

Project Name: Joel Theatrical (Fire curtain)
Project Number: 1701

Start Date: 2017-05-09
Completion Date: 2018-10-17

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Cost (\$)	(not set)	(not set)	No
Eliminate counter weights (Yes 1/ No 0)	0	1	No
maximum speed (cm/s)	300	50	No
Minimum drop speed (sec)	30	30	No

These Appeals relate to two SR&ED Claims years ending on April 30, 2008 and April 30, 2009.

[4] From June 2007 through April 2008, JTR worked on a project (the "Fire Curtain Project") to develop a system for controlling the rate of descent of, initially, the fire curtain in a theatre at Ryerson University, and subsequently, the fire curtains at the Richmond Hill Theatre and the Persephone Theatre in Saskatoon. Until this time, JTR and other participants in the theatrical rigging business had used counterweights to control the rate of descent. As counterweights occupied additional space and created a larger footprint in the theatre, JTR hoped to find a mechanism that would not require the use of counterweights, but would utilize only a motor, a hydraulic pump, valves and related equipment, to lower the fire curtain at an acceptable speed. The applicable fire code regulations required that a fire curtain must descend in 30 seconds or less. However, if the rate of descent is too fast, there is a risk of injury to someone who might be caught below the curtain and there is a risk of causing fear or panic in the audience.

Field of Science/Technology:

Applied mechanics (2.03.02)

Project Details:

Intended Results: Improve existing processes
Work locations: Commercial Facility
Key Employees: Van Marineau (mechanism design - Unknown (1980) / President of Joel Theatrical Rigging)
Evidence types: Records of resources allocated to the project, time sheets

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

[12] Only two witnesses testified at the hearing of these Appeals. They were Van Marineau, who is the president and owner of JTR, and Todd Louie, who is an accountant and the Director of Taxation at Sheldon & Milstein Tax Consultants Ltd. ("Sheldon"), which is the advisor that prepared the two SR&ED Claims on behalf of JTR. Neither Mr. Marineau nor Mr. Louie is a scientist or an engineer. In fact, no scientist or engineer testified at the hearing. There were no expert witnesses. The Respondent did not call any witnesses.

[13] Mr. Marineau is knowledgeable and experienced in the theatrical rigging business, having worked at JTR for 36 years. He began work at JTR as an equipment installer and progressed to become the owner and the president of JTR.

Mr. Marineau has a grade 12 education. He does not have any post-secondary education, particularly in any field of science or engineering. Mr. Marineau testified that JTR employed various designers who had some engineering training, but none of them had earned an academic degree in engineering and none of them had a professional engineer (P. Eng.) designation. None of the JTR employees with engineering training testified at the hearing of these Appeals.

[19] Mr. Louie testified that, when Sheldon was preparing the SR&ED Claims, some of its personnel reviewed various patents to determine what technology would have been available to JTR when it undertook the Fire Curtain Project.

During his direct examination, Mr. Louie produced four patents, 8 which were published on December 7, 1999, May 10, 2005, November 23, 2005 and September 27, 2007 respectively. Mr. Louie stated that those four patents demonstrated

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“the embodiment of knowledge that existed prior to ... 2008.”

Mr. Louie also stated that the patents represented “the extent of the technology available on theatre rigging systems or fire curtains” and “the routine engineering that was available at the time.”¹⁰ However, as noted above, Mr. Louie is an accountant, not a scientist or an engineer. He was not qualified as an expert witness. During cross-examination, he could not describe the search terms that _____

[31] In Part 2 of the SR&ED Claim submitted by JTR in respect of the Manual Override Project, the following descriptions of hypotheses were entered in Box 244 (which describes the work performed to overcome the scientific or technological uncertainties):

Our initial hypothesis was to minimize modifications as much as possible when enabling manual function of the curtain machine. Our first attempt involved removing the chain from the sprocket which controls the cable drum, as the limit switch is contained within the cable drum.... [The document then describes an unsuccessful outcome.] **** NO INFO PROVIDE IN COURT REPORT

Next, we predicted that removing the entire sprocket from the limit switch would be more effective.... [The document then describes another unsuccessful outcome.] For the third series of experiments, we removed the entire cable drum creating a closed loop cording system.... [The document then describes yet another unsuccessful outcome.] **** NO INFO PROVIDE IN COURT REPORT

Now, after three failed experiments, we decided to approach the problem from a different angle – instead of removing parts of the assembly and struggling to return them without disrupting functionality, we now predicted adding some mechanical hardware to enable the advancement. We experimented with adding two holding bolts to engage the cable drum onto the shaft. We hypothesized that when the bolts were removed this would disengage the cable drum and allow the cable drum to spin freely on the shaft without interfering with both the sprocket and limit switch. A hand crank was implemented in the place of the two bolts and used to rotate the drum.

Subsequent experimentation corroborated our hypothesis.

The most significant underlying key variables are:

methods to remove chain from sprocket (unresolved), remove sprocket from limit switch (unresolved), bolts to engage drum & spin when removed (unresolved)

Technology or Knowledge Base Level:

Benchmarking methods & sources for citations:

Benchmark Method/Source	Measurement	Explanatory notes
Internet searches	1 Articles	Client did not specify prior art
Patent searches	4 patents	4 patents provided - exhibit A6

Activity #1-1: Activity 1 (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Trials:	4 runs / samples

[5] JTR found that the backwind system on a standard motor was not capable of producing a slow, controlled descent. Accordingly, JTR experimented with a variety of configurations of motors, hydraulic pumps, valves and related equipment. Ultimately, JTR developed a system that was able to achieve a controlled descent for 95% of all fire curtains.

[6] In conducting its experiments, JTR began by attaching a rigging system to an overhead beam in its shop and then using a motor to hoist a weight of approximately 800 pounds, which was estimated to be similar to the weight of the fire curtain in the theatre at Ryerson University. Once the weight was hoisted, the braking mechanism on the motor was released and the experimenters watched the rate at which the weight fell, making sure (if necessary) to reapply the braking mechanism before the weight crashed onto the floor. It quickly became apparent that the backwind system in the motor was not sufficient in and of itself to control the rate of descent, so various other pieces of equipment (such as a hydraulic pump, hoses and valves) were added to the configuration in various arrangements

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until the experimenters found a configuration that controlled the rate of descent.

[27] In working on the Fire Curtain Project, JTR conducted eight experiments. Shortly after all the experimentation on this project was completed, Sheldon prepared a one-page Experiment Summary Sheet in respect of each experiment.

Each Experiment Summary Sheet described the problem that had been confronted, the date and nature of the experiment, the personnel who worked on the experiment, the variables and details that were addressed, the results of the experiment and the next steps that were proposed. In many of the "next steps" entries, there was a stated hypothesis, presumably for the next experiment, and not for the experiment that had just been completed.

Experiment Number

1. Hypothesis is to experiment with braking mechanisms within housing unit.
2. Hypothesis is to experiment with hydraulic pumps and valves.
3. Hypothesis is to experiment with braking mechanisms within housing unit.
4. Experiment with various valves and free flowing in one direction and controllable in the other direction to try and balance the system.
5. Experiment with different motor.
6. Experiment with different hydraulics.
7. Hypothesis that better hydraulics pumps and valves could alleviate using weights.
8. Project considered complete

[28] the following statement was made in Box 246 (describing the scientific or technological advancements that were achieved):

In late fiscal 2007 and early fiscal 2008 we worked to develop a theatrical rigging system for Ryerson University with a fire curtain that was hydraulically controlled so that it would fall down safely. We realized that in order to meet Ryersons requirements we needed a motor that could back-wind fast enough to create an adequate amount of oil pressure so that the equipment could be controlled sufficiently.

We hypothesized that a hydraulic pump working out of rotor end of the motor instead of the gearing end would suffice. By placing the pump in this location, it would be able to obtain the speed required to create the desired oil pressure.

The hypothesis was to the effect that by connecting the hydraulic pump to the rotor end of the motor, rather than to the gearing end, sufficient oil pressure could be created in the pump to control the rate of descent.

Results:

Mr. Marineau testified that the usual practice of JTR, when it developed plans for the installation of a theatrical rigging system, was to have the plans reviewed and stamped by a professional engineer. However, while Mr. Marineau and his colleagues were experimenting in respect of the Fire Curtain Project, they did not have a professional engineer on their team, nor did they consult with a professional engineer in respect of the project.

Conclusion:

[20] In summary, I acknowledge that, when Mr. Marineau and his colleagues at JTR began to work on the Fire Curtain Project in June 2007, they did not know how to control the descent of the fire curtain, without the use of counterweights. However, I have not been persuaded that there was no technology that may have been available for their use and that may have been found if they had consulted with a professional engineer.

Documentation:

Uploaded to RDBASE.NET: Joel Theatrical Rigging Tax ruling.pdf (267KB)

Project Name: Novalia (Wind turbines)
Project Number: 1702

Start Date: 2017-07-24
Completion Date: 2018-04-11

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Turbine power increase (%)	100	240	No

[5] By reassessing the Appellant's tax payable for the 2011 taxation year, the Minister made the following assumptions of fact, listed in subsection 11 of the Reply to the Amended Notice of Appeal:

a) [TRANSLATION]

The Appellant works primarily in the sale and development of new mechanical concepts for manufacturers or prospective license buyers;

b) The Appellant operated under the name Les Moteurs Novalia 2000 Inc. until March 15, 2011;

c) The Appellant is a "Canadian-controlled private corporation" under the Act;

i) Normand Beaudoin filed a patent application for a "Turbine energy windmill" on August 19, 2011 (CA 2750048); however, the patent was not issued until April 24, 2013;

Minister made the following assertions of facts:

j) With respect to project no. 1, entitled "Turbine energy windmill" (project no. 1):

i) The goal was to increase turbine windmill power and make all of its components ergonomically cost-effective with the following features:

A. Less cumbersome;

B. Blade width will be equal to that of its extremities, which will increase wind surface area;

C. Blades will exert a positive force that will be evenly distributed amongst all components.

ii) The Appellant submitted secondary objectives for potential commercial applications (vacuums, propellers/pumps), without demonstrating any related activities;

vi) The Appellant did not define, from the outset, the performance indicators or measures to be carried out to meet its primary objective. These measures are a standard part of a systematic investigation process;

Field of Science/Technology:

Applied mathematics (1.01.02)

Project Details:

Intended Results: Improve existing processes, Improve existing materials, devices, or products

Work locations: Research Facility

Key Employees: Normand Beaudoin (Music - PhD (1980) / President)

Evidence types: Records of resources allocated to the project, time sheets; Samples, prototypes, scrap or other artefacts; Photographs and videos

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

iii) The Appellant evaluated existing wind power concepts and devised a drive engine with pulleys and rectangular blades, without taking into account any concepts related to fluid dynamics, modelling, natural phenomena or laws that could enter into play.

iv) The technology base or level for project no. 1 can be compared to that of wind turbines, which are a cross between a windmill and a turbine;

v) The Appellant indicates that it would like to increase wind turbine power in an ergonomically cost-effective manner, but does not list or describe the parameters in question;

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The most significant underlying key variables are:

blade shapes & orientations (unresolved)

Technology or Knowledge Base Level:

Benchmarking methods & sources for citations:

<u>Benchmark Method/Source</u>	<u>Measurement</u>	<u>Explanatory notes</u>
Patent searches	11 patents	patent granted US- 11 patents + referenced by 8 since https://www.google.com/patents/US20130202435?cl=en

Activity #1-1: Activity 1 (Fiscal Year 2017)

Methods of experimentation:

vii) The Appellant evaluated existing wind turbine concepts;

viii) The Appellant developed a mechanism (pulleys and rectangular blades, belts) to interest future investors, but failed to create models or take validation measures, natural phenomena or laws into account that could enter into play (fluid dynamics, among other things).

ix) The Appellant presented real-time calculations prepared by a third party comparing a rectangular turbine to a circular turbine; however, these were not corroborated, were based on static conditions and did not include actual dynamic parameters;

x) The calculations submitted by the Appellant (prepared by a third party with no corroboration) present a theoretical efficiency of 240% with no scientific basis or corroboration over time;

xi) The Appellant constructed a mechanism (bicycle base / blades / parallel belts / fittings with criss-cross supports) based on current engineering practices;

[18] According to the CRA professional witness (Mr. Haine, ____ Designation not disclosed)"

[19] Mr. Beaudoin did not contest Mr. Haine's status as an expert, but naturally disagreed with the conclusions of the report. In his opinion, the quality of the report cannot be relied upon because Mr. Haine refused to consider previous machines or wind turbines constructed later and, thereby, the general scientific advancement, by focusing solely on the specific technology, the scientific basis of which he called into question. Mr. Beaudoin's theory on the scientific advancement is as follows:

[TRANSLATION]

It is not the drive wheels or the belts that provide the scientific basis for the advancement; rather, it is the fact that the drive wheels increase rotation speed and that the belts play a key role similar to the effect of the connecting rod in a piston engine or a counter-rotational cylinder in a turbine engine, which free the blades from strict axis rotation, and synchronizes them with the fluid flow.:

None of the activities (experiments or analyses) demonstrated whether or not this objective was achieved. When it is a question of aerodynamics, which is the case with wind turbines, standard experimentation can only be performed in a wind tunnel (more controlled environment). If Mr. Beaudoin could only demonstrate the validity of his idea through visual effects, we would expect to see two devices (one conventional and one based on the new concept) tested under the same conditions to be able to observe the difference. In the end, we do not know what the device was used for other than to move air, as all other wind turbines do, only in a more complicated manner. Moreover, no mathematical models of the natural phenomena at play were created.

In conclusion, I am of the opinion that the goal of the work performed was not to resolve any scientific or technological uncertainty. Rather, it illustrated an idea that was based on an erroneous understanding of the phenomena that characterize wind turbine movement. Mr. Beaudoin's explanations did not help me to understand how the device he built could lead to any kind of advancement in wind turbine power or increase in the knowledge of the technology in question. Mr. Beaudoin may have had a few good ideas for the design and construction of the device itself (presented in the video); however, that is not enough to demonstrate the scientific or technological advancement he claims in his application.

[19] Mr. Beaudoin did not contest Mr. Haine's status as an expert, but naturally disagreed with the conclusions of the report.

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Project Number: 1702

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[20] According to Mr. Beaudoin, the advantage to synchronizing the blades with the fluid flow is that it reduces the machines' loss of efficiency because their rotational motion is unitary and too slow, making the connecting rod less effective.

Results:

- xii) The Appellant's mechanism creates mechanical friction that reduces the efficiency rating of 240%;
- xiii) The Appellant tested the mechanism (vertical and horizontal positions) and experienced issues with it that reduced the efficiency rating of 240%;
- xiv) The Appellant did not purchase any materials for project no. 1, even though it indicated that it had tested the mechanism;
- xv) The Appellant tests its mechanisms using a trial and error system;
- xvi) The Appellant's work involved a pre-feasibility study for a potential project and did not explore beyond current practices;

Conclusion:

The CRA contended that the goal of the work performed was not to resolve any scientific or technological uncertainty. Rather, it illustrated an idea that was based on an erroneous understanding of the phenomena that characterize wind turbine movement.

According to the Judge:

[25] It is important to reiterate here that the Appellant's research project has been examined by three CRA scientists, one of whom is considered an expert, and that Mr. Beaudoin has had many opportunities to explain his point of view and convince them that his research activities meet the requirements of the Act.

According to the CRA's scientists, the Appellant's research project never reached the SR&ED stage because it simply involves a concept illustrated by drawings and demonstrated using an extremely rudimentary prototype, at least in the 2011 version of the project.

[26] If we apply the criteria set out by Bowman J. in Northwest Hydraulic Consultants Ltd. v. The Queen, cited above, to determine whether the Appellant's research activities qualify as SR&ED, it is clear that none of the five criteria therein are met in this case. There is a lack of both uncertainty and technological advancement; no clear hypothesis was formulated or technological investigation performed as part of the scientific method used; and, lastly, the hypotheses, tests performed and results obtained were not properly recorded as the project progressed.

[27] In conclusion, the work performed by the Appellant does NOT constitute SR&ED within the meaning of subsection 248(1) of the Act,

Documentation:

Uploaded to RDBASE.NET: 2016_TCC_81 Novalia Advancement Wind Turbines LOSS.pdf (141KB)

Offline Documents: Prototype (covered in snow), Videos of prototypes

Project Name: Robotx Solutions Inc.
Project Number: 1703

Start Date: 2017-03-14
Completion Date: 2018-04-17

Project Details:

Scientific or Technological Objectives:

<u>Measurement</u>	<u>Current Performance</u>	<u>Objective</u>	<u>Has results?</u>
Increase safety (?) method to secure trays (?)	(not set) (not set)	(not set) (not set)	No No

[3] In the tax year ending November 30, 2012, the appellant claimed "SR&ED" expenses in respect of certain work Made under four contracts [1] :

1. a contract for Diageo Canada ("DICA" project) to improve the safety of employees using palletizers and depalletisers of bottles of liquor;

[4] In July 2014, the Minister denied \$ 182,483 for claimed SR&ED expenditures in respect of the four contracts refused investment tax credits of \$ 48,043.

[6] The appellant elected to use the informal procedure and waived the excess of the denied credits in excess of \$ 25,000.

[7] Essentially, with respect to the SR & ED work claimed by the appellant, the Minister submits that there was no technological uncertainty in the work and that it was not carried out by means of an investigation Or systematic research.

[25] The DICA project was undertaken for Diageo Canada, a company that specializes in alcohol products. The plant in which the appellant operated is located in the municipality of Valleyfield.

[26] In financial terms, the SR & ED expenditures claimed for this project, approximately \$ 81,500, are by far the largest amount of the four projects. This is approximately two thirds of the claimed SR & ED expenditures [11] .

[27] According to the appellant, the project consisted in creating new methods of securing the trays with the aim of improving palletizers and depalletisers of cases of bottles of alcohol.

[50] As we have seen, the goal of the project was to make palletizers or depalletisers conform to current safety standards by eliminating the risk of the elevator plate falling when an operator or mechanic was underneath.

[14] There were two witnesses, including Mathieu Billette, the appellant's president. Through this testimony, the appellant filed certain documentary evidence and photographs in order to enable the Court to better understand the scope of the work carried out.

Jonathan Assouline, a Research and Technology Advisor with the Canada Revenue Agency (CRA), also testified. Mr. Assouline is the person who ruled on the eligibility of the appellant's plans at the assessment stage. No expert witness was called by any of the parties.

Field of Science/Technology:

Robotics and automatic control (2.02.02)

Project Details:

Intended Results: Improve existing processes
Work locations: Commercial Facility
Key Employees: Matthieu Billette (Electrical - M.El. (Master Electrical Eng.) (1995) / President RobotX)
Evidence types: Records of resources allocated to the project, time sheets

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

NO SPECIFIC VARIABLES OF RESEARCH OR METHODS USED IN OTHER PRODUCTS WERE DISCUSSED

Project Name: Robotx Solutions Inc.
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[35] Regarding the technological aspects of this project, the appellant's witness argued that there were several: first, under the agreement between the parties, it was essential to ensure that the Obsolete equipment meets the safety standards currently in force, so that the tray loaded with crates can not fall on the operators who had to clean the equipment. These changes had to be made while respecting the production flow.

[36] Moreover, the obsolescence of equipment and the loss of certain operators with knowledge of the use of such equipment would have raised important technological uncertainties which were discovered only after the work had begun.

[37] Finally, at the design level, there had to be a universal model that could be used on all equipment, all in restricted spaces imposed by the original manufacture of the equipment and their position in relation to the production line .

Technology or Knowledge Base Level:

Activity #1-1: Activity 1 (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Analysis / simulation:	100 alternatives
Trials:	10 runs / samples

[39] As for the procedure adopted to carry out this project, Mr Billette maintains that, first, a hypothesis was adopted by a multidisciplinary team then tested by validation. After a trial, whether by 3D simulation or directly on the production line, a new hypothesis was adopted and then tested, until the uncertainties were completely dissipated. According to him, this method is sufficiently supported by two Excel files submitted by the appellant demonstrating the tests undertaken during the validations [16] .

He argues that in the course of this project, about 100 attempts were made, including 3D and factory simulation tests. *****
NEED TO EXPLORE DIFFERENCES

Results:

[42] As a result of these changes, several problems arose in cascade, forcing the appellant to make several tests and some modifications of the components used.

On the way, the option of a universal system proved impossible to realize, which necessitated the creation of new working hypotheses. However, the appellant was able to design and use a control panel in almost all of the equipment, thereby ensuring communication between the sensors of the brake system and the rest of the safety system, through an automaton.

IN THE JUDGE'S OPINION:

[55] It is therefore not sufficient to improve an existing device or process; There has to be an improvement over existing technology and we must be unable to make progress using current usual procedures, current technical studies or existing knowledge.

[57] Consequently the improvement of an old machine which does a particular job of increasing the level of safety can not represent technological progress if other machines doing the same work with the required level of safety already exist, Improvement can be made without technological progress as to how to improve.

Conclusion:

[57] Let us look at this issue of technological progress first in terms of creating or improving a "device".

[58] Here, there is nothing in the evidence to suggest that palletizers and depalletisers were not already available to meet the required safety standards or that there was an improvement over what already existed. Compared to security standards, we talked about upgrading.

[59] As a result, the appellant has not convinced me that there is work being done to create a new device or to improve existing devices.

[60] Second, let us consider this question in terms of creating or improving "processes".

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[62] A lot of people who have undertaken renovations of old houses have experienced it: unknown situations as to what is hidden behind the wall, surprises when opening the wall, and so on. In itself, difficulties are not sufficient for the resolution of these problems to become experimental development.

[63] If technological advances are to be made in a process [25] , I would expect that the novelty or improvement sought could be clearly and accurately described in relation to current processes. This is not the case here.

[64] The appellant has not demonstrated that, in order to fulfill the contract, it has created or attempted to create new processes or techniques in relation to those that already exist. Nor has it demonstrated that it has improved or attempted to improve one or more processes or techniques in relation to those that already exist under current technology.

Documentation:

[U](#)ploads to RDBASE.NET: Robotx Solutions Inc. v.pdf (325KB)

Project Name: Lifechoice
Project Number: 1704

Start Date: 2017-01-26
Completion Date: 2018-07-26

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Arterial plaque reduction (%)	100	95	Yes
Replace intravenous with oral (Yes 1/ No 0)	0	1	Yes

[34] Project 3 is a natural health product to remove arterial plaque. Dr. Dahl hypothesized he could create an oral chelatory form that would deal with chelation (binding) to take the arterial plaque from the blood vessels, to vasodilate the blood vessels to increase circulation to the extremities, and to take the plaque off the organic material from the brain stem. EDTA was being used in intravenous form for this purpose. Dr. Dahl believed that, if EDTA were instead used in oral form with complementary ingredients to accomplish the same thing, it could be available over the counter for home use and would lessen damage to other organs such as the liver and pancreas.

[36] Dr. Dahl wished to use EDTA in a manner that was complementary with other ingredients. He understood Health Canada would not allow EDTA as a medicinal ingredient. Health Canada would, at some later time, permit it to be added as a supportive non-medicinal ingredient. Dr. Dahl studied the research and methodology of a German doctor and read studies from that doctor's institute. Dr. Dahl analyzed his research on the German studies. He described his "real activities" as isolating the two components he was going to use and then formulating a final product within his mind and on paper, while also incorporating other selected ingredients that would not compete with the two ingredients needed for the chelation process itself.

Field of Science/Technology:

Nutrition & dietetics (3.03.02)

Project Details:

Intended Results: Develop new materials, devices, or products
Work locations: Commercial Facility
Key Employees: Eldon Dahl (Naturopathy - PhD (2000) / President Lifesource)
Evidence types: Records of resources allocated to the project, time sheets

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

[35] Dr. Dahl had studied the matter for several years; he did systematic reviews on what makes up the blockage in arteries. The blockage was known to be caused by inorganic material, including heavy metals forming within the blood vessels and the brain. It was his belief that EDTA being administered by medical doctors intravenously was not complete and could further impact other areas of the body.

[37] Dr. Dahl said he knew certain chelating ingredients but he realized through further study that some were antagonistic to each other. Therefore he said he decided through hypothesis which would be the most effective. He said he originally wanted to choose between EDTA and DMSA, but Health Canada would not allow the use of DMSA as a medicinal ingredient in over-the-counter products. So he then set out to create a formulation with the EDTA that would not be toxic to the body.

[41] Dr. Dahl said he had undertaken lots of literature review before beginning his third project. He had studied the subject immensely. He referred again to his fascination with another doctor's work, findings, results and discoveries. He consulted several articles and had one translated from German.

[46] I am prepared to accept that there was scientific uncertainty in each of the three Projects. There was uncertainty that natural health products could be effective in mimicking the existing pharmaceuticals in use. There was uncertainty as to whether other supplemental complementary natural ingredients could minimize adverse effects of the principal new mimicking natural ingredients in an effective manner. Once the Projects were reformulated to use the existing

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pharmaceutical instead of a mimicking ingredient, as in Projects 2 and 3 described above, there remained the uncertainty of identifying supplemental complementary natural ingredients that would be effective in lessening or removing adverse side effects of the existing chemical ingredients.

The most significant underlying key variables are:

antagonistic effects of ingredients (unresolved), EDTA vs DMSA (unresolved), effects of chelation process (unresolved)

Technology or Knowledge Base Level:

Benchmarking methods & sources for citations:

Benchmark Method/Source	Measurement	Explanatory notes
Internet searches	36 Articles	Dozens of articles references
Potential components	8 products	Performed analysis, studies; incorporating the use of outside sources like Dicentra, the -- my raw material supplier who has his master's degree as a pharmacist.
Queries to experts	5 responses	cited consulting with several naturopathic doctors

Activity #1-1: Activity 1 (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Analysis / simulation:	100 alternatives

[40] Dr. Dahl stated that "[my original formulation, once effective, would achieve the desired results," However, once acetyl-L-carnitine was taken off the restricted schedule by Health Canada and could be used in over-the-counter formulations, as described above, Dr. Dahl reformulated Project 3 as well to incorporate that ingredient in lieu of EDTA which was not allowed to be used as a medicinal ingredient. Acetyl-L-carnitine is also a vasodilator. So he analyzed existing documentation he had and checked for compatibility. He described acetyl-L-carnitine coming off Health Canada's restricted schedule as a godsend since he knew clinical studies, especially those by another particular doctor, and he had used it on patients for 20-plus years. He knew it would accelerate the effectiveness.

[42] At the end of his examination-in-chief, counsel for the Appellant asked Dr. Dahl to evaluate his time spent on all three Projects. He answered as follows:
Well, it's -- my review is commensurate with my work that I perform due to analysis, studies; incorporating the use of outside sources like Dicentra, the -- my raw material supplier who has his master's degree as a pharmacist; consulting with several naturopathic doctors; and my staff who help me do the research and do some of the leg work.

[43] At the end of his testimony, I asked Dr. Dahl to please clarify what he meant when he used the phrase systemic review or systematic review. Specifically, I asked what it was he systematically reviewed and how he performed that systematic review. He answered that he did a systematic review of the analysis he had extracted of the clinical studies of others by completing a literature review and correspondence and dialogue with other authorities such as naturopaths, professors and pharmacists. He added that he did additional analysis by evaluating the calculation of the ingredients in his formulations by drawing on his accumulated knowledge and expertise and then submitting his formulations to Health Canada for licensing. He said he did not have clinical trials done because of the expense; he had earlier testified that clinical trials were not needed for natural health product licensing by Health Canada. He said his testing of his hypotheses was based upon evidence he received from other authorities like the World Health Organization.

He said his formulations were "tested through hypothesis and in evaluation based on evidence". It was clear from his earlier testimony this was pre-existing evidence of others and his own accumulated knowledge and clinical observations. He described his final testing, short of clinical trials, was to submit his formulations to Health Canada for approval which, once obtained, deems the formulations to be effective.

[44] Dr. Dahl was even more clear and succinct when then asked by counsel for the Appellant what scientific analysis or work was done. Dr. Dahl said he first evaluated the condition that was to be treated. Secondly, he reviewed the human body concerning the diseased state and produced a formulation to address that condition. His analysis was done using clinical evidence from a review of authoritative scientific studies. He used this combined research to formulate a unique product that would address these authorities analyzed as part of his literature review.

Project Name: Lifechoice
Project Number: 1704

Start Date: 2017-01-26
Completion Date: 2018-07-26

[45] Dr. Dahl's answers were consistent with paragraph 29 of Life Choice's notice of appeal: "The Plaintiff asserts that the formulas were developed in a scientific manner, requiring analysis of available information collected from existing literature, suppliers, regulatory bodies and analysis of ingredients."

Results:

Arterial plaque reduction: 98 % (40% of goal)

Replace intravenous with oral: 0 Yes 1/ No 0 (no improvement)

[50] It is the absolute absence of testing of the natural health products by Life Choice after their formulations were hypothesized by Dr. Dahl that is fatal to this appeal. It is a clear conclusion from the evidence that, not only was no such testing done, neither Life Choice or Dr. Dahl ever intended to do any as part of these Projects. The jurisprudence has clearly, consistently and correctly interpreted the definition of SR&ED as requiring some form of testing of the hypotheses developed in order for there to be systematic investigation or search carried out by means of experiment or analysis. Question 2 of Northwest Hydraulic, above, in point 5 of its five-step process requires consideration of whether there was methodical and systematic testing of the hypotheses. Question 3 of Northwest Hydraulic requires consideration of testing as an included step in the scientific method. Question 5 requires consideration of whether records of the testing of the hypotheses and those results were maintained as the work progressed.

Conclusion:

[52] It is not the absence of clinical testing that is fatal to Life Choice's appeal. It is the absence of testing in any form or fashion that could be said to have been performed in a systematic fashion. Systematic testing for any or improved effectiveness of Life Choice's formulations could have been done by Life Choice and could have been performed to assess, verify, statistically infer, or gauge effectiveness without full-blown clinical trials sufficient to satisfy Health Canada if the products were restricted pharmaceutical products, which they were not. Any such testing could have been performed in a manner that met the requirements of the SR&ED definition even though it would not have satisfied a Health Canada requirement, or if, as in this case, there was no Health

[53] My decision in this case is in no way intended to suggest that literature reviews and consultations with other researchers cannot be qualifying activities giving rise to qualifying expenses as legitimate constituent parts of SR&ED activities. This appears to be clear from a fair, liberal and purposive reading of the SR&ED definition, including paragraph (d) thereof, and from former Chief Justice Bowman's comments on the role of intuition, creativity and sometimes genius in Northwest Hydraulic, above. Nor is this decision intended to suggest that a person performing SR&ED cannot use the data or results of the completed research of others in developing and/or testing their own hypotheses or theories.

[54] Having found that there was no testing by Life Choice of any of its formulations or reformulations after they were hypothesized by Dr. Dahl, much less testing performed in any systematic fashion, the appeal must be dismissed

Documentation:

Uploaded to RDBASE.NET: 2017_TCC_21 Lifechoice Systematic Investiation LOSS.pdf (392KB)

Project Name: Formadrain liner development
Project Number: 1705

Start Date: 2017-09-19
Completion Date: 2019-11-29

Project Details:

Scientific or Technological Objectives:

<u>Measurement</u>	<u>Current Performance</u>	<u>Objective</u>	<u>Has results?</u>
Thickness (mm)	7	4	No
Steaming time to activate (min)	120	60	Yes
Open time (days)	30	60	Yes
Cost (\$/m)	80	65	No
Diameter range (cm)	15	15	No
Weight (kg/m)	3	2.6	No
Stress resistance (kg/mm)	5	11	No

[8] To achieve this objective, the appellant must develop a resin with an open time of 60 days and can be steamed in 60 minutes or less, regardless of soil conditions such as water and temperature Variables.

In 2012, the resin was only four hours long. To that end the appellant's external chemist told the appellant that she would not be able to develop a resin that would have an open time of 30 days and still less than 60 days.

[9] to develop a turnkey technology, in addition to the resin, the appellant also wanted to develop a new mandrel, a lightweight one use chuck. This new mandrel would allow the appellant to repair the underground duct without digging and to do so by accessing it only through access, or the "cleaner" inside the building rather than accessing the street either through The "manhole". In addition, a lightweight mandrel would allow it to be pushed in place instead of being pulled.

[11] If the appellant succeeded in developing these two products that go hand in hand, this would make it possible to sell this turnkey technology. Thus, the resin impregnated sheath having an open duration of 30 days to 60 days, including the new mandrel, would be transmitted to the client contractors. The contractor would only have to make the repair.

[12] These projects began in 2010, but the technology was still not up to date in 2103. So during the 2012 and 2013 tax years, the appellant con nued its research and development activities with respect to resin and mandrel One-time use.

[13] In 2013, a third project was added to its SR & ED activities, namely, the development of equipment and a method to connect the service inlet connection to the municipal main sewer, T mandrel

[71] Mr. Therrien indicated that the appellant did not have a detailed plan in advance. However, research and testing were always done according to their overall objective: to develop a single use chuck capable of responding to mechanical stress (pressure, heat, mechanical deformation) both at insertion and at extraction and able to mold different configurations Sewers.

Effectively the work involved developing a single-use light mandrel (tube) to install a sheath from inside the drains from a single access point from inside a building.

Standard devices used heavier nondisposable mandrels that required two points of access in order to pull rather than push it.

[28] The idea of repairing sewers without excavation matures for ten years, before Marc Aurèle decides in 1993 to associate with the engineering firm Deblois Engineering, Île d'Orléans.

[29] At that time, the "no excavation" system was already in use at the city level, but the idea of transposing this system to residential sewers was farfetched given the complexity of access to sewer and Changes in direction and changes in the diameter of these ducts.

[30] Mr. Therrien indicated that as of 1994, the appellant's team has engaged in research and development to develop

Project Name: Formadrain liner development

Start Date: 2017-09-19

Project Number: 1705

Completion Date: 2019-11-29

functional technology. It was no small task. In 1996-97, the technology was lame.

[30] However, gradually a manual containing the procedure was developed by the appellant in order to gain a better understanding of the terrain and to better control the wide range of uncontrollable elements attached to it. The witness gave as an example the infiltration of water and the dissipation of heat.

[32] However, it was only in 1998 that the appellant began to allow sewer repair contractors to use its technology through licensing throughout North America.

[33] The appellant is now a leader in the sewer repair industry without excavation. In addition, 36 licenses to use the technology developed by the appellant were awarded to entrepreneurs, including 6 in Quebec, 20 in the other provinces of Canada and 10 in the United States. [4]

[34] In 2012, the appellant had approximately 20 employees, including three engineers, and its turnover was in the order of \$ 1.75 million.

Field of Science/Technology:

Mechanical engineering (2.03.01)

Project Details:

Intended Results: Improve existing processes

Work locations: Commercial Facility, Lab

Key Employees: Stéphane Therrien (Civil - PEng (1993) / President), Carl Marc-Aurèle (Chemical - PEng (1999) / VP)

Evidence types: Records of resources allocated to the project, time sheets; Project records, laboratory notebooks; Design of experiments

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

[85] The technological uncertainty was the fact that the chosen material must be thin, affordable and withstand mechanical stress to the insertion and extraction. In addition, the material must be flexible enough to mold configurations or changes in diameter and changes of direction up to 45 degrees and to adapt to the heat.

[86] In addition, the material must have a certain resistance to tearing as sewer repair are not smooth, they are often very rusty and it may be rough and tubers that are important. As M. Therrien has indicated, there is no doubt that the thin rubber existed on the market, but there was no thin rubber that can adapt to these constraints.

[24] Mr. Therrien has been employed by the appellant since 1994. He became a partner in 1999 and since September 30, 2016, he is the appellant's president. He succeeded Mr. Gérard Marc-Aurèle, the founder and former president of the appellant, who died in 2016.

[25] Mr. Therrien is a civil engineer. He testified about the research activities related to the development of the new lightweight chuck.

[26] Mr. Carl Marc-Aurèle is also employed by the appellant. He is Vice-President of the Appellant and is a Chemical Engineer. He testified about the development of the resin.

[27] The appellant was created in 1994 by Mr. Gérard Marc-Aurèle. Marcus Aurelius was not an engineer, but he had the soul of an inventor with an avant-garde vision.

The most significant underlying key variables are:

mold configurations & design, composition of form, chuck design

Technology or Knowledge Base Level:

Activity #1-1: Activity 1 (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Analysis / simulation:	460 alternatives
Trials:	23 runs / samples
Physical prototypes:	8 samples

(1) 2012 project: development of a method / equipment to install the Formadrain duct by a single access instead of two accesses [7] .

[43] Trials conducted by the appellant during her 2012 tax year are recorded in a laboratory workbook, in a 62 page document submitted to the Court containing descriptions and photos. Mr. Therrien testified to the effect that the notes found there were always inscribed in a contemporary way.

[44] In 2012, the work was oriented towards the design of a mandrel:

- thinner;
- More flexible;
- lighter;
- Capable of resisting the stress caused by the installation of a sheath by push in place and by its extraction;
- Disposable, therefore at a lower cost than a reusable mandrel.

[45] Several tests were first made with a new nylon chuck, designed already full diameter, and that did not need stress to stretch.

[46] However, the deployment did not proceed uniformly throughout the trials. Some specific areas were not sheathed, and as a result they swelled prematurely and disproportionately.

[47] The appellant's team modified a number of parameters to counter the problems of sheath deployment due to breakage of the release agent. For example, it tried to change the swelling rate, use various types of lubricants to reduce friction, and coat the silicone chuck.

[48] For this purpose, the nylon mandrel has worked in the factory. The appellant then decided to conduct an "in situs" trial in the field. Therrien explained that the team is attempting to replicate field conditions in the field, however, it is very difficult to reproduce all the variables offered by the field trial. For the appellant, field trials are important and part of the experimental development. During these trials, only labor related costs were billed to customers, including equipment and time required for installation.

[55] As Therrien explained, thin rubber exists, however, in this case, the technological uncertainty was whether a thin rubber mandrel could withstand mechanical stress at insertion and extraction, if The rubber could mold different configurations, changes of direction up to 45 degrees and adapt to the heat.

In addition, the rubber must have some resistance to tearing since the sewers to be repaired are not smooth, they are often very rusty and there may be roughnesses and tubers which are important. Thus, the required rubber was not on the market.

[56] The appellant hired Pro Flex to produce the rubber tubes that would serve as its mandrels. Pro Flex is an expert in the manufacture of rubber products.

[57] Although the appellant is a research and development specialist, and Dr. Carl Marc Aurèle is a chemical engineer, the rubbers contain very complex chemical properties that exceeded the appellant's expertise.

Results:

Steaming time to activate: 70 min (83% of goal)

Open time : 62 days (106% of goal)

(1) Was there a scientific or technological uncertainty ? The Judge commented:

[87] The respondent, for its part, has given much importance to the fact that the appellant had used Pro-Flex for developing

Project Name: Formadrain liner development
Project Number: 1705

Start Date: 2017-09-19
Completion Date: 2019-11-29

the chemical formula of rubber that was used to manufacture the mandrel.

[88] The respondent argues that the source of technological uncertainty of this project lay entirely in the chemical composition of the material, a task that was delegated to a rubber manufacturer.

[89] I have difficulty with the argument of the respondent because paragraph d) of the definition of research and development in subsection 248 (1) of the Act includes the development activities in Canada directly undertaken on behalf of the taxpayer.

[95] In this case, the factors and parameters to be checked by calling for the development of disposable mandrel were located both in the chemical composition of the mandrel at the level of the method allowing it to push up from a single access.

[96] It seems that the entire project reduce the relative appellant mandrel unique aspect of the search for the chemical formula of the rubber is a simplistic view of work that has actually been made.

[101] In this case, it is clear that the appellant did not know initially how it would do to develop and install a disposable mandrel by pushing it inside a pipe. Seen as a whole, the project included the appellant multiple technological uncertainties residing both in the chemical composition of the core, thickness and length, as mechanical stress that allowed it to be inserted and removed from the leads.

[102] Engineers working on the projects had several years of experience in the field of repair sewer without excavation. Considering the expertise and knowledge in this area, it is clear that the factory tests and "in situ" were made because of a real technological uncertainty.

115] At the end of 2012, the appellant made two field tests which were unsuccessful. However, research which it has engaged subsequently enabled him to understand the inflation mechanism and that it would be impossible to develop a mandrel in which there was already a diameter.

[116] In 2013, the technology was not yet developed, but it was better understood and better managed by the appellant. For example, the appellant returned to rubber after testing nylon and silicone. The appellant knew in light of the tests that rubber would work, since its current core work. However, the appellant had to use another rubber formulation being able to withstand the many constraints.

This thin rubber required for proper operation of the chuck did not exist on the market. To this effect, a rubber formulation satisfying all the criteria developed by the appellant had not been developed. The tests were all unsuccessful.

[117] At the hearing, M. Therrien stated that the appellant had now succeeded in developing a lightweight core using a thin rubber can be used for certain repairs by pushing instead of pulling it. In addition, the chuck 'T' was also developed by the appellant

Conclusion:

[123] Given that the respondent conceded that the research and development of the appellant as to the resin constitute SR & ED for tax years 2012 and 2013.

[124] Since I have concluded that the research and development of the appellant about the new chuck and chuck 'T', constitute SR & ED for tax years 2012 and 2013.

[125] Therefore, the call on the 2012 tax year is recognized in the amounts claimed for SR & ED of the resin and the mandrel.

Significant variables addressed: chuck design, composition of form, mold configurations & design

Documentation:

Uploaded to RDBASE.NET: 2017_CCI_42 Formadrain.pdf (278KB), Formadrain Technology - Formadrain _ Lateral & Spot Repair.pdf (236KB), Formadrain – improving process for repairing drains qualified as SR&ED.pdf (93.2KB)

Project Name: Flavornet
Project Number: 1706

Start Date: 2017-02-09
Completion Date: 2017-10-31

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Sterol solubility (mg/oz)	10	40	Yes
Shelf life (months)	12	12	Yes
Suspension fall out (%)	60	2	Yes

The appellant had filed 12 years of successful SR&ED tax claims.

[2] In computing its income, the appellant claimed qualified SR&ED expenditures of \$225,136 and investment tax credits (“ITCs”) of \$78,798 for the taxation year ending June 30, 2010 and qualified SR&ED expenditures of \$45,638 and ITCs of \$15,973 for the taxation year ending October 31, 2010.

[3] The amounts initially claimed by the appellant were in respect of seven projects. Some of these projects continued over both of the taxation years in dispute. The projects were identified at the hearing by the project identification numbers given to them by the appellant. The projects originally at issue were projects 705, 801, 802, 803, 804, 805 and 806. However, since the appellant elected to proceed under the informal procedure, it decided to narrow the scope of the appeal to two of the projects, 705 and 806. The appellant thus chose to waive any amount exceeding \$25,000 for each taxation year at issue.

[4] The sole issue in this appeal is whether the appellant’s activities with respect to projects 705 and 806 constituted SR&ED within the meaning of the definition of SR&ED in subsection 248(1) of the Act.

II. FACTS

[5] The appellant was incorporated in 2000. Initially, its business consisted of selling flavours to the baking industry and salty snack seasonings to the snack food industry.³ Later, that portion of the corporation was sold to third parties, and the company entered the energy drink business.⁴ It was this later development that led to the appellant’s work on developing a beverage with plant sterols and other health-food ingredients.

[6] Gregory Schmalz is the appellant’s founder, president and sole shareholder. Mr. Schmalz holds a Bachelor of Science degree from the University of Waterloo. He has had a lengthy career in the flavour and fragrance industries. Mr. Schmalz testified that the work in question was performed by him and his assistant, Chris Melling.⁵ Mr. Schmalz was unable to confirm whether Mr. Melling had any educational background in science. However, he testified that he did not believe this to be the case.

[7] At the hearing, Mr. Schmalz was the only witness for the appellant. Ms. Azza Hassanein—a research and technology manager with the Canada Revenue Agency (the “CRA”) who evaluated the SR&ED claims made by the appellant—testified as the sole witness for the respondent. No experts were called by either party to testify at the hearing.

[8] Mr. Schmalz explained that the appellant’s purpose with respect to project 705 (the “Plant Sterols Beverage Project”) was to develop a beverage containing a mixture of 800 milligrams of plant sterols in a two-ounce format. Plant sterols are a natural cholesterol-reducing substance found in plant cell membranes. The U.S. Food and Drug Administration recognizes that a daily dose of 800 milligrams of sterols may reduce cholesterol and lessen the risk of heart disease, and it permits products to advertise their cholesterol-reducing properties if they contain the prescribed amounts of sterols. The appellant’s intention was that the two-ounce beverage be marketed for its cholesterol-reducing properties.

[9] With respect to project 806 (the “Partial Hot Fill System Project”), Mr. Schmalz explained that the appellant developed a pasteurization system that focused on pasteurizing only the active ingredients by pumping these ingredients in a side kettle and then pumping back the mixture into a larger tank. This method, according to Mr. Schmalz, was novel in that it was different from the hot fill method used by the industry. The two projects were interrelated in the sense that they were components of the same beverage production process and in the sense that the appellant hoped that the Partial Hot Fill System’s pasteurization process would aid in the dispersion of the desired amount of sterols in the two-ounce format, as required for the success of the Plant Sterols Beverage Project.

Field of Science/Technology:

Food and beverages (2.11.01)

Project Details:

Project Name:	Flavornet	Start Date:	2017-02-09
Project Number:	1706	Completion Date:	2017-10-31
Intended Results:	Develop new materials, devices, or products		
Work locations:	Commercial Facility, Research Facility		
Key Employees:	Gregory Schmaltz (Food Science - BSc. (1987) / President of Flavornet)		
Evidence types:	Records of resources allocated to the project, time sheets; Design of experiments; Project records, laboratory notebooks		

Scientific or Technological Advancement:

Uncertainty #1: Technological uncertainty

[18] The issue, however, is that sterols are hydrophobic in nature, meaning that they do not dissolve well in water. The difficulty presented by the project was the development of a method of dispersing in two ounces of liquid an 800-milligram concentration of plant sterols. The appellant was aware that Cargill Corporation had a patent and had succeeded in dispersing plant sterols in orange juice, but Cargill was only able to disperse 400 milligrams in an eight-ounce serving.¹¹ Therefore, the appellant was trying to develop a beverage in which the concentration of sterols was eight times higher than the concentration found in the orange juice product developed by Cargill.

III. APPELLANT’S POSITION

[24] The appellant’s position is that the expenditures relating to the Plant Sterols Beverage Project and Partial Hot Fill System Project were made as part of “experimental development” within the meaning of the definition of SR&ED found in subsection 248(1) of the Act and thus the claimed SR&ED expenditures were qualified SR&ED expenditures and entitled the appellant to the related ITCs. The appellant argues that the Cargill patent represents the standard practice. In Mr. Schmalz’s view, no one had been able to disperse such a large quantity of plant sterols in two ounces of liquid. Therefore, there was technological uncertainty as to whether 800 milligrams of plant sterols could be dispersed in such a small quantity of liquid.

The most significant underlying key variables are:

ingredients, temperatures, shearing methods, emulsifier integration

Technology or Knowledge Base Level:

Benchmarking methods & sources for citations:

Benchmark Method/Source	Measurement	Explanatory notes
Internet searches	10 Articles	Various articles cited but not considered in court
Patent searches	1 patents	Cargil patent identified as benchmark

Activity #1-1: Research as described TCC judgment (Fiscal Year 2017)

Methods of experimentation:

Method	Experimentation Performed
Analysis / simulation:	122 alternatives
Trials:	8 runs / samples

[19] The appellant conducted various tests. For example, it used different heating temperatures, mixed the sterols with different ingredients to determine if the sterols would disperse better and completely, and tested different emulsifiers in conjunction with NutraFlora, which is a soluble fibre. As the project evolved, other health food ingredients (“nutraceuticals”)—such as cocoa, green tea extract, and berries—were added to the mixture, both to enhance the health properties of the overall product and to aid in the dispersion of the sterols.

[20] Mr. Schmalz also explained that the appellant tested different mixing methods, for example, high-shear mixing, and mixing with a mechanical pump. Although, it is difficult to completely disperse 800 milligrams of sterols in two ounces of liquid, the appellant succeeded in dispersing 85% of the plant sterols; but there were still sediments that made the beverage unacceptable for market purposes.

B. Project 806-Partial Hot Fill System

[21] At the hearing, Mr. Schmalz explained that the objective of the Partial Hot Fill System Project was to develop a system that has the capability of pasteurizing two different liquid concentrates, subsequently diluting them and then filling them into a dual-chambered bottle at 25 degrees Celsius. According to Mr. Schmalz, the appellant’s system differs from the industry-standard “hot fill” pasteurization system, which involves packaging the liquid when hot in special heat-resistant plastic or glass

Project Name: Flavornet
Project Number: 1706

Start Date: 2017-02-09
Completion Date: 2017-10-31

bottles.

[22] Mr. Schmalz explained that the process in the Partial Hot Fill System begins with the addition of a small amount of sterilized water to the plant sterols and other nutraceutical ingredients—which produces what he described as a “slurry”. That mixture is then pasteurized by being pumped into the small side kettle, which is connected to the main tank, and heated to 50 degrees Celsius.¹³ The next step is to pump back the pasteurized mixture from the side kettle into the larger tank and to dilute it with sterile water, at which point the product is at room temperature and ready for bottling.

[23] According to Mr. Schmalz, he was seeking to develop an alternative to the traditional hot fill process in order to save energy and packaging costs, since plastic bottles are less expensive than glass bottles.¹⁴ In addition, it was also hoped that the heating process used in the Partial Hot Fill System would assist with the dispersion of the sterols and other nutraceuticals in the two ounces of water, thereby contributing to the realization of the Plant Sterols Beverage Project (i.e., the dispersal of the prescribed dosage of sterols in the two-ounce format).

Results:

Sterol solubility: 22 mg/oz (40% of goal)

Shelf life: 12 months (100% of goal)

Suspension fall out: 38 % (37% of goal)

IV. RESPONDENT’S POSITION (CRA)

[27] The respondent argues that the activities undertaken by the appellant do not constitute eligible SR&ED within the meaning of the definition of SR&ED in subsection 248(1) of the Act.

[28] With respect to project 705, the Plant Sterols Beverage Project, the respondent argues that there were no technological uncertainties and no technological advancements since the appellant was using a methodology and techniques that were based on existing technology.

[29] In addition, the respondent argues that the evidence established that the appellant did not understand the concept of a hypothesis. Therefore, no clear hypothesis was formulated and the overall procedure followed by the appellant did not accord with the established principles of the scientific method.

[30] With respect to project 806, the Partial Hot Fill System Project, the respondent argues that the evidence did not establish that the project was developed during the years under appeal. In addition, she argues that the documents submitted by the appellant at trial generated even more confusion, relating to what project was under review for SR&ED purposes.

Conclusion:

[74] With respect to the formulation of a hypothesis, as with the Plant Sterols Beverage Project, the appellant did not formulate one, that is, it did not formulate an assumption to be tested in order to remove the technological uncertainty. In addition, there was no technological advancement since the appellant used means known to the industry to develop its system.

[75] The burden is on the appellant to establish that a project constitutes SR&ED within the meaning of subsection 248(1) of the Act. Project 806 was presented in a manner that was so confusing that it was impossible for me to determine if that project had to do with the dual-chambered bottle or the Partial Hot Fill System during the years under appeal. In any event, I am of the view that the Partial Hot Fill System did not meet the requirements for qualifying as SR&ED within the meaning of subsection 248(1) of the Act.

VI. CONCLUSION

[76] The respondent asked for costs under subsection 10(2) of the Tax Court of Canada Rules (Informal Procedure). I am of the view that the circumstances do not warrant costs.

[77] The appeal is dismissed with respect to project 705—the Plant Sterols Beverage Project—and Project 806 for the taxation years ending June 30, 2010 and October 31, 2010, since these projects undertaken by the appellant did not constitute SR&ED within the meaning of subsection 248(1) of the Act. There will be no award of costs.

Significant variables addressed: emulsifier integration, ingredients, shearing methods, temperatures

Documentation:

Uploaded to RDBASE.NET: 2015-2330(IT)| Flavor Net Inc.pdf (314KB)

Activity #1-2: Questions on witness credibility (Fiscal Year 2017)

Methods of experimentation:

[10] Before starting my analysis of the appellant’s SR&ED projects, I would immediately emphasize that, as noted by the respondent, there is a discrepancy between the testimony of Mr. Schmalz with respect to the appellant’s SR&ED projects 705

Project Name: Flavornet
Project Number: 1706

Start Date: 2017-02-09
Completion Date: 2017-10-31

and 806 and the description of these projects by the appellant in its T6616 form for both years under appeal. The T661 is a compulsory form that a taxpayer is required to file with its income tax return when claiming SR&ED expenditures and related ITCs. The T661 requires a taxpayer to describe the purpose of the SR&ED project, the activities undertaken, the technological risks, the uncertainties and advancements, and the approach followed. The CRA relies on the T661 to determine whether the activities of a taxpayer constitute SR&ED within the meaning of the definition of SR&DE in subsection 248(1) of the Act.

[11] With respect to project 705—the Plant Sterols Beverage Project—the respondent noted that the T661 of the appellant does not mention that the appellant was to develop a two-ounce shot in which the mixture would contain 800 milligrams of plant sterols. I agree with the respondent that the description in the T661 is vague. It is stated that the appellant's aim is to develop a health supplement in the form of a beverage using plant sterols. That said, since Ms. Hassanein, the technical reviewer at the CRA, stated in her testimony that she was aware at the time of her review that the purpose of project 705 was to [12] With respect to project 806, at the hearing, Mr. Schmalz testified that the appellant's purpose was to develop a Partial Hot Fill System. However, the description in the appellant's T661 with respect to project 806 for both years is focussed on the filling of a dual-chambered bottle. In the T661 for the year ending June 2010, project 806 is described as follows:

A dual chambered bottle with twin caps had never before been attempted to be filled by Flavour.Net Inc. Synchronization [sic] of the twin tank, pump, piping, filler reservoirs and filling heads was of the utmost importance. Through our trials it was shown that such a filling system can be designed that enables the benefits of the dual chambered bottle to be used in a variety of applications. By integrating a steam kettle as a mixing vessel for liquid concentrates success was achieved in duplicating hot fill results from the system. Significant effort was expended on the design of this unique filling system which is currently in use filling health supplement products. Further uses will be tested in the future.⁷

[13] In addition, in the appellant's submissions to the CRA, dated and signed by Mr. Schmalz, project 806 is described by the appellant as relating to the dual-chambered bottle:
Never before has Flavor.Net Inc. undertook [sic] to design a filling unit that can simultaneously fill two separate liquids into a dual chambered bottle and heat treat the liquid.⁸

[14] At the hearing, Ms. Hassanein testified with respect to project 806 that the appellant had described that project, as the filling of the dual-chambered bottle. Accordingly, it was the filling of the dual-chambered bottle that Ms. Hassanein reviewed for SR&ED purposes. Her written reports on project 806 confirm her testimony. In the report dated August 19, 2011⁹ with respect to the taxation year ending June 30, 2010, Ms. Hassanein wrote as follows

regarding project 806:

This project was to design a filling unit that can simultaneously fill two separate liquids into a dual chambered bottle and heat-treat liquid. Natur can develop a unique filling system to fill a single bottle with two chambers and two caps creating a physical reminder to take a dose from each side. As well a capability for heat treating of the liquid to ensure microbial safety will need to be designed.

[15] The filling of the dual-chambered bottle and the Partial Hot Fill System are distinct projects; this was confirmed by Mr. Schmalz during the hearing.¹⁰

[16] Furthermore, the respondent submitted that I should not allow project 806 since it was far from clear from the documents filed in evidence at the hearing that the Partial Hot Fill System was developed by the appellant during the taxation years under appeal.¹¹ health supplements can require twice daily dosing.

Results:

[41] Furthermore, I am also not convinced by Mr. Schmalz's testimony regarding the state of knowledge regarding, and the technology available for, the dispersion of sterols at the time the project was undertaken. Mr. Schmalz referred throughout his testimony to a 2002 U.S. patent obtained by Cargill Inc. for a product in which 400 milligrams of sterols were mixed with orange juice in an eight-ounce format, which patent was entered into evidence as Exhibit A-4. According to Mr. Schmalz, this product reflected standard industry practice at that time.²³ This patent was the sole evidence of any search conducted by the appellant, at the outset of the project, with regards to existing methods for dispersing plant sterols.

[42] In cross-examination, Mr. Schmalz was unable to recall the details of any searches undertaken. As I have said, the Cargill patent was the only specific evidence supplied by the appellant of any searches it undertook at the outset of the project. In cross-examination by counsel for the respondent, the following comments were made in reference to the Cargill patent:

Q. You call this a standard practice. Are there other patents that deal with plant sterols and the way to disperse them or dissolve them in water or liquid, or is that the only one?

Project Name: Flavornet
Project Number: 1706

Start Date: 2017-02-09
Completion Date: 2017-10-31

A. I don't know. Easy answer.

Q. Did you conduct a search to see if there were other patents dealing with

A. I am sure we did at the time and I couldn't tell you the results of that because I don't remember.

Q. So what makes you think-- what makes you say that this is the standard practice if you don't know what the other ones

A. Because it led to commercialization in the marketplace of plant sterol infused orange juice brands. It led to Cargill setting up, in their ingredient division, sales of things like frozen blocks of pulp infused with plant sterols Q. Okay. So you may have conducted a search on other patents but today you're not able to tell us

A. That's right.

Q. whether there are other patents?

A. That is correct.

[43] In her testimony, Ms. Hassanein stated that, at the time of her review of the appellant's project 705, there were multiple patents related to dispersing plant sterols in different products under different conditions.

[44] For these reasons, I conclude that the appellant has not succeeded in discharging its burden of establishing technological uncertainty since it was using methods and techniques that were available in the industry.

[45] While this finding alone is sufficient to dispose of the appeal with respect to the Plant Sterols Beverage Project,²⁴ I will nevertheless proceed to apply as well the other criteria in Northwest Hydraulic Consultants Ltd. to the work undertaken by the appellant.

Conclusion:

Documentation:

Uploaded to RDBASE.NET: 705 project description.pdf (235KB)

Activity #1-3: 5 questions (Fiscal Year 2017)

Methods of experimentation:

See paragraphs 35 to 62 of Tax Court Ruling

Compare to Appellant closing Arguments & evidence

Results:

Conclusion:

Documentation:

Uploaded to RDBASE.NET: Flavornet 5 questions in closing arguments.pdf (94.3KB), Flavornet Tax Court Position 5 Questions.pdf (188KB)