**Business Case**

**ACC BCC Expansion Project**

**Production capacity expansion for the manufacturing of basic copper carbonate.**

**American Chemet Corporation**

**145 Highway 282**

**East Helena, MT 59635**

**May/02/2025**

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1. **Executive Summary**

This business case outlines how production capacity expansion of Basic Copper Carbonate will address current business concerns, the benefits of the project, and recommendations and justification of the project. The business case also discusses detailed project goals, performance measures, assumptions, constraints, and alternative options.

* 1. Issue

Due to the rising demand for Basic Copper Carbonate, American Chemet Corporation has elected to increase production capacity for Basic Copper Carbonate at their manufacturing facility in East Helena, MT. As the market demand increases for copper bearing pressure impregnated building materials, the demand for the source compound increases as well. This increase in capacity allows American Chemet Corporation to increase its’ market share in the Basic Copper Carbonate market both domestically and internationally. Having increased volumes of quality products available in the market generates a higher scrutiny over quality of material, pricing, availability, and on time delivery. American Chemet Corporation has an 80-year track record of providing quality products to customers around the globe and intends to do so with Basic Copper Carbonate. Not only does this expansion give American Chemet Corporation a competitive market advantage, but it also increases available jobs in the community. Through efforts towards continual improvement and innovation, adapting to market demands, and robust supply chains, American Chemet Corporation will continue to be a world leader in not one, but a family of copper-based chemicals & compounds for another 80-years.

* 1. Anticipated Outcomes

Increasing production capacity of Basic Copper Carbonate will allow American Chemet Corporation to capture major market shares, both domestically and internationally. This increase in production capacity requires additional employees to operate the facility. Having more available jobs to the community is a core value of American Chemet Corporation, and with this expansion, expects to increase workforce by 10%. In addition to capturing market share, this expansion will be profitable in less than 2 years, adding to the total net worth of the company, and will intrinsically increase salaries for all employees. With increased workforce, supply chain, resources, and capacity, American Chemet Corporation is primed to become a world leader in the production of Basic Copper Carbonate.

* 1. Recommendation

Numerous options and alternatives were examined prior to determining the best way to produce Basic Copper Carbonate. The following approaches will allow American Chemet Corporation to continue to be a world leader in not one, but a family of copper-based chemicals and compounds. Through company values such as safety, innovation, customer service, efficiency, and quality, the expansion of production capacity for Basic Copper Carbonate will be another tool in the toolbelt of American Chemet Corporation. The extra capacity will allow American Chemet Corporation to pursue greater markets domestically and internationally.

* 1. Justification

With an increase in market demand for Basic Copper Carbonate, the only logical course of action for American Chemet Corporation was to invest into manufacturing of the product. Over the last 5 years, multiple teams at American Chemet Corporation including, but not limited to: Research & Development, Quality Control, Purchasing, Logistics, Sales, and Production, have dedicated thousands of hours to producing the highest quality Basic Copper Carbonate in the most efficient way possible. This dedication to quality and efficiency has had the positive impacts as listed below:

* 25% increase in production capacity in the last 6 months
* 10% decrease in labor-hours per pound to produce since inception
* 75% increase in future and forward booking sales orders
* 20% increase in lbs. / minute production rate

1. **Business Case Analysis Tea**

The following individuals comprise the business case analysis team. They are responsible for the analysis and creation of the BCC Expansion business case.

| **Role** | **Description** | **Name/Title** |
| --- | --- | --- |
| Sales Support | Direct point of contact between production and customer | Kim K., Executive VP of Sales |
| Technology Support | Provides all technology support for the project | Wayne S., IS Manager  Dennis M., IT Manager |
| Implementation | Advises team on process implementation techniques | Joe B., VP of Manufacturing |
| Project Manager | Manages the business case and project team | Ryan C., Engineering Manager |
| Plant Support | Provides all supplemental support for the project | Josh A., Plant Supervisor |

1. **Problem Definition**
   1. Problem Statement

Since 1946, American Chemet Corporation has succeeded through innovation. The same dream that 4 young men had 80 years ago is still the same dream being pursued to this day. Continual improvement through innovation has been at the heart of American Chemet Corporation since inception. The biproduct of that dedication is becoming a world leader in not one, but a family of copper-based chemicals & compounds. With a reputation of being a world leader, American Chemet Corporation endeavors to retain that status, including the world of Basic Copper Carbonate. The most logical way to retain status was to heavily invest to meet the current and future market demands. This investment in production capacity for Basic Copper Carbonate solidifies American Chemet Corporation’s dedication to becoming the world leader in the Basic Copper Carbonate Market. To facilitate the demand and growth, American Chemet Corporation will double its’ production capacity for Basic Copper Carbonate. Along with increased capacity for production, comes increased capacity for employment.

* 1. Organizational Impact

The BCC Expansion project will positively impact American Chemet Corporation in several ways. The following provides a high-level explanation of how the organization, tools, processes, and roles and responsibilities will be affected due to the BCC Expansion:

**Tools:** The currently operating Basic Copper Carbonate production plant will continue to produce high quality material at intended volumes. During installation of the new plant, current plant resources, including but not limited to operators, centrifuges, reactors, prabs, scott driers, or sweco screens, may be utilized during testing phases to ensure proper functionality.

**Processes:** Once the BCC Expansion is operational and reliable, the processes will mirror those of the current plant. The design and operation of the plant is streamlined and efficient, which allows just a few operators to manage an entire second plant. Time management and uptime will be crucial in ensuring on time delivery of contracted goods.

**Roles and Responsibilities:** In addition to the BCC Expansion allowing greater opportunities for employees to move upward within the company, it also will provide more jobs for the community. These ease of use and efficient design of the plants will require less labor hours per pound to meet the required quota. This will provide great satisfaction to all employees when the quarterly profit-sharing bonuses are awarded. With more and more sales, utilizing much fewer labor hours per pound, the amount per employee increases greatly as well. This incentivizes all employees to perform quality work, safely, and in a timely manner. The new plant will be managed by the VP of Manufacturing and his groups. We do anticipate an increase in demand for laborers with the increased capacity and volumes.

**Hardware/Software:** The IT / IS department will handle all installation and configuration of technology components to be used in the plant. They will ensure that all systems are communicating properly, and collecting the correct information per the Delta V software. Additionally, command centers will be setup and configured to control plant activities per the Delta V software.

* 1. Technology Migration

To successfully integrate the new plant hardware and software into the current system, a phased approach has been developed with the intention of eliminating disruptions during migrations and testing. Below is a high-level overview of the phased approach to integration:

**Phase 1:** Major components will be purchased and installed as the project gantt chart dictates. Each of these major components has a Delta V controller that will need to be installed and configured.

**Phase 2:** Once all Delta V controllers are available to configure, core infrastructure systems are to be installed to ensure redundancy of data, data protection, and ease of access to users and controllers.

**Phase 3:** Perform simulations with Delta V controller to ensure all data points are correct and accurate.

**Phase 4:** Once the plant is operational, perform real world tests on different physical components to ensure accuracy and consistency of data.

**Phase 5:** Schedule system to go live once all other stakeholders are in agreement.

1. **Project Overview**

The BCC Expansion overview provides many details for how this project will address American Chemet Corporation’s position in the Basic Copper Carbonate market. The overview consists of a project description, goals and objectives for the BCC Expansion, project performance criteria, project assumptions, constraints, and major milestones. As the project is approved and moves forward, each of these components will be expanded to include a greater level of detail in working toward the project plan.

* 1. Project Description

Several departments at American Chemet Corporation have invested several hundreds of hours analyzing different methods and techniques to produce Basic Copper Carbonate. Through thorough iterative testing and calculations, the first Basic Copper Carbonate plant was constructed. During the 2 years of producing high quality products, engineers, researchers, and operators all discovered ways to improve the process and increase capacity. Now that the current plant is at maximum capacity, the next logical step is to double it and install a second plant. This expansion in capacity for Basic Copper Carbonate will result in greater sales volumes, earnings ($/lb.), and employee engagement, as well as solidifying American Chemet Corporation’s place at the world leader in Basic Copper Carbonate.

* 1. Goals and Objectives

The BCC Expansion is a direct supporter of the corporate goals and objectives established by American Chemet Corporation. The following table lists the business goals and objectives that the BCC Expansion supports and how it supports them:

| **Business Goal/Objective** | **Description** |
| --- | --- |
| Timely Delivery | Improved technology systems provide visibility on a per lot basis |
| Improve employee satisfaction and engagement | Greater pride in new equipment encourages champions in the workplace |
| Reduce employee turnover | Increased attempts towards automation in new plants are more appetizing to employees and veterans alike. |
| Reduce overhead costs | Fewer staff required will reduce the company’s overhead $/lb. |

* 1. Project Performance

The following table lists the key resources, processes, or services and their anticipated business outcomes in measuring the performance of the project. These performance measures will be quantified and further defined in the detailed project plan.

| **Key Resource/Process/Service** | **Performance Measure** |
| --- | --- |
| Production Plant | This new plant will have the capacity to double the total output of Basic Copper Carbonate. |
| On Time Delivery | Improved visibility on a per load basis will increase OTD by 1% (Target >98.5%) |
| Software and System Maintenance | Improved and enhanced technologies in new plants increases uptime by 13%. |
| Staff Resources | Design of plants allow for minimum labor hours per pound. |

* 1. Project Assumptions

The following assumptions can be made about the BCC Expansion. As more assumptions arise, they will be added accordingly.

* Selected employees will be trained accordingly for the respective positions assigned
* Training may be on a different shift than normally scheduled
* All department heads will provide necessary support for successful project completion
* Project has full support from the leadership team
* Project has full funding from the approved capital expenditure request
* Creativity and innovation are encouraged
* Safety is the number one priority
  1. Project Constraints

The following constraints may apply to the BCC Expansion. As more concerns or constraints are discovered, they will be added accordingly.

* IT / IS will give full support during implementation phases of the project. They will ensure full functionality and operation prior to deployment. Constant monitoring and logging will ensure corrective action is taken on any issue.
* To ensure on time completion of the project, additional resources will be available upon proper channels of requisition. Potential for natural disasters or acts of god cannot be limiting factors to decision making.
  1. Major Project Milestones

The following are the major project milestones identified at this time. As the project planning moves forward and the schedule is developed, the milestones and their target completion dates will be modified, adjusted, and finalized as necessary to establish the baseline schedule.

| **Milestones/Deliverables** | **Target Date** |
| --- | --- |
| Project Charter | 01/01/20xx |
| Project Plan Review and Completion | 03/01/20xx |
| Project Kickoff | 03/10/20xx |
| Phase I Complete | 04/15/20xx |
| Phase II Complete | 06/15/20xx |
| Phase III Complete | 08/15/20xx |
| Phase IV Complete | 10/15/20xx |
| Phase V Complete | 12/15/20xx |
| Closeout/Project Completion | 12/31/20xx |

1. **Strategic Alignment**

The BCC Expansion is in direct support of several of American Chemet Corporation’s Strategic Plans, Mission, Vision, and Values. By directly supporting these company ideals, this project will improve our business and help move the company forward to the next level of maturity, profitability, customer satisfaction, and market position.

| **Plan** | **Goals/Objectives** | **Relationship to Project** |
| --- | --- | --- |
| 20xx American Chemet Corporation Strategic Plan for Information Management | Improve record keeping and information management | This project will allow for real-time information and data entry, increased information accuracy, and a consolidated repository for each lot. |
| 20xx American Chemet Corporation Strategic Plan for Information Management | Utilize new technology to support company and department missions more effectively | New technology will allow many employees to access quality, real-time data, thus allowing the levels of staff required to manage these systems to decrease. |
| 20xx American Chemet Corporation Strategic Plan for Human Capital | Engage the workforce and improve employee retention | This project allows the employee to take an active role in advancing the market position and capabilities of American Chemet Corporation. |

1. **Cost Benefit Analysis**

The following table captures the cost and savings actions associated with the BCC Expansion, descriptions of these actions, and the costs or savings associated with them through the first year. At the bottom of the chart is the net savings for the first year of the project.

| **Action** | **Action Type** | **Description** | **First year costs (- indicates anticipated savings)** |
| --- | --- | --- | --- |
| Purchase Major Components with longest lead times | Cost | Initial investment in the BCC Expansion | $6,050,000 |
| Purchase Ancillary Components and Secure Contracts | Cost | Hire contractors to finish out installation, purchase minor components, secure consumable contracts | $3,000,250 |
| Produce more products with same labor force | Savings | Immediate increase in the lbs. / labor hour produced | -$879,221 |
| Installation Completed, plant operational | Savings | All contractor are paid, major costs have been incurred, plant is running | -$4,071,744 |
| System maintenance required every 6 months instead of monthly | Savings | Less frequent use of IT resources working on non-value added tasks results in approximately $42,000 savings per year. | -$42,000 |
| Reduce employee turnover by 10% | Savings | Savings in cost to out-process exiting employee and recruit, hire, and train new employees is approximately $50,000 in the first year. | -$50,000 |
| **Net First Year Savings** |  |  | **$-4,007,285** |

Based on the cost benefit analysis above we see that by authorizing the BCC Project, American Chemet Corporation will have annual earnings of approximately $4,100,000. Although not profitable after one year, within 5 years, it will have paid itself back in full.

1. **Alternatives Analysis**

The following alternative options have been considered to address the business problem. These alternatives were not selected for several reasons which are also explained below.

| **No Project (Status Quo)** | **Reasons For Not Selecting Alternative** |
| --- | --- |
| Elect not to increase production capacity | * Inadequate funding for capital expenditure * Market instability creating high risk environment * No desire to capture market shares * Lack of automation |
| **Alternative Option** | **Reasons For Not Selecting Alternative** |
| Outsource the buildout | * Significantly higher cost * Expertise already exists in house * Vendor’s lack of familiarity with our internal requirements |
| **Alternative Option** | **Reasons For Not Selecting Alternative** |
| Develop software internally | * Lack of qualified resources * Significant cost associated with software design * Timeframe required is too long |

1. **Approvals**

The signatures of the people below indicate an understanding of the purpose and content of this document by those signing it. By signing this document, you indicate that you approve of the proposed project outlined in this business case and that the next steps may be taken to create a formal project in accordance with the details outlined herein.

|  |  |  |  |
| --- | --- | --- | --- |
| **Approver Name** | **Title** | **Signature** | **Date** |
| Bill H. S. | President and CEO |  |  |
| Joe B. | VP of Manufacturing |  |  |