

Alberta Small Employer OHS Legislated Requirements

Industry Code: 09911
Oilfield Downhole Services

This document is a guideline only. Employers have a responsibility of assessing all applicable occupational health and safety legislation, for the tasks they are performing.

Services in this industry can include:

Directional drilling services involve only the supplying of equipment and specialized supervision to the oil company, not the physical drilling. This work is done during the drilling process, with the physical work or actual drilling done by the drilling rig crew. The companies performing the drilling are classified in industry 09600, Drilling of oil and gas wells.

Wireline services involve lowering special instruments into the well for testing purposes. A wireline may also be used to pull instruments or scrape debris out of the well.

Oil and gas well perforating involves lowering an explosive device into the well on a wire line. When the required depth is reached, the device is detonated by an electrical current. The explosive perforates the well casing, allowing the flow of oil at different levels.

Well testing activities include testing production levels. Production testing is performed by compressor equipment, usually truck mounted, which introduces water, air, or nitrogen into the line under high pressure and records information on pressure instruments. A separator may also be employed to test the flow or proportion of gas/oil and water in the flow.

Smaller hand held recording instruments may also be used for testing purposes. Dynamometers are a surface instrument used to test downhole pumps and pump jack performance. Echometers are a downhole instrument used to log fluid levels and requires the discharge of blank shells to generate shock waves which are recorded.

After a shot hole has been drilled, the hole is usually never used again and must be closed for environmental reasons. Shot hole cementers place a plug part way down the hole, then fill the hole with cement from the plug to the surface. Cementing also involves pumping cement downhole to secure the well casing.

Fracturing is the process of forcing, under high pressure, a mud-sand slurry with CO₂ or nitrogen to expand or fracture the formation, allowing the oil or gas to escape up the well.

Chemical treatments involve forcing/injecting stimulation fluids into the well casing to clear contaminants, remove paraffin and hydrates for well stimulation. Endless, continuous or coiled tubing units which run small diameter flexible steel tubing into the well are used to inject nitrogen, foams, solvents or other chemicals. Coiled tubing may also be used in other applications such as cementing, underbalanced drilling and perforating.

Swabbing is an operation that temporarily lowers the fluid level in the well so that it can begin to produce. Swabbing is used in well completions and well control. Swabbing is sometimes necessary on well completions, if the well does not flow after perforating. The purpose of this

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operation is to swab, or lift, enough fluid out of the tubing so that the hydrostatic pressure is reduced to a value below that of the formation pressure. If the swabbing is successful, formation fluids will start flowing immediately. Swabbing done for well control may be required when high formation pressure is encountered while drilling. Formation fluids can be swabbed, or pulled, into the hole by the piston like action of the bit as pipe is "tripped out" (pulling the drill stem and bit out to the hole in order to run casing, change bits, or perform some other operation in the bore hole) of the hole, or the mud level in the hole can fall so that the hole is not longer full of mud. When hydrostatic pressure falls below formation pressure, crew members have a "kick" on their hands and they must take quick and proper action to prevent the "kick" from becoming a blowout.

Underbalanced drilling is a process where lighter fluids are used to lubricate the drilling bit and drill stem using gasified drilling fluids to keep hydrostatic head pressure lower than the pressure being drilled. This reduces the cost and reduces the need for well stimulation in completing the well. Companies which provide the equipment, to oil and gas well drilling companies, for underbalanced drilling may also provide an operator for the equipment being rented but are not involved in the operation of the drilling rig.

Relevant sections of OHS Legislation:

Occupational Health and Safety Act

Section	2	Obligations of employers, workers, etc.
	18	Serious injuries and accidents
	19	Investigation of accidents
	35	Existence of imminent danger
	37	Disciplinary action complaint

Occupational Health and Safety Regulation

Section	7	Availability of specifications
	12	Equipment
	13	General protection of workers
	14	Duties of workers
	15	Safety training
	17	Issue of blaster's permit
	18	Expiry (blaster's permit)
	19	Suspension, cancellation
	20	Effect at work site
	21	Employer records of blaster's permits
	22	Amendment of permit
	23	Possession of blaster's permit

Occupational Health and Safety Code (2009)

Part 1	Section	
Definitions and	2.1	Availability of legislation
General Application	2.2	Designated person to prepare plan

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Part 2	Section	
Hazard Assessment,	7	Hazard assessment
Elimination and	8	Worker participation
Control	9	Hazard elimination and control

Part 3	Section	
Specifications and	12	Following specifications
Certifications	13	Manufacturer's and Professional Engineer's specifications
	14	Certification by a professional engineer
	15	Approved equipment

Part 4	Section	
Chemical Hazards,	16	Worker exposure to harmful substance
Biological Hazards	21	Potential worker exposure
and Harmful	22	Worker overexposure
Substances	23	Worker decontamination
	24	Emergency baths, showers, eye wash equipment
	25	Prohibited activities
	26	Codes of practice
	27	Storage of harmful substance
	28	General provisions for asbestos, silica, coal dust and lead
	29	Restricted area
	39	Use of crystalline silica in abrasive blasting
	40	Health assessments for workers exposed to asbestos, silica or coal dust
		Refer to schedule 1

Part 7	Section	
Emergency	115	Emergency response plan
Preparedness and	116	Contents of plan
Response	117	Rescue and evacuation workers
	118	Equipment

Part 8	Section	
Entrances, Walkways,	119	Safe entry and exit
Stairways and Ladders	121	Walkways, runways and ramps
	122	Stairways
	123	Handrails on stairways

Part 9	Section	
Fall Protection	139	General protection
	140	Fall protection plan
	141	Instruction of workers
	142	Full body harness

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	143	Connectors, carabiners and snap hooks
	144	Fall arrestors
	150	Equipment compatibility
	150.1	Inspection and maintenance
	150.2	Removal from service
	151	Clearance, maximum arresting force and swing
	152.1	Anchor strength - temporary
	152.1	Anchor strength - permanent
	152.2	Duty to use anchors
	152.3	Independence of anchors
	160	Work positioning

Part 10	Section	
Fire and Explosion Hazards	161.1	Flammable or explosive atmospheres a hazard
	162	Prohibitions
	164	Contaminated skin and clothing
	165	Protective procedures and precautions in hazardous locations
	171	Compressed and liquefied gas

Part 11	Section	
First Aid	178	Providing services, supplies, equipment
	179	Location of first aid
	180	Emergency transportation
	181	First aid providers
	182	Duty to report injury or illness
	183	Record of injury or illness
	184	First aid record access
	Refer to Schedule 2	

Part 12	Section	
General Safety	185	Housekeeping
Precautions	186	Lighting
	188	Restraining hoses and piping
	189	Securing equipment and materials

Part 14	Section	
Lifting and Handling	208	Equipment
Loads	209	Adapting to heavy or awkward loads
	210	Assessing manual handling hazards

Part 15	Section	
Managing the Control of Hazardous Energy	212	Isolation
	213	Verifying isolation
	214	Securing by individual workers
	215.3	Returning to operation

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Part 16	Section	
Noise Exposure	218	Worker exposure to noise
	222	Hearing protection
Refer to schedule 3		

Part 17	Section	
Overhead Power Lines	225	Safe limit of approach distances
	226	Transport loads, equipment and buildings
Refer to schedule 4		

Part 18	Section	
Personal Protective Equipment	228	Duty to use personal protective equipment
	229	Eye protection (compliance with standards)
	233	Footwear
	234	Head protection
	242	Limb and body protection
	243	Skin protection
	244	Respiratory dangers
	245	Code of practice

Part 21	Section	
Rigging	292	Breaking strength
	292.1	Safety factors
	293	Load ratings
	294	Inspection
	295	Prohibition
	296	Rigging protection
	297	Standards
	298	Slings
	299	Rope wound on drum
	300	Cable clips
	301	Ferrules
	302	Matching components
	303	Safety latches
	304	Makeshift rigging and welding
	305	Synthetic fibre slings
	306	Wire rope
	307	Metal mesh slings
308	Electric arc damage	
309	Damaged hooks	

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Part 22	Section	
Safeguards	310	Safeguards
	311	Tampering with safeguards
	312	No safeguards
	314	Covering openings
	315	Guardrails
	318	Protection from falling objects
	321	Toe boards

Part 24	Section	
Toilets and Washing Facilities	254	Restrictions by employer
	355	Drinking fluids
	356	Exception (temp. site)
	357	Toilet facilities

Part 25	Section	
Tools, Equipment and Machinery	362	Contact by clothing, etc.
	368	Controls
	369	Immobilizing machinery

Part 27	Section	
Violence	389	Hazard assessment
	390	Policy and procedures
	391	Instruction of workers
	392	Response to incidents

Part 29	Section	
Workplace Hazardous Materials Information System (WHMIS)	397	Training
	398	Label required
	400	Decanted products
	404	Material Safety Data Sheet - Supplier
	406	Information current (MSDS)
	407	Availability of Material Safety Data Sheet

Part 37	Section	
Oil and Gas Wells	750	Application
	751	Competent supervisor
	752	Breathing equipment
	780	Well swabbing
	781	Well servicing
	782	Well stimulation