Condensate pipe leak closes Campus Drive

By Colleen MacPherson

Workers clear dirt away from collapsed electrical conduits running alongside Campus Drive near Rutherford Rink (background) Jan. 14 after having excavated and repaired a ruptured condensate pipe near the Animal Sciences building.

Photo by Lawrence McMahen

If there's one indicator that something is amiss with underground services, it's steam rising, in January, from what should be frozen ground.

That is exactly what was spotted Jan. 3 on the east side of the campus near the Animal Science building, and the result a week later was a two-day closure of Campus Drive in that area to allow for necessary repairs. "Initially, we were not exactly sure what was going on," according to Facilities Management Division's Senior Mechanical Engineer Howie Salisbury. Maintenance crews did an exploratory dig and their best guess was that a condensate line had sprung a leak.

Salisbury explained that the buried services in that area run out of a walkable tunnel that ends near Rutherford Rink. Included are electrical conduit, steam lines and condensate lines, all feeding the Animal Science Building and the Stone Barn. The steam lines carry steam from the Heating Plant to the buildings where it condenses and, as in all campus

buildings, is collected and pumped back to the Heating Plant through condensate lines for reuse.

Water in those lines is at 180 degrees F, he said, while the steam lines are maintained at 365 degrees F. When leaking condensate comes into contact with the steam line, it boils and the resulting steam rises to the surface, making a leaking condensate line a good guess in a situation like this, he said. “We weren’t 100 per cent sure but I’ve been here 26 years and I’ve never actually seen a steam line leak. They’re so hot that they just don’t rust.”

A contractor was called in to dig but steam will always find the path of least resistance to the surface, he said, meaning there is no guarantee the leak will be directly below where the steam is escaping. In this case, the leak was found under the surface of Campus Drive, requiring the road closure. In all, about 30 ft. of services were exposed before the leak was located.

The entire exposed section of two-inch steel condensate line was replaced before the excavation was refilled and the road reopened. Resurfacing will be done in the spring.

Heat was shut off briefly to Animal Sciences and the barn while the cause of the leak was being determined, but not for long enough that anyone would notice, he said.

Facilities Management Electrician David Hyde said crews also discovered that heat from the leak damaged electrical conduits runnning alongside Campus Drive, which are part of the University’s high-voltage distribution loop.

Though the condensate line is fixed and the road has reopened, excavation of the nearby electrical conduits will continue for some time, to assess the damage and do repairs.

Power has been re-routed and the repairs won’t disrupt power supply to any areas. Hyde said amples of the melted conduit will be used to support an insurance claim by the University.

While repairing underground services can require significant work, it doesn’t happen often. Salisbury said the lines in question were installed in 1957 when Animal Sciences was built “and that isn’t too bad for buried services. I think the University got it’s money’s worth out of that one. Hopefully, as that area of campus develops more and as there’s more steam demand out there, we’ll look at building a walkable tunnel under the road. That’s certainly a possibility.”