Files: 2015-3425 (IT) G
2016-4491 (IT) G

ENTER :

MOBILE CONCRETE FROM QUÉBEC INC.,

appellant

and

HER MAJESTY THE QUEEN,

respondent.

Appeals heard on common evidence
April 8, 9, 10, 11 and 12 and May 29, 30 and 31, 2019,
in Montreal, Quebec.

Before: The Honorable Justice Dominique Lafleur

Appearances:

Counsel for the appellant:	M[e] Maude Piché M[e] Olivier Verdon
Counsel for the respondent:	M[e] Anne Poirier

JUDGMENT

Based on the reasons for judgment attached, the appeals of reassessments established under the *Income Tax Act* (the "Act") for the years date ending on January 31, 2010, January 31, 2011 and January 31, 2012 are admitted. Reassessments are referred to the Minister of National Revenue for reconsideration and reassessment assuming that the activities

conducted by the appellant in projects B-10-18, B-11-04, B-11-07, B-12-01, B-12-03 and B-12-07 are activities of scientific research and experimental development and that the following amounts are deductible as current expenses in accordance with section 37 of the Act and

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Eligible Expenditures for the Calculation of the Investment Tax Credit by the subsection 127 (5) of the Act

i) For the taxation year ending January 31, 2010: $ 3,521 for wages, $ 427 for materials and $ 360 for subcontractors;

(ii) For the taxation year ending January 31, 2011: $ 37,668 for wages, $ 2,520 for materials and $ 3,425 for subcontractors;

(iii) For the taxation year ending January 31, 2012: $ 44,192 for wages, $ 4,433 for materials and $ 9,204 for subcontractors.

No costs are awarded.

Signed in Ottawa, Canada, this 1f day of December 2019.

"Dominique Lafleur"
Judge Lafleur

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ENTER :

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REASONS FOR JUDGMENT

Lafleur JA

[1] Béton Mobile du Québec inc. ("BMQ" or the "Appellant") is appealing reassessments established by the Minister of National Revenue (the "Minister") under the *Income Tax Act* (RSC 1985, c.1 (5th Supp.), As amended) (the "Act"), for the taxation years ending on January 31, 2010 ("2010 taxation year"), January 31, 2011 ("2011 taxation year") and January 31, 2012 ("2012 taxation year"). Appeals for all Taxation Years in Issue Heard on Evidence common.

[2] In establishing these reassessments, the Minister refused to consider the activities carried out by BMQ in the context of certain projects such as Scientific Research and Experimental Development ("SR & ED"), has refused to recognize the deductibility of amounts deducted by BMQ as expenses for SR & ED under section 37 of the Act and refused to grant the investment tax credit ("ITC"). The deductibility of Expenditure of BMQ otherwise than under section 37 of the Act is not a issue in these appeals.

[3] With respect to the 2010 taxation year, the parties have agreed that the qualification as SR & ED activities of the activities exercised by BMQ in the framework of seven projects was in dispute (projects B-10-03, B-10-05, B-10-07, B-10-08, B-10-09, B-10-12 and B-10-18). Similarly, the parties have agreed that, if

I concluded that the activities carried out under one of these seven projects could be characterized as SR & ED activities, with deductibility Article 37 of the Act on Expenses for wages, materials and costs of subcontractors totaling $ 140,614 and their eligibility for the calculation of the ITC were in dispute. The appeal initially involved twenty projects, but the appellant agreed to withdraw from the call with respect to all projects other than those indicated above and in respect of the related expenditure.

[4] With respect to the 2011 taxation year, the parties have agreed that the qualification as SR & ED activities of the activities exercised by BMQ in the Three projects were in dispute (projects B-11-01, B-11-04 and B-11-07). Similarly, the parties agreed that, if I concluded that the activities performed within the framework of any of these three projects could be qualified of SR & ED activities, deductibility under section 37 of the Expenditure Act for

salaries and subcontractor fees totaling $ 27,338 and their eligibility for calculation of the ITC were in dispute. The call initially focused on seven projects, but the appellant agreed to discontinue her appeal with respect to all projects other than those indicated above and in respect of related.

[5] With respect to the 2012 taxation year, the parties have agreed that the qualification as SR & ED activities of the activities exercised by BMQ in the Four projects were in dispute (projects B-12-01, B-12-02, B-12-03 and B-12-07). Similarly, the parties agreed that, if I concluded that the activities under any one of these four projects could be defined as SR & ED, deductibility under section 37 of the Expenditure for wages, materials and contractor costs totaling $ 49,338 and their eligibility for the calculation of the ITC were in dispute. The appeal initially concerned seven projects, but the appellant has agreed to discontinue her appeal with respect to for all projects other than those indicated above and as regards the related expenses.

[6] Mr. Jacques Bertrand testified at the hearing. He is an engineer and also one of the founders of BMQ; he was president of BMQ at times relevant. Mr. Gérard Dubé, a BMQ engineer, also testified at the hearing.

[7] The Research and Technology Advisors ("TRC") of the Agence du Revenue Canada ("CRA"), Mr. Cédric Durban, who reviewed the

projects for the 2010 taxation year, and Mr. Karim Mimoune, who reviewed projects from the 2011 and 2012 taxation years also testified.

Mr. Durban obtained a PhD in mechanical engineering in 1997. Mr. Durban began his career as a private SR & ED consultant; in 2009 he joined the CRA and held a CRT position with the CRA at the time of the the cheking process. Mr. Mimoune holds a PhD in mechanical engineering and has been working as a CRT at the CRA since 2002.

[8] The financial auditor who participated in the three-year audits in dispute did not testify. Similarly, no expert witness was called to testify as part of these appeals.

[9] In these reasons, any statutory provision to which reference is made is a provision of the Act, unless otherwise indicated.

A. PROOF - CONTEXT OF PROJECTS

1) Company operated by BMQ

[10] Mr. Bertrand is an engineer by training and practices this profession since 1967. He worked for many years in the field of civil engineering for large projects such as James Bay and Churchill Falls, in which the concrete was widely used. He also worked on the construction of the metro Montreal.

[11] Mr. Bertrand and two partners founded BMQ in 1979. Mr. Bertrand testified that, at the time, there were no companies capable of to meet the demand for smaller projects, or for projects more particular or for repairs.

[12] BMQ operates as a concrete supplier in the field of prepared and specialized concrete. This company is a leader in this field. His clients are entrepreneurs who work for public worksites or private. The bulk of BMQ's revenue comes from contracts in the public sector. Usually before the award of a contract to BMQ, and particularly when a contract is awarded in the public sector, the mixture of concrete to be supplied by BMQ to the contractor is pre-approved by the donor by the contractor, since the concrete must meet the standards industry minimums.

[13] BMQ supplies fresh concrete using mobile concrete mixers and not "Drum-mixers" or conventional concrete mixers, which allows him to propose to its customers innovative solutions and products to meet diverse needs of these as part of the construction and repair of concrete structures. A conventional cement mixer transports a concrete mix that has been prepared at the factory and which must be delivered within one and a half hours after the departure of the factory, otherwise the concrete can not be used for the purpose for which it was prepared. A concrete mixer mobile allows to prepare a concrete mix directly to the place where the concrete must be poured since the inputs are mixed on site by the concrete mixer. Of

Moreover, the mobile concrete mixer makes it possible to deliver various concrete mixes to different customers in one output, ie without the need to return to company premises between deliveries since the concrete mixer can be calibrated according to different needs. Mr. Bertrand testified that 99% of the Concrete market was occupied by the conventional concrete mixer and 1% by the concrete mixer mobile.

[14] Mr. Dubé, meanwhile, has completed a technical training at Cegep Ahuntsic in Civil Engineering in 1986 and graduated from the School of Technology superior in the same field in 1990. He began his work at BMQ in February 1991. During the taxation years in dispute, Mr. Dubé worked on special projects and was responsible for quality control at QMT. He personally participated in research projects.

[15] In addition, during the taxation years in dispute, BMQ employed three or more four people who were ACI technicians ("American Concrete Institute") and able to perform tests on concrete in the laboratory and on construction sites. QMT also employed experienced operators for mobile concrete mixers; these operators helped the engineer to test and prepare the mixes. BMQ also employed trainees, all students in civil engineering who obtain their qualification as an ACI Technician as part of their job at BMQ.

2) Concrete

[16] Concrete is made up of several inputs: cement, sand, stone and water drinking. Various adjuvants can be added, such as air entrained, superplasticizers, colloid agents and latex. These adjuvants are added to give the concrete certain characteristics, such as better resistance or better durability.

[17] BMQ has the recipes of about 300 concrete mixes and is developing 15 to 20 a year. According to Mr. Bertrand, the possible combinations of the various inputs are extremely numerous since there are six or seven cements, 100 types of stones, a very large number of types of sand, and 500 to 1000 different adjuvants. The dosage of each of these inputs can additionally the object of variations.

[18] A concrete mix must meet certain standards to be used on
public worksites. For example, the standard 3101 of the specifications and specifications
Ministry of Transport of Quebec ("MTQ") must be reached.
According to Mr. Bertrand, even when inputs have been known for a long time,
the needs of the industry are changing and BMQ is looking to make new blends
Consequently. In addition, minimum standards evolve. The 3101 standard is
each year and the CSA Standards (Canadian Association of
standardization) are every five years. For example, Mr. Bertrand explained
that compressive strength standards have gone from 35 megapascals to
50 megapascals between the 60s and today. In addition, BMQ is not limited
necessarily meet the standards and may seek to improve products
even when they already meet minimum standards. Each mixture of
concrete must reach certain thresholds, and about twenty tests must be carried out
in the laboratory so that the mixture is approved for use on a construction site
public. These tests are intended, for example, to check the compressive strength, the
resistance to chipping and permeability to chlorine ions.

[19] In addition, other tests are done directly on a construction site before sinking
a concrete. These tests are done while the concrete is still in the plastic state,
that is to say while still in liquid form. This is an air test, a
slump test and a temperature test, which take about ten
minutes to do, and a compression / density test, either taking
samples in cylinders, which takes about fifteen minutes to
to do.

3) The research

[20] Mr. Bertrand testified that BMQ conducts research and
development since the end of the 1980s to create new products
or to improve existing products. New products are developed
either at the request of customers or because industry standards have changed.
Sometimes a project can be started directly by the company, because the company is looking for

always to remain competitive. Both Mr. Bertrand and Mr. Dubé and
also Mr. Fournier (the master mechanic of BMQ) can decide to put
starts a project.

[21] With respect to BMQ's approach to the various projects, Mr. Bertrand explained that the company works regularly with the MTQ and different universities. The starting point of a project is usually a literature search and discussions with colleagues, people from industry and university professors. However, the results of studies carried out at places like the United States are not necessarily directly transferable to Quebec, where winter must be taken into account to determine whether a concrete is durable; also, it must be taken into account that the concrete mix is prepared in a mobile concrete mixer. Then the assumptions are fixed: for Mr. Bertrand, hypotheses are the characteristics sought in a mix, or, according to Mr. Dubé, they are the standards to be respected.

[22] BMQ then begins testing and continues the project if it seems promising after the first tests. BMQ has a laboratory with equipment - such as a scale, slump cones, an air-meter, cylinders, a washing tank, a refrigerating chamber and a small mixer - for do some tests. In the laboratory, the concrete is prepared as in a classic concrete mixer. If a mixture is satisfactory, it must then be verified whether the results are similar when the mixture is produced in the mobile concrete mixer and if the mixture meets the standards. BMQ uses its own concrete mixers for this to do. Durability tests, such as those for compressive strength, are carried out by independent laboratories.

[23] The direction the research will take will then depend on the characteristics sought. For example, a specific adjuvant can be considered at the beginning of a project to reach a certain standard. Mr. Dubé explained that, despite his expertise, he does not always find the solution to a problem from the first trial. In addition, BMQ must repeat the standard tests (air, sag, temperature and density) to check if the standards are still respected each time an element is modified in a mixture.

[24] Two steps must be successfully completed for a mixture to be satisfactory for BMQ. First, standard tests of air, subsidence, temperature and density / compression (cylinders) are made in laboratory; if the results are acceptable, it will be followed by permeability tests

chlorine ions, chipping tests and freeze-thaw tests. If at first

step the results are not satisfactory, BMQ will try to determine the causes and reformulate the mixture and then repeat the tests.

[25] The second step consists of calibrating the mobile concrete mixer and casting the mix to perform the same tests again to make sure that the Mixing in the mobile concrete mixer did not affect the characteristics of the mixed. According to Mr. Dubé, three people are needed to make a test: a mobile concrete mixer operator, a qualified technician for the taking of samples and himself. Mr. Dubé testified that it took about two to three hours to calibrate the mobile concrete mixer.

[26] The analysis of the results is largely done by Mr. Bertrand and Mr. Dubé. A meeting with the employees involved in a project, including technicians who operate the mobile cement mixer and collect samples, is convened when test results are received by the company, because these employees may have an idea about the causes of the failure of a test and must be made aware of the progress of a project.

[27] A project ends either when the goal is reached or if the goal is not reached and no solution is envisaged to overcome the difficulties.

[28] No reports are written at the end of each project. However, sir Dubé completes Form T661 *Application for Research Expenses Science and Experimental Development* ("Form T661") and submit it to CRA. This form contains a description of the progress that BMQ has been trying to realized, obstacles that had to be overcome and steps taken to implement a project.

[29] Mr. Bertrand explained that during the years in dispute, he was personally involved in research activities in terms of design, design and development of research plans and that he was assisting conferences related to projects. He also participated personally in field tests, in the laboratory at BMQ, as well as in universities.

[30] With respect to expenses, Mr. Dubé testified that, generally, the date, time and a brief description of the tests carried out in the part of a project are noted in a notebook. Mr. Dubé admits that the notes

preserved will not necessarily be understandable for another engineer
but he is able to understand them and consult his records
to determine what has been done in a project.

[31] Each month, documents pertaining to a project, such as notes
manuscripts and e-mails, are given by the employees to Mr. Dubé, who
compiles into BMQ's computer system the hours worked on
each project. Only employees paid by hours worked
fill in timesheets, excluding Mr. Bertrand, Mr. Dubé
and Mr. Fournier. For the calculation of the hours spent working in the
of a research project, Mr. Bertrand indicates the time he has devoted to a
project and hand it to Mr. Dubé, who compiles the hours. Mr. Dubé has
testified at the hearing that he was rounding the hours indicated on the
time.

[32] Mr. Dubé also compiles the invoices of the subcontractors and the
hours of equipment use. When an invoice contains both
commercial elements and elements of research, it breaks down the
two types of elements.

[33] Mr. Bertrand testified that BMQ does not charge its customers the tests
when a mixture is modified, even if this modification is made to the
customer request. According to Mr. Bertrand, BMQ only charges concrete
actually delivered and not the hours worked in relation to a
delivery. The costs of the tests are borne by BMQ, unless the MTQ does not
decide, for example, to get involved in a project and to assume some of these
expenses. BMQ also has a quality control system that it excludes
of its SR & ED claims.

B. ISSUES

[34] The question is whether the activities exercised by BMQ in the context of
Fourteen litigation projects are SR & ED activities within the meaning of the Act. Yes
I conclude that the activities exercised by BMQ in the context of one or the other
projects can be characterized as SR & ED activities, the question is whether
Expenditures incurred by BMQ under the projects are expenditures
deductions for SR & ED under section 37, as well as expenses
eligible for the calculation of the ITC under subsection 127 (5).

C. LAW AND JURISPRUDENCE

[35] In response to the issues in dispute, the Act provides for a two-part test. As a first step, it must be determined whether the activities meet the definition of SR & ED activities under subsection 248 (1). If this is not the case, the examination will end at this stage. However, if it is established that the activities meet the definition of SR & ED activities, the deductibility section 37 of an expenditure for SR & ED, having regard to the facts specific to each project, and the eligibility of this expense for the calculation of the ITC (*Zeuter Development Corporation c. The Queen* , 2006 CCI 597 at para. 20, 2007 DTC 41 ("Zeuter Development")).

[36] BMQ has the burden of demonstrating, on a balance of probabilities, its activities meet the definition of SR & ED. BMQ also bears the burden of showing that the expenses incurred by it are deductible expenditures for SR & ED activities under section 37 and Eligible Expenditures for the Calculation of the ITC.

1) SR & ED activities according to the Act

[37] The SR & ED activities are defined in subsection 248 (1) as follows:

"Scientific research activities and experimental development " Investigation or systematic research scientific order or technology, carried out by experimentation or analysis, that is to say :	"scientist research and experimental development "means systematic investigation or search that is carried out in a field of science or technology by means of experiment or analysis and that is
a) pure research, namely the work undertaken for the advance- of science without any practical application in sight;	a) basic research, namely, work undertaken for the advancement of scientific knowledge without a specific practical application in view,
(b) applied research, namely the work undertaken for the advance- of science with application practice in sight;	(b) applied research, namely, work undertaken for the advance- ment of scientific knowledge with a specific practical application in view, gold

(c) experimental development, namely the work undertaken in the interest of technological progress for the creation of new materials, devices, products or processes or improvement, even slight, of those that exist.	(c) experimental development, namely, work undertaken for the purpose of achieving technological advancement for the purpose of creating new, gold improving existing, materials, devices, products or processes, including incremental improvethereto,
For the application of this definition to a taxpayer, are included in the activities of scientific research and deve- experimental development:	and, in applying this definition in respect of a taxpayer, includes
(d) the work undertaken by the taxpayer or on his behalf in respect of engineering works, at design, looking operational, mathematical analysis informatic programming the collection of data, testing and research psychological, when these works are proportional to the needs work referred to in paragraphs (a), (b) or c) that are undertaken in Canada by the taxpayer or for his account and serve to support them directly.	(d) work undertaken by or on behalf of the taxpayer with respect to engineering, design, operations research, mathematical analysis, computer programming, data collection, testing gold psychological research, where the work is commensurate with the needs, and directly in support, of work described in paragraph (a), (b), or (c) that is undertaken in Canada by or on behalf of the taxpayer,
Do not constitute activities of scientific research and development Experimental work relating to the following activities:	but does not include work with respect to
(e) the market study and the sales promotion;	(e) market research or sales promotion,
(f) the quality control or normal testing of materials, devices, products or processes;	(f) quality control or routine testing of materials, devices, products or processes,
g) research in the sciences	(g) research in the social

social or human;	science or the humanities,
(h) prospecting, exploration and drilling done in view of the discovery of minerals, oil or natural gas and their production;	(h) prospecting, exploring or drilling for, or producing, minerals, petroleum gold natural gas,
(i) the commercial production of a material, device or new or improved product, and commercial use of a product surrendered new or improved;	(i) the commercial production of a new or improved material, device or product or the comercial use of a new or improved process,
j) style changes;	(j) style changes, gold
k) normal data collection.	(k) routine data collection;

[Emphasis added.]

[38] In *Northwest Hydraulic Consultants Ltd. c. Canada* , [1998] ACI n º 340 (QL) ("Northwest Hydraulic"), Bowman J. (as he then was title) pointed out that legislation providing tax incentives for the SR & ED must be interpreted "in the most equitable and broad way possible compatible with the achievement of its purpose ', which is to encourage research in Canada (para 11).

[39] In this decision, based on Information Circular 86-4R3 of May 24, 1994 issued by the CRA (the "Circular") and agreeing that the Circular was a "useful and trustworthy" guide since it resulted from lengthy consultations between the government and the scientific community (paragraphs 13 and 15), Bowman JA set out five criteria for determining whether SR & ED activities (para 16). These criteria, which must all be fulfilled for to SR & ED, have been upheld by the Court of Appeal Federal *Court* in *RIS-Christie Ltd. c. Canada* , [1998] ACF n º 1890 (QL) ("RIS-Christie") and repeated in *CW Agencies Inc. v. The Queen* , 2001 FCA 393, 2002 DTC 6740 (para 17) as follows:

> 1. Was there a risk or technological uncertainty that could not be eliminated by the usual procedures or the current technical studies?

2. Does the person claiming to make SR & ED make assumptions specifically aimed at reducing or eliminating this technological uncertainty?

3. Was the procedure adopted completely in accordance with the discipline of scientific method, in particular in the formulation, verification and modification of assumptions?

4. Has the process resulted in technological progress?

5. Has a detailed account of the verified assumptions and results been made as the work progresses?

[40] All of these decisions involved paragraph (c) of the definition of activities SR & ED in subsection 248 (1), which is experimental development, namely work undertaken in the interest of technological progress. Paragraphs (a) and (b), which relate to pure research and applied research, respectively. rather relate to the advancement of science. Thus, as concluded by the judge Boyle in *Life Choice Ltd. c. The Queen* , 2017 CCI 21 (para 16) ("Life Choice "), in cases involving paragraphs (a) and (b), the criteria mentioned above, which refer to the risk or the technological uncertainty and the advancement of technology should be read as referring to the risk or scientific uncertainty and the advancement of science.

1.1 Technological or scientific uncertainty

[41] In Northwest Hydraulic, supra, Bowman J. expressed as to technological uncertainty (para 16):

> [16] [...]
>
> (a) When "technological risk or [uncertainty]" is referred to in this context, it is implicitly implied that there must be uncertainty any that can not be eliminated by current technical studies or by the usual procedures. I'm not talking about the fact that as soon as a problem is discovered, there may be some doubt about how it will be regulated. If the solving the problem is reasonably foreseeable using the procedure habitual or routine technical studies, there is no uncertainty as this expression is used in this context.
>
> b) What is "standard technical study"? It is this question (as well

> that which relates to technological progress) which seems to have divided the experts more than any other. In summary, this refers to the techniques, procedures and data that are generally available to specialists competent in the field.
>
> [...]

[Emphasis added.]

[42] According to the Circular:

> 4.2 [...] Current practice means direct adaptation of known practices engineering or technology to a new situation, when it is enough certain that the use of these practices will achieve the desired objective.
> [...]

[43] Thus, the creation of a new product through the application of techniques, procedures and data generally available to competent specialists in the field will not be an SR & ED activity, even if there is a doubt as to how the goal will be achieved. In other words, the simple fact that a product does not exist does not necessarily infer that its development involves technological or scientific uncertainty (*Flavor Net Inc. c. The Queen* , 2017 CCI 179 ("Flavor Net"), at para. 38).

[44] In Zeuter Development, supra, Little J. stated that the resolution of uncertainties associated with a project is not necessarily the resolution of technological uncertainties if competent specialists in the field of domain can solve problems in a predictable way by using current and established techniques (para 22).

[45] Also, in the decision *R & D Pro-Innovation inc. c. The Queen* , 2015 CCI 186 (affirmed by the Federal Court of Appeal: 2016 FCA 152), the judge Masse concluded that there was no technological uncertainty within the meaning of the definition of SR & ED activities in this case because the uncertainty could have been be eliminated by routine procedures or routine engineering studies.

[46] In addition, in *Formadrain Inc. v. The Queen* , 2017 CCI 42, 2017 DTC 1022 ("Formadrain"), Justice D'Auray concluded that the creation of a product must meet particular constraints (ie, the creation of a

thin, resistant and flexible rubber) fulfilled the criterion of uncertainty because the missing knowledge was really nonexistent in the scientific or technological knowledge base and were not solely unknown to the appellant Formadrain (para 93).

1.2 Assumptions

[47] Bowman J. articulated a five-step process to answer the second criterion: "(a) the observation of the object of the problem; b) the formulation of a clear objective; (c) the determination and formulation of technological uncertainty; d) the formulation of a hypothesis or hypotheses to reduce or eliminate uncertainty; (e) the methodical and systematic assumptions "(Northwest Hydraulic, supra, at para 16).

[48] The concept of an assumption for the purposes of SR & ED was reviewed by the Judge Sommerfeldt in the decision *Joel Theatrical Rigging Contractors (1980) Ltd. c. The Queen* , 2017 CCI 6: "[...] a hypothesis is a statement that must be verified by means of an experiment or a test "(paragraph 26).

1.3 Scientific method

[49] As Bowman JA notes in Northwest Hydraulic, supra, "[T] he procedures adopted" must be "in accordance with established principles and objective principles of the scientific method, defined by scientific observation systematic approach, measurement and experimentation as well as the formulation, verification and modification of assumptions "(paragraph 16).

[50] The comments of Bowman JA suggest that the method by trial and error or error-testing is not part of the scientific method if it is is used exclusively. This principle has also been confirmed by our court in Flavor Net, supra (at paras 53 and 54).

1.4 Progress or technological or scientific advancement

[51] The criteria of technological or scientific uncertainty on the one hand and the technological or scientific progress, on the other hand, are closely linked.

[52] With regard to the criterion of technological progress or advancement, Bowman JA wrote (Northwest Hydraulic, supra, at para.

> [16] [...]
>
> 4. Has the process resulted in technological progress, ie progress regarding general understanding?

> a) By that I mean something that people who are knowledgeable about domain know or that they can anyway know. I do not speak of a element of knowledge that someone, somewhere, can know. The the scientific community is expanded, and publishes many languages. Technological progress in Canada continues to be such simply because there is [a] theoretical possibility that a researcher, say, in China, may have made the same progress, but that its work is not generally not known.
>
> (b) The rejection, after the testing of a hypothesis, is nevertheless a step forward meaning that it eliminates a hypothesis so far [*sic*] unverified. A good part of scientific research aims precisely at that. The fact that the initial objective is reached does not invalidate either the hypothesis that has been issued or the methods that have been employed. On the contrary, it is possible that failure itself reinforces the degree technological uncertainty.
>
> [...]

[53] The Circular states the following:

> 4.1 [...] There is technological progress when, through development experimental, it is incorporated into a new or existing product or process a feature or capacity unknown or difficult to access until then in current practice, and when that feature or capability improves the yield of that product or process. Novelty, singularity or innovation alone do not reveal the existence of progress. technology.
>
> [...]

> 4.3 The adaptation of a known practice or technology to situations news does not constitute an eligible activity when the methods intended to solve the problem of technology or engineering common practice. In other words, if the project is to directly adapt a technology known to a new situation in a context where it is reasonably certain that the approach will be successful, it is not eligible. However, if there is technological uncertainty, there is experimental development. [...]

1.5 Detailed account

[54] The scientific method normally requires a detailed account prepared or at least that notes be taken at various stages of the verification of assumptions previously made. However, as indicated

by our court in Formadrain, supra (at paragraph 118) and the Federal Court of Appeal (RIS-Christie, at paragraphs 14 and 15), the evidence need not be documentary; it is possible to proceed by testimonial evidence (see also *Bees Packaging Service Inc. c. The Queen* , 2014 CCI 313 through. 94).

[55] Thus, although risks are associated with not documenting appropriately an approach in an SR & ED project, testimonial evidence could be used to meet this criterion.

2) Expenditures for SR & ED deductible activities Article 37 and Eligible Expenditures for ITC Calculation

[56] A taxpayer who carries on SR & ED within the meaning of subsection 248 (1) may, on the one hand, deduct from his business income, section 37, certain expenditures made by him for SR & ED and, on the other hand, to be entitled to the ITC relating to it. Expenses that can be taken account will depend on the taxpayer's choice to apply the replacement method in accordance with clause 37 (8) (a) (ii) (B).

[57] In this case, BMQ chose to apply the replacement method for all taxation years in dispute. In such a case, under paragraph 37 (1) (a) and clause 37 (8) (a) (ii) (B) (as they were worded over the years

taxation in dispute - attached to these reasons), the deductible expenses under paragraph 37 (1) (a) are the expenses of a current nature incurred by the taxpayer during the year, including:

- Expenditures for SR & ED carried on in Canada and businesses directly on behalf of the taxpayer;

- The portion of an expense made in respect of expenses incurred for the salary or wages of an employee directly SR & ED activities that are reasonably considered to be relating to these activities;

- The cost of materials consumed or processed in the context of of SR & ED carried on in Canada.

[58] Also, paragraph 37 (1) (b) and division 37 (8) (a) (ii) (B) (as they were in the taxation years in issue - appended to these reasons), provide that a certain portion of the capital expenditures for the provision of premises, facilities or equipment that meet one of the two following conditions: or that they are intended to be used, either wholly or almost their operating time over their useful life, as part of their of SR & ED carried on in Canada, that all or substantially all of their value is intended to be consumed in SR & ED activities Canada. In this case, the lower of the cost of depreciable property acquired for SR & ED (ss 37 (1) (b) (i)) and the unamortized portion of the cost in capital of the property (subparagraph 37 (1) (b) (ii)) will be deductible.

[59] The ITC is based on the "Allowable Research Expenditure Account and development ", which includes any" eligible expenditure "incurred by the taxpayer during the year, according to the definition of these expressions in the subsection 127 (9) (attached to these reasons).

[60] Eligible expenses include current expenses referred to in 37 (1) (a), the capital expenditures referred to in subparagraph 37 (1) (b) (i), the expenditures for multi-purpose equipment (capital assets

mainly used for SR & ED activities without necessarily being almost exclusively consumed or used for these purposes) and, where the taxpayer has made the choice of the replacement method, the amount of prescribed alternative (subsection 2900 (4) *of the Income Tax Regulations income* , CRC, ch. 945 (the "Regulations") attached to these reasons).

[61] The prescribed replacement amount is equal to 65% of the amounts incurred in respect of the salary or wages of the employee participating directly to SR & ED activities and that it is reasonable to consider as pertaining to these activities. [1]

[62] Thus, when the taxpayer makes the choice to use the method of replacement, expenses incurred for salary or wages of employees

[1] The English version of the Act uses the expression "once again" as through. 2900 (4) of the Regulations only to subsection 37 (8) (a) (ii) (B) (IV) while the French uses the expression "participates directly" in s. 2900 (4) of the Regulations and the expression "directly engaged" in subclause 37 (8) (a) (ii) (B) (IV). I agree that these expressions have the same meaning and I will use the expression "exercising directly "in these reasons.

directly engaged in SR & ED activities will be included in the qualifying expenditures for the purposes of calculating the ITC, while the costs for the salary or wages of employees who do not carry on direct activities SR & ED, as well as overhead costs (such as telephone or administrative staff), will not be included in the expenditure account eligible but will instead be replaced by the replacement amount.

[63] The answer to the question of whether an employee is directly SR & ED activities will depend in particular on the tasks performed by the SR & ED. If this employee directly performs experiments and SR & ED work, he It is clear that he will be considered to be directly engaged in SR & ED.

[64] In order to identify the activities that can be described as SR & ED, it is also necessary to consider paragraph (d) of the definition of SR & ED, which includes in SR & ED activities including engineering work, design work, data collection and testing, if such work is proportional to the needs of the work referred to in paragraphs (a), (b) or (c) of that

definition and that they serve to support them directly.

[65] But what about the supervisor, the manager or the person who analyze the results? Can we conclude that he is a person "exercising directly from [SR & ED] activities?

[66] As noted by Bowman J. in Northwest Hydraulic, Incentive Provisions for SR & ED Activities must be interpreted broadly and liberally.

[67] The Act does not define the expression "directly engaged in the activities of [SR & ED] ".

[68] February 1994 Explanatory Notes Relating to Amendments to the Act introducing the replacement method indicate (pp. 5, 7 and 8):

> New Clause 37 (8) (a) (ii) (B) of the Act contains the new method alternative for determining the expenditures for SR & ED. [...]
>
> To determine the portion of an employee's salary that relates to the activities of SR & ED, a reasonable allocation of the employee's time must be made the execution of these activities. The time an employee, such as a supervisor or

> a manager dedicated to the management of day-to-day SR & ED considered for these purposes as time spent directly on these activities. This time can therefore be included in the calculation of the part of its treatment to be taken into account in calculating the replacement amount. [...]

[69] According to the various definitions of the terms "directly", "direct" and "Directly" in the dictionaries, the expression in question implies the absence of intermediary between the activity and the person.

[70] Thus, I conclude that the manager or supervisor who manages the of SR & ED activities as well as the employee who analyzes the results will be considered to be directly engaged in SR & ED. he will be the same for such a manager or supervisor as to the time dedicated to different tasks that have a direct impact on SR & ED activities, such as the planning of experimentation, as well as the search for information

necessary for the successful execution of the SR & ED project. However, the activities of supervision or more general management as well as the management or supervision of second or third level can not usually be taken into account in this regard.

D. THE PROJECTS

[71] Keeping in mind the principles described above, I will examine the fourteen projects in dispute to decide with respect to each of these whether the activities carried out under the projects may be classified as SR & ED and determine the amount of expenses that are deductible Article 37 and Eligible Expenditures for the Calculation of ITC [2]. In this respect, parties have produced Exhibit AI-1 which is a table detailing expenses incurred with respect to each project. The parties have indicated the disputed expenses respondent, as well as those who are not in the event that I conclude that the activities can be characterized as SR & ED.

[2] In all projects, except in the case of Project B-10-12, the litigation expenses are current nature. In order to lighten the text, I did not specify it in the text.

1) Project B-10-03: Determination of Moisture in Latex Concrete

1.1 Description of the project

[72] A BMQ customer wanted to use a 15% latex concrete mix quick-setting cement and install a membrane made from oil after a maximum of 24 to 36 hours of drying. According to Mr. Bertrand, since the fresh concrete contains water and the membrane is made from oil, it is important that the moisture content of the concrete is 5% or less before install the membrane so that it adheres well to the concrete. The setting cement has been used by BMQ since 2001. However, according to Mr. Bertrand, membranes were not installed. It was therefore necessary to determine if the membrane

could adhere permanently to this concrete. The project was therefore to measure the moisture content of 15% quick-setting latex concrete at different ages in order to determine when the concrete would be dry enough to allow for install a membrane.

[73] The tests consisted, in order, of making 15% latex concrete cylinders, to allow them to dry a certain number of hours, to unmold them, to weigh them, to put in the oven for 24 hours and weigh them again. The difference in weight between the two weighings made it possible to determine the loss of water and, consequently, the residual humidity in the cylinder. One latex concrete formula 15% a been used to perform the tests. Activities undertaken as part of the project took place for a period of six days.

[74] According to the timesheets submitted by BMQ, two maturation times concrete was checked: 36 and 60 hours.

[75] The project did not produce the expected results since the humidity levels residual cylinders showed that the concrete was not sufficiently dry after the maximum drying time desired by the customer. The project has therefore been discontinued.

[76] In the event that the activities exercised by BMQ as part of this project would be classified as SR & ED, only a portion of the expenditures incurred in respect of wages are in dispute, totaling $ 947 corresponding to 29 hours, the respondent agreeing that an amount of $ 944 is deductible as a salary expense for the purposes of section 37 and eligible for the calculation of the ITC. The hours for which eligibility is disputed are those discussions between BMQ and its client and those related to research

bibliographies to find a method to determine moisture relative concrete. The respondent agrees that amounts of $ 944 for wages and salaries $ 446 for materials would be deductible expenses under section 37 and eligible for the calculation of the ITC.

1.2 Theses of the parties

[77] According to the appellant, the gaps in the data available on the time of drying latex concrete made it necessary to gather information on the

topic. The tests carried out made it possible to acquire the knowledge that he was unable to achieve a sufficiently low humidity level in twenty-four hours. The activities constitute SR & ED activities since they are activities consisting of applied research, namely work undertaken for the advancement of science with a practical application in view.

[78] According to the respondent, the activities exercised by BMQ under this project would qualify as SR & ED. The fact that concrete is less wet after some time of curing does not involve uncertainty technology. According to Mr. Durban, the method used by BMQ for determine the residual moisture content of the concrete after a certain period of time is standard. Also, BMQ did not attempt to put a membrane on the concrete to perform adhesion tests.

1.3 Discussion

at) Project qualification

[79] BMQ has not convinced me, on a balance of probabilities, that it there was scientific or technological uncertainty with respect to this project and that the results have led to some scientific or technological progress. The purpose of BMQ as part of this project was to determine the percentage moisture content in 15% latex concrete at different ages for the installation of a membrane on this concrete.

[80] The case law has established that there will be SR & ED activities if, in particular, there is scientific or technological uncertainty. Such a uncertainty is an uncertainty that can not be eliminated by the procedures usual or routine technical studies. So, if solving the problem

is reasonably foreseeable with the help of standard technical studies, there will be no no scientific or technological uncertainty.

[81] The evidence showed that the MTQ did a study in 2002 on the weather minimum drying time of a quick-setting mortar mix from Ambex Technologies Concrete Inc. ("Ambex"), a subsidiary of BMQ. A mixture of mortar and concrete

are similar, but the mortar does not contain stones. Adhesion tests of the mortar membrane had also been made. According to this study, a membrane can be installed after eight hours of curing mortar. according to Mr. Bertrand, the study did not allow him to know the answer to his questioning because the MTQ had carried out its tests with a mixture latex, and hence the uncertainty, since it was a question of studying a mixture containing latex. However, according to the documentary evidence, the mixture tested by the MTQ contained latex. So, I can not accept this part of Mr. Bertrand's testimony. I conclude that studies had therefore already were performed on this subject and that the results of these studies were known to BMQ.

[82] Also, the evidence has shown that time trials minimum of latex concrete drying time required to install a membrane had previously been conducted in the United States. According to the results of these tests, the membrane could be installed one hour after laying the concrete. Even if Mr. Bertrand was of the opinion that these results were not plausible, he did not remains no less than previous trials in this regard.

[83] In this case, I do not see any uncertainty as to whether the concrete becomes less humid after a while, since it seems to me scientific knowledge.

[84] I consider that, as part of this project, BMQ collected normal moisture content data in latex concrete 15% to different ages, and this can not be considered a SR & ED activity since this data collection was not proportional to the needs of the SR & ED work, given my conclusion as to the lack of such work.

[85] BMQ did not attempt to determine the reasons why latex concrete was drying as noted. BMQ did not do adhesion studies of the concrete membrane at different ages, which could have been an advancement of Science. Similarly, BMQ only performed tests on a single mixture of concrete. BMQ did not attempt to determine the reasons why this mixture does not

was not drying as quickly as his client wanted; BMQ only noticed the moisture content of latex concrete at different ages while using methods or current scientific techniques to do this.

[86] Moreover, neither the evidence submitted at the hearing nor the evidence heard at the hearing clearly indicate that an assumption was made by BMQ. I considers that no hypothesis was posed by BMQ at the beginning of the project. Moreover, the report filed by BMQ at the hearing is rather summary, although the Form T661 and time sheets in evidence demonstrate the steps of the project.

[87] For all these reasons, BMQ's activities under this project can not be characterized as SR & ED.

b) Expenses

[88] Although it is not necessary to answer the question of deductibility expenditure under section 37 and the eligibility of those for the calculation of the CII, in view of my conclusion that the activities can not be characterized as SR & ED, I conclude that, if they were SR & ED, the position taken by the respondent at the hearing should be upheld.

[89] Indeed, I note first of all that two versions of the timesheets were submitted as evidence in the appellant's record book. These two leaves of time contain different information as to the hours spent doing bibliographic research; also, additional employees appear in one of the versions. The evidence submitted by BMQ is lacking in credibility. In addition, the hours indicated for bibliographic research to find methods to determine the relative humidity of latex concrete total 19 hours for three people. However, the evidence has shown that known methods were used to make this determination. These expenses may be considered as part of a portion of the salary paid to a employee directly engaged in SR & ED. If the activities carried out as part of this project were SR & ED activities, the amounts of $ 944 for salaries and $ 446 for materials would be expenses deductible under section 37 and eligible for the calculation of the ITC, as conceded the respondent.

2) Project B-10-05: Development of Ter-C Self-Consolidating Concrete[3]

2.1 Description of the project

[90] This project is part of a series of steps taken by BMQ to improve its concrete mixtures containing ternary cement, which pose several problems, particularly with regard to their compressive strength. According to Mr. Dubé, BMQ had supplied concrete made with ternary cement provided by the Lafarge cement manufacturer to carry out a repair on the bridge Champlain; this repair had been very problematic in that there was segregation of inputs causing concrete adhesion problems. The customer has BMQ is required to supply the concrete for repairs problematic on the Champlain Bridge.

[91] According to BMQ, this project began with the modification of a concrete mix in which the ternary cement from Lafarge cement has been replaced by ter-C ternary cement [3] of Holcim cement.

[92] According to Mr. Dubé, the obstacle encountered in this project lay in the use of a cement that was new to BMQ and in the use of a pump concrete, necessary for pouring concrete.

[93] Five test strips were made on the Champlain Bridge between the March 19 and April 14, 2009. The same blend formula was used, but with different parameters. Quantity of different inputs varied from one test to another to improve the mixture by reducing "variations" when it is square.

[94] The concrete mixture supplied in one of the five test planks laid problems as to its adherence to the surface on which it had been cast and as to to its homogeneity. This test was demolished.

[95] BMQ retested the mixture prepared in the laboratory. of the samples taken on site were also tested by an independent laboratory, who did a battery of tests to check compliance with standards. This has found that the replacement of ternary cement had not settled the problems encountered by BMQ with its mixtures containing the cement used previously.

[96] Subsequently, Mr. Dubé changed the amount of colloidal agent in the
because it presumed that this colloidal agent had the effect of increasing the
viscosity of a concrete mix and thus to limit the separation of inputs would have
also this effect on the tested mixture.

[97] Subsequent tests were carried out on samples of the mixture
to test the effect of vibrations and the impact of the casting process (by gravity or
by shelling) on the homogeneity of the mixture. To recreate the installation conditions
concrete on site, BMQ's concrete pump was used to
pour the concrete since BMQ did not have any. The appellant had to pay for this
use. Segregation remained in the concrete samples
tested, which led Mr. Dubé to conclude that the use of a pump to
in place the concrete affected the effectiveness of the adjuvants contained in the mixture, this
which caused segregation. He also found that the compressive strength of the
concrete decreased with the use of the new cement. In the end, BMQ managed to
to reduce the segregation of the inputs of the mixture, without however perfectly
stabilize the new mixture. However, this mixture was still used
to do repairs on the Champlain Bridge. According to Mr. Dubé, the progress
This project's technological development is the improvement of a product that
was failing about segregation.

[98] In the event that the activities exercised by BMQ as part of this
project would be classified as SR & ED, all expenses claimed by
BMQ pursuant to section 37 and taken into account for the calculation of the ITC in
wages, materials and subcontractors are disputed by the Respondent. These
totaled $ 18,991, consisting of $ 7,705 for salaries, $ 1,569 for
materials and $ 9,717 for subcontractor fees.

2.2 Theses of the parties

[99] According to the appellant, uncertainty was caused by the failure
unexpected product combined with the difficulty of recreating the reality of a construction site
in a laboratory. The work helped to improve the defective product and
to study the impact of using a pump and vibrations on the mixture. The
activities constitute SR & ED activities since they can be qualified
experimental development work undertaken in the interest of progress
technology.

[100] In addition, the appellant explained that this project must be analyzed in such a way with projects B-10-07, B-10-08 and B-10-09 with the common objective of to solve the problems posed by the ternary cement. Overall progress in the case of these projects consists in understanding, after the years in dispute, that the quantity of fly ash present in the ternary cement of its suppliers was too high, and in the subsequent modification by Holcim cement its cement to reflect this information.

[101] According to the respondent, there was no technological uncertainty BMQ delivered the concrete to construction sites the same day it sampled, which indicates that the product meets the standards. In addition, the first board test was conducted just ten days after the start of discussions concerning the reformulation of the mixture. No trace of the modifications of the assays in the mixtures is found only elsewhere in Mr. Dubé's testimony, and he is impossible to determine if such an activity occurred when the same number of mixture appears on different dates. According to Mr. Durban, in the context of this project, BMQ worked to find a solution to the problem of a mixture failed. For these reasons, the activities exercised by BMQ can not be qualified as SR & ED.

2.3 Discussion

at) Project qualification

[102] BMQ has not convinced me that, on a balance of probabilities, the activities exercised by BMQ in the framework of this project may be qualified of SR & ED activities.

[103] The evidence submitted by BMQ does not show any uncertainty specific technology that can not be resolved by standard procedures or current technical studies. The evidence revealed that a problem had occurred during previous repairs on the Champlain Bridge with concrete provided by BMQ. However, the evidence does not allow me to conclude that this problem could not be resolved by standard procedures or technical studies common.

[104] In this case, BMQ attempted, by changing supplier and adding to concrete mix of inputs designed to decrease segregation, plus particularly a colloidal agent having the effect of increasing the suspension of

inputs into the concrete, to improve a mixture that segregated. Works
the use of existing processes and ingredients to improve

concrete mix. It seems to me that the resolution of the problem was foreseeable at
using standard procedures and standard technical studies. An activity

will not be considered an SR & ED activity if it is not
does not aim to advance technological knowledge. In this case, BMQ does not

did not convince me that she has advanced technological knowledge in

the framework of this project.

[105] Also, BMQ did not convince me that the vibration tests and the
tests performed with the pump deviated from current practice. The proof is

silent as to whether these tests were simply aimed at eliminating a cause
error.

[106] In addition, the commercial laying of concrete on the same day as the
sample raises doubts as to whether BMQ was really uncertain

as to the achievement of the desired objectives or desired results. Indeed, the mixture

had to be qualified beforehand by the MTQ. As a result, it is difficult to
to claim that there was technological uncertainty in this regard.

[107] It can not be denied, however, that BMQ has acquired new knowledge
the interaction between the pump and adjuvants and eliminated a hypothesis

as to the cause of the poor performance of its cementitious concretes
ternary. However, the acquisition of new knowledge is not enough to
describe activities as SR & ED when techniques and practices

are used, as is the case here.

[108] The assumptions were not expressly formulated by BMQ, but
could infer the following: (1) the addition of a colloidal agent will decrease the
segregation of the mixture; and (2) a pump and vibrations create segregation
in a mixture. More generally, as regards ternary cement,
a hypothesis that a ternary cement from a particular supplier
would improve the mixture was asked. BMQ did not convince me she had

used the scientific method in the framework of this project, given the use of a
some form of test-and-error based methodology to find the causes of

failure on the test boards.

[109] As in other projects, no detailed report has been prepared
by BMQ, except form T661. I can, however, infer from reading

time sheets, handwritten notes and invoices submitted as evidence that BMQ still presented a kind of report.

[110] For all these reasons, BMQ's activities under this project can not be characterized as SR & ED. I come to the same conclusion by analyzing this project globally with the B-10-07 projects and B-10-08. However, I do not see how Project B-10-09 would be part of that group of projects. I will come back to it below.

b) Expenses

[111] Although it is not necessary for me to answer the question of deductibility of expenses under section 37 and the eligibility of those expenses for the calculation of the ITC, given my conclusion that the activities can not be qualified of SR & ED activities, I conclude that, if the activities could be qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[112] For materials, the amount of $ 1,569 in materials consumed in SR & ED would be a deductible expense under section 37 and eligible for the calculation of the ITC.

[113] With respect to subcontractor fees, the $ 7,500 invoice by the BMQ customer for the use of the concrete pump contains the mention "Works as of 1st December 2009 ", which would imply that it would have several months to the client to return the invoice to BMQ, since the work in this project ended on August 27, 2009. According to Mr. Dubé, the company had been waiting for the completion of its own work on the Champlain Bridge before to send him the bill, even if the work of BMQ had stopped a few months before. This explanation of Mr. Dubé seems unlikely to me. The only subcontractor fees that would be deductible under section 37 and eligible for the calculation of the ITC are laboratory expenses totaling $ 2,216.80.

[114] With respect to the amounts for salary expenditures, the Act provides that part of the salary or wages of employees directly SR & ED activities that can reasonably be regarded as related deductible under section 37 and eligible for the calculation of the ITC.

[115] First of all, Mr. Dubé, who was responsible for completing and gather all the information for the timesheets, testified that he rounded the hours. Indeed, on the time sheets submitted in evidence by the appellant there is no fraction of an hour.

[116] The respondent questions the accuracy of a large number of listings on the timesheets and takes the position that BMQ has estimated time rather than to indicate the actual time spent doing the activities as such. Several hours spent analyzing the test results and for which the deduction of an amount of salary was claimed are disputed by the respondent. Also, the respondent argues that it is curious that the hours spent doing the test boards vary from one test to another, to which Mr. Dubé responded that access to the site was sometimes limited and could be delayed. Similarly, Respondent questions the fact that on March 19, 2009, three people hours to test the site, whereas a casting had been carried out commercial way on the same day at 1 pm

[117] Under this project, 293 hours were counted and, at the hearing, the appellant agreed to reduce her claim to 276 hours, which corresponds to salary expenses totaling $ 7,705.

[118] Of these hours, 58 were counted for research bibliographies and discussions with the client as well as with the supplier of cement. I consider that salary expenses for hours spent by Mr. Bertrand and Mr. Dubé to do bibliographic research and to discuss with the customer as well as with the cement supplier would be considered as expenses for the salary of employees directly engaged in SR & ED.

[119] Indeed, these discussions and bibliographic research have an impact on SR & ED activities, dictating the conduct of testing and the formulation of mixtures tested. The hours devoted to discussions with clients and suppliers would be considered as management of the conduct of the SR & ED, and therefore as directly related to SR & ED activities.

Mr. Bertrand testified that he often began a project with a discussion with one of his clients or one of his suppliers. Mr Bertrand and Mr. Dubé also indicated that the hours devoted to the appearance were not included in the SR & ED claims of QMT. Since these hours relate directly to the course of activities

SR & ED, the related salary expenditures would therefore be deductible according to Article 37 and eligible for the calculation of the ITC.

[120] With regard to the 96 hours spent doing the test boards, I considers that it is doubtful whether the hours devoted to the test from one day to another. The explanation provided by Mr. Dubé seems to me plausible. Similarly, it is doubtful whether three people spent eight hours conduct tests on March 19, 2009 on a site where a casting had been made of commercial way the same day from 1 pm. So, it is reasonable to allocate a total of 70 hours, or 14 hours per test, to this element, and salary amounts for these hours would therefore be deductible under section 37 and eligible for the calculation of the ITC. The claim should be reduced by $ 597.06.

[121] In terms of hours spent by trainees (who will get their ACI certification during their internship) and the ACI technicians to participate in analysis of results, which, according to the respondent, should not be considered regarding the question of amounts that are deductible under article 37, Mr. Dubé testified that, when results are received, a meeting is convened with the employees involved in a project, including the ACI technicians to discuss possible causes of failure; if the results are satisfactory, a meeting is also convened to keep day the employees involved in the project. I consider that trainees and ACI technicians are employees directly engaged in SR & ED when they participate in the analysis of the different results. However, the question also asks whether Mr. Dubé actually recorded their hours or an estimate of these. I consider that, given the testimony of Mr. Dubé according to which he rounded the hours, he is more likely that the number of hours indicated was overestimated.

[122] In view of my conclusion as to hours devoted to planks

test, the amount of deductible expenses for wages under Article 37 and
eligible for the calculation of the ITC would total $ 7,108. However, I am of the opinion
it is reasonable to conclude that 10% of the remaining hours recorded
project is excessive since Mr. Dubé acknowledged that he
rounded the hours on the timesheets. I conclude that
consequently reduce salary expenses by 10%. Thus, expenses for
wages totaling $ 6,397 would be deductible under section 37 and eligible for
the calculation of the ITC.

3) Project B-10-07: Characterization of Ter-C Cement [3]

3.1 Description of the project

[123] This project started in March 2009, along with project B-10-05. As he
is mentioned above, BMQ decided to change cement supplier
ternary to use Ter-C cement [3] of Holcim cement, this change having
was motivated by the problems of compressive strength found in the case
ternary cement previously used by BMQ. This change of supplier has
BMQ had to test its mixtures containing ternary cement
(other than those tested under Project B-10-05) to determine whether
industry standards and to verify their compatibility with the
mobile concrete mixer. BMQ has also reformulated its concrete mixes using
many discussions with the supplier of Ter-C cement [3]. The latter has
did his own tests on concrete mixtures that contained
inputs provided by BMQ that were poured using a mobile cement mixer
of BMQ.

[124] The objective of BMQ was therefore to redevelop new mixtures with
Ter-C cement [3] and test different formulations to see if they
met the applicable standards.

[125] Tests have been carried out by BMQ twice on the construction sites of
two different customers. The first test took place on June 2, 2009 with a mix
self-consolidating mortar and the second took place on June 18, 2009 with a latex concrete
5%.

[126] The mixtures tested at these dates were also installed on the construction sites of

customers the same day, since customers had asked BMQ to provide concrete to make a repair on the building sites. Mr. Dubé testified that customers were unaware that BMQ was testing blends. BMQ took advantage of the fact that the equipment (the pump supplied by the customers) was on hand to perform the tests. Mr. Dubé admitted that the concrete to be installed had been pre-approved a few months ago to do the repair. Mr. Dubé has also indicated that the use of a pump was a parameter that BMQ wanted test on its projected concrete mixtures - either the mixtures that are put in place with a pump - but the company did not have a pump; given the customers' pumps were already on the job sites, BMQ had the opportunity to to do tests in this direction.

[127] The tests carried out showed that the strength of the concretes was affected by the use of this new cement, as in the case of cement ternary used prior to the change of supplier. The tests also demonstrated that the superplasticizer adjuvant used by BMQ was no longer as better than in the past.

[128] Form T661 produced by BMQ indicates that the reformulation of its mixtures with binary cement is a feasible solution, but BMQ does not have made tests of this kind. The modified description of the BMQ projects explains that progress in this project relates to the hypothesis that the additions cementitious agents in the cement affect the stability of the mixtures and that the modification of these additions could correct the problem.

[129] In the event that the activities exercised by BMQ as part of this project would be qualified as SR & ED, respondent challenges admissibility a portion of salary expenses ($ 2,573) and cost of materials ($ 344) the deduction of which is claimed as an expense for SR & ED. The appellant did not make any admission as to these expenses. The respondent agrees that $ 9,692 for wages, $ 1,079 for materials and $ 3,844 for subcontractor fees would be expenditures deductible under section 37 and eligible for the calculation of the ITC.

3.2 Theses of the parties

[130] According to the appellant, the project tested several

assumptions about the unsatisfactory results of a mixture and to determine that the substitution of one ternary cement by another did not improve necessarily the results. The uncertainty was in the identification of the cement as a potential source of concrete failures. The progress made by BMQ consists in the fact that the new ternary cement has a better performance in laboratory than the one previously used. In addition, as noted above, the appellant considers that ternary cement characterization activities must be considered in conjunction with projects B-10-05, B-10-08 and B-10-09. The activities constitute SR & ED activities since they are experimental development undertaken in the interest of progress technology.

[131] According to Mr. Durban's report, the work performed is standard and only consist of an evaluation of the performance of existing products. No

progress would have been achieved since the effect of cement additions on the properties concrete is a knowledge in the public domain. According to the respondent, activities carried out by BMQ in this project consist of tests of characterization to achieve the standards, and such tests do not constitute SR & ED activities. It is common practice that adjustments are required facts about blends when there is a change of supplier.

3.3 Discussion

at) Project qualification

[132] Switching supplier for an input could create a uncertainty as to the performance of the modified mixtures, but the activities exercised by BMQ in this case are limited to standard tests and a few adjustments, which seems to me to be a common process in the industry; so, this uncertainty is not technological uncertainty for the purposes of the Act. Moreover, BMQ did not convince me that there was technological uncertainty in this case accurate since BMQ has installed the tested mixtures on the sites of its customers even before receiving the full results of laboratory tests; likewise Mr. Dubé agreed that the blends thus tested had been pre-approved for installation on construction sites a few months ago.

[133] I am of the opinion that the work carried out under this project constitutes development of various mixtures. According to the Circular, the work of point do not qualify as SR & ED if this work does not not to advance technological knowledge (para 2.13). According to jurisprudence, there must be technological progress for an activity to be qualified as SR & ED activity. As part of this project, BMQ learned that the use of the new ternary cement in its blends has resulted in a the resistance of its mixtures, but this knowledge does not make advance technology. BMQ did not determine the exact cause of the decline in resistances of its concrete mixtures. The company has made an assumption relative to the composition of the cement, but make a hypothesis without making any tests accordingly does not constitute technological advancement (*Life Choice* , above, para. 49).

[134] Also, we can not conclude to technological progress since BMQ has not incorporated into its mixtures an input with a new characteristic or unknown according to current practice. Ternary cement was a known product,

whose characteristics were not new or unknown to the experts in this field.

[135] As part of this project, scientific tests were carried out by independent laboratories, but the evidence did not convince me that the Subsequent reformulation activities of the blends consisted of a systematic investigation; these activities seem rather to have been undertaken by the test-error method. BMQ, however, provided the test results as well as description of the chronology of the activities.

[136] For all these reasons, the activities exercised by BMQ as part of this project do not constitute SR & ED. I come to the same conclusion analyzing this project globally with projects B-10-05 and B-10-08. I will come back below.

b) Expenses

[137] Although it is not necessary for me to answer the question of deductibility of expenses under section 37 and the eligibility of those expenses for

calculation of the ITC given my conclusion that the activities can not be qualified of SR & ED activities, I conclude that, if the activities could be qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[138] First, with respect to the cost of materials ($ 344) for customers' construction sites, disputed by the Respondent, I am of the opinion that this amount would represent materials consumed in connection with SR & ED and would therefore be deductible under section 37 and eligible for calculation of the ITC. Indeed, Mr. Bertrand and Mr. Dubé testified that the cost of materials indicated for the claim of the deduction of expenses of SR & ED did not include the materials delivered to customers. Also, they indicated that they had taken advantage of their clients' facilities to trials. Their testimonies were credible in this regard.

[139] With respect to salary expenditures (work planning, testing, sampling and analysis of results) customers' sites, as well as salaries paid to trainees and the ACI technicians in the analysis of the results, these expenses would be treated as salary or salary expenses

employees directly engaged in SR & ED. Indeed, the planning of the tests, the tests themselves, the sampling and the results analyzes are an integral part of any SR & ED approach. Execution of an SR & ED project would not be possible without the planning of trials. These activities do not concern the non-technological aspect of the activities since it is the very essence of SR & ED that testing and preliminary, to plan these tests. Similarly, the participation of trainees and ACI technicians at these activities, as well as the analysis of the results, seems reasonable. Therefore, the amounts in question would be deductible Article 37 and eligible for the calculation of the ITC.

[140] However, the question also arises as to whether Mr. Dubé actually recorded the actual hours or instead made an estimate of the hours. I consider that, given Mr. Dubé's testimony that he was rounding hours, it is more likely that the number of hours (446 hours), corresponding to a total of $ 12,265, was indeed overestimated. I conclude that he would

It is reasonable to reduce the amount of the deduction claimed by 10%.

[141] Thus, salary expenditures totaling $ 11,039 would be deductible under section 37 and eligible for the calculation of the ITC, as well as totaling $ 1,423 for materials. Also, given the concession made by respondent, an amount of $ 3,844 for subcontractor fees would represent Section 37 deductible expenses eligible for the calculation of the ITC.

4) Project B-10-08: Development of Type V Concrete with the Ter-C cement [3]

4.1 Description of the project

[142] Project B-10-08 was initiated by BMQ after the start of projects B-10-05 and B-10-07, in April 2009. BMQ attempted to redevelop its concrete mix type V covered by the 3101 standard of the MTQ - a concrete with a strength of 35 megapascals containing ternary cement for structural repair - in replacing the ternary cement of its existing mixture with Ter-C ternary cement [3] of Holcim cement. The purpose of the project was to validate the mixtures for meet CSA standards.

[143] First of all, BMQ replaced the cement of its existing mixture with Ter-C cement [3], without changing the dosages, to determine if there would be similarity

as to the performance of the mixtures. In the laboratory, the test results were satisfactory. BMQ has carried out large-scale tests on bridge construction sites Champlain during deliveries for his client Aecon, and on the site of the roads to Berthier for his client Chagnon, to determine if the mixture prepared in the mobile concrete mixer would behave like the mixer made in the laboratory. Samples were taken on the same day that BMQ delivered the concrete to its customers. Problems of low compressive strength have appeared on these sites.

[144] BMQ wanted to study the causes of low resistance. The stone contained in the mixture was subjected to a particle size test to determine whether the stone was the cause, which seems not to have been the case. A coring was done on the Berthier yard to confirm the results and to study the causes of

weak resistances. Eight cores of the installed concrete were analyzed by a independent laboratory. Following these tests, Mr. Dubé reformulated the mixing by increasing the dosage of cement since a greater amount of Cement usually increases the strength of a concrete. However, even with these modifications, according to the testimony of Mr. Dubé, the resistances of the concrete in compression remained low or the mixture became too expensive to produce.

[145] Mr. Dubé testified that he did some laboratory tests before large scale tests. After the attempt to change the dosage of the cement, Mr. Dubé has changed another aspect of his mix: the adjuvants. He has decided to make tests by replacing its plasticizer with a plasticizer new generation, which has led to some improvement in the mix without however, to achieve the desired results.

[146] Mr. Dubé also mentioned that he tried to compare the effect of ternary cement in its type V mixture with its effect in mixtures of latex concrete and self-consolidating concrete. The deduction of any salary expense or material is not claimed in connection with these tests.

[147] For its part, the cement manufacturer Holcim has made its own tests on three mixtures to observe the evolution of compressive strength over time. The mixtures involved variations in the dosage of several elements, in particular cement, air-entraining admixture and superplasticizer admixture. adjuvant superplasticizer has also been replaced by the new generation in these trials.

[148] Mr. Dubé explained that BMQ worked in collaboration with Holcim in the context of this project since the supplier himself had an interest to develop high performance cement products. Holcim's work did not however, have not been made on behalf of BMQ, (there is no invoice from materials or tests related to this project), so they are not part of the BMQ project.

[149] BMQ was unable to determine whether the performance of its concrete Type V were affected by the cement or adjuvants used. However, tests found that the air content of the concrete was normal to

the plastic state, but increased during its hardening. High air content negatively affects the compressive strength of a concrete.

[150] In the event that the activities exercised by BMQ as part of this project would be qualified SR & ED activities, the respondent challenges the very large majority of the expenses incurred by the Appellant for wages, materials and for subcontractors. The respondent is of the view that these expenses are not no deductible expenses under section 37 and eligible for the calculation of the ITC. Some expenses were withdrawn by the appellant, so the amounts in litigation are: $ 11,741 in wages, $ 1,425 in materials and $ 5,876 paid to subcontractors. The respondent agrees that amounts of $ 1,417 for wages, $ 101 for materials and $ 755 for subcontractor fees would be a deductible expense under section 37 and eligible for the calculation of CII.

4.2 Theses of the parties

[151] According to the appellant, the work carried out under this project, namely the field tests of high-performance laboratory blends have eliminated several hypotheses that may explain the poor performance of the mixtures containing ternary cement, such as the influence of the cement dosage and the effect plasticizer on the mixture, although the work did not immediately fruit. The appellant claims that progress is the knowledge she has acquired that increasing the concentration of cement and using a plasticizer to new generation has not made it possible to increase the resistance of the mixtures.

[152] As noted above, the appellant considers that the activities of development of type V concrete with Ter-C cement [3] must be examined in conjunction with projects B-10-05, B-10-07 and B-10-09. Activities

constitute SR & ED activities since they constitute experimental development undertaken in the interest of technological progress.

[153] According to the respondent, the activities exercised by BMQ under this project do not constitute SR & ED. Since the products installed on a site must be approved in advance, BMQ must be fairly certain that a mixture is in conformity before providing it for repairs to be

performed. In addition, the installation of concrete before it is tested in the laboratory demonstrates that this is ordinary work. BMQ only adapts its mixes and perform tests. The tests are a continuation of repair work on projects based on contracts and not for investigation systematic.

4.3 Discussion

at) Project qualification

[154] As part of this project, the mixture formula was developed on April 22, 2009; large-scale tests were carried out on the Champlain Bridge on May 13, 2009 and the laboratory tests were conducted on May 22, 2009. Between 13 and 22 May 2009, the concrete installed on the Champlain Bridge was analyzed. The evidence indicates that the concrete was installed by BMQ before the test results in the laboratory are not known. According to the timesheets filed in evidence by Appellant and on Form T661, the first tests carried out on the construction site occurred before laboratory tests. To explain the concrete installation before the confirmation of its performance by the results obtained in the laboratory, Mr. Dubé explained that BMQ wanted to develop the new blend quickly saw the problematic of his mixtures at the time. However, sir Dubé testified that he did some tests in the laboratory before doing the tests ladder. Mr. Dubé's testimony is unclear and does not conform to the documentary evidence produced at the hearing; therefore, I give it no credibility.

[155] Thus, I am not convinced that, according to the preponderance of probabilities, a technological uncertainty that could not be solved by usual procedures or current technical studies existed in the case of this project. Indeed, BMQ has modified one of the inputs of its concrete, cement ternary, and carried out large-scale trials before having the results of the laboratory tests. This approach indicates the absence of uncertainty in this particular case. Changes to the mix

also appear to have been made according to known methods: the amount of cement to increase compressive strength, discuss with the concrete supplier to report problems and solutions considered, and modify a plasticizer. Tests have shown that a phenomenon

of increasing the air content of concrete occurred during hardening,

but BMQ did not establish the cause and, above all, BMQ did not seek to establish the cause. I therefore conclude that no technological progress has resulted from this project.

[156] For these reasons, as well as those stated for Project B-10-07, the BMQ's activities under this project do not constitute SR & ED activities. I come to the same conclusion by analyzing this project of overall with projects B-10-05 and B-10-07.

[157] Overall, the activities carried out by BMQ in the framework of the projects B-10-05, B-10-07 and B-10-08 are the result of a change of supplier ternary cement. Even if I look at the three projects overall, the presence an uncertainty beyond what is solvable by technical studies routine procedures or procedures has not been demonstrated by BMQ in accordance with balance of probabilities. Indeed, I conclude that this is the update or development of products through standardized tests and field tests. According to the Circular, a focus activity will be eligible if it is intended to advance the technological knowledge of the taxpayer (para 2.13). In this case, BMQ did not convince me that the activities have advanced their technological knowledge. BMQ used techniques or common processes generally accessible to competent specialists in the field of field of concrete to develop its mixtures. Also, the progress described by BMQ, the modification of the ternary cement supplied by Holcim, was not demonstrated in a sufficiently convincing way that we can determine if it is an advancement made by BMQ or by Holcim.

[158] With respect to Project B-10-09, which I will review below, I concluded that there is no connection to projects B-10-05, B-10-07 and B-10-08, since the cement used in the mixtures tested under the B-10-09 project is not the ternary cement.

b) Expenses

[159] Although it is not necessary for me to answer the question of deductibility of expenses under section 37 and the eligibility of those expenses for

calculation of the ITC given my conclusion that the activities can not be qualified

of SR & ED activities, I conclude that, if the activities could be qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[160] The only expenses allowed by the respondent are part of those incurred as part of the collaboration with cement supplier Holcim for develop the mixture, make tests and take samples in the laboratory and analyze the results. According to the respondent, all expenses related to large-scale trials on the Champlain Bridge and on the roads at Berthier (including including those for salaries, materials and subcontractor costs) are not therefore not considered deductible under section 37 and eligible for calculation of the ITC.

[161] Given that the evidence has shown that large-scale testing were performed before the results of the laboratory tests were known, I concluded that the expenses refused by the respondent are properly justified. Activities are rather commercial activities for BMQ and should not be included in the SR & ED claim. Also, I consider that, in the case of this project, the hours are also overestimated in some respects. For example, the On May 13, 2009, three people reported spending eight hours each tests in the morning while the commercial casting took place at 1 pm.

[162] For these reasons, given the respondent's concession, expenditures totaling $ 1,417 for salaries, $ 101 for materials and $ 755 for subcontractors would be eligible Section 37 deductible expenses for the calculation of the ITC.

5) Project B-10-09: Characterization of a new plasticizer generation

5.1 Description of the project

[163] Having noted in Project B-10-08 that the adjuvant Next-generation superplasticizer increased the strength of a mixture of concrete failed, BMQ decided to modify some of its concrete mixes standard (ie not containing ternary cement) by replacing the adjuvant superplasticizer found there by that of new generation. The decision also was motivated by the fact that BMQ had noticed a decline in resistance to

compression of its standard concrete, although this does not affect its ability to provide concrete that meets the standards.

[164] Tests were carried out on three mixtures in five tests for check that these mixtures still meet the standards after the modification of the superplasticizer adjuvant. A mixture was adjusted once, but tested three times before we reach satisfactory results. The other two mixtures did not the object of only one test since they immediately met the standards of industry.

[165] A first test was performed in the laboratory on a mixture on June 30, 2009. The results of the test were unsatisfactory and a change in the dosage of inputs has been made. A sample of this modified mixture was taken on July 31, 2009 during a pouring of concrete at a BMQ customer. This mixture has also been tested on October 6, 2009 at another customer's site since the temperatures cool autumns generally lead to better results, since concrete takes longer to hydrate according to Mr. Dubé. The tests actually gave better results in this third test.

[166] Two other mixtures were sampled once each during their installation customers on August 20, 2009 and October 6, 2009, and immediately gave satisfactory results.

[167] In the event that the activities exercised by BMQ as part of this project would be classified as SR & ED, the Respondent does not dispute any of the Expenditures whose deduction is claimed by BMQ, that is, salary expenses ($ 3,002), material expenses ($ 494) and subcontractor fees ($ 1,115). These expenses would therefore be deductible under section 37 and eligible for calculation of the ITC.

5.2 Theses of the parties

[168] According to the appellant, the tests conducted as part of this project resulted in document the positive impact of the next-generation superplasticizer over to the product then used by BMQ and to improve the existing mixes. The absence of improvement in the case of ternary cement-based concrete led BMQ to back to the hypothesis that the problems stemmed from the composition of this cement.

[169] As mentioned in the analysis of project B-10-05, the appellant considers that the characterization activities of a superplasticizer adjuvant new generation must be examined in conjunction with the projects B-10-05, B-10-07 and B-10-08. According to her, these activities constitute SR & ED since they constitute experimental development work undertaken in the interest of technological progress.

[170] According to the respondent, the activities exercised by BMQ under this project only to characterize products and show no uncertainty or technological progress. The work undertaken by BMQ as part of this project are standard wording work and evaluation work of the performance of existing commercial products, and in the case of these work neither obstacle nor technological progress. Thus, the activities can not be qualified as SR & ED.

5.3 Discussion

at) Project qualification

[171] The evidence showed that BMQ was not sure of the effect that the replacement of the superplasticizer adjuvant with the superplasticizer adjuvant of new generation on standard concrete mixes. This new adjuvant superplasticizer had never been used by BMQ except for the project B-10-08. The goal of BMQ was to optimize its concrete formulations standard in order that, in the various tests, these have the characteristics and achieve the performance required by industry standards. BMQ had to therefore look for the right mix of inputs, including adjuvants in its mixtures.

[172] However, BMQ has not convinced me that, according to the preponderance of probabilities, there was technological uncertainty as to the effect of the use of the new-generation superplasticizer additive on its concrete mixes standard. Previously, BMQ used a superplasticizer adjuvant whose effect was beginning to leave something to be desired. BMQ turned to an adjuvant superplasticizer of new generation, the effect of which was known and documented in industry, except that the required dosages of this input in the various blends had to be checked. So, I conclude that solving the dosing problems was reasonably foreseeable using standard procedures or studies current techniques.

[173] The Appellant also claims that there was no data available as to the compatibility of the new superplasticizer adjuvant with the different types of cement. However, I conclude that, as part of this project, BMQ has a data collection that can not be characterized as an SR & ED activity since it has not been made in support of activities which otherwise constitute SR & ED (subsection 248 (1) - paragraph (d) of the definition of SR & ED activities). BMQ reformulated its various standard concrete mixes by replacing the adjuvant superplasticizer of old generation by a superplasticizer adjuvant of new generation whose chemical effect was known. I am convinced that BMQ was quite certain that the use of the new generation superplasticizer adjuvant to achieve the desired objectives. BMQ did not seek to understand why the former superplasticizer adjuvant no longer had the desired effect, or know the causes of the difference in performance between the two products. I do not I am not convinced that technological progress has been made in the context of this project.

[174] Paragraph (f) of the definition of SR & ED in subsection 248 (1) explicitly provides that the activities of quality control or The normal testing of materials or products does not constitute SR & ED. The proof has shown that this project consisted of validating the concretes standard by the use of a new superplasticizer adjuvant. I do not see any technological progress that has been made in the context of this project, given that BMQ has not only to change in its concrete an input whose effect was known and documented. BMQ was only required to determine the required amount of this input in its various concrete mixtures.

[175] However, I recognize that BMQ hypothesized that the new-generation superplasticizer adjuvant would provide a better performance of BMQ concrete mixes, and that, through the use of scientific tests carried out by independent laboratories, the scientific method was followed. Similarly, some variables of the mixtures have have been modified according to the results obtained, although the evidence is not clear as to the quantity of the various inputs used. Also, the evidence has shown that various tests had been carried out.

[176] The activities performed by BMQ consisted in validating its blends with the industry standards and to develop them, which in this case does not does not constitute SR & ED.

b) Expenses

[177] Since the respondent does not dispute the amount of the expenses claimed by the appellant, had I concluded that the activities of BMQ in the context of this project could be characterized as SR & ED activities, salary expenditures totaling $ 3,002 and materials totaling $ 494 as well as the costs of subcontractors totaling $ 1,115 would be deductible under section 37 and eligible for the calculation of the ITC.

6) Project B-10-12: Development of High Grade Cavernous Concrete in vacuum

6.1 Description of the project

[178] The activities of this project were carried out in conjunction with the activities two other projects, Project B-10-11 (Drainage Concrete), partially accepted as part of the audit, and Project B-10-10 (roller compacted concrete or BCR), rejected at the verification stage. The appellant withdrew her appeal to with respect to this project during the hearing.

[179] Ville de Laval, where BMQ's offices are located, had been requesting many years that the parking lot of the company is paved. Also, according to the demands of the city, the discharge of rainwater into the sewers was to be limit.

[180] BMQ therefore undertook to pave a portion of its land located at the front of its trade with two types of concrete, namely BCR and draining concrete, in beneath which BMQ had installed a layer of cavernous concrete having a vacuum content of 35%. Cavernous concrete also contains a water drainage system designed by BMQ, a network of perforated drains to capture rainwater. The cavernous concrete underlayment installed over the entire parking area acts as a pool of water retention.

[181] A cavernous concrete is a concrete also called "concrete popcorn" seen its very porous appearance. The higher the vacuum percentage of cavernous concrete is high, it is able to retain a large amount of water. according to

Mr. Bertrand, cavernous concrete is a product that existed in the literature, but he was not covered by any standard. However, the void percentage of such

concrete was limited and was between 12% and 30%. BMQ chose to use a cavernous concrete with a vacuum percentage of 35% in order to install a less thick layer and therefore more economical, and in order to retain a equivalent amount of water.

[182] According to Mr. Bertrand, the drainage system installed in the concrete caverneux is innovative since it allows the retention of water and not only drain the waters; the system also allows water to return to the ground instead of sending it to the sewers of the municipality. This system could not be tested in the laboratory and requested that tests be done under conditions real climate. It turned out that this system worked, according to Bertrand.

[183] As mentioned above, this type of concrete, although known, was not covered by any standard. Tests would still have been done on the concrete around July 15, 2009, according to Mr. Bertrand, to obtain a mixture 35% void, although no mention of these tests is made on the Timesheets.

[184] Under Project B-10-11 (Drainage Concrete), the University of Waterloo has installed probes that measured moisture in draining concrete; these probes were installed in surface concrete (draining concrete), in concrete cavernous under the draining concrete and in loose soil under cavernous concrete. The probes made it possible to measure the percolation of the water in these three layers. According to Mr. Bertrand, the surface of the parking used for the purpose of the draining concrete experiment was approximately 3,000 to 4,000 square feet (on approximately 20,000 square feet).

[185] The excavation of the BMQ site preceding the installation of the concrete was made by subcontractors. BMQ supplied the cavernous concrete, but laying the concrete and of the drains system was carried out by a subcontractor, Demix Construction. These Work took place in two phases so as not to hinder BMQ's activities. The first phase took place on 22 and 23 July 2009 and the second phase, the August 13, 2009.

[186] In the event that the activities exercised by BMQ as part of this project would be qualified SR & ED activities, the respondent does not make any admission regarding the eligibility of salary and material expenses and the costs of subcontractors involved in this project. The appellant has reduced the amount

of his claim by, among other things, withdrawing the wages paid to his employees regarding discussions with representatives of the City of Laval. The appellant claims, under section 37 and for the calculation of the ITC, a deduction for expenses totaling $ 97,007, as follows: $ 20,340 for salaries, $ 18,159 for materials and $ 58,508 for subcontractor fees.

6.2 Theses of the parties

[187] According to the appellant, the project resulted in the development of cavernous concrete having a vacuum content of 35%, which did not exist before. This product was created in order to retain the water instead of just letting it flow as it was usually the case. This project is an integral part of the concrete project draining.

[188] The appellant referred to a report prepared by a female candidate Ph.D. at the University of Waterloo (Vimy Henderson), who undertook the project on draining concrete (Exhibit I-1, tab 8). According to this report, maintaining a 35% vacuum in cavernous concrete was essential to this project.

[189] For the appellant, the activities constitute SR & ED activities since they constitute experimental development work undertaken in the interest of technological progress, as well as research applied in the interests of the advancement of science.

[190] According to the respondent, cavernous concrete is not a concrete that can be installed at using a mobile concrete mixer. Thus, BMQ had no interest in developing a such product. The empty percentage of 35% instead of 30% would have been chosen simply to be able to install a thinner layer and thus reduce costs. Moreover, there is no real progress or advancement just because the percentage increase of the void content in an existing product. Also, it is not reasonable to consider the entire parking lot of BMQ as a test board. Only a small part of the cavernous concrete

has been instrumented, that is to say the one installed under the draining concrete, which does not cover only a small portion of the parking (15% to 20% of the area). according to Mr. Durban, the instrumentation posed as part of the project on Drainage concrete was intended to verify the effectiveness and behavior of concrete draining and not that of cavernous concrete. Concrete instrumentation cavernous was only necessary to ensure proper measurement of the passage water in draining concrete. Finally, the absence of technological uncertainty

is also demonstrated by the fact that the city of Laval has accepted the plans provided by an engineer who indicated even before the work was done, that the works would meet the city's water retention requirements, and this engineer also confirmed the conformity of the work after the refurbishment of the parking. Thus, the activities can not be described as SR & ED.

6.3 Discussion

at) Project qualification

[191] BMQ has not convinced me that, on a balance of probabilities, it is there was a technological or scientific uncertainty in the case of this project, since existing scientific or technological knowledge has made it possible BMQ to achieve the objectives of the project. Similarly, BMQ did not convince me that there had been scientific or technological progress.

[192] The absence of technological or scientific uncertainty is demonstrated by the fact that BMQ's proposed parking plan was approved by a engineer and by the city of Laval even before the work was undertaken and without further steps on the part of BMQ. So, BMQ had to be convinced that the objectives would be achieved and the solution of cavernous concrete viable. Also, I conclude that the likelihood that the objectives of BMQ would be was foreseeable in this case in the light of current practices of industry.

[193] Furthermore, I conclude that the creation of cavernous concrete with a vacuum content of 35% was the result of standard practices in the industry. Mr. Bertrand has testified that tests had been performed to create 35% cavernous concrete.

However, the documentary evidence produced at the hearing does not refer to any test or analysis. Also, on the T661 form it is a concrete cavernous at 30%. Questioned about this at the hearing, Mr. Bertrand indicated that the project had evolved over time. However, this answer is implausible since Form T661 is filed with the CRA after completion of the work. In addition, in the report prepared by the doctoral candidate of the University of Waterloo (Vimy Henderson), who started the project on draining concrete (Exhibit I-1, Tab 8), it is stated that, in the usual way, cavernous concrete has a porosity of 30 to 40%. The evidence did not demonstrate that there was an improvement in

characteristics of cavernous concrete as part of this project. Indeed, this product already existed in the industry.

[194] In her argument, the appellant referred to the report prepared by Vimy Henderson, according to which maintain a vacuum of 35% in cavernous concrete was essential to this project, to argue that the activities were SR & ED activities. However, the passage in question of the report seems to me to speak rather because the data on the draining concrete could have been distorted by a malfunction of the cavernous concrete and he does not come to support the appellant's argument.

[195] According to BMQ, progress or advancement in this project consisted of in understanding the performance of cavernous concrete when it is accompanied by other concretes and used according to different configurations. On the form T661, it mentions the improvement of the water infiltration rate in the soil of origin, the reduction of the maximum rate and the volume of rainwater sent to the municipal system or, by runoff, to rivers, the installation of a foundation by "paver" so as to allow the installation of cavernous concrete containing 30% of vacuum, and the installation of draining concrete, also by "paver". However, the instrumentation installed by the University of Waterloo was intended to measure the permeability of the draining concrete and this instrumentation was only installed in the part of the parking lot whose surface was made of draining concrete, or 15% to 20% of the total area. BMQ does not did not convince me that she was able to increase her knowledge of concrete cavernous as part of this project.

[196] BMQ also had to be convinced that the objectives would be achieved since Cavernous concrete has been installed as a sub-layer of draining concrete and BCR, without possibility to have access.

[197] I am not convinced that the scientific method was followed in the part of this project. Indeed, a large-scale trial was carried out directly without any prior testing of any scale. of the observations were made using instrumentation installed by the University of Waterloo, but only on the part of the covered parking by draining concrete. For the rest, the observations seem to have been mostly performed visually. Similarly, the documentation produced by BMQ concerns especially the approval of the works by the city and the stages of the concrete installation. BMQ agreed to withdraw its deduction claim for all expenses

hours spent analyzing the results, which seems to indicate that the analysis of the performance of the drainage system was mainly visual.

[198] Thus, for these reasons, the activities exercised by BMQ can not be described as SR & ED activities since, in particular, we have not satisfied the criteria of technological or scientific uncertainty and technological progress or scientific.

[199] The appellant's argument that I should consider this project as part of the project on draining concrete does not change my conclusion. BMQ has failed to demonstrate on a preponderance of probabilities in which the combination of draining concrete and cavernous concrete created a technological or scientific uncertainty and how there would have been progress technological or scientific in this respect. Indeed, new knowledge described in Vimy Henderson's report relate almost exclusively draining concrete.

b) Expenses

[200] Although it is not necessary for me to answer the question of deductibility of expenses under section 37 and the eligibility of those expenses for calculation of the ITC given my conclusion that the activities can not be qualified of SR & ED activities, I conclude that, if the activities could be

qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[201] The disputed expenses include salaries totaling $ 20,340 for employee hours devoted to the design of the drainage system, to the preparation of plans, excavation and leveling of the land, inspection and supervision of the works, as well as the installation of cavernous concrete and rest of the drainage system. Expenses for materials whose deduction has been claimed amounted to $ 18,159 and the fees paid to subcontractors totaled $ 58,508.

[202] According to the respondent, the amount of $ 97,007 whose deduction was claimed by BMQ is neither a current SR & ED expense under paragraph 37 (1) (a) nor a SR & ED capital expenditure under paragraph 37 (1) (b). Cavernous concrete served on a daily basis at BMQ for purposes other than SR & ED it allowed him to benefit from a circulation area and parking paved respecting the requirements of the municipality. Also, this expense is not

not a current expense but rather a capital expenditure providing a benefit sustainable at BMQ. According to the respondent, the conditions allowing the deduction of SR & ED capital expenditures are not met in this case.

[203] Expenditures of $ 20,340 related to the salaries of employees for the design of the drainage system, preparation of plans, excavation and leveling of the land, inspection and supervision of the works and the installation of cavernous concrete and drainage system could be current expenditures referred to in paragraph 37 (1) (a) and subdivision 37 (8) (a) (ii) (B) (IV) since such work would be considered SR & ED activities that are proportional to and support the SR & ED project directly, in accordance with paragraph (d) of the definition of SR & ED in paragraph 248 (1). These salary expenditures could also be eligible for the calculation of the ITC. However, I consider that, given the testimony of Mr. Dubé that it rounded the hours, it is more likely that the number of hours actually been overrated. I conclude that it would be reasonable to reduce 10% the claim for wages. Thus, salary expenditures totaling $ 18,306 would be deductible under section 37 and eligible for the calculation of the ITC.

[204] Cost of materials, totaling $ 18,159, includes cavernous concrete

($ 11,061), concrete for the repair of the existing slab ($ 1,578), aggregates ($ 3,865), concrete for raising the retaining wall ($ 405), steel reinforcement ($ 170) and other amounts totaling $ 1,080. I agree with respondent to say that it would not be current expenses for equipment consumed in SR & ED (Subclause 37 (8) (a) (ii) (B) (V)). In Indeed, this material can not be considered as having been consumed as part of of SR & ED activities, and the related expenses can not be deducted under paragraph 37 (1) (a).

[205] I must however determine whether the cost of the materials could be considered as a capital expenditure referred to in paragraph 37 (1) (b) that is eligible for the calculation of the ITC if it is referred to in subparagraph 37 (1) (b) (i). I will come back to it below.

[206] Subcontractor fees totaling $ 58,508 include the costs of Dessau for the design ($ 6,361), Demix's fees for the excavation and the installation of concrete and drains ($ 48,398), the laboratory costs of Construction 2000 ($ 630), Paramount's fee for raising the wall of Retention ($ 2,304) and Filiatrault McNeil's consulting fees ($ 815). The respondent takes the position that it would not be current expenses for

SR & ED activities. I agree with the respondent since the development of the parking provides a lasting advantage to BMQ and can not be considered as having resulted in expenses of a current nature. I have to to determine whether subcontractor fees could be considered as capital expenditures referred to in paragraph 37 (1) (b) and eligible for the calculation of the ITC.

[207] First, paragraph 37 (1) (b) provides that the amounts deductible as capital expenditure are those that constitute "a capital expenditure ... made [...] with respect to property that would be [...] depreciable property of the taxpayer ". The classification of an expense under section 37 is made according to the general principles for distinguishing between current and expenditure in capital.

[208] In this case, the evidence showed that BMQ's parking was not paved during the laying of the cavernous concrete sub-layer. Sustainable improvement property is normally considered to entail a capital expenditure. Thus, I am of the opinion that subcontractor fees as well as the costs of

materials can be characterized as capital expenditures according to the principles applicable.

[209] Since BMQ chose the replacement method, the expense in capital referred to in paragraph 37 (1) (b) is limited to a capital expenditure described in subdivision 37 (8) (a) (ii) (B) (III). This subdivision provides that a capital expenditure is a capital expenditure for the provision of premises, facilities or material which, at the time the expenditure is incurred, meets one of the conditions following:

1. They are supposed to be used, during all or almost all of their operating time during their useful life, in the context of SR & ED activities;

2. All or almost all of their value is supposed to be consumed in the framework of SR & ED activities.

[210] According to the respondent, since cavernous concrete is used daily by BMQ, as part of the operation of its business, as an underlay of a parking area and a driveway and that cavernous concrete would not have been rendered unusable by the SR & ED activities, these conditions are not fulfilled. I agree with the respondent. These expenses can not therefore

not be deducted by BMQ as SR & ED capital expenditures 37 (1) (b).

[211] Also, the respondent is of the opinion that these amounts can not be included in the qualifying expenditures for research and development account (clause 127 (9)) for the purpose of calculating the ITC. I agree with the respondent. First, as he has above, these amounts are not deductible under paragraph 37 (1) (b). Also, these are expenses that can not be qualified as expenses SR & ED activities and expenditures on equipment multiple uses, since parking is not a depreciable property used mainly in the context of SR & ED activities. Indeed, as it has been previously mentioned, cavernous concrete is used daily as a sub-layer of BMQ's parking area.

[212] For these reasons, only expenses for salaries totaling $ 18,306 would be a deductible expense under section 37 and eligible for the calculation of CII.

7) Project B-10-18: Develop Light Weight Self-Consolidating Mortar for mobile concrete mixer

7.1 Description of the project

[213] This project is an attempt by BMQ to develop a self-consolidating mortar lightweight for mobile concrete mixer. This product was already available for concrete mixers classics. However, given the greater flexibility of the mobile concrete mixer, a BMQ customer requested that the company develop such a product for mobile concrete mixer. So, BMQ had to develop a mortar that could be between existing storm sewer lines and new conducted, without distorting them.

[214] A mortar differs from concrete in that it does not contain stones. The term "Self-propelling" implies a great fluidity - that is, the ability to spread by the sole effect of gravity - whereas the term "light" means a low density, which is a high content of air in the mixture. Content wanted air for blending as part of this project was 20%, but it was as necessary as the strength of the compression mortar is at least 20 megapascals.

[215] This project began on November 2 and ended on December 7, 2009. In this project, BMQ did not do any laboratory tests before doing the mobile concrete mixer because, as Mr. Dubé explained, the mixer used in the laboratory at BMQ works on the same principle as that of the classic concrete mixer. It was clear to Mr. Dubé that, for which is laboratory tests, the mixture would meet the requirements set by the customer since this product already existed for conventional concrete mixers.

[216] BMQ tested several mixtures by attempting to modify admixtures (air entrainer and foaming agent existing on the market) and the content of cement a mixture of standard mortar. Air content tests,

temperature, spreading and compressive strength were made on the mixtures in this project. The test results demonstrated a level of in air ranging from 12% to 15%; these results were therefore below the criteria required by the customer.

[217] In the face of these unsuccessful attempts, BMQ employees worked at the design of equipment to further foam the mixture by the injection of compressed air. They were inspired by equipment designed for conventional concrete mixers but could not be installed on a mobile concrete mixer. BMQ has redone the tests, but without more success.

[218] The project was unsuccessful because BMQ failed to obtain a grade in air of 20% for the mixture. Indeed, despite the adjustments to the mix and the use of the equipment designed by the two employees of BMQ, it was not possible to increase the air content of the mixture.

[219] To date, the product that BMQ has attempted to design still does not exist. This project has not been resumed since that time.

[220] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement remain as regards wages whose deduction is claimed by BMQ, which totals $ 1,710 and essentially relates to the 34 hours dedicated to bibliographic research to find products and foaming equipment as well as some discussions between Mr. Bertrand and Mr. Dubé for the development of blends, which took place between November 7, and November 20, 2009. The Respondent agrees that amounts totaling $ 2,202 for salaries, $ 427 for materials and $ 360 for fees

subcontractors would be eligible deductible expenses under section 37 for the calculation of the ITC.

7.2 Theses of the parties

[221] According to the appellant, the existing products and equipment were not designed for the mobile concrete mixer. The uncertainty was the lack of data the capacity of the mobile concrete mixer to produce the mortar

question and in the absence of foaming equipment that would be suitable for the concrete mixer mobile. The work allowed BMQ to acquire new knowledge on

limits on the capacity of foaming admixtures and a mobile concrete mixer

to produce mixtures with high air content. The project has also

determine that the source of these limits was the kneading process of the

mobile concrete mixer. These activities therefore constitute SR & ED activities since they can be qualified as experimental development work

undertaken in the interest of technological progress.

[222] According to the Respondent, the activities exercised by BMQ can not be qualified of SR & ED activities as it does not seem complicated. Indeed, in less

three weeks, the equipment was designed and the mixture was produced. according to

Mr. Durban, BMQ did not depart from standard methods by using a

foam adjuvant and an air entraining aid whose characteristics consist of generating air in a mixture. The addition of air by means of

this equipment designed to add air also had a predictable result, either

the increase of the air content.

7.3 Discussion

at) Project qualification

[223] In this case, the evidence showed that the activities of BMQ were not routine developments, since what his

customer could not be produced as part of the mobile concrete mixers, but

only in the context of conventional concrete mixers.

[224] The evidence has shown, on a balance of probabilities, that

Technological uncertainty was present in the case of this project. BMQ was in the impossibility of predicting whether the experience or knowledge generally

available or current practices would meet the criteria

required by his client. The goals set by the client were achievable by the use of a conventional cement mixer, but it was impossible for BMQ to predict

if they would be reached by means of the mobile concrete mixer. Uncertainty existed

in the manufacture of a very light mortar product with 20% air and can be installed in storm sewer pipes without deforming

old pipes. The evidence showed that no data existed on the
ability of the mobile concrete mixer to produce such a mortar. The evidence also demonstrated that a mobile cement mixer mixes inputs less time and with
less force than conventional cement mixers, which makes it more difficult to obtain a high air content in a mixture.

[225] BMQ also sought to achieve technological progress, although has not been able to meet the criteria required by his client. Indeed, the
progress would have been the incorporation into a mixture of mortar produced at
means of a mobile concrete mixer of a characteristic, ie the air content of 20%, difficult, if not impossible, to reach in current practice. The fact that this project did not bring the desired product does not exclude the activities of the definition of SR & ED activities. As indicated by Mr. Dubé, BMQ has
acquired some knowledge regarding the energy limit of
mixer and the effects of the limited mixing time of the mixer
this one on concrete / mortar mixtures.

[226] According to the Respondent, given that BMQ's employees put only a few hours to adapt for the mobile concrete mixer equipment designed for
concrete mixers, it could not be so complicated, and that indicates that the activities can not be characterized as SR & ED. I do not see how
the criterion of difficulty or ease of doing something may be relevant for the purposes of qualifying an SR & ED activity. The evidence has shown that
BMQ's two employees designed equipment for the mobile concrete mixer inspired by equipment designed for conventional concrete mixers. These employees could not adapt the equipment designed for the conventional cement mixer directly to the
mobile concrete mixer; thus, I conclude that these activities do not fall within the practice common.

[227] The evidence also shows that Mr. Dubé studied
systematically the problem raised by the low percentage of air in the tested mixtures and did some experimentation to determine the causes of these results. Tests were performed by an independent laboratory. The hypothesis
posited was that the addition of a foaming adjuvant and an adjuvant

air entrainment and air injection would increase the air content of the mixture of mortar. I consider that the scientific method was followed by BMQ. Even though he

there was no detailed contemporary account of the tests, the documentation produced at the hearing and the testimonial evidence, particularly the testimony of Mr. Dubé, provided details of the activities undertaken as part of this project.

[228] For these reasons, the activities exercised by BMQ in the context of this project constitute SR & ED activities.

b) Expenses

[229] I will now examine the nature of the salary expenditures that are contested. These relate to the 34 hours spent by Mr. Bertrand and Mr. Dubé to bibliographic research to find products foaming agents and equipment for foaming the mixtures. They also relate to the discussions between Mr. Bertrand and Mr. Dubé for the development of the mixture.

[230] I conclude that, on a balance of probabilities, the hours dedicated by Mr. Bertrand and Mr. Dubé to research bibliographies and discussions on the formulation of the mixture had an impact on the SR & ED activities in this project in the sense that these activities determined the conduct of the tests and the formulation of the tested mixtures. So, Bertrand and Dubé were directly involved in SR & ED. I considers that these hours were directly related to the SR & ED activities and are therefore deductible under section 37 and eligible for the calculation of the ITC.

[231] However, I consider that, given Mr. Dubé's testimony that it rounded the hours, it is more likely that the number of hours has actually been overrated. I conclude that it would be reasonable to reduce 10% the claim for wages. Thus, salary expenditures totaling $ 3,521 are deductible under section 37 and eligible for the calculation of the ITC.

[232] Also, given the respondent's concession, amounts totaling $ 427 for materials and $ 360 for subcontractor fees are expenses deductible under section 37 and eligible for the calculation of the ITC.

8) Project B-11-01: Chlorine Ion Permeability Study and Sustainability with various pozzolanic additions and cements

8.1 Description of the project

[233] In 2009-2010, the MTQ and the Canadian Standards Association ("CSA") added a new requirement to standards for concrete, a threshold of permeability to chlorine ions (maximum conductivity of 1000 coulombs at 56 days). This standard has been put in place since the ions of chlorine passing through the concrete may cause the steel reinforcements to rust concrete structures, which we try to avoid. Mr. Bertrand testified that in order to meet a concrete standards, twenty-two tests must be performed, to which is now added the new test for permeability to chlorine ions.

[234] A grace period of a few months has been granted to businesses for give them time to do the tests necessary to demonstrate that their concrete mixes complied with the new standard.

[235] According to Mr. Bertrand, the new norm took all the people of industry unprepared. BMQ did not measure the ion penetration rate of chlorine blends before standards change, since this was not not required. However, a standardized test existed in the industry to do this.

[236] This project began on February 8, 2010 and ended on December 21, 2010. BMQ has therefore undertaken to verify whether its concrete mixes comply with the new standard. The objective of the project was to reformulate and optimize the mixtures of concrete according to the new standard. Blends with five different types of cement have been tested. According to Mr. Bertrand, the information available on each type of cement - for example, their data sheets - did not allow for determine in advance the permeability to chlorine ions. For example, GU concrete (common concrete) had a permeability to chlorine ions of 3500 coulombs, which which exceeded the new standard.

[237] The assumptions made by BMQ included the questions of whether the different cements met the standard, if the BMQ blends were in to meet the standard and, in the event that the new standard is not respected, what changes needed to be made to the blends. according to

Mr. Bertrand, the uncertainty was that BMQ did not know if the blends concrete would comply with the new standard.

[238] BMQ performed tests on fifteen mixtures. Five mixtures made subject of more than one test. According to Mr. Bertrand, when a mixture did not respond not expectations, it was either left out or reformulated. Moreover, when a mixture was modified to reach the new standard, it then became necessary to check if the other standards were still respected. So, tests for check compressive strength, flaking resistance, freeze / thaw Check the stability of the distribution of the network of air bubbles had to be carried out.

[239] After a first series of tests leading to the conclusion that no mixture did not meet the new standard, BMQ changed the amount of cement and modified the mixing sequence and the method of introducing the adjuvants; this second series of tests was conclusive for certain mixtures. Subsequently, BMQ decided to substitute a certain amount of cement for mineral additions pozzolaniques to improve the results in compression. For six mixtures, These changes have made it possible to comply with the new standard and all applicable standards.

[240] Mr. Bertrand also indicated that the addition of latex in a mixture containing a general purpose cement had increased the ion permeability of chlorine.

[241] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement would remain with respect to wages totaling $ 6,885, the deduction of which is claimed by BMQ, essentially wages paid for hours dedicated by trainees and ACI technicians to discussions and analyzes of results. The respondent agrees that amounts of $ 28,876 for wages, $ 3,432 for materials and $ 26,270 for subcontractor fees would be Section 37 deductible expenses eligible for the calculation of the ITC.

8.2 Theses of the parties

[242] The appellant explained that data was missing and that they been collected by it, following the modification of the standards, as part of this project. The information then allowed BMQ to reformulate its mixtures and to improve these as to the permeability to chlorine ions. According to the appellant,

the definition of SR & ED does not require companies to make their public data and the fact that only BMQ products are improved thanks to research projects does not prevent BMQ from meeting the criteria developed by the case law. These activities therefore constitute SR & ED since they represent applied research undertaken in the interest of scientific advancement.

[243] According to the respondent, the activities exercised by BMQ under this project are an attempt to validate existing products against the standards applicable to the industry, and therefore these activities can not be qualified of SR & ED activities. According to Mr. Mimoune, existing mixes containing known ingredients have been tested. The techniques used by BMQ to adapt the mixtures are also technical standard engineering. The scientific method would not have been respected either since there are no links between the tested mixtures, ie they do not are not part of a logical sequence and that we have simply abandoned some when they did not meet the norm, instead of trying to understand the causes of failure. In cases where the mixture has not been abandoned, it has been adjusted by the test-error method.

8.3 Discussion

at) Project qualification

[244] I am not satisfied that, on a balance of probabilities, BMQ attempted to resolve scientific uncertainties through the use of a systematic investigation to achieve progress or progress scientist. The evidence rather demonstrates that BMQ conducted a collection of data concerning mixtures used in the operation of his business. BMQ has essentially undertaken activities to control the compliance of its products with the new standard for ion permeability chlorine. These activities consisted of data collections that were not activities that qualify as SR & ED, since the evidence does not demonstrated that data collection was being done to support SR & ED. BMQ took inventory of its products, checked which ones satisfied standards, changed the mixing sequence and how to introduce the adjuvants, balanced the content of cement and minerals such as pozzolan in order to reformulate products and, having received the results of laboratory, selected mixtures that were in compliance with the standards. QMT

did not seek to know why some of these mixtures do not did not meet the standards.

[245] Although BMQ claims that it was not certain that it could do mixtures comply with the standards, BMQ indicated in the response to review report that the work was information gathering work on BMQ's products (Exhibit I-3, Tab 10, p.5). This mention was also made during the oral arguments. These data were collected by known methods in industry. In addition, BMQ has modified some of its blends by using standard practices in the industry. I consider that BMQ was fairly certain to be able to meet the standards.

[246] BMQ has essentially validated its products with regard to the new standard for permeability to chlorine ions, which does not constitute SR & ED activities.

[247] At first, BMQ made some attempts to characterize its various existing concrete mixtures made with different types of cement. The leaves of time produced in evidence describe validation activities of mixtures by different tests to determine whether the concrete complied with the standards. Timesheets do not report any time spent on reformulation of mixtures, but there are many hours devoted to discussion and analysis of results, as well as hours for validation mixtures. I also note that the blends were tested directly without that they have been reformulated in some way. This shows that the activities consisted of a normal data collection carried out as part of the BMQ company to validate the mixtures against the standards, so that it was not SR & ED.

[248] Also, BMQ did tests to verify the effect of pozzolan on cements as well as the effect of changing the mixing method. according to Mr. Mimoune, pozzolan is a known material and its effects on the porosity are also well known and documented in the scientific literature since many years. In the response to the examination report (Exhibit I-3, tab 10, p. 5), BMQ admitted that the addition of pozzolana and the modification of the kneading method are known techniques in the industry, specifying however, the use of a mobile concrete mixer makes the results unpredictable. BMQ did not convince me, however, that the use of the mobile concrete mixer

a degree of scientific uncertainty that would justify the activities being qualified of SR & ED activities.

[249] Although I accept that the chlorine ion permeability standard has been received with surprise by the people of the industry, I do not see how the MTQ could have put in place such a standard knowing that the companies under this standard could not respect it. This also demonstrates a lack of scientific or technological uncertainty in this regard.

[250] Also, BMQ did not convince me that it followed the method scientist as part of this project. Indeed, although tests have been made in a scientific way by an independent laboratory, a certain amount of testing and error is noticeable when switching from one mixture to another without analysis especially why a mixture meets the standards or do not respect them.

[251] Finally, with respect to the existence of a detailed account, the tests performed by BMQ can partially be reconstructed using the documentation produced at the hearing and testimony from the representatives of QMT.

[252] For these reasons, BMQ's activities under this project can not be characterized as SR & ED activities since they consist of normal product characterization tests that did not result in uncertainty scientist.

b) Expenses

[253] Although it is not necessary for me to answer the question of deductibility of expenses under section 37 and the eligibility of those expenses for calculation of the ITC given my conclusion that the activities can not be qualified of SR & ED activities, I conclude that, if the activities could be qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[254] As mentioned above, with respect to expenditures, the

parties' disagreement only subsists in respect of part of the wages of which the deduction is claimed by BMQ. The amount in question is $ 6,885 and mainly relates to salaries for hours spent by trainees

and ACI technicians for discussions and analysis of results. A few hours spent by mobile cement mixer operators, also technicians ACI, to analyze results are also called into question. Related salaries with discussions and with the taking of samples as part of a test at large scale of July 27, 2010 are disputed. Finally, four hours spent Mr. Bertrand and Mr. Dubé on March 25, 2010 to analyze results, as well as that the thirty hours spent by them and technicians to discuss with the Holcim cement and customers, would not be eligible according to the respondent.

[255] With regard to the hours devoted to discussions and analysis of ACI trainees and technicians, Mr. Dubé testified that ACI technicians can be useful for the analysis of results and that the technicians and trainees are called to meetings for this purpose when the results are available. Mr. Dubé indicated that, as part of this project, there were more people required to do tests and analyzes as more samples needed to be taken.

Mr. Bertrand also testified that the ACI technicians are authorized to take samples and perform certain tests. As mentioned above, I consider that trainees and ACI technicians are employees directly engaged in SR & ED activities when participating in discussions and analyze different test results, as well as when perform tests.

[256] However, it is difficult to reconcile these testimonies with the large number hours of discussion and analysis of results indicated on timesheets produced in evidence. For example, there are regularly two hours devoted by three people, the same day, to the analysis of some reports pages. Also, in many cases, the time recorded for trainees and ACI technicians for discussions and analysis of results exceeds the time devoted by Mr. Bertrand and Mr. Dubé to these same tasks. I conclude that the hours of trainees and technicians were overestimated. The hours devoted to the tasks in question by trainees and technicians should be reduced by 90 hours (ie 28 hours in the case of

A. Labbé-Thibault, 28 hours in the case of Mr. Lauzon and 34 hours in the case of Mr. Letter), which represents a total amount of $ 1,392.86.

[257] With respect to Mr. Dubé's four hours of results analysis, Mr. Bertrand, it is not clear how these hours are different from others described in exactly the same way that are not questioned by

the respondent. Thus, I consider that these hours represent incurred expenses for the salaries of persons directly engaged in SR & ED activities, since perform analysis of test results made on mixtures is part integral to SR & ED activities.

[258] With respect to salary expenditures for hours spent on Mr. Bertrand and Mr. Dubé to discuss the tests and the results or to plan large-scale trials with Holcim cement, customers and independent laboratory, they should also be considered as having incurred for the salaries of persons directly engaged in SR & ED, since the scientific method does not prevent teamwork, and the The planning of a test influences the progress of BMQ's activities and has a direct influence on the conduct of SR & ED activities.

[259] For these reasons, I conclude that an amount totaling $ 34,368 could be admitted as an expense for wages. However, I consider that, given the testimony of Mr. Dubé according to which he rounded the hours, he is more likely that the number of hours has been overestimated. I conclude that It would therefore be reasonable to reduce the wage claim by 10%. So, Salary Expenses totaling $ 30,931 would be deductible under section 37 and eligible for the calculation of the ITC.

[260] Also, given the respondent's concession, amounts of $ 3,432 for materials and $ 26,270 for subcontractor fees would be Section 37 deductible expenses eligible for the calculation of the ITC.

9) Project B-11-04: Analysis of the influence of binders and adjuvants on the performance of self-compacting concretes

9.1 Description of the project

[261] This project was set up by BMQ following a request by Hydro-Québec. Hydro-Québec needed concrete with certain characteristics in order to be used for the repair of the slide gates of dam of the Paugan hydropower plant. It was important that the valves do not move while the concrete is poured; thus, the concrete had to dry very quickly without deforming the slides. This concrete also had to meet standards very precise compressive strength, a resistance of 10 megapascals 24 hours after installation and 50 megapascals seven days after installation. according to

Mr. Dubé, this type of concrete did not exist at the time; what existed was a concrete that reached 10 megapascals 48 hours after installation and 50 megapascals 28 days after the pose. Similarly, companies using conventional cement mixers did not produce this type of concrete.

[262] Mr. Dubé began by doing visual tests on the weather taking a mixture of BMQ standard concrete made with ternary cement. he then tried to increase the amount of setting accelerator adjuvant in the mixed. This change allowed for a faster take, but was not enough to achieve high compressive strengths after a short time. For improve results, BMQ's supplier, Holcim cement, has changed several times the formulation of its ternary cement.

[263] Mr. Dubé also tested on mixtures containing cement "HE" and general purpose cement to compare their early resistance to that of the mixture used in the first tests. He subsequently tried to increase the dosage of cement in the mixture to increase the resistance to compression.

[264] Mr. Dubé eventually changed course and opted for a binary cement that no longer used for ten years, instead of ternary cement initially used. Mr. Dubé also replaced the adjuvant superplasticizer contained in the mixture by another he knew less performance, but that would delay less the catch, thus increasing the resistance of the concrete.

[265] According to the time sheets produced in evidence, tests with the concrete mixer mobile and with a pump and large-scale tests would also have been carried out

to validate the mixture. The tests were spread out over ten months.

[266] The results of the tests performed were not entirely consistent with what was sought by Hydro-Québec since the mixture only reached 43 megapascals of resistance instead of 50 after seven days of setting time. However, the mixture was still accepted and used by Hydro-Québec.

[267] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement would continue to exist with respect to salary expenditures totaling $ 17,146 whose deduction is claimed by BMQ. The respondent agrees that amounts of

$ 26,743 for salaries, $ 2,126 for materials and $ 3,425 for subcontractors would be eligible Section 37 deductible expenses for the calculation of the ITC.

9.2 Theses of the parties

[268] According to the appellant, this project meets the definition of SR & ED because it was about creating a product that did not exist before and that had to have unusual characteristics. The success of formulating a thus achieving technological change is a technological advance. Through Consequently, these activities constitute SR & ED activities since they can be described as experimental development work undertaken in the interest of technological progress.

[269] According to the respondent, the activities can not be described as SR & ED. According to Mr. Mimoune, it is known that the addition of adjuvant accelerator is used to get better resistances faster. Moreover, no systematic research has been carried out as part of this project, since BMQ used a method based on trial and error and knowledge available.

9.3 Discussion

at) Project qualification

[270] In the case of this project, BMQ has successfully demonstrated that, according to the balance of probabilities, the technological uncertainties associated with the Hydro-Québec could not be eliminated by the usual procedures or current technical studies. Indeed, the evidence has shown that this type of concrete did not exist. Industries using the conventional cement mixer did not manufacture a such type of concrete. The proof has shown that BMQ was the first actor in the concrete industry to create such a mixture. The goal was to get a mix offering compressive strength greater than 10 megapascals after 24 hours, while retaining the other properties of self-compacting concrete. The uncertainty technology concerned the creation of such a concrete, which had never been created before.

[271] Also, in response to the Examination Report (Exhibit I-3, Tab 10, page 6), Mr. Bertrand says, "We are well aware that binders and

adjuvants that incorporate the formulations have been the subject of studies of their characteristics and their potential effect (s). However, what is not documented and has not been the subject of particular studies is the combination of all these components in the frame of self-compacting concrete and mobile concrete mixer with its mixing energy. Hence the presence of technological uncertainties related to integration and the combination of these elements. "

[272] I also note that there is technological progress as required for activities to qualify as SR & ED. Indeed, BMQ has embedded in a product - self-compacting concrete - a feature fast, which was not easily accessible in current practice, improving thus the product in question. It can be assumed that, if there had been certainty to obtain the characteristics requested by Hydro-Québec, BMQ would not have been the only company to provide such a product. In this project, BMQ has gained new knowledge on the effects of ternary cement and HE cement on the compressive strength of young concrete.

[273] I do not agree that BMQ simply made a qualification of produced as part of this project, as concluded by Mr. Mimoune. the contrary, BMQ has created a fast-setting self-compacting concrete, a concrete that did not exist before. Mr. Dubé could not have known that he would reach the characteristics required since he could not rely on a current technical study

in this respect.

[274] The evidence showed that the scientific method was followed by BMQ. Of many tests have been done by independent laboratories, and many laboratory reports were produced in evidence. Hypotheses have also been asked. Although BMQ has not made a detailed account of how contemporary to the essays, the documentation produced at the hearing and the evidence testimonial, particularly the testimony of Mr. Dubé, demonstrated the workflow.

[275] Thus, for these reasons, BMQ's activities as part of this project are SR & ED activities.

b) Expenses

[276] The respondent challenges the eligibility of certain hours spent on discussions between BMQ and a representative of Holcim cement, between BMQ and a

representative of the independent Qualitas laboratory as a result of tests performed on samples, and between BMQ and a representative of the MTQ about the modification of a standard preventing the use of binary cement in concrete self-healing repair. Similarly, the hours devoted to the discussions of employees within BMQ to plan tests are being challenged by the respondent. Other salary expenses in dispute relate to hours spent analyzing the results of certain tests, during working hours caused by an error in the supply of cement made by Holcim to certain hours of preparation for large-scale trials as well as hours spent on reformulation as a result of these tests, and on some activities to improve a self-consolidating mortar for another BMQ client. Finally, the respondent raises general doubt as to the reliability of the accounting of hours indicated by BMQ on the time sheets established under this project.

[277] I consider that the time devoted to discussions within BMQ or discussions between BMQ and Holcim cement or the independent laboratory has a direct relationship with the creation of mix formulas, test planning and analysis of the results and should also be considered representative

expenses incurred by persons directly engaged in SR & ED,
since the scientific method does not prevent team work and the
Direct planning of a test influences the activities performed by BMQ and has
therefore a direct influence on the conduct of SR & ED activities.

[278] The hours indicated for these activities, however, appear high in
some cases and sometimes relate to tests that have not taken place. For example,
February 6, 2010, three people discuss for two hours the possibility of
try to mix cements, but this test does not take place later.
Also, two identical time registrations were made on October 20, 2010
and October 27, 2010. In addition, the hours of results analysis are sometimes
difficult to justify: for example, a total of 11 hours devoted to
analysis of the results by six people on August 20, 2010 or hours for
analyzed by five or six people in June 2010. It should also be noted that
hours of analysis vary greatly from sample to sample, raising a
doubts about the reliability of the hours indicated on the timesheets. In addition,
several times the time of trainees and ACI technicians who is indicated
for discussion and analysis of results exceeds the time
Mr. Bertrand and Mr. Dubé to these same tasks. I conclude in

Consequently, the hours of trainees and ACI technicians were
overestimated.

[279] I consider the wages for the hours spent discussing with a
representative of the MTQ to change the standards can not be included in
deductible salary expenses under section 37 nor are they eligible for
calculation of the ITC, BMQ did not convince me of the link between these salaries and
SR & ED activities.

[280] Regarding the error in the supply of cement (May 12 and 14)
2010), BMQ reported having spent six hours correcting the error, which does not
seems not reasonable. The salary expense for these hours is not deductible
under section 37 or eligible for the calculation of the ITC.

[281] With respect to the hours spent, from July 6 to 8, 2010, on tests
in which it was necessary to maintain the concrete at a low temperature after installation,

BMQ did not explain the reasons for these tests and the report of these with the project. Thus, the salary expenses for these hours are not deductible according to Article 37 nor eligible in the calculation of the ITC. The same conclusion applies the hours of self-sealing mortar tests for another BMQ client, BMQ has not demonstrated any link between these tests and the project.

[282] The wage claim must be reduced by taking into account described above. So, we have to cut out 37 hours in the case of Mr. Bertrand, 33 hours in the case of Mr. Dubé, 26 hours in the case of S. Fournier, four hours in the case of C. Lockhead, 26 hours in the case of A. Labbé-Thibault, 15 hours in the case of Mr. Lauzon and 36 hours in the Mr. Letter's case, for a total of $ 5,346.

[283] Also, given Mr. Dubé's testimony that the indicated on the timesheets are rounded, it is reasonable to conclude that 10% of the hours recorded for the project are excessive.

[284] Thus, the salary expenses whose deduction is claimed by BMQ must be reduced by a total amount of $ 9,200, representing salaries for non-eligible activities ($ 5,346) and the 10% reduction in expenditures ($ 3,854). Total deductible salary expenses under section 37 and eligible for the calculation of the ITC is $ 34,689.

[285] Also, given the respondent's concession, expenditures totaling $ 2,126 for materials and $ 3,425 for subcontractor fees are Section 37 deductible expenses eligible for the calculation of the ITC.

10) Project B-11-07: Develop a high-speed mortar for installation in a marine environment

10.1 Description of the project

[286] This project started when BMQ received a request from a client for a ultrafast cement mortar mix for use in sealing rock located under water and used as a bridge pier. A mixture of mortar for to be installed under water has the characteristic of containing an adjuvant anti-

leaching so that it stays in place without slackening. The customer demanded that mortar is very fast in order to start work the next day mortar laying, while a waiting period of 21 days after the laying is normally necessary.

[287] The section of activities prior to September 8, 2010 is no longer included a deduction claim for expenses relating to SR & ED activities. These activities were aimed at improving the air content of certain mixtures, without affecting the properties of the mixture. However, at the hearing, BMQ agreed that the claim for SR & ED deduction would only be activities that began on 8 September 2010 with the formulation of a new fast-setting anti-leaching mortar mixture, which ended on October 27, 2010.

[288] In order for the setting of the mortar to be rapid, BMQ had to add an adjuvant accelerator to its mix. According to the time sheets produced in evidence, the superplasticizer adjuvant has also been modified to improve the air content of the mixed. This formulation has been tested at BMQ to check if the mortar could be poured using a mobile concrete mixer and spread well in the cavities of the rock. Samples taken during this test revealed that the addition of the superplasticizer adjuvant negatively affected the resistance to compression of the young mixture.

[289] Several rephrasions were made following the test in order to optimize the air content and the resistance of the mixture to compression. BMQ managed to

create the desired mixture and the customer was able to realize his project with the recipe mortar created by BMQ.

[290] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement would continue to exist with respect to salary expenditures totaling $ 1,390 the deduction is claimed by BMQ and subcontractor fees totaling $ 1,917. The respondent agrees that $ 1,920 for salaries and $ 394 for materials would be deductible expenses under section 37 and eligible for the calculation of the ITC.

10.2 Theses of the parties

[291] According to the appellant, the project enabled BMQ to create a new product, which did not exist before. This product being non-existent, there was no given about it. In his analysis, Mr. Mimoune failed to consider the need to put the mortar under water. These activities therefore consist of SR & ED as they constitute development work experiment in the interest of technological progress.

[292] According to the respondent, the activities can not be characterized as SR & ED since this project does not reveal any technological uncertainty. according to Mr. Mimoune, the work was done using basic knowledge in the field. Thus, if a setting accelerator is used (as for quick setting mortars), it is clear that the air content of the mixture will be lower and that it will be necessary to compensate with an adjuvant that favors the creation of bubbles air. Also, large-scale trials were conducted the week following the mixture development, demonstrating the absence of uncertainty technology.

10.3 Discussion

at) Project qualification

[293] In the case of this project, BMQ has successfully demonstrated that, according to the preponderance of probabilities, there was a technological uncertainty raised by the requests of his client.

[294] In this case, the evidence has shown that this project resulted in the creation of a new product (the 907 mixture), the quick-setting anti-leaching mortar; this product did not exist on the market before.

[295] However, the evidence also showed that BMQ knew that the addition of a accelerator would have a negative impact on the air content of a mixture. That is what project's introduction, which is found on Form T661: "The objectives of this project are to optimize and obtain a robustness of the content of

air fast setting concrete mixtures. The presence of accelerator
entrained air concrete formulation significantly influences air content
as well as the network of air bubbles. Also, according to this form, in order
to optimize certain mixtures, some adjuvants had to be replaced by
other adjuvants; this replacement of superplasticizer adjuvants by others
superplasticizing adjuvants included certain uncertainty factors that made
so that some dosages had to be reassessed. Similarly, Mr. Bertrand has
indicated that BMQ has been using quick setting cement since 2001 and that it was used
in the United States since the 1990s.

[296] But although BMQ used in this project the knowledge
current technologies or common practices to create the new product,
BMQ could not predict if the goals could be achieved, or at least BMQ
could be convinced enough to achieve this, but without knowing for sure what
solution would be applicable. The uncertainty was about creating a product
allowing installation under water and containing an anti-leaching adjuvant so that
the product stays in place without slackening, and would be ultra fast. This project
is not a development of a product since the evidence has shown that such
product did not exist, and it is not about data collection, since we do not
takes into account only activities that began on September 8, 2010.

[297] Also, the scientific progress in this case is the advancement of
BMQ's knowledge of the various dosages and properties of the inputs used.
More specifically, BMQ learned that the new superplasticizer adjuvant
affected the compressive strength of his mixture and BMQ eliminated
some dosing possibilities for the adjuvants tested to achieve a
solution.

[298] The fact that only one week elapsed between the formulation of the
mixing and the beginning of the tests in no way demonstrates the absence of uncertainty
technology.

[299] BMQ has demonstrated that, in the framework of this project, it had posited the hypothesis
according to which the air content of its mixture would be improved by the modification
superplasticizing adjuvant and that early resistance would generally be
improved by other modifications in the adjuvant assay. With regard to
the use of the scientific method, I conclude that, since tests

have been done scientifically and that the modifications made to adjust the dosages were in response to the results obtained, the scientific method was followed.

[300] As with other projects, BMQ's tests may partially be reconstructed using its documentation, but a report compiling the tests and making it possible to follow BMQ's reflections throughout the project was not done. However, even if BMQ did not report in a contemporary way to the tests, the documentation produced at the hearing and the testimonial evidence, particularly the testimony of Mr. Bertrand, demonstrated the progress of the activities.

[301] Thus, for these reasons, BMQ's activities as part of this project are SR & ED activities.

b) Expenses

[302] As noted above, the respondent challenges certain expenses of salary totaling $ 1,390 as well as all expenses related to subcontractors, amounting to $ 1,917.

[303] The disputed salary expenses are those related to discussions with a BMQ customer representative (Simard Beaudry), with Joseph Viola d'Ambex and with Jean Paquette, as well as those relating to hours dedicated to the compilation of results. Also, the hours during which one of the trainees and technician ACI participated in the formulation of a new mixture are disputed.

[304] I consider that the hours spent talking to a client or supplier to carry out tests or to attempt to formulate a mixture relate to the organization of tests or the modification of mixtures thereof; these are activities that directly affect the progress of activities SR & ED. Thus, these expenses would be deductible under section 37 and eligible for the calculation of the ITC.

[305] With regard to the compilation of results and participation in the reformulation of mixtures by a trainee, as mentioned previously,

Mr. Dubé testified that the trainees will obtain their certification ACI as part of their internship at BMQ. As it is also mentioned above, Mr. Dubé also testified that ACI technicians can be useful for the analysis of results and that trainees and technicians are convened meetings for this purpose when results are received. Mr. Bertrand has testified that the ACI technicians are authorized to take samples and to do some tests. Thus, the activities carried out by trainees and ACI technicians have a direct influence on the progress of the activities of the SR & ED and, consequently, the expenses incurred for the salary of these persons would be deductible under section 37 and eligible for the calculation of CII.

[306] However, as mentioned above, I consider, given the testimony of Mr. Dubé according to which he rounded the hours, that it is more probable that the number of hours has been overestimated. I conclude that he would reasonable to reduce the claim for wages by 10%. Thus, the expenses the deduction claimed by BMQ in relation to this project must be be reduced by $ 331. Total deductible expenses according to Article 37 and eligible for the calculation of the ITC for wages is therefore $ 2,979.

[307] With respect to the expenses incurred by BMQ for the costs of subcontractors, the evidence has shown that all of these expenses relate to activities prior to September 8, 2010, activities that are no longer included a request by BMQ for SR & ED. Thus, these expenses do not are not deductible under section 37 nor eligible for the calculation of the ITC.

[308] Also, given the respondent's concession, expenditures totaling $ 394 for materials are deductible expenses under section 37 and eligible for the calculation of the ITC.

11) Project B-12-01: Development of Latex Fast Setting Concrete

11.1 Description of the project

[309] This project began after BMQ received a request from Transport Canada for the supply of concrete to be used for the repair of taxiways at Montréal-Trudeau Airport.

[310] These repairs required the use of quick-setting concrete so that traffic lanes are operational as quickly as possible. Similarly, he The latex had to be removed from the mixture used by BMQ. The modified mixture was allow the fast attainment of good compressive strengths, but it had to also be sustainable and meet industry standards. Concretes used for Aircraft taxiways must also meet certain standards of flexural strength.

[311] A few years earlier, BMQ had tried to develop a mixture of latex-free quick setting concrete, but without being able to meet the standards of resistance to chipping while getting a good fast enough compressive strength. According to Mr. Bertrand, the difficulty lay in the need to find adjuvants compatible with quick setting cement (cement CSA) and having effects allowing them to be used to replace the latex.

[312] Despite previous failures, BMQ found superplasticizing adjuvants potentially improving the performance of fast setting concrete without latex. The project began with discussions leading to the formulation of two mixtures, which have been subjected to laboratory tests, in particular to determine their resistance to compression at a young age.

[313] Mr. Bertrand explained that BMQ made its first tests with a mixture containing adjuvants in powder form and subsequently to which admixtures in liquid form had been incorporated. According to sir Bertrand, liquid adjuvants are more practical and safe for employees as adjuvants powder. The first test performed with an adjuvant provided a useful reference for the use of adjuvants in the form of liquid. Also, according to BMQ, the adjuvant identified as being able to improve performance only existed in solid form in Canada and was not compatible with the use of the mobile concrete mixer given the particular mixing conditions of

this, hence the attempt to develop a mixture with liquid adjuvants (Letter dated November 12, 2013, Exhibit I-3, Tab 10).

[314] Mr. Bertrand also explained that a test board was made at BMQ before a first large-scale trial is carried out at one of its customers. A second large-scale trial was then undertaken at the airport.

[315] The list of materials on time sheets indicates that BMQ has made tests on two mixtures. The first mixture was subjected to three tests and the second mixture was tested four times.

[316] On Form T661, BMQ explains that in its latest tests the resistance to chipping and the network of air bubbles were still insufficient, although that the other standards have been met. BMQ therefore considers that it has acquired new knowledge about the effects of certain adjuvants in a mixture of quick-setting cement-based concrete. BMQ is always trying to understand the interaction of adjuvants to define their compatibility with setting cement fast, and the evidence has shown that the documentation on the subject is almost none (Exhibit I-3, Tab 23). BMQ explained that in 2015 the behavior of the test board at the Montréal-Trudeau airport was still under observation.

[317] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement would continue to exist with respect to salary expenditures totaling $ 10,370 whose deduction is claimed by BMQ and fees paid to subcontractors totaling $ 3,116 (the Qualitas laboratory). The respondent agrees that amounts of $ 11,629 for salaries, $ 1,964 for materials and $ 3,128 for subcontractors would be eligible Section 37 deductible expenses for the calculation of the ITC.

11.2 Theses of the parties

[318] According to the appellant, the project is consistent with the definition of SR & ED since it allowed BMQ to study the possibility of using adjuvants in liquid form in a mobile concrete mixer, whereas they are solids that are normally used in the mobile concrete mixer. In addition, she considers that the modification of a mixture based on the analysis of results obtained does not constitute trial-error. These activities therefore constitute

SR & ED activities since they can be described as
experimental development undertaken in the interest of technological progress.

[319] According to the respondent, the purpose of this project was to carry out an emergency repair with a mixture that has been approved before being installed. It is therefore a project
commercial and not SR & ED. Most of the steps taken
as part of this project were discussions with experts and partners
of BMQ, demonstrating that the information was accessible. The report of
Mr. Mimoune also points out that this approach constitutes a method
BMQ testing is a test-error based on
BMQ's available knowledge and experience. Difficulties
encountered are normal and solvable by current practice in the field.

11.3 Discussion

at) Project qualification

[320] The evidence has shown, on a balance of probabilities, that
technological uncertainty was present in the case of this project since BMQ
could predict whether Transport Canada's objectives could be achieved by
using the usual procedure or the usual technical studies. The objective of
BMQ as part of this project was to develop a new product: a concrete
Latex-free quick setting that would be as durable and efficient as the setting concrete
fast with latex. The goal was to find an adjuvant instead of latex
reacting with CSA cement. BMQ always seeks to understand the interaction
adjuvants in order to define their compatibility with the quick setting cement, and the
documentation on the subject is almost non-existent (Exhibit I-3, tab 23). The proof is
clear that the activities undertaken by BMQ were not based on the
current industry practices, given the lack of documentation on the subject.

[321] The technological progress achieved by BMQ in this project
consists of acquiring new knowledge about the performance of certain
superplasticizing adjuvants in its blends. BMQ hypothesized
which some superplasticizer additives can give to a concrete mix
the same property that gives him the latex.

[322] With respect to the use of the scientific method, I conclude that,
since tests have been carried out scientifically and the modifications
to adjust the dosages were made in response to the results obtained, the method

scientist was followed. The test-error method, contrary to what
the respondent argues, was not followed in the context of this project.

[323] As with the other projects, BMQ's tests may
partially be reconstituted with its documentation but a compiling report
the tests and to follow BMQ's reflection throughout the project
not been done. However, even though BMQ has not made a detailed account of
contemporaneity to the essays, the documentation produced at the hearing and the
testimonial evidence, particularly the testimony of Mr. Bertrand, were
demonstrated the progress of the activities.

[324] According to the respondent, the purpose of this project was to carry out an emergency repair on the airport site with a pre-approved mix before being
installed. It is therefore a commercial project and not an SR & ED activity, according to
the respondent. However, that is not what the evidence has shown. Indeed, the evidence
demonstrated that the activities undertaken by BMQ as part of this project
consisted of trials that were followed by large-scale trials and not
a repair. I can not accept this argument of the respondent.

[325] Thus, for these reasons, BMQ's activities under this
project are SR & ED activities.

b) Expenses

[326] Most salary expenditures for hours spent talking to
partners and BMQ's customers to develop the mix and plan
tests are challenged by the Respondent. It's the same for time
spent in training so that we can safely travel around
airport facilities. According to the respondent, these wages would be taken into account by
through the replacement method. Also, the respondent takes the position that
hours spent doing bibliographic research are not eligible,
nor the hours during which trainees and ACI technicians participated in
discussions and analysis of results. The respondent also refers to the fact that
hours seem to have been overestimated in the case of this project, given the large number
hours sometimes counted for a single day's work.

[327] Expenditure related to the hours of discussion with partners and
BMQ's clients with respect to the organization of tests or the modification of

blends are expenses for the salaries of employees directly

SR & ED activities, since these activities affect the conduct of SR & ED. The same applies to expenses relating to hours spent in bibliographic research that served to support the development of the BMQ and thereby support SR & ED activities. These would therefore be deductible under section 37 and eligible for the calculation ITC.

[328] As mentioned above, I consider that the hours spent by trainees and ACI technicians to discuss and analyze the results have a direct influence on the conduct of SR & ED activities and, consequently, the related salary expenses would therefore be expenses incurred for the salaries of employees directly engaged in SR & ED activities and would be deductible under section 37 and eligible for the calculation of the ITC.

[329] However, I do not consider that the 24 hours spent by six persons have been trained to travel safely to the airport be considered as hours devoted directly to SR & ED. Thus, these expenses are not deductible under Article 37 eligible for the calculation of the ITC. It must therefore be deducted from the amount of $ 21,999 deducted by BMQ for salary expenses an amount of $ 924.

[330] Also, I consider that, given the testimony of Mr. Dubé according to which it rounded the hours, it is more likely that the number of hours has actually been overrated. I conclude that it would be reasonable to reduce by 10% the deduction claimed for salary expenses. Thus, salary expenses whose deduction is claimed by BMQ should be reduced by an amount of $ 2,108. Total expenses for wages that are deductible according to section 37 and eligible for the calculation of the ITC is $ 18,968.

[331] Finally, with respect to the amount allowed as expenses for subcontractor fees, this amount corresponds to the total expenses incurred under this project, with the exception of $ 3,116 for testing carried out on May 18th by the Qualitas laboratory. Since BMQ did not produce in evidence no invoice for these costs, the position taken by the Respondent is justified.

This amount can not be deducted according to article 37 nor be considered for calculation ITC.

[332] Also, given the respondent's concession, expenditures totaling $ 1,964 for materials and $ 3,128 for subcontractor fees are Section 37 deductible expenses eligible for the calculation of the ITC.

12) Project B-12-02: Improvement of fast setting self-compacting concrete

12.1 Description of the project

[333] According to Mr. Dubé, a contractor working for Hydro-Québec used the mixture developed under Project B-11-04 to make repairs to the Manouane C dam. However, the inputs contained in the mixture segregated.

[334] According to BMQ, project B-12-02 is a continuation of project B-11-04. QMT tested his mix again, which allowed him to see that the results of the The tests remained satisfactory and did not match the problems met by his client.

[335] Mr. Dubé attempted to increase the dose of the colloidal agent in the mixing, thus increasing the viscosity of the mixture so that the various inputs remain in suspension and do not separate. This addition, however, made mixture too fluid. The mixture was reformulated and further tested, With more or less success.

[336] After analyzing various factors that may lead to the segregation of a mixing, such as weather or the presence of vibrations, Mr. Dubé concluded that the only factor of variation was the local water used to prepare the mixture. In principle, concrete is made with drinking water; the literature indicates that water does not should not have an impact on a mixture unless organic matter is present. However, after redoing the tests with a sample of the water from construction site, Mr. Dubé discovered that the water used on the site in question was problematic, even though this water was drinkable. Mr. Dubé is not, however,

able to specify the element present in the water that could have this effect.

[337] According to Mr. Dubé's testimony, water was delivered on the site to allow the completion of the work. From now on, when a project is done in remote area, BMQ asks that the water to be used in the mixture be sent to it beforehand to make sure that the mixture will not be affected.

[338] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement remain as regards salary expenditures totaling $ 17,105 whose deduction is claimed by BMQ. The respondent agrees that amounts of $ 16,325 for salaries, $ 1,270 for materials and $ 1,921 for subcontractors would be eligible Section 37 deductible expenses for the calculation of the ITC.

12.2 Theses of the parties

[339] According to the appellant, the activities undertaken by BMQ as part of this project are SR & ED activities, since they are intended to determine the factors that could affect a mix in the field, which met the standards when tested in the laboratory. New knowledge about the impact of water on the concrete were acquired during this project. Activities therefore constitute SR & ED activities since they can be described as experimental development undertaken in the interest of technological progress.

[340] According to the respondent, the activities can not be characterized as SR & ED. According to Mr. Mimoune, the mixture used was already known from BMQ, although adjustments for the input mix have been performed. The steps taken by BMQ were aimed at solving a problem technique, which was done by the test-error method since BMQ was public data and the experience of its staff and collaborators to solve the problem. In addition, the problems encountered in the development of the mixture are normal difficulties whose solutions make part of the current practice. In this case, BMQ has arranged technologies existing, which was feasible with some effort and skill reasonable.

12.3 Discussion

at) Project qualification

[341] The evidence did not satisfy me, on a balance of probabilities, that there was a technological uncertainty that could not be solved by the studies current techniques or practices and that the process has led to progress technology.

[342] Indeed, BMQ used the current technological knowledge to to improve the product developed under Project B-11-04, which demonstrates not necessarily technological uncertainty. There would have been uncertainty if BMQ had convinced me that the probability of achieving the objectives or how to achieve it could not be known or determined in advance based on experience or technological knowledge usually available. BMQ was faced with uncertainty regarding the causes unsatisfactory results of a mixture whose performance had been proven previously. In my opinion, the addition of a colloidal agent to decrease the segregation of a mixture and the analysis of the weather as well as vibrations are of common techniques in the industry.

[343] Also, the documentary evidence does not support the explanation of the project given by Mr. Dubé at the hearing. In his testimony, Mr. Dubé indicated that progress in this project is that BMQ acquired the knowledge that water, even drinking, can affect the results of a mixture. However, the only mention of water on Form T661 is that indicating that water was analyzed since the only variable under construction by compared to laboratory tests is the water-to-binder ratio. Form T661 indicates that technological progress lies in acquiring knowledge related to the effect of certain adjuvants, namely the colloidal agent VMA-362, the plasticizer Glenium 7500 and the Pozzutec 20+ Accelerator, in the formulation of the mixing and in gaining knowledge about the impact of these elements on the fluidity. There is no mention of water as an element that could have a impact on the mixture. Similarly, in BMQ's letter dated November 12, 2013 to the CRA (Exhibit I-3, Tab 10), BMQ indicated that the technological advancement of this project consists in understanding the

reasons for the instability of the mixture and in developing a solution for
relates to the formulation or the mixing; technological uncertainty was due to the
question of what would be the synergy of the adjuvants used (colloidal agent,
plasticizer and setting accelerator) in reaction with the cement. According to this letter,
tests have shown that the effect produced by an adjuvant could affect the effect that
one sought to obtain by means of another adjuvant present in the formulation.
Nowhere in this letter is there any mention of the effect of water on the mixture.

[344] I conclude that Mr. Dubé's testimony is not consistent with the
form T661 and what BMQ claims in the letter of the
November 12, 2013. Similarly, the time sheets produced in evidence indicate
the water used in this project has been tested and found to be in compliance. There is

no mention of the tests carried out with different water of which Mr. Dubé
spoken.

[345] Several laboratory tests have been performed, but overall
BMQ proceeded by the error-and-error method to determine the cause of
problems of its mixture and not by the application of the scientific method,
even though several hypotheses have been put forward by BMQ, even though they have not
not explicitly stated at the hearing.

[346] Finally, as in the case of the other projects, the BMQ tests
can be partially reconstructed using its documentation, but a
report compiling the tests and making it possible to follow BMQ's reflection at
the project has not been prepared. In addition, as mentioned above, the
testimony of Mr. Dubé does not agree with Form T661 and the
BMQ letter dated November 12, 2013.

[347] For these reasons, BMQ's activities in the context of this
project can not be characterized as SR & ED since, in particular,
not met the criteria of technological uncertainty and progress
technology.

b) Expenses

[348] Although it is not necessary for me to answer the question of

deductibility of expenses under section 37 and the eligibility of those expenses for calculation of the ITC given my conclusion that the activities can not be qualified of SR & ED activities, I conclude that, if the activities could be qualified, the expenses listed below would be deductible under section 37 and eligible for the calculation of the ITC.

[349] The respondent challenges the admissibility of all expenses relating to discussions between BMQ and its clients and discussions between BMQ and Qualitas employees regarding test results. Discussions are linked with the reformulation of the mixture, the preparation of the tests and the follow-up of the results. Respondent also challenges certain hours of interns and technicians ACI dedicated to discussions and analysis of results.

[350] The evidence shows that the hours of discussion are related to the project itself, and it does not appear to be commercial discussions or

general management. The hours of discussion with partners and clients of BMQ relate to the organization of tests or the modification of mixtures. Expenditures related to the hours of discussion with partners and BMQ customers for the organization of tests or the modification of mixtures, are therefore expenses for the salary of employees directly SR & ED activities, since these activities affect the conduct of SR & ED. It is the same for the expenses related to the past hours by trainees and ACI technicians to participate in discussions and analysis results. These expenses would therefore be deductible under Article 37 and eligible for the calculation of the ITC.

[351] However, the examination of the various inscriptions of time demonstrates in some cases duplicate time registration, that is, the same task repeats in part on different dates: for example, July 8 and 12, 2011; the July 18, 19, 20 and 21, 2011; August 16 and 17, 2011; and on December 19, 2011 and January 23, 2012. In addition, I consider that sometimes too many hours are logged for similar activities: for example, on 12 and 13 September 2011 and the 19, September 21 and 23, 2011.

[352] The deduction claimed for wages must be reduced by taking into account elements described above. So, you have to cut out two hours in the case of

Mr. Bertrand, 29 hours in the case of Mr. Dubé, 27 hours in the case of A. Labbé-Thibault and 17 hours in the case of J. Moreau, which represents total $ 2,302.

[353] Also, given Mr. Dubé's testimony that the indicated on the timesheets are rounded, it is reasonable to conclude that 10% of the hours recorded for the project are excessive.

[354] Thus, the salary expenses whose deduction is claimed by BMQ should be reduced by a total of $ 5,415, representing salaries for non-eligible activities ($ 2,302) and the 10% reduction in expenditures ($ 3,113). Total deductible salary expenses under section 37 and eligible for the calculation of the ITC would be $ 28,015.

[355] Given the respondent's concession, the amounts totaling $ 1,270 for materials and $ 1,921 for subcontractor fees would be expenditures deductible under section 37 and eligible for the calculation of the ITC.

13) Project B-12-03: Development of Bonded Concrete Flooring fast

13.1 Description of the project

[356] The project began when the MTQ became interested in the possibility of using the fast setting latex concrete as a running surface while this product is normally used as a repair product. The MTQ wanted to study the the question of whether road surfaces composed of asphalt on the surface and concrete underlay on the Pierre-Laporte bridge, which must be repaired every three to five years, could be replaced by latex quick setting considering the greater durability of this concrete. This type of concrete also reduces the penetration to chlorine ions because it is more watertight than conventional concrete, which should contribute to the sustainable development of concrete structures. This meant that the concrete adhered well to the concrete structure already in place despite the vibrations and movements of the bridge. The MTQ saw it certain advantages, especially the longer durability of this concrete compared conventional concrete and its better permeability to chlorine ions.

[357] The mixture used in this project was developed in a project of the 2011 taxation year (project B-11-06). This was a project aimed at develop a fast setting latex concrete with a surface durability of turnover, which project had been considered partially eligible the audit performed by the CRA. According to Mr. Bertrand, BMQ knew this type of product; however, BMQ did not know how this concrete would react in as rolling slab. The MTQ was very interested in the product and wanted to to make "a prototype".

[358] Mr. Bertrand explained that a study on the laying of concrete slabs Latex on existing concrete structures had given positive results to United States, but no information was available for a mixture comprising quick setting cement. Also, according to an American researcher contacted by Mr. Bertrand, latex concrete had never been installed on a suspension bridge.

[359] On June 17, 2011, BMQ undertook to carry out a first board test (convenience test) under the bridge where samples were taken. According to Form T661, the cast mixture contained a retarder for leave more time for setting up and finishing. A coach adjuvant

Air has also been added to meet MTQ air quality standards. This This test made it possible to test a method of placing concrete. Since this was rapid set concrete, some compressive strength results were be obtained quickly.

[360] The following day, a test on the bridge itself took place over a score of meters. Samples were taken again. The results were satisfactory except for the concrete bubble network, which affected the waterproofness of the concrete as well as its permeability to chlorine ions.

[361] Following the adjustment of the air-entraining admixture in the mixture to improve the network of air bubbles, a test was done on the Dubuc bridge at Saguenay August 28, 2011. BMQ had doubts about the preparation of the surface area, which was not adequate and could harm the testing. However, the MTQ agreed to conduct the tests to verify adhesion under conditions extremes. The slab cracked after a few days. BMQ believed there had been

problems of concrete ripening and preparation of the surface on which he had been sunk. The samples taken also showed that the network of bubbles air from the concrete remained unsatisfactory.

[362] The air entraining admixture was therefore adjusted a second time to correct the air bubble network before a new test on another section of Dubuc bridge.

[363] The two boards of the Dubuc bridge showed significant cracks, although the bubble network has finally met the standards. BMQ checked the rate of evaporation of its mixture to put this variable out of cause. The MTQ then proceeded to a coring of the test boards, and the tests carried out on the cores confirmed that there was a problem of concrete adherence to the surface in place. Mr. Dubé testified that he had noticed the bad results in the first phase of the Dubuc Bridge tests and had suspected a adhesion problem, but still did the second test.

[364] The analysis of the results led to the conclusion that the surface was poorly prepared before the concrete is poured. The two boards had to be demolished.

[365] The test board installed on the Pierre-Laporte bridge has also been removed few months after its installation due to poor adhesion to the

existing surface. According to Mr. Bertrand, the thermal stresses of the bridge generated this problem.

[366] The large-scale trials were unsuccessful, the design project of a running surface on the decks that would be manufactured with latex concrete to quick decision has been dropped by BMQ for the moment.

[367] According to Mr. Bertrand, BMQ did not repair the bridges in the framework of this project. BMQ provided equipment to make test boards because the MTQ was looking for innovative solutions to the recurring problems of repair of running surfaces of bridges. Thus, BMQ first under the bridge test before testing on the slab of the bridge.

[368] In the event that the activities exercised by BMQ as part of this project would be characterized as SR & ED, the parties' disagreement remain as regards salary expenditures totaling $ 4,340 whose deduction is claimed by BMQ. The respondent agrees that amounts of $ 13,731 for salaries, $ 1,975 for materials and $ 4,159 for subcontractors would be eligible Section 37 deductible expenses for the calculation of the ITC.

13.2 Theses of the parties

[369] The appellant argued that this project was a continuation of project B-11-06, which was considered partially eligible during the audit. Activities undertaken by BMQ as part of this project are SR & ED activities since BMQ was looking to develop a new way of using concrete latex. These activities therefore represent SR & ED activities since they constitute experimental development work undertaken in the interests of the technological progress.

[370] According to the respondent, the activities can not be described as SR & ED given the lack of technological uncertainty in this project. according to Mr. Mimoune, the project finally only led to the diagnosis of a problem that manifested itself as part of a typical business installation operation as a result of the discussions and consultations. According to him, the project is not a continuation of project B-11-06 since the difficulties encountered were not to the mixture provided, but in the manner of preparing the surface on which it was going to be

cast, which is a technical problem of common practice. Moreover, according to the respondent, the mixture had already been tested.

13.3 Discussion

at) Project qualification

[371] The work involved large-scale testing of a product previously developed by BMQ. It was a question of testing the resistance of latex concrete to fast setting as rolling surface material, and not as material for repair. Indeed, fast-setting latex concrete was a material

known and used in the industry as a repair material.

[372] Also, the evidence showed that BMQ did not supply concrete for repairs on the bridges, but to perform tests on them.

[373] Mr. Bertrand testified that he knew the characteristics of concrete fast setting latex for doing lab tests on this concrete, but this material had never been tested for use as a running surface.

Thus, the objective of this project was to advance technology in relation to fast setting latex concrete. In fact, according to Mr. Bertrand's testimony, this concrete had never been used as a running surface on a suspension bridge.

The American expert consulted by Mr. Bertrand confirmed that at his knowledge latex concrete had never been installed on a suspension bridge. On the

On the basis of the evidence, I conclude that the characteristics of the project were not fixed technologically. This project is therefore beyond current practice, as the experimentation of this concrete on such a type of bridge has never been made.

[374] On the Pierre Laporte Bridge, after removing the concrete screed, BMQ found that the adhesion was not good and concluded that it was due to

thermal stresses of the bridge. With regard to the Dubuc bridge tests, seen poor preparation of the surface, the concrete did not adhere properly.

As mentioned above, the MTQ wanted to test concrete in extreme conditions.

[375] According to the respondent, since the product created under Project B-11-06 was has already been tested on other sites, it is not clear that

technology has existed in this case. I do not share this opinion. The evidence

demonstrated that there was technological uncertainty due to the fact that latex concrete quick setting had never been used as a rolling surface material and

uncertainty as to how the surface should be prepared to favor concrete adhesion, as well as the method of concrete walling to avoid cracking. Solutions could not be founded

only on current practice.

[376] With respect to the use of the scientific method, I conclude that,

since tests have been carried out scientifically and the modifications to adjust the dosages were in response to the results obtained, the scientific method was followed. The test-error method, unlike this the respondent claims, was not followed in the context of this project. Hypotheses were also asked and verified.

[377] As with the other projects, BMQ's tests can be partially be reconstructed using its documentation, but a report compiling the tests and making it possible to follow BMQ's reflections throughout the project was not done. However, even if BMQ did not report in a contemporary way to the tests, the documentation produced at the hearing and the testimonial evidence, particularly the testimony of Mr. Bertrand, demonstrated the progress of the activities.

[378] For these reasons, BMQ's activities under this project are SR & ED activities.

b) Expenses

[379] In the case of Mr. Bertrand and Mr. Dubé, the expenses of wages in dispute relate to hours spent on research bibliographies and to discuss with an American expert as well as with representatives of the MTQ. Contested salary expenses also include hours spent by trainees and ACI technicians in discussions with BMQ clients or representatives of the MTQ, to plan the project and analyzing the results.

[380] Salary expenditures for the hours indicated for the months of March May 2011, the deduction of which is claimed, can not be considered as Expenditures for the salary of employees directly engaged in SR & ED. These hours represent hours for activities preceding the

start of project rather than hours spent on an attempt investigating technological uncertainty. Indeed, these activities had purpose of verifying the available information and making presentations to the MTQ concerning the product. Twenty-seven hours must therefore be cut off (either nine hours for Mr. Bertrand and 18 hours for Mr. Dubé).

[381] With regard to the 10 hours recorded for the day of June 20, 2011, these appear to be a repetition of those recorded for the day of the June 18, 2011 and must be removed. I come to the same conclusion for six hours recorded for the days of July 11 and July 6, 2011.

[382] With regard to the hours for analyzing the results of a test, this activity is an integral part of the scientific method and nothing prevents it is done in conjunction with an industry partner. With regard to hours spent on this project by ACI technicians and trainees, the evidence was demonstrated that they were involved in the analysis of the results, including updating and exchange of ideas, and that they were in addition authorized to do the manipulations and the different tests. Thus, the expenses related to these hours represent expenses for the salary of employees directly SR & ED activities, since these activities affect the progress of the work SR & ED. These expenses would therefore be deductible under Article 37 and eligible for the calculation of the ITC.

[383] The deduction claimed for wages must be reduced by taking into account elements described above. Thus, we must subtract 12 hours in the case of Mr. Bertrand, 24 hours in the case of Mr. Dubé, six hours in the case A. Labbé-Thibault and one hour in the case of J. Moreau, which represents total $ 1,964.

[384] Also, given Mr. Dubé's testimony that the indicated on the timesheets are rounded, it is reasonable to conclude that 10% of the hours recorded for the project are excessive.

[385] Thus, the salary expenses whose deduction is claimed by BMQ should be reduced by a total amount of $ 3,575, representing salaries for non-eligible activities ($ 1,964) and the 10% reduction in expenditures ($ 1,611). Total deductible salary expenses under section 37 and eligible for the calculation of the ITC is $ 14,496.

[386] Considering the grant made by the respondent, the amounts totaling $ 1,975 for the materials and $ 4,159 for subcontractor fees are deductible expenses under section 37 and eligible for the calculation of the ITC.

14) Project B-12-07: Repair Product Development for the roller compacted concrete

14.1 Description of the project

[387] This project is a continuation of the project of coating of the BMQ parking. Roller compacted concrete or BCR is a product having experienced misfires as a result of its arrival on the market a fortnight ago years. A BCR repair product was available but it was very expensive. According to Mr. Bertrand, BMQ decided to develop a product of repair for this type of concrete that could be used for repairs in thin layer as well as in depth.

[388] According to Mr. Bertrand, it is difficult to validate the sustainability of such produced without putting it to the test in real-life conditions, which include, for example, the passage of heavy vehicles because laboratory are not always enough to obtain a faithful representation of a product.

[389] BMQ has undertaken to test repair products on its own slab made of BCR located in his parking lot. Two bands were dug in the BCR parking lot BMQ tile to test the products, ie two small sections of the parking slab were demolished (two feet of width, twenty feet in length and different depths, 25 and 125 millimeters respectively). One was demolished by scarification and the other was using a jackhammer. Both are located in part of the BMQ parking lot where heavy trucks regularly pass for refuel.

[390] More specifically, three repair concrete mixes were place on the edges. According to Mr. Bertrand, the tested mixtures were not "tablet" mixtures. The mixtures were all made of setting cement fast, but with variations in the type of cement and admixtures used.

[391] The first mixture put in place was a mixture developed by BMQ in 2000. It was intended to serve as a point of comparison for the other two mixtures. The second mixture was a self-compacting concrete containing a type of cement that BMQ had only been using for two years as well as an adjuvant superplasticizer and a colloidal adjuvant that gave the mixture its autoconforming. Finally, the third mixture was experimental in nature and had for peculiarity to contain acrylic latex powder. This mixture had been tested in the United States and used for the repair of concrete structures in this country. However, the expert consulted by Mr. Bertrand confirmed that he did not believe not that this concrete is performing well in the planned repairs. Mr. Bertrand did not know if this third mixture would give satisfactory results in chipping tests and if it would meet the adhesion standard, since this mixture had never been tested in Quebec in our weather conditions difficult.

[392] The cements used in the second and third mixes came from same supplier, CTS Cement, with whom BMQ has planned the implementation of this project.

[393] Samples were taken during the introduction of the products of repair to check the adhesion by oblique shear, the network of bubbles of air, as well as compressive strength. According to Mr. Bertrand, two of three mixtures can be used to make repairs to the BCR; however, the experimental mixture from the United States can be used only indoors since it has not reached the standards of the durability tests.

[394] BMQ continued to observe in the following years the evolution of repairs done. Three years after the end of the taxation year in dispute, BMQ has been testing tensile strengths on core samples taken from selvedges to check the adhesion of the mixtures to the concrete slab on which they have been laid. Testing other repair products combined with different demolition techniques of the BCR slab has also been done in the years after the 2012 taxation year.

[395] In the event that the activities exercised by BMQ as part of this project would be described as SR & ED, the parties' disagreement would include expenses totaling $ 11,523 for salaries, $ 967 for materials and $ 1,917 for subcontractor fees, the deduction of which is claimed by BMQ. Respondent claims only $ 1,920 for wages

and $ 394 for materials are deductible expenses under section 37 and eligible for the calculation of the ITC.

14.2 Theses of the parties

[396] According to the appellant, technological uncertainty existed because the only data available on this type of concrete came from California, where climatic conditions are different and that the mixtures developed must be compatible with the mobile concrete mixer. Mr. Mimoune misunderstood the project since it does not distinguish the BCR as such from the repair products for this concrete. The project has led to the development of promising new products continued to be monitored in subsequent years of the year in dispute. These activities therefore constitute SR & ED activities since they can be described as experimental development work undertaken in the interests of the technological progress.

[397] According to the respondent, the activities can not be characterized as SR & ED. According to Mr. Mimoune, the blends had been developed in collaboration with the company that created the cements introduced into the blends put to the test, CTS Cement. BMQ neither modified the mix nor developed new techniques for placing concrete. Repair products were available, and although they had to be adapted for use in the concrete mixer mobile, this is a normal obstacle in the industry. BMQ did not use the scientific method, according to him, since the proceedings consisted mainly to consult experts. As well, the respondent argued that discussions led directly to large-scale testing and that the method scientist was not followed by BMQ. In addition, the fact that the former tests have given satisfactory results supports the position that no technological uncertainty was to be overcome in the context of this project.

14.3 Discussion

at) Project qualification

[398] In this case, the evidence has shown that relatively new cements were introduced into the tested mixtures and that the performance of the mixtures in as BCR repair products was unknown in the techniques or current industry practices. A mixture had actually been created by

BMQ in 2009 and used to carry out repairs on the Champlain Bridge; a Another mixture, containing an acrylic latex, was an experimental concrete that had been tested in the United States and used in the repair of certain United States; and another mix was used by BMQ since the early years 2000. I believe that BMQ's objective in this project was to advance methods for repairing BCR slabs. The evidence has shown that characteristics of the repair concrete were not fixed initially; lens was to develop a concrete that can be used for repairs in thin layers as well as in depth. So we met the criterion of progress technology.

[399] In this case, BMQ convinced me of the existence of uncertainty in this project, which could not be dispelled by the studies techniques or procedures, since BMQ has demonstrated that the probability of achieving the desired objectives was not known or determined in advance according to the technological knowledge usually available. In indeed, no large-scale test had been done to test new materials BCR repair. BMQ could not therefore rely on technical studies or current practices to dispel this technological uncertainty. More In particular, one of the blends had never been tested or used in Quebec.

[400] Also, BMQ used the scientific method as part of this project, having proceeded by comparing the results of the different mixtures placed in similar conditions; she also made assumptions.

[401] As with other projects, BMQ's tests may partially be reconstructed using its documentation, but a report compiling the tests and making it possible to follow BMQ's reflections throughout the project was not done. However, even if BMQ did not report in a contemporary way to the tests, the documentation produced at the hearing and the testimonial evidence, particularly the testimony of Mr. Bertrand, demonstrated the progress of the activities.

[402] For these reasons, the activities exercised by BMQ in the context of this project are SR & ED activities.

b) Expenses

[403] The respondent challenges the admissibility of salary, materials and subcontractors engaged by BMQ in this project, although the appellant reduced its claim against each of these expense items.

[404] Respondent challenges entitlement of $ 11,523 in salary expenses paid to employees for certain activities related to the project. This is first of all the remuneration for certain hours spent by Mr. Bertrand and Mr. Dubé to discuss with cement supplier CTS Cement to develop mixtures and schedule trials and with representatives of the MTQ to establish objectives of the project (12 hours for Mr. Bertrand and 22 hours for Mr. Dubé). It is also the remuneration for the hours spent by trainees and ACI technicians for the same tasks as well as the analysis of results of some American projects (34 hours in the case of A. Labbé-Thibault and six hours in the case of J. Pierre). The respondent considers as inadmissible the salaries paid to trainees and ACI technicians for their participation in discussions, the formulation of mixtures, the demolition of the concrete slab already in place and the preparation of the surface as well as the analysis of the results. The respondent therefore considers as eligible only wages for their participation in setting up mixtures and taking samples. Two hours of analysis of results reported for January 4, 2012 are also provided in question in the case of Mr. Dubé.

[405] With respect to the material expenses, the respondent considers that they should be reduced to $ 394.

[406] Finally, BMQ incurred expenditures from subcontractors to subcontractors prepare the BCR concrete surface where the products were to be tested and for independent laboratories to carry out tests to check compliance with standards. For the respondent, all of these expenses are inadmissible.

[407] As previously mentioned, salaries related to the activities of management affecting the conduct of SR & ED work are salaries paid for the carrying on of SR & ED, and the expenses relating to these activities are deductible under section 37 and eligible for the calculation of CII. However, discussions with a client that do not affect the unfolding

SR & ED work can not be taken into account. In this case, the leaves

of time mention only discussions relating to the formulation of mixtures, the planning of tests and the analyzes of the results obtained for certain mixtures, ie activities directly affecting the SR & ED activities. Expenses for the salaries of Mr. Bertrand and Mr. Dubé for the hours devoted to these activities are therefore eligible.

[408] Also, the expenses for the hours devoted by ACI technicians and trainees with the same duties would be eligible, since, according to the evidence, their role in BMQ is to participate in the analysis of the results - participation that includes update and brainstorming meetings - and they're extra allowed to do the manipulations and the different tests. Concerning the two hours spent by Mr. Dubé to analyze the results, they would also be eligible since they are also hours directly related to SR & ED activities. As previously mentioned, the analysis of results is an integral part of the scientific method. Recorded hours for trainees and ACI technicians in this regard should also be eligible.

[409] However, I consider that the salary expenses for the hours recorded for trainees and ACI technicians with respect to demolition and excavation of the concrete slab is not eligible for the purposes of Section 37 nor for the purpose of calculating the ITC. These employees, when they are demolishing concrete slab, do not directly engage in SR & ED. These expenses are therefore not eligible.

[410] The deduction claimed for wages must be reduced by taking into account elements described above. Thus, we must subtract 18 hours in the case of S. Fournier, nine hours in the case of A. Labbé-Thibault and 33 hours in the case by J. Pierre, for a total of $ 1,524.

[411] Also, given Mr. Dubé's testimony that the indicated on the timesheets are rounded, it is reasonable to conclude that 10% of the hours recorded for the project are excessive.

[412] Thus, the salary expenses whose deduction is claimed by BMQ

should be reduced by a total of $ 2,715, representing salaries for non-eligible activities ($ 1,524) and the 10% reduction in expenditures ($ 1,191) Total deductible salary expenses under section 37 and eligible for the calculation of the ITC is $ 10,728.

[413] According to the documentary evidence filed at the hearing, the expenses for the materials total $ 494, representing the cost of the various blends tested in the part of this project. According to Exhibit AR-1, the appellant waived the deduction of costs related to mobile concrete mixers (ie 32 hours during which they were used). In view of the concessions made by the parties, total expenses for materials that are deductible under section 37 and eligible for the calculation of the ITC is $ 494.

[414] Expenditure on subcontractors retained for laboratory tests are considered as expenses for SR & ED activities, being expenditures incurred in support of the project and directly related to SR & ED work. However, the expenses incurred for the excavation of the BCR slab should not be included as expenses deductible under section 37 and eligible for the calculation of the ITC, these being rather replaced by the replacement amount, since I consider that these expenses do not represent expenses directly related to the work of the SR & ED. Thus, given the concessions made by the appellant and the produced in evidence, the $ 1,917 expenditure for subcontractors is deductible under section 37 and eligible for the calculation of the ITC.

E. CONCLUSION

[415] For the reasons set out above, I conclude that the activities performed by BMQ in projects B-10-18, B-11-04, B-11-07, B-12-01, B-12-03 and B-12-07 are SR & ED activities. Also the following amounts are deductible expenses as current expenses under section 37 of the Act and Eligible Expenditures for Calculating the ITC:

i) For the 2010 taxation year: $ 3,521 for salaries, $ 427 for materials and $ 360 for subcontractor fees;

ii) For the 2011 taxation year: $ 37,668 for wages, $ 2,520

for materials and $ 3,425 for subcontractor fees;

(iii) For the 2012 taxation year: $ 44,192 for wages, $ 4,433 for materials and $ 9,204 for subcontractor fees.

[416] Therefore, and on these grounds, the appeals for the taxation year 2010, the 2011 taxation year and the 2012 taxation year are allowed without costs.

Signed in Ottawa, Canada, this 1f day of December 2019.

"Dominique Lafleur"
Judge Lafleur

ANNEX A

Income Tax Act , RSC 1985, c. 1 (5 e Supp.)

Subparagraphs 37 (1) (a) and (b), subparagraph 37 (1) (b) (i) and subclause 37 (8) (a) (ii) (A) III and division 37 (8) (a) (ii) (B)

Scientific research and experimental development activities

37 (1) A taxpayer who carries on business in Canada in a year may deduct in computing the income that he derives from that business for the year an amount not exceeding the amount, if any, by which the total of following:

(a) the total of all amounts each of which is an expense of a current nature that it has made in the year or a previous taxation year ending after 1973:

(i) for scientific research and development activities conducted in Canada directly by the taxpayer or for his account, in connection with a taxpayer's business,

[...]

(b) the lesser of

(i) the total of all amounts each of which is a capital expense that the taxpayer made in the year or a previous taxation year ending after 1958 in respect of property acquired that would be, without this section, depreciable property of the taxpayer - other than land or tenancy rights in these funds - for research activities

scientific and experimental development carried on in Canada directly by the taxpayer or on his behalf, in connection with a business of the taxpayer

(ii) the undepreciated capital cost of the property so acquired for the period taxpayer, at the end of the year (before any deduction, provided for in this paragraph, in computing the taxpayer's income for the year);

[...]

Interpretation

(8) In this section:

(a) records of expenditure on scientific research and experimental development:

[...]

(ii) where they appear elsewhere than in subsection (2), are limited to

(A) expenses incurred by a taxpayer in a year except for a taxation year for which the taxpayer has the election in Division (B), each representing

[...]

(III) a capital expenditure for the supply of premises, facilities or equipment that, at the time the expense is incurred, meet one of the following conditions:

1. they are intended to be used, for all or substantially all of their operating time over their expected useful life, in the context of of scientific research and experimental development activities exercised in Canada,

2. all, or almost all, of their value is supposed to be consumed as part of scientific research and development activities conducted in Canada,

(B) if a taxpayer so elects on the prescribed form and in accordance with subsection (10) for a taxation year, expenses incurred

by him during the year, each representing:

(I) a current expense for the rental of premises, facilities or equipment for scientific research and experimental development in Canada and attributable to it in whole or in part, with the exception of an expense for furniture or office equipment of a general nature,

(II) an expense for scientific research and Experimental Development in Canada and Businesses directly on behalf of the taxpayer,

(III) an expense referred to in subclause (A) (III), other than a Spending on office furniture or office equipment generally,

(IV) the portion of an expense made in respect of expenses incurred in the during the year for the salary or wages of an employee directly from scientific research and development activities in Canada, that it is reasonable to consider related to this work given the amount of time the employee spends on it; at For this purpose, the portion of the expense shall be deemed to be the amount of the spend if it is all, or almost all,

(V) the cost of equipment consumed in connection with scientific research and experimental development carried out Canada,

(VI) half of any other current expense for the rental of premises, installations or equipment used primarily in connection with of scientific research and experimental development activities exercised in Canada, except an expense for furniture or office equipment of a general nature,

Section 127 (5)

Investment tax credit

(5) Is deductible from the tax otherwise payable by a taxpayer under this Part for a taxation year an amount not exceeding

less of the following amounts:

(a) the total of

(i) any tax credit of the taxpayer's investment at the end of the year [...] or its eligible expenditure account for research and development at the end of the year or a previous taxation year,

[...]

Section 127 (9)

[...]

qualified expenditure for research and development As a taxpayer at the end of a taxation year, the result of the following calculation:

A + B - C

or :

A is the total of all amounts each of which is an eligible expense that the taxpayer has incurred during the year;

B is the total of all amounts each of which is an amount determined under paragraph (13) (e) for the year in respect of the taxpayer in respect of which the taxpayer

a prescribed form containing the prescribed information not more than 12 months after the applicable due date of production for the year;

C is the total of all amounts each of which is an amount determined under paragraph (13) (d) for the year in respect of the taxpayer.

[...]

eligible expense Expense incurred by a taxpayer in a year that represents:

(a) an expenditure relating to scientific research and experimental development which, as the case may be:

(i) is assigned to first-term multiple-use equipment or

to multi-purpose second-period material,

(ii) is referred to in paragraph 37 (1) (a),

(iii) is referred to in subparagraph 37 (1) (b) (i),

(b) a prescribed alternative amount applicable to the taxpayer for the year (which, for the purposes of paragraph (e), is deemed to be an amount committed during the year).

[...]

Income Tax Regulations , CRC, c. 945

Section 2900 (4)

[...]

2900 (4) For the purposes of the definition *eligible expense* , in paragraph 127 (9) of the Act, the replacement amount applicable to a taxpayer to a business for a taxation year in respect of which it makes the election Division 37 (8) (a) (ii) (B) of the Act is equal to 65% of the total of representing each part of the amount that he has committed during the year, at the the salary or wages of his or her employee who participates directly in scientific research and experimental development activities carried out in Canada, which it is reasonable to consider relevant to these activities given the amount of time the employee spends on it.

SCHEDULE A

Income Tax Act , RSC 1985, c. 1 (5th supp.)

37 (1) (a) and (b), subparagraph 37 (1) (b) (i) and
subclause 37 (8) (a) (ii) (A) III and clause 37 (8) (a) (ii) (B)

Scientific research and experimental development

37 (1) Where a taxpayer carries a business in Canada in a taxation year, there may be deducted in computing the taxpayer's income from the business for the year such amount as the taxpayer claims not exceeding the amount

(a) the total of all amounts
by the taxpayer in the year

(i) scientific research and experimental development carried on in Canada, directly undertaken by or on behalf of the taxpayer, and related to a business of the taxpayer,

[...]

(b) the lesser of

(i) the total of all amounts of capital
made by the taxpayer (in respect of property that would be depreciable
property of the taxpayer if this section were not applicable
property, other than land or leasehold interest in land) in the year or in a
preceding taxation year ending after 1958 on scientific research and experimental development carried on in Canada,
taxpayer, and related to a business taxpayer, and

(ii) the undepreciated capital cost to the taxpayer of the property
the end of the taxation year
computing the income of the taxpayer for the taxation year),

[...]

Interpretation

(8) In this section,

(a) references to scientific and experimental research
development

[...]

(ii) where the references appear other than in subsection 37 (2), include only

(A) a taxpayer in a taxation year (other than a
for the taxpayer has elected under clause (B), each of
which is

[...]

(III) an expenditure of a capital nature
for the supply of premises, facilities or equipment, where at that time it was intended

1. it would be used during all or substantially all of its operating time in its expected

2. That all or substantially all of its value would be consumed in,

the prosecution of scientific research and experimental development Canada, and

(B) where a taxpayer has
subsection 37 (10) for a tax year,
the year each of which is

(I) an expenditure of a current nature, and all or substantially all of which was attributable to, the lease of premises, facilities or equipment the prosecution of scientific research and experimental development Canada, other than an expenditure in respect of general purpose office equipment or furniture,

(II) an expenditure in respect of the prosecution of scientific research and experimental development in Canada
taxpayer,

(III) an expenditure described in subclause (A) (III), other than an expenditure in respect of general purpose office equipment

(IV) that portion of an expenditure made in respect of an expense incurred in the year for salary or wages of an employee
scientific research and experimental development in Canada
to look at such work
The employee thereon, and, for this purpose, where that portion is all or substantially all of the expenses, that portion shall be deemed to be the amount of the expenditure,

(V) the cost of materials consumed in the prosecution of scientific research and experimental development in Canada, gold

(Vi) ½ of any other expenses of a current nature in respect of the lease of premises, facilities or equipment used primarily for the prosecution of scientific research and experimental development in Canada, other than an expenditure in respect of general purpose office equipment or furniture;

Subsection 127 (5)

Investment tax credit

(5) There may be deducted from the tax payable by a taxpayer under this Part for a taxation year

(a) the total of

(i) the taxpayer's investment tax credit at the end of the year [...] or of the SR & ED taxpayer's qualified expenditure pool at the end of the year or at the end of a taxation year, and

[...]

Subsection 127 (9)

[...]

SR & ED qualifies the pool of a taxpayer at the end of a taxation year means the amount determined by the formula

A + B - C

Where

A is the total of all amounts
the taxpayer in the year,

B is the total of all amounts
paragraph 127 (13) (e) for the year in respect of the taxpayer, and in respect of which the taxpayer files with the Minister
12 months after taxpayer's filing-
due date for the year, and

C is the total of all amounts
paragraph 127 (13) (d) for the year in respect of the taxpayer

[...]

qualified expenses incurred by a taxpayer

(a) an amount that is an expense incurred in the year by the taxpayer in respect of scientific research and experimental development that is an expenditure

(i) for first term shared-use-equipment or second term shared-use-equipment,

(ii) described in paragraph 37 (1) (a), gold

(iii) described in subparagraph 37 (1) (b) (i), gold

(b) a proxy proxy for the taxpayer for the year (which, for purpose of paragraph (e), is deemed to be an amount incurred in the year),

[...]

Rule 2900 (4)

[...]

2900 (4) For the Purposes of the definition *qualified expenditure* in subsection
127 (9) of the Act, the prescribing amount of a taxpayer for a taxation year,
in respect of a business, in respect of which the taxpayer elects under clause
37 (8) (a) (ii) (B) of the Act is 65% of the total of
proportion of the amount incurred in the year by the taxpayer in respect of salary gold
wages of an employee of the taxpayer
research and experimental development
be considered to report to the scientific research and experimental development
having a look at the time
experimental development.

REFERENCE:	2019 CCI 278
NOTDOSSIERS OF THE COURT:	2015-3425 (IT) G 2016-4491 (IT) G
TITLE OF THE CAUSE:	MOBILE CONCRETE FROM QUÉBEC INC. c. HER MAJESTY THE QUEEN
PLACE OF HEARING:	Montreal, Quebec)
DATES OF THE HEARING:	April 8th, 9th, 10th, 11th and 12th and May 29, 30 and 31, 2019

REASONS FOR JUDGMENT BY: The Honorable Justice Dominique Lafleur

DATE OF JUDGMENT: December 11, 2019

APPEARANCES:

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Counsel for the respondent:	M[e] Anne Poirier

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