Docket: 2017-1942(IT)I

BETWEEN:

MAC & MAC HYDRODEMOLITION SERVICES INC.,

Appellant,

and

HER MAJESTY THE QUEEN,

Respondent.

Appeal heard on October 27, 2017, at Vancouver, British Columbia

Before: The Honourable Justice David E. Graham

Appearances:

Agent for the Appellant:	Anthony Asseiro
Counsel for the Respondent:	Shannon Fenrich

JUDGMENT

The Appellant's appeals of reassessments of its taxation years ending July 31, 2012 and 2013 are dismissed.

Signed at Ottawa, Canada, this 22nd day of December 2017.

"David E. Graham"

Graham J.

Citation: 2017 TCC 256
Date: 20171222
Docket: 2017-1942(IT)I

BETWEEN:

MAC & MAC HYDRODEMOLITION SERVICES INC.,

Appellant,

and

HER MAJESTY THE QUEEN,

Respondent.

REASONS FOR JUDGMENT

Graham J.

[1] Mac & Mac Hydrodemolition Services Inc. claimed various scientific research and experimental development expenditures and related investment tax credits in its taxation years ending July 31, 2012 and 2013. The Minister of National Revenue denied the deductions and the credits. Mac & Mac has appealed that decision.

[2] The sole issue in this appeal is whether the expenditures qualified as SR&ED expenditures.

[3] The expenditures related to two different projects. Both projects involved large metal pipes used to transport bitumen. The inside of the pipes was lined with a quarter inch of rubber and that rubber, in turn, was coated by a one-inch polyurethane coating. Over time, the bitumen travelling through the pipes caused wear to the lining, which meant that eventually the pipe had to be replaced. Mac & Mac was approached by a potential client to see if Mac & Mac could develop a method of removing the entire lining without damaging the pipe. The first project was to develop a method of removing the entire lining. After Mac & Mac succeeded in this goal, the second project was to develop a method of removing only the polyurethane lining while leaving the rubber lining intact.

[4] Mac & Mac tried many different techniques to remove the linings. As Mac & Mac's company name indicates, its speciality is hydrodemolition. Thus, all of the techniques that Mac & Mac employed involved the application of high-pressure water. It tried hydraulicing, cutting and milling. Hydraulicing involves using a water jet to pierce through the material that you are trying to remove in such a way that large pieces of the material are removed when the water rebounds from the hard surface behind the material. Cutting involves using a focused water jet to removing very small slices of material one at a time. Milling involves removing one layer of material at a time until, after multiple passes over the material, it is all gone.

[5] Mac & Mac began the first project by trying hydraulicing. The initial approach was to use two nozzles attached to a device that they would drag through the pipe. Changes that Mac & Mac tried included using different angles of spray, using different water pressures, increasing the number of nozzles, altering the size of the nozzles, adjusting the distance between the nozzles and the linings, making the arms on which the nozzles were mounted rotate, changing the length of the arms, making the nozzle heads themselves spin, altering the speed of the arm rotation, altering the speed of the nozzle spin, adjusting the speed with which the nozzles were moving through the pipe, and adjusting the means by which the apparatus was moved through the pipe. Mac & Mac changed only one of these variables at a time.

[6] Hydraulicing and cutting would not work for the second project so Mac & Mac had to develop a method of milling. This required a different process than that used in the first project. Changes that Mac & Mac tried included using two different pressures of water at the same time, rotating the pipe itself (both in the same direction as the arms and in the opposite direction), altering the speed of the rotation of the pipe, altering the number of passes that the apparatus made through the pipe, altering the speed of those passes, mounting the apparatus on a long beam instead of wheels, changing nozzle heads between passes, and changing the water pressure between passes. The move to the apparatus being suspended on a beam required Mac & Mac to find a beam construction that was strong enough to withstand the kickback from the water yet light enough to avoid sagging. Again, Mac & Mac changed only one of these variables at a time.

[7] *Northwest Hydraulic Consultants Ltd. v. The Queen*[1] sets out five tests that must be met for a taxpayer to succeed on a SR&ED claim. There is no need for me

[1] 1998 CarswellNat 696 (TCC).

to consider whether Mac & Mac's claims meet all of the tests as it is clear to me that they do not meet the last test. That test requires Mac & Mac to have kept detailed records of hypotheses, tests and results as the work progressed.

[8] Mac & Mac kept a set of handwritten notes. The notes were compiled weekly. The notes describe the various parameters that were being tested in only vague terms. The notes do not contain any hypotheses. There is no way of telling what Mac & Mac hoped to achieve from the changes. The notes also contain scant details about the changes being made. For example, the notes indicate that Mac & Mac tried different nozzle sizes and angles but they do not specify what those sizes or angles were. Finally, the notes contain very little information about the results of the tests. Given the large number of parameters described above, I would have expected the notes to have been much more detailed. There is simply no way that someone, even someone very experienced in the industry, could hope to replicate or confirm Mac & Mac's results from these notes.

[9] A spreadsheet was also entered into evidence. It provided more detail than the notes. However, it was prepared after the fact for the purpose of supporting the SR&ED claim and still did not contain the level of detail I would have expected. I have not given the spreadsheet any weight.

[10] As noted by Justice Bocock in *Highweb & Page Group Inc. v. The Queen*:[2]

> . . .While evidence of the outcome is important, it is critical to technological advancement that the rigours of adherence to the scientific and experimental method be kept on a detailed and concurrent basis with the conduct of the experiments. Since a negative answer to the hypothesis is a more frequent outcome and frequently as helpful in advancing technological knowledge, detailed step-by-step logging, analysis, and measurement is a mandatory requirement, not an optional addendum. It is the roadmap. If one loses the way and failure results, retracing through these accurate records provides one with the deductive process for developing a different direction, speed or mode to create, locate, size, and arrange the "missing piece in the puzzle". . . .

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[2] 2015 TCC 137 at para. 22.

[11] Based on all of the foregoing, the fifth *Northwest Hydraulic* test is not met and Mac & Mac's appeal cannot succeed. The appeal is accordingly dismissed.

Signed at Ottawa, Canada, this 22nd day of December 2017.

"David E. Graham"

Graham J.

CITATION:	2017 TCC 256
COURT FILE NO.:	2017-1942(IT)I
STYLE OF CAUSE:	MAC & MAC HYDRODEMOLITION SERVICES INC. v. HER MAJESTY THE QUEEN
PLACE OF HEARING:	Vancouver, British Columbia
DATE OF HEARING:	October 27, 2017
REASONS FOR JUDGMENT BY:	The Honourable Justice David E. Graham
DATE OF JUDGMENT:	December 22, 2017

APPEARANCES:

Agent for the Appellant:	Anthony Asseiro
Counsel for the Respondent:	Shannon Fenrich

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