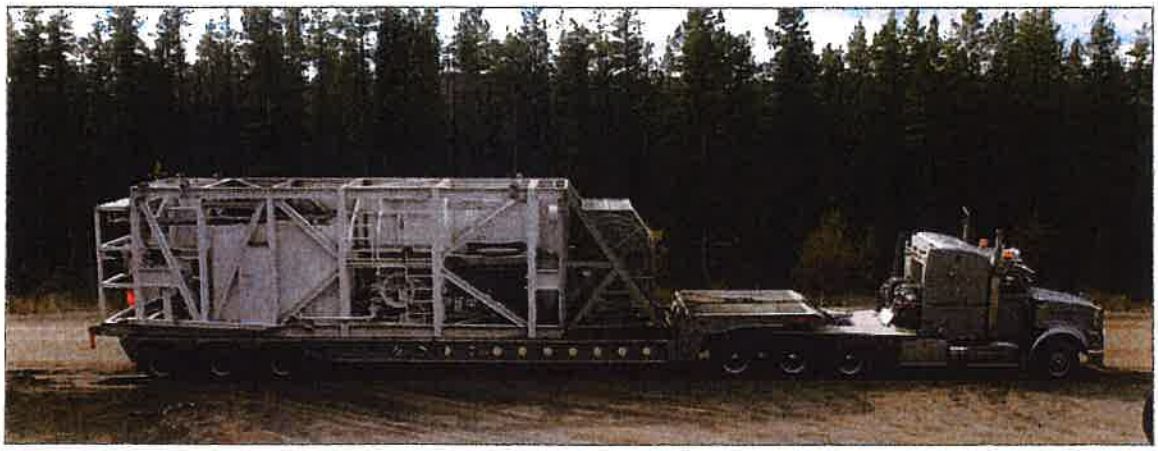


Photo courtesy of PSAC

In Compliance

This photo is an example of a best practice. The neck of the trailer is being used as a bulkhead. The neck of the trailer must therefore comply with Division 5 requirements for front-end structures.

24 (1) The height of the front end structure of the vehicle shall not be shorter than the shorter of

(a) the height at which it prevents the cargo from moving forward, and

(b) 122 centimeters above the deck.

(2) The width of the front end structure of a vehicle shall not be narrower than the narrower of

(a) the width of the vehicle, and

(b) the width at which it prevents the cargo being transported from moving forward.

Best practice requires that the cargo be firmly up against the neck of the trailer which is acting as a bulkhead. There must be no gap.

The front-end structure must comply with the strength requirements set out in Part 1 – Division 5 of the Standard.

Photo courtesy of PSAC

Length and weight are the main issues to consider when transporting this type of cargo. The overhang at the back means that a 45 degree angle for cross chaining cannot be achieved. The Standard requires that articles of cargo longer than 3.04 meters be secured with two tie-downs for the first 3.04 meters of length and with one extra tie-down for each additional 3.04 meters or fraction thereof.

The owner/shipper must give consideration to fitting anchor points to the skid of the building.

Skidded buildings in excess of 12.2m in length require additional anchor points every 1.5m on both ends of the building skids in order to enable the building to be loaded from either end.

Photo courtesy of PSAC

Attention should also be paid to Part 1, Division 4-Tiedowns, Section 22(4) and to Part 2, Division 6 – Intermodal Containers 85(3)(a).

When preparing buildings for transportation, owners and shippers must ensure that all items within the building that have enough weight or mass to affect the stability and maneuverability of the transporting vehicle in the event they shift during transport are fully secured in compliance with the Standard. They must also ensure that any items that are not secured will not affect the stability and maneuverability of the transporting vehicle in the event they shift during transportation. If there is any question about whether or not the loose objects would affect stability, then best practice requires that they be secured.

The Standard states that the driver must "ensure that the cargo does not interfere with the driver's ability to drive the vehicle safely" (Part 1 – Division 1). If the load is a closed, sealed unit, it may be difficult to determine whether or not the items inside the unit will affect the stability and maneuverability of the vehicle.

The Standard specifies that the driver must inspect the cargo and the cargo securement system unless the cargo is sealed or loaded in a manner that makes it inaccessible.

> Subsections (2) and 3) do not apply to a driver where
> (a) the cargo is sealed in a vehicle and the driver has been ordered not to open it to inspect the cargo, or
> (b) the vehicle is loaded in a manner that makes the cargo, or portions of the cargo, inaccessible.

Best Practice

The Standard requires that the driver ensure that the cargo does not interfere with their ability to drive the vehicle safely. If a building has been sealed and the driver has been instructed not to open it, the owner/shipper shall provide the driver with written instructions to that effect. If the vehicle has been loaded in such a manner that the cargo or portions of the cargo are inaccessible, the owner/shipper shall provide the

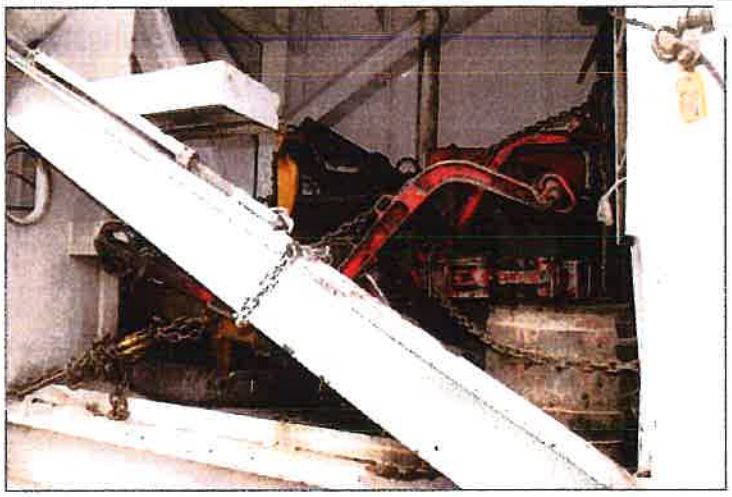
driver with written confirmation that all of the cargo has been secured in compliance with the Standard.

Skidded and Non-enclosed Loads

The sub must be butted up against the bulkhead in order to prevent forward movement and the skid secured to the trailer in order to be in compliance with the Standard.

Not In Compliance

This photograph illustrates a typical way in which the industry transports equipment. All of the loose items have been chained but are not secured in a manner compliant with the Standard. The items must be placed in a container.



This is a photograph of a "junk-load" – skidded and non-enclosed. These loads tend to be made up of a variety of miscellaneous items. This type of load must be covered in such a manner that nothing can be lost from the load or sides must be added to the skid. Tarps are not acceptable for

these types of loads as they are not strong enough to secure the weight of many of the items.

Not in Compliance

Loads can be transported without a cover, provided that the walls of the container are higher than any part of the load and that the load itself is of sufficient weight to remain within the container.

Photos courtesy of PSAC and CAODC

The load shown below must be covered in such a manner as to secure it within the container.

Best Practice

One option for transporting this type of load is a "Sea-Can" on skids. Sea-Cans are used for shipping on ocean going container ships and have the structural strength to meet the requirements of the Standard.

Non-Skidded Non-Enclosed Loads

These loads are often problematic in terms of compliance with the Standard, because the equipment being moved was not designed or constructed with transportation securement in mind. The equipment was designed for a specific field use, and as such, will not easily meet the requirements of the Standard.

Items of the same shape and size e.g. mats, can be secured together. Items of different shape and size can be secured together provided the cargo securement system sufficiently engages each individual article.

Photo courtesy of PSAC

Best Practice

In this example, the matting has been secured by the weight of the equipment on top of it and the equipment has been secured in accordance with the requirements of the Standard. (Section 10 (Division 3) and Section 22 (Division 4)).

Photos courtesy of PSAC

This load meets the requirements of the Standard. The spreader is tied down on top of the mats, and its weight is holding the mats down. However because the spreader is an irregular shape, it would be advisable to exceed the securement requirements of the Standard

In Compliance

Note: Edge protectors may be required on the spreader and training provided to ensure the proper use of the web slings.

Photo courtesy of Nabors

Not in Compliance

Everything on the catwalk must be independently secured. In this example, there are insufficient anchor points on the catwalk to allow for every loose item to be secured in compliance with the Standard. An equipment skid should be used.

The pipe shown here cannot be secured in compliance with the standard and should be removed or boxed in.

All the lines must be secured.

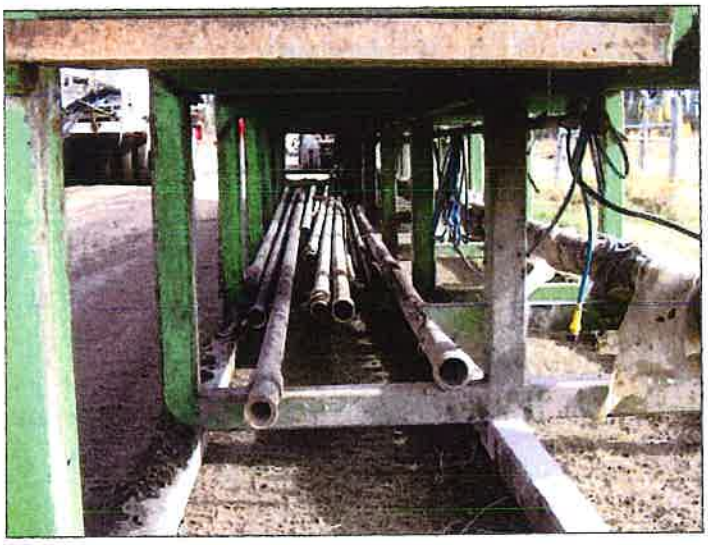


Photo courtesy of Nabors