GLOBALRESEARCH
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R&D TAX INCENTIVE
SAMPLE APPLICATION

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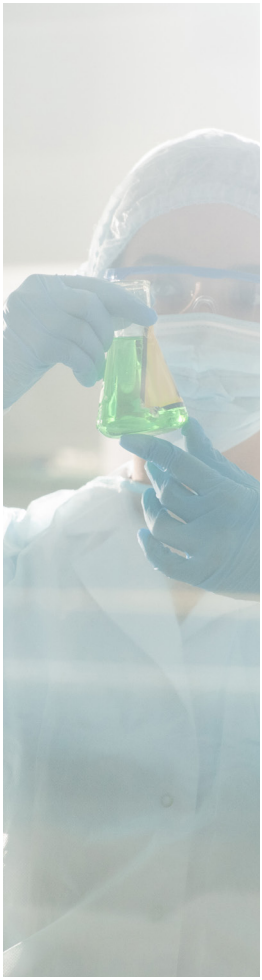

R&D TAX INCENTIVE

EXAMPLE APPLICATION

This is an example of what a R&D project plan will look like.

We encourage you to focus attention to the areas of hypothesis and the terminology used.

Remember – an R&D project must have "R" as well as the "D". It is not merely product development – there needs to be research and a hypothesis attached to it.

EXAMPLE

Project No:		01	
Registration title: (Max 150 characters)		Design and development of an improved bouncing rubber ball	
Date updated:		03 June 2017	
Project manager:		M.A. Body	
Start Date:	1 July 2015	**Finish Date:**	30 June 2020

1. HYPOTHESIS AND TECHNICAL OBJECTIVES

(maximum of 4000 characters)

BACKGROUND OF ORGANISATION:

Bouncing Rubber Ball Enterprises Ltd (BBREL) is Australia's premier rubber ball manufacturing organisation. BBREL manufactures and distributes its award winning patented high bounce rubber ball system (HBRBS®) (http://www.bouncingrubberballenterprises.com) worldwide. From its head office in Dubbo, New South Wales, BBREL is continuing to develop its HBRBS® balls for sectors that have a strong requirement for children's safety and environmental responsibility.

During the past three years, BBREL has risen to become the pre-eminent supplier of high bounce balls for kindergartens and schools Australia wide. BBREL's HBRBS® balls are well known for their unparalleled safety, improved productivity, zero emissions and toughness in the world's harshest conditions. As their reputation has grown, demand for HBRBS® balls has expanded internationally and BBREL now has a significant portion of its sales coming from North America and South Africa. As education continues to thrive, there is further scope to expand BBREL's presence in these regions as well as in South America and Europe.

BBREL has now successfully adapted this proven technology for bowling balls, tennis balls, golf balls, and basketballs.

HYPOTHESIS

BBREL believes it can develop an improved and cost-effective bounce system for an enclosed oil- filled bouncing ball system. A standard bouncing ball weighs almost 25ozs. When standard balls of such weight are dropped onto a pavement it is expected that an 80% recovery in trajectory is available on a standard bouncing ball. With the new oil filled ball, it is expected that this recovery will be in the vicinity of 95%.

THE SPECIFIC TECHNICAL OBJECTIVES

1. To develop the HBRBS® oil filled bouncing ball system it will be necessary to establish a method to enclose oil with arubber membrane.
2. The rubber membrane developed must be impervious to oil leakage.
3. The rubber membrane must be robust enough to withstand repeated impact.
4. The oil used must be capable of providing the additional bounce required.

2. NEW KNOWLEDGE GENERATED

(maximum of 4000 characters)

To the best of BBREL's knowledge and based on extensive online research, the enclosure of oil via a synthetic rubber membrane has never been achieved before.

BBREL has a patent on this new novel concept. Other systems include circulating the oil within the ball through an external finned cooler as opposed to the static placement of oil within the membrane. The new system has one diaphanous membrane, a coolant circulation pump, six internal heat exchangers, one radiator and a simplified plumbing and wiring arrangement.

New knowledge is generated in the form of a new cooling mechanism within an oil-filled ball. To achieve its technical objectives and overcome the related technical risks, BBREL is generating new knowledge at the conclusion of each experimental stage and building upon this knowledge at every stage of the remaining project. Specific new knowledge generated from undertaking the project:

- Understanding of how to design and develop an internal oil filled rubber membrane to provide optimal bounce.
- Understanding of how to implement and contain the internal oil within the membrane and keep that oil cool during repeated bouncing.
  Understanding of how to use the static internal oil to best effect giving maximum bounce
- Understanding of how to keep the oil to a temperature below 100°C and, thereby, avoid the possibility of ball explosion, resulting in a more reliable and safer bouncing ball system.
- Understanding of how to ensure the elastomers used in the membrane will not degrade over repeated bouncing and how to minimise this wear.

3. UNKNOWN OUTCOME

(maximum of 4000 characters)

Due to the unique functionality of the project, a degree of technical risk is inherent during its development. The concepts and processes involved in the design and development of the improved bounce system for the HBRBS ball have many anticipated technical difficulties due to knowledge gaps resulting from the complex nature and scale of the project. Experimentation and analysis play an intrinsic role in the development of the system to identify and solve these knowledge gaps, allowing BBREL to produce a coherent and effective product.

4. RESEARCH AND DEVELOPMENT ACTIVITIES

The company believes its superior HBRBS bouncing ball can be achieved by undertaking the following research and development activities.

- Background research to evaluate current knowledge gaps and determine feasibility (supporting activity).
- Design and development of a series of prototypes to achieve the technical objectives (core activity).
- Trials and analysis of data to achieve results that can be reproduced to a satisfactory standard and to test the hypothesis (core activity).
- Ongoing analysis of customer or user feedback to improve the prototype design (supporting activity).

Supporting activities description (Max 2000 characters)	Start date: (Original)	End date: (Expected)
Background research of the cooling system for HBRBS bouncing ball • Literature search and review. • Consultation with industry professionals and potential customers to determine the optimum bounce height • Preliminary equipment and resources review with respect to capacity, performance and suitability for the project • Consultation with key component/part/assembly suppliers to determine the factors they consider important in the design, and to gain an understanding of how the design needs to be structured	**Jul 2020**	**Jun 2021**
Relationship with core activities The background research activities are necessary to support the core activities because they assist in identifying the key elements of the research project.	Directly Related	

Core activities description (Max 2000 characters)	Start date: (Original)	End date: (Expected)
Design of the cooling system for HBRBS bouncing ball The hypothesis of this activity is that designing, testing and evaluating various concepts will contribute to a more efficient and effective prototype testing phase. Preliminary and detailed design considerations for various system components include the following: • Design of internal cooler (heat exchanger) within the rubber membrane and application of this process to the end product. • Design of circulation of fluid (water/glycol) through the bouncing ball heat exchanger • Design of elastomers • Design of the elastomeric encapsulation system The experiments undertaken to prove this design are: • Sketches • CAD drawings • Mathematical simulation • Computer simulation • Engineering computations The results and conclusions of these theoretical design experiments are that such a design is feasible, but needs to be prototyped and fully tested to prove	**Jul 2020**	**Jun 2021**

Prototype development and testing of the cooling system for HBRBS bouncing ball The hypothesis of this activity is that developing and implementing the various designed components will allow refinement and tweaking of the final design to achieve the objectives of the cooling system for HBRBS bouncing ball. The experimentation or performance testing conducted on individual components and the integrated system as a whole include the following: • Initial testing of the system's performance • Consistency and accuracy of functional performance • Scalability, adjustability and provision for fine tuning • Safety features and tolerance to permit continued operation with failed or faulty components • Material availability and selection • Numerous tests of the potential failure modes of the system • Efficiency of internal cooling process • Low–cost manufacturing design without sacrifice in performance and/or robustness The system is being trialed both in a workshop environment and in the field to test for functionality, improved bounce efficiency, accuracy and in use safety. The results and conclusion of the experimentation and testing prove that the theoretical conclusions from the design phase can be realised through prototype development and related tests. The new knowledge generated will be used for further iterations of design, development and testing.	**Jul 2020**	**Jun 2021**

Supporting activities description (Max 2000 characters)	**Start date: (Original)**	**End date: (Expected)**
Feedback R&D of the cooling system for HBRBS Rubber Ball • Literature search and review. • Consultation with industry professionals and potential customers to determine the optimum bounce height. • Preliminary equipment and resources review with respect to capacity, performance and suitability for the project. • Consultation with key component/part/assembly suppliers to determine the factors they consider important in the design, and to gain an understanding of how the design needs to be structured.	**Jul 2020**	**Jun 2021**
Relationship with core activities • The feedback is necessary to evaluate the performance capabilities of the new design in the field. • Feedback from end users related to the control and warning system. • The feedback is necessary to improve any flaws in the design.	Directly Related	

5. PROPORTION OF TIME SPENT ON CORE VS. SUPPORTING ACTIVITIES

Activity	Number of months or percentage of time (Indicate the time spent on core vs. supporting activities) A maximum of either 12 months or 100% can be
Core (e.g., design, development, and testing/trials)	10 months
Supporting (e.g., background research and feedback)	2 months
Total	12 months

6. PLANT AND FACILITIES

The research and development is undertaken at the Bouncing Rubber Ball Enterprises' facilities in Dubbo NSW 2916.

7. SUBSTANTIATION

Please be aware that, under the current legislation, you must be able to provide evidence to substantiate your R&D activities. In the event of an AusIndustry / ATO audit, this documentation may be required to prove that the R&D activities were eligible and took place in a systematic progression of work. We strongly recommend that you store this evidence in a safe place.

Yes / No / Not Applicable	Type of substantiation
Yes	Literature review.
Yes	Background research
Yes	Meeting notes or minutes or progress reports
Yes	Project records / laboratory notes
Yes	Design documents for system architecture and source code
Yes	Conceptual sketches
Yes	Design drawings
Yes	Photographs / videos of various parts or components
Yes	Photographs / videos of various stages of build / assembly / testing
Yes	Photographs / videos of initial or intermediate prototypes
Yes	Photographs of completed models
Yes	Prototypes
Yes	Screenshots of various build versions / final version
Yes	Testing protocols
Yes	Results or records of analysis from testing / trial runs
Yes	Records of resource allocation / usage logs
Yes	Staff time sheets
Yes	Tax invoices
Yes	Patent application number
Yes	Change Notification (CN) register
Yes	Engineering Work Request (EW R) register
Yes	Correction Action Request (CAR) register

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