

point (or from the bottom of Reserve Main Deep) the surveys showed varying thicknesses. The water from the Main and French slopes of Reserve flowed through a borehole driven through the barrier at a point in the face of No. 3 South Landing of Dominion, and here the thickness was 53 feet. The face of the Reserve Main slope is 198 feet below sea level which, when the water was on a level with the bottom of the shaft, was under a level of 130 feet, or 57.2 pounds per square inch, which equals 4.1 tons per square foot. To guard against any possibility of accident through the failure of the barrier, and in order to protect the workings of Reserve other than those of the main slope, two dams consisting of ten inches by ten inches spruce and hemlock laid in two walls with four feet of concrete between were built across the narrow places of No. 10 Landing, which was the only connection between the main slope and the rest of Reserve. The barrier, however, proved effective. The water worked through the strata and came in in considerable quantities through the roof between No. 9 and No. 11 landings, but outside of heavy condensation on the face of the barrier no other noticeable features developed.

The filling continued as above described until the readings taken at the borehole indicated that the water had reached the bottom of the shaft, but a float lowered into the shaft showed that the water had not reached this point. A close examination of the borehole was then made, and it was found that water bailed out by a bucket lowered the water about 25 feet, showing that the readings taken were not a true indication of the rise of the water in the pit. This method was therefore of no value, and, without any other gauge, the regulation of the flow of water became a matter of judgment.

On April 30th, 21 days after the mine had been first sealed, steam in place of smoke began to issue from the test holes in the shaft, proving that the water instead of being on a level with the bottom had apparently only reached the fire territory. An additional 250,000,000 gallons was therefore necessary to cover this.

Great care was taken to keep the water from actually covering the shaft bottom, as a rise above that point would entail much extra labour and loss of time in pumping out, for then the pumping would have to be started by way of the travelling road and by placing some pumps in the shaft. To provide for this emergency an air line was laid from the compressor house to the mouth of the slope but there was no necessity to make use of it.

On May 11th, nearly two months after the fire started the pit was opened, and the fan started, but smoke made its appearance. The pit was again closed, more water was let in, and again opened on the 23rd May, when no smoke was found. On May 23rd a small hatch, 7 inches by 9 inches, was opened in the coal shaft, and at the same time a trap-door was opened in the tunnel at the shore. The air, therefore, travelled from the trap-door at the shore across the fire district and up the coal shaft.

Parties were organized for searching, underground relief, and superintending operations on the surface. The underground party entered the pit by the travelling slope. Considerable damp was met with, but great care was taken, and no accidents happened. The temperature reached 114 degrees.

Another party which entered the pit by the tunnel at the shore was once driven back by damp, but next day succeeded in connecting with the party on the travelling slope.

On May 24th, 7.30 p.m., the fan was started exhausting, and the main shaft was uncovered. From this time the work

of opening up and arranging for pumping out the pit were vigorously carried out. The water had risen to the shaft bottom, but the pump, although partly covered, was started on May 30th, 1903.

One of the greatest mine pumping propositions was now before the Dominion Coal Co. Time was of great consequence on account of the demand for coal. The total quantity of water required to be pumped amounted to approximately 516,000,000 gallons, besides what the mine made through feeders and falls amounting to 500 gallons per minute. When it was decided to flood the pit, telegraph enquiries had been sent to all pump makers for prices and sizes of pumps on hand for immediate delivery, and it was a case of taking almost anything that could be immediately shipped, and the material and machinery bought for this purpose consisted of the following pumps: 12 Knowles Duplex 14 x 18½ x 10-500 gallons; 4 Smith Vaile Duplex, 14 x 9 x 12-600 gallons; 4 Jeansville 12 x 8 x 18-600 gallons; and two Worthington, 14 x 12 x 10 Duplex, 1,000 gallons; making a total of 22 pumps of a total capacity of 12,800 gallons per minute. The pipe amounted to 27,000 feet of 8 inches, 24,000 feet of 6 inches, 900 feet of 12 inches, 900 feet of 10 inches and 26,000 feet ranging from 5 to 2½ inches.

On the two South Deeps eight pumps were worked, which discharged to the surface through four eight-inch pipes. They were arranged in sets of four on each deep, two pumps connecting to one eight-inch discharge.

These sets were staggered and moved down the deeps whenever the suction reached a length of 350 feet. The North Deeps down to the fire were so badly fallen that pumping could not be continued in them. Four pumps were therefore carried down the Angle Deep and discharged up the shaft to the surface till No. 1 Landing was reached when discharge lines were laid along this to the tunnel opening to the sea, thus cutting off 80 feet of head. The pumps on this deep were carried along on a suction of about 450 feet until No. 4 level was reached, when they were moved over to the Centre and North Deeps, discharging to the sea through four 8-inch discharge lines.

When the water receded below the lodgment on the North Deep the lodgment was used as a second lift. Five pumps were placed at this point, and water was delivered to them by the four working down the Middle and North Deeps. The eight pumps working on the South Deeps were then pumping to the pit bottom lodgment from which four large pumps pumped to the surface through the material shaft. The pumping was of necessity at times very slow on account of the numerous falls which had taken place by the shifting of pumps and by the resumption of mining before the pit was clear of water.

On May 30, 1904, just one year after the beginning of pumping operations, the mine was completely pumped out. Besides the 516,000,000 gallons which filled the mine, the mine was making about 500 gallons per minute during this period, which amounted to approximately 276,000,000 gallons. The total number of gallons pumped was therefore 792,000,000.

The air compressors which kept these pumps in operation were worked to their full capacity. To relieve them the pumps located around the lodgment at the shaft bottom were driven by steam.

The action of the gases from the fire on the pipes, ropes and iron work around and in the coal shaft was very destructive. All the rope and pipe that had been exposed to it were so badly eaten that complete renewals were necessary.