



# COASTALFLOW

FLUID · DRAINAGE



COASTALFLOW would like to introduce our fluid drainage system ideal for use in underground coal when intersecting in-seam gas drainage boreholes.

Underground coal mines have many hazards. Two of the top five principal hazards are methane drainage and gas management.

Mines that have high levels of seam gas use in-seam gas drainage to drain the gas in the coal seam to an acceptable level before mining can commence. There are two main ways to do this that work in the same way by drilling long holes through the coal seam. The development of underground roadways often involves the intersection of the gas drainage boreholes and it is important to manage these safely and efficiently while maintaining the boreholes integrity so as to continue draining the coal seam for safe longwall mining.

COASTALFLOW has developed the complete borehole intersection kit to manage the intersection from the time it is intersected with the continuous miner, until it is mined out with the longwall's shearer. Our system has several key features which makes it safe and easy to use.

## COMPLETE SIS or UIS INTERSECTION HOSE OVER KIT

1. 2 x gas rated stand pipes with lockable ball valves, fitted 20mm gas rated lockable ball valves for testing, sampling and used as a water trap to remove water from the system. As pictured the stand pipes come as a matching pair
2. The stand pipe is fitted with a self inflating gas bag. This acts as the locking mechanism and forms the initial seal.
3. A grout injection point is fitted to both stand pipes, they are fitted into sealed groutable sleeves. The grout is used to complete the seal. It is not a requirement to grout the standpipes in straight away as this can be done during the maintenance day up to 72hrs later (grout pump and grout not supplied).
4. 3 x temporary gasbags (1 spare). Subpro's gas bags have a FRAS coating, contain a steel aerosol can filled with a Non Hazardous, Non Flammable, Non Toxic gas. (R134a).
5. 1 x inserter and remover tool.
6. 8 x yellow reflective streamers.
7. 2 x inspection boards.
8. 16mm earth strap with clip (Fig 2).
9. Replacement chemically resistant Viton O-ring, to replace the O-ring in the female end of the Camlock bull hose used to connect the two standpipes (hose not supplied).

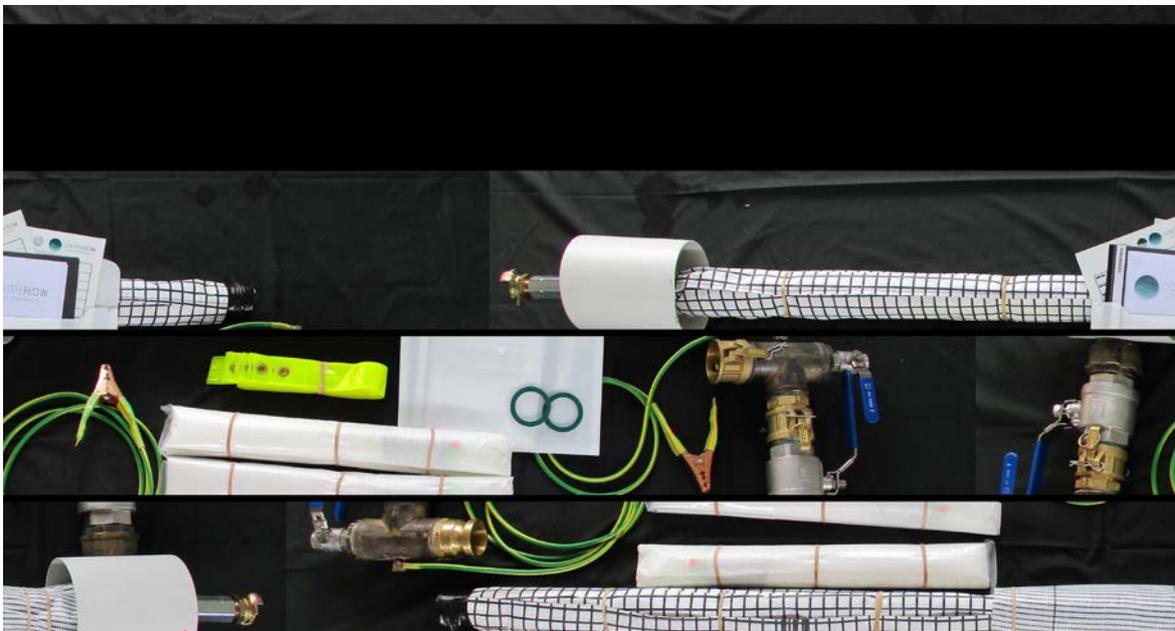


Figure 1

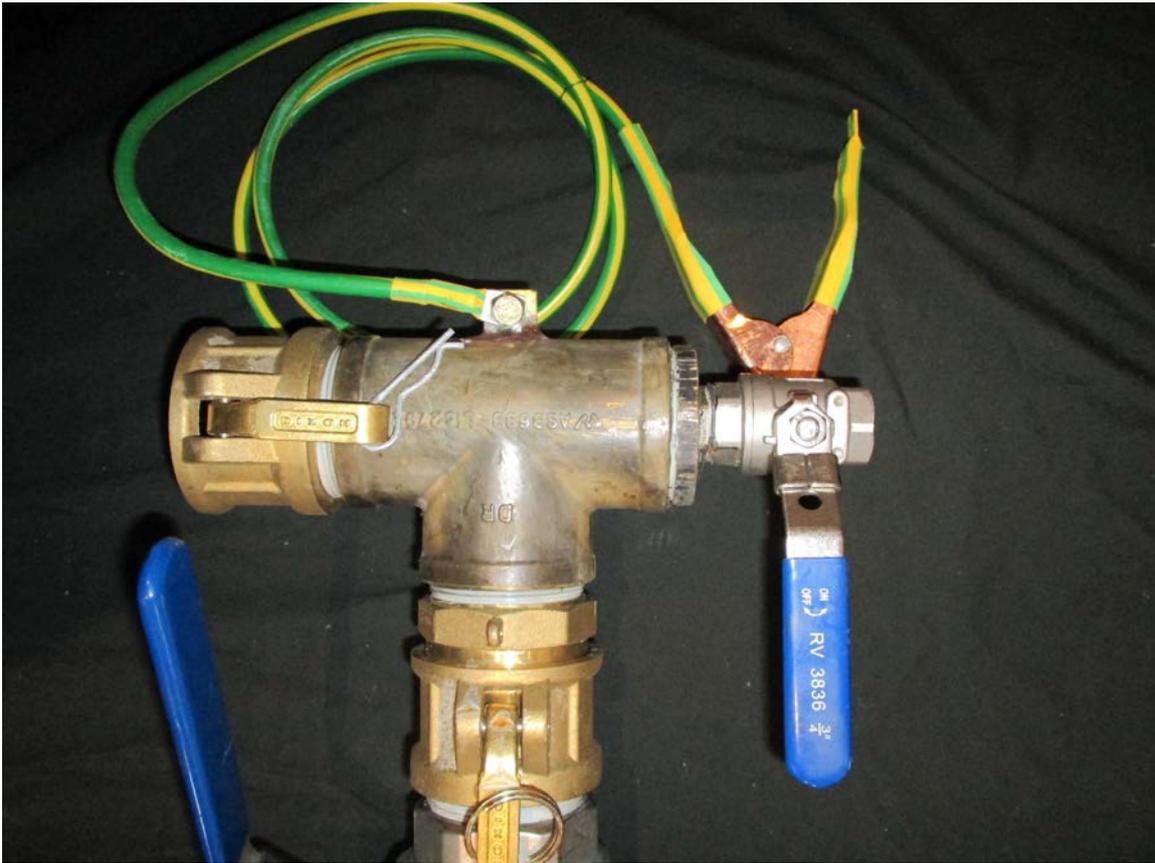


Figure 2

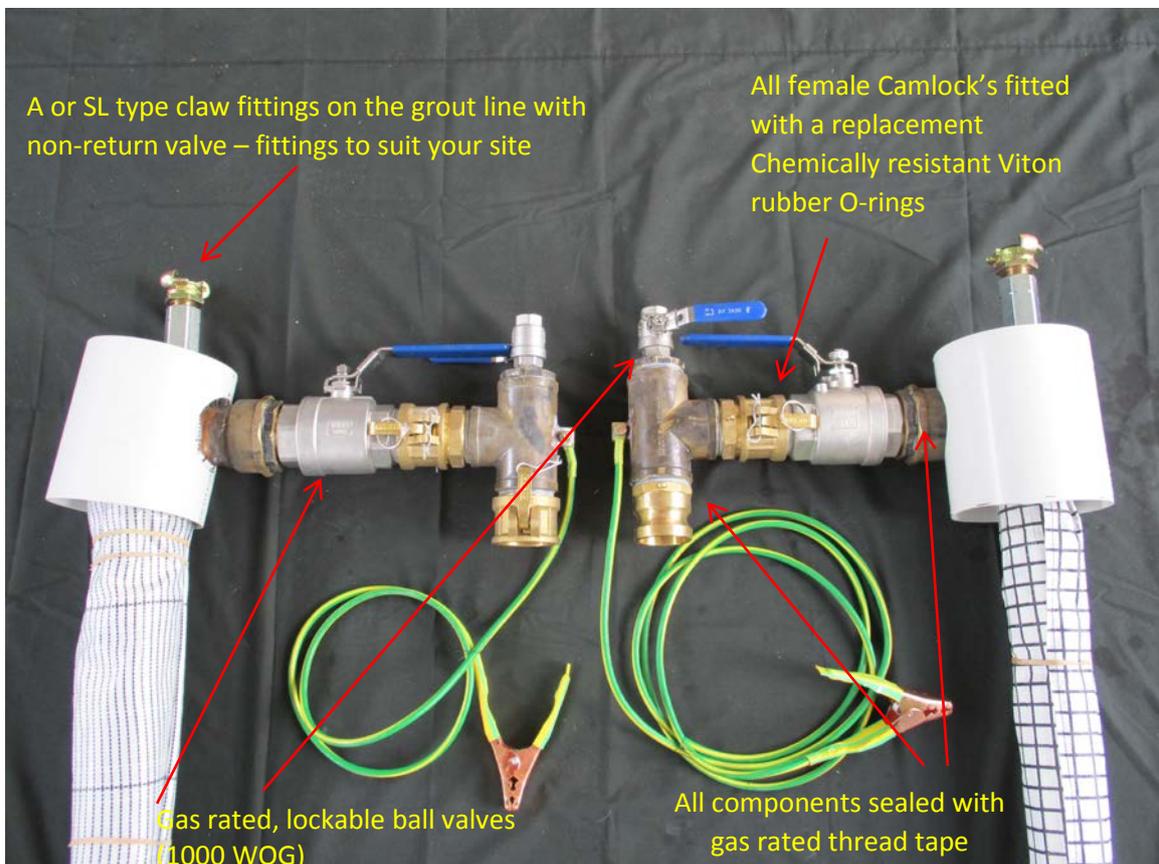


Figure 3

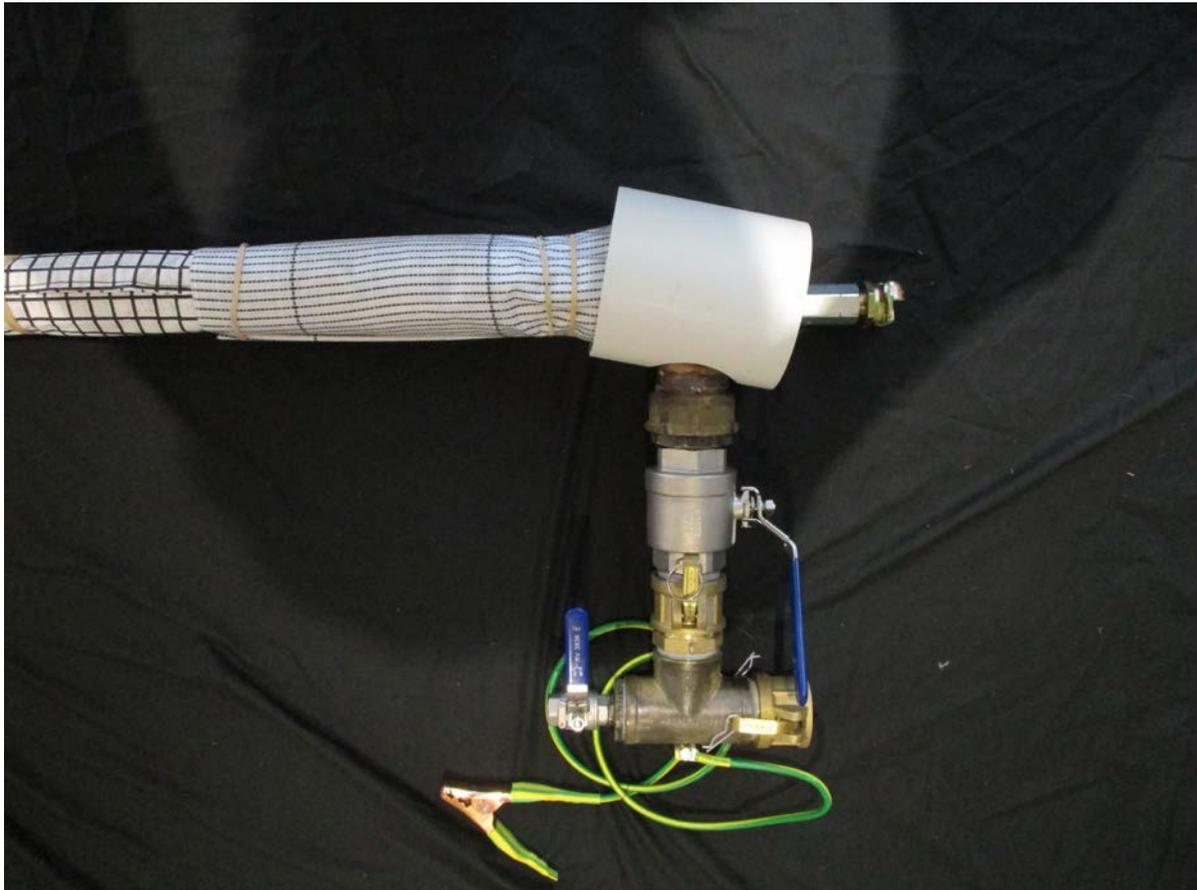


Figure 4

### THE COASTALFLOW STANDPIPES ARE CUSTOMISABLE

We can build a solution to suite most problems, offering a range of sizes as follows:

- 38mm Ø standpipe with 50mm ball valves
- 65mm Ø standpipe with 50mm ball valve
- 80mm Ø standpipe with 80mm or 100mm ball valve
- 1400mm long
- 2500mm long folding to full extension

All standpipes come with our sealed grout sleeves, the folding extra-long sleeves are fitted with bleed lines.

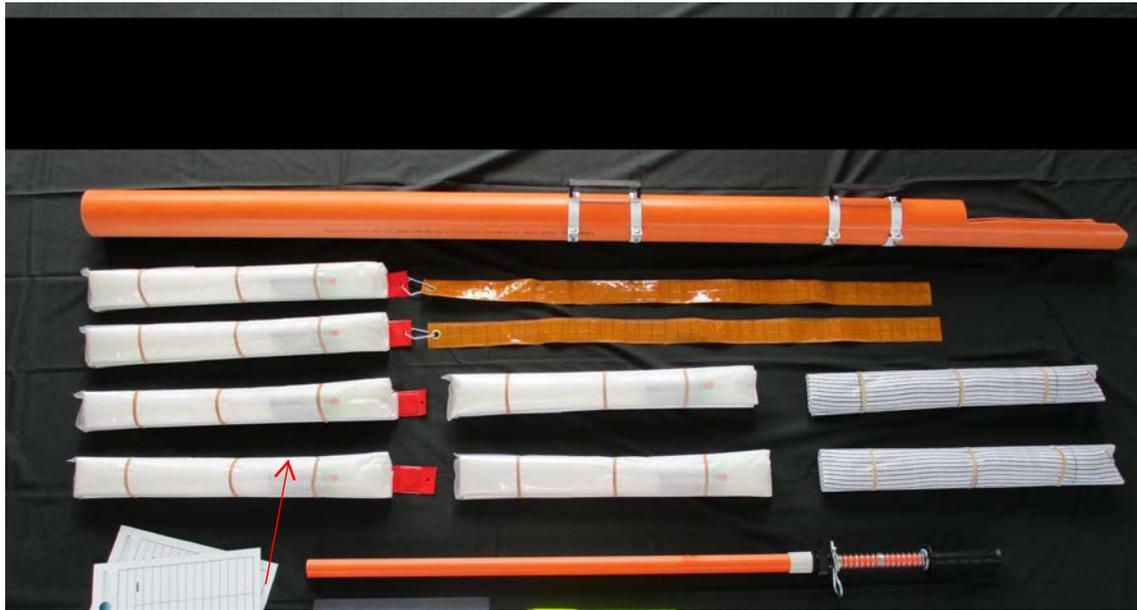


**Figure 5**

As seen above in figure 5 is a 38mm  $\varnothing$  standpipe that will unfold to a total length of 2500mm, this will allow for the grout plug to seal into solid coal.

### **TEMPORARY GAS BAG WITH INSERTER, DEFLATOR AND REMOVAL TOOL**

1. The gas bag should be located  $\frac{1}{2}$  -1 metre into borehole.
2. For deflating gasbags, remove the R clip, ensure the remover tool is free moving then with one hand on the outer cover and the outer cover hard up against the inflated gasbag grip the handle, draw back and with a fast forward motion puncture the bag. Don't remove the remover tool until the gasbag has deflated enough so that it no longer grips the borehole wall.
3. We can fit a magnetic base on the remover tool in conjunction with a washer connected to the gasbag, this will aid in the removing of the deflated gasbag in the unlikely event that the deflator tool fails to grip the gasbag. This will occur when you attempt to remove the deflating gasbag before it has released the borehole.



Gasbags fitted with a plastic cover to aid in sealing the borehole

**Figure 6**



The remover tool has Brass bars to deflate and grip the gasbag when removing

We can also fit a magnetic retrieval system to the remover tool and the gasbag

**Figure 7**

## END OF BOREHOLE OR REDUNDANT BOREHOLE MANAGEMENT SYSTEM

For mines with low flow boreholes that do not require a full hose over, we offer a customisable redundant borehole groutable plug.

This is ideal for sealing boreholes that lie through the coal pillars and will aid in sealing boreholes that may let Oxygen into sealed areas if left untreated.

The groutable plug can be custom built to suit your sites requirements. Standard with sealed grout sleeve fitted with bleed lines to ensure that the grout reaches the bottom of the sleeve.



## SIS/ UIS INTERSECTION PROCEDURE

COASTALFLOW's in-seam gas drainage borehole intersection procedure and the installation procedure for the COASTALFLOW gas drainage hose over kit.

- Follow your site's Borehole Intersection Procedure (BIN) ensuring your borehole intersection kit is in a safe location close by and the tamper tag is in place (a grout pump may be needed if this is the system used on your site).
- At the 10 metre mark and in conjunction with the 10 metre checks, open the borehole kit and remove the temporary sealing gasbags along with the inserter tool and have them ready on the continuous miner.
- After intersecting the borehole and when safe to do so, insert the temporary gasbags. To do this, connect the gas bag to the inserter and place the gas bag in the borehole with enough room to be able to activate the bag (1/3 of length of the gasbag in the borehole).
- Activate the gas bag then push into place one metre up the borehole and hold until set then remove the inserter tool. These gas bags are a temporary seal and may not stop the flow of gas but they will slow it down enough for you to complete the cutting cycle safely.

This completes the intersection side of the BIN. Following this is the installation of the Coastalflow Borehole hose over part of the kit.

1. Transport the kit and all other pieces of equipment required to complete the hose over i.e. grout pump, air, water and suitable hose.
2. Set up the grout bowl, grouting lines and prepare the grout mix as per the manufacturer's instructions.
3. With the ERZ Controller present and working from one side to the other, use the remover tool from the kit. This adapts to the inserter tool used to position the gas bag in place. Use **CAUTION as this tool is SHARP** and you will need to use enough force to punch the gas bag. **DO NOT PULL THE DEFLATING GAS BAG OUT STRAIGHT AWAY**, let it deflate first. The gas in the Sub Pro gasbag is non-flammable, non-toxic and non-hazardous as per the MSDS, but the gas from the borehole may be. Make sure the ventilation is in place and adequate.
4. After removing the gas bag, discard as per your site's procedure for use of aerosol underground.

If using the gas bag locking standpipe, follow steps 1-5, 7 and 8

5. Open the 2" ball valve, place the tail of the standpipe into the borehole with enough room left to activate the gas bag, activate and push into place ensuring that the 2" T piece and valve is left plumb and with enough room to connect the bull hose into it.

Leave the 2" ball valve open until the standpipe is set in place and grouted. Then repeat steps 3, 4 and 5.

If using the grout bag locking standpipe. As above, follow steps 1-4, 6, 7 and 8.

6. Open the 2" ball valve, connect the grout bag to the grout pump, push the standpipe into place and pump the grout into the grout bag. This should take around eight pumps or cycles of the pump.

Leave the 2" ball valve open until the standpipe is set in place. Then repeat steps 3, 4 and 6.

7. Replace the rubber seal in the female Camlock fitting with the gas rated O-ring supplied with the kit.

8. Connect the 2" bull hose to both sides and tie up out of the way. Install all signs, reflective streamers and inspection boards on both sides.
9. Clean up the site and return all the unused components into the Coastalflow bore hole kit along with the grout pump and return them to the surface.

Continue your cycle as per the sequence plan.

- Note the standpipes will need the water drained out of them regularly to ensure that they operate efficiently and periodically inspected for leakage and/or damage.