

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

IMPORTANT NOTICE/HEALTH RISK WARNING

Any person at risk must be notified of the dangers detailed below before starting any concrete pumping work

The mobile truck mounted concrete pump is designed to convey concrete from the machine's delivery hopper to a point designated by the hirer. This is achieved via a hydraulically powered pump, through pipe sections attached to articulated boom, to a suspended flexible rubber delivery hose, solid 'tremmie' pipe or via a steel pipeline laid on the ground or fixed vertically.

Terms of Hire - RS Concrete Pumping Ltd supplies equipment subject to CPA Model Conditions for the Hiring of Plant (2001) in conjunction with Supplementary Conditions for Concrete Pumping. Copies can be found on the CPA website, Hirers should insure against any liabilities that might be incurred, including damage caused when the pump is being operated in confined spaces.

Data Sheets - Detailing pump dimensions, outrigger loadings/positioning, boom type/reach and pumping delivery pressures/volume outputs are available upon request.

Training - All our Concrete Pump Operators (CPO's) are fully trained and are working towards a current CPCS/NPORS/CSCS card for concrete pumping operations.

Safe Systems of Work - RS Concrete Pumping Ltd have assessed all aspects of its operations and have developed procedures and safe systems of work that aim to reduce and control risks to safety, health and the environment.

British Standard BS 8476:2007 'Code of Practice for the Safe Use of Concrete Pumps' - is recommended to hirers and interested parties as a reference document detailing the general minimum requirements in respect of the operation of concrete pumping equipment. Copies of the standard are available from www.bsi-global.com

This information has been provided to assist hirers, customers and site management in identifying and controlling the significant risks associated with concrete pumping operations. If you need more help or advice please call us on 07970 424590.

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Hazard Identified	RISK Who is most at risk	Risk of Occurrence	Level of Injury	Control Measures
Pump set up/fold down				
Risk of damage to concrete pump from vehicles & machinery on site	CPO, Concrete gang persons working around concreting area	Low	Medium	Hirer to ensure sufficient cordoned area is provided to keep other machinery & vehicles away from Concrete Pump
Collapse or settlement of pump due to ground conditions/ overturning of pump, or collapse of boom due to insufficient stability	CPO, Concrete gang persons working around concreting area and Public	Low	High	Ensure ground conditions at set up are adequate for load of pump. Provide sufficient support (timbers, steel sheets) as required and ensure there is adequate space around the pump for the full deployment of outriggers. CPO to ensure outriggers are extended to appropriate position. Sole plates are provided for placement below outrigger feet to support the pump
Crush or impact by boom, or struck by placing hose, during set up or during 'off the boom' placement of concrete	Concrete gang persons working around concreting area and Public	Low	High	CPO to operate via remote control unit from a position of safety. Hirer to ensure sufficient set up space and adequate light levels to ensure safe pump set up. Ensure personnel remain clear of area and any operative controlling the position of the placing hose should hold it at arms length. Persons shall be nominated to converse with and signal the CPO for minor boom positioning
Contact with overhead cables	Concrete gang persons working around concreting area and Public	Low	High	RS Concrete Pumping follows industry guidelines (GS6) Industry guidance specifies the minimum safe working distance from electric cables is 6m, this includes the fully extended boom radius. Where set up cannot be clear of overhead cables, consideration should be given to the provision of a ground level pipeline.

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Hazard Identified	RISK Who is most at risk	Risk of Occurrence	Level of Injury	Control Measures
Concrete Pump Operation				
Vehicle movements - crushing or trapping of persons the moving pump to work in position	Person backing truck mixer onto pump hopper	Low	High	Keep site personnel out of reversing area. A competent traffic marshall should direct the moving vehicle and look out for anyone in the danger area. Vehicles fitted with reversing sirens and amber flashing lights should have these engaged. High visibility clothing must be worn and do not back truck on out of view of mixer driver who will be reversing using mirrors.
Back injury due to moving ground pipes	CPO/Concrete Gang	Medium	Medium-High	Use of ropes and good manual handling practices to be adopted.
Washout of pump	CPO, Concrete Gang Persons working around concreting area and Public	Low	Low	The hirer/site management shall provide adequate wash out facilities for concrete residues. The CPO to only wash out in areas defined and authorised by site management. If there is no suitable area wash can be taken away but this is an extra charge and should be agreed at time of booking.
Collapse of placing boom due to failure of hydraulics or structural failure of pump/boom	CPO, Concrete Gang Persons working around concreting area and Public	Low	High	All hydraulic rams are fitted with lock valves to limit movement should a failure occur. All pumps undergo a boom test (which is certificated) and are also inspected as part of the regular service schedule.
Contact with pump moving parts	CPO, Concrete gang persons working around concreting area	Low	High	All moving parts on the concrete pump are fully guarded, ensure the CPO has carried out his required daily/weekly checks. No personnel other than the CPO may operate the pump or climb onto the pump deck.

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
 M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Hazard Identified	RISK Who is most at risk	Risk of Occurrence	Level of Injury	Control Measures
Concrete splashing into eyes from the end hose/ concrete burns to hands, face and feet	CPO, Concrete Gang Persons working around concreting area and Public	Medium	Medium	Full PPE to be worn inc, helmet, goggles, gloves, safety wellingtons and barrier cream.
Potential injury to persons and property damage due to concrete spillage/ splatter	Persons working around concreting area & public	Medium	Medium	Ensure that the pour area has adequate protection to contain any concrete spray or spillage. Pump all concrete from hoses prior to moving boom. Lower boom so hose sits on floor between loads. Direct hose away from edge of shutters etc whilst discharging concrete.
High pressure concrete and aggregate going into eyes, face or any exposed skin due to standing or working in front of end hose, or opening up pipe joints when pumping	Concrete Gang, Persons working around concreting area & Public	Medium-High	High	<u>Under no circumstances should any unauthorised personnel attempt to open the pipeline.</u> All unnecessary personnel including the general public should be kept well away from from the concreting area inc lower floors and staircases. Until the concrete is flowing smoothly out of the end of the delivery hose, or when a blockage occurs in the boom pipeline, all personnel should remain clear of the delivery hose and placing boom. Concrete gang should wear safety helmet, safety footwear, impervious gloves/gauntlets, high impact goggles and high visibility clothing. Pipe seals to be maintained correctly. Level of concrete in hopper to be controlled correctly. Also see Blockages Section
Broken limbs, severe injury caused by whiplash of placing hoses	Concrete gang	Low	High	Do not kink placing hoses in the ground line. Do not attempt to pump very old concrete or concrete other than a pump mix. The danger zone is the area around the end hose in which it can strike out. The diameter of the zone is twice the length of the end hose. Make sure area is kept clear on restart. Security lanyard must be used on joint between boom and flexible hose. Only use single ended hose off boom.

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
 M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Hazard Identified	RISK Who is most at risk	Risk of Occurrence	Level of Injury	Control Measures
Injury from spash due to blow back from concrete pump hopper	Truck Mixer Drivers	Low	Low	Keep hopper full and inform mixer driver of risk
Working at height (Upon pump deck)	CPO	Low	Medium	Access shall be restricted to "short duration" tasks only. Ensure footwear is clean and free from mud. Unload pipes, one at a time, from the side of the lorry. No persons shall be permitted to access the pump deck unless express permission given by the CPO
Potential blockages at start or restart of pump, use of suspended hose 'off the boom' resulting in hose whipping into danger area	Concrete gang	Medium	High	Only 'single ended' hoses shall be used - double/steel collared ended hoses shall not be used 'off the boom' The CPO shall request that all persons remain clear (a radial distance of at least twice the length of the hose) of the suspended hose at each start or restart of the pump and until 'smooth flow' has been achieved. Agitate concrete in hopper between loads. Also see Blockages Section
Bursting of pipelines/hoses under pressure	Concrete gang Persons working around concreting area	Low	Medium	Only pipes, hoses, clips of sufficient safety rating shall be used. Wear and damage shall be monitored by the CPO and checked during scheduled services. Excessively damaged/worn components shall be withdrawn. Also see Blockages Section
Forceful ejection of air/concrete from the end of the pipeline. Air sucked into line and compressed	Concrete gang Persons working around concreting area and Public	Low	Medium	Pipe jointing seals shall be clean and in good order. Concrete level in the pump hopper must be maintained at the required level, where the CPO is required to position himself remote of the pump appoint a competent person to monitor deliveries and hopper level (to ensure air is not pumped into the pipe system)
Pressurised concrete release - dismantling of line	CPO	Medium	Medium	CPO to ensure pipeline is depressurised before freeing jointing clips, hirer personnel must not uncouple pipes without the express permission of the CPO

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
 M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Hazard Identified	RISK Who is most at risk	Risk of Occurrence	Level of Injury	Control Measures
Pipeline cleaning with compressed air - pressurised release/ejection of sponge ball/ concrete/water/air	CPO	Medium	Medium	A separated and access restricted area shall be provided at the end of the pipeline that is to be air cleansed.
Drawn into machinery in motion	CPO	Medium	High	Ensure hopper grating is lowered and secured during pumping operations and keep unauthorised personnel away from working area
COSHH. Cement - Irritant	CPO	Medium	Medium	Gloves to be worn when handling pipes, hoses, grout or washing out

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Blockages

Blockages - Why do they occur?	Risk reduction/Control	Controlled by: (RSCP) = RS Concrete Pumping (H) = Hirer (SM) = Site Manager
Segregation of concrete/ aggregates as it is pressurised through the pipeline with the primer/ grout	Use the appropriate grout mix Maximum pipeline and delivery hose length shall be considered - grouting may be more successful in shorter sections	RSCP SM H
Inappropriate concrete mix design or consistency - not suitable for pumping	Only concrete that is of 'pump mix design' and appropriate quality should be specified for delivery to the pump	H or SM
Hardening of the concrete in boom/pipeline from standing too long (usually when awaiting delivery of fresh concrete)	CPO shall circulate or move the concrete in the hopper/boom/pipeline Deliveries shall be time managed to avoid delays or waiting times	RSCP H SM
Flexible hoses become kinked or trapped	The hose should never become kinked. It should be suspended vertically when used 'off the boom' or kept straight if used at the end of the pipelines	H SM
Foreign objects delivered from visiting mixer drums	The quality of the concrete should be monitored	All

Where the concrete is believed to be poor or unpumpable, or where fresh concrete has not arrived in time and the concrete in the boom/pipeline is becoming too hard, the CPO may have to reject the load, or clear the concrete from the pump. The Hirer shall be informed if this is likely to occur.

Concrete Pumping Risk Assessment

Lower St Dennis Farm | Shipston on Stour | Warwickshire | CV36 5BQ
M 07970 424590 | T 01608 666200 | E office@rsconcretepumping.co.uk

Reacting to Blockages

Where possible the CPO will stop the pump action and reverse the pumping direction (this may free the blockage). Before the CPO restarts the pumping action, he should ensure all persons retreat to a safe distance away from the boom/pipeline. Should the blockage persist, the CPO will stop the pump, depressurise the line and investigate the location of the blockage before taking appropriate action (ie disconnecting pipework to locate and remove the blockage).

A momentary blockage may occur that frees immediately and this is often accompanied by increased engine/pump revs and noise. The CPO shall endeavour where possible to warn persons in the vicinity to stand clear. However the release is likely to cause the delivery hose and/or boom to move or 'kick' before the pump action can be stopped.

This is to certify that I have read and understood the enclosed method statement, risk assessment and control measures

Name:

Signed:

Date: