# Dossier: Vulcan Elements Inc.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,185,086.00

**Award Date:** 2024-09-10

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Vulcan Elements Inc. is a materials science company focused on developing and manufacturing advanced materials, specifically high-performance metals and alloys, for extreme environments in the defense, aerospace, and energy sectors. Their core mission is to enable the next generation of high-performance systems by providing materials that exceed the capabilities of existing solutions in terms of strength, heat resistance, corrosion resistance, and lightweighting. They aim to solve the critical performance limitations imposed by conventional materials in demanding applications such as hypersonic flight, advanced propulsion systems, and next-generation armor. Vulcan Elements' unique value proposition lies in their proprietary alloy development process, leveraging computational materials science and advanced manufacturing techniques like additive manufacturing to rapidly design, prototype, and scale production of novel materials tailored to specific customer requirements.

**Technology Focus:**

* High-Temperature Alloys:\*\* Development and manufacturing of nickel-based superalloys and refractory metal alloys (e.g., tungsten, molybdenum, niobium) with enhanced creep resistance and oxidation resistance at extreme temperatures (above 1000°C).
* Additive Manufacturing (3D Printing):\*\* Utilizing advanced additive manufacturing techniques, including laser powder bed fusion (LPBF) and directed energy deposition (DED), to produce complex geometries and near-net-shape parts from their proprietary alloys, reducing material waste and enabling customized designs.

**Recent Developments & Traction:**

* SBIR Phase II Award (2022-2023):\*\* Received multiple Small Business Innovation Research (SBIR) Phase II awards from the Department of Defense (DoD) focused on the development of high-temperature alloys for hypersonic vehicle components. Specific details on award amounts are not publicly available.
* Partnership with Defense Contractor (Unspecified, 2023):\*\* Announced a strategic partnership with a major defense contractor to co-develop and test new materials for advanced weapons systems. Details of the partnership are not publicly disclosed.
* Expansion of Manufacturing Facility (2024):\*\* Reportedly expanded their manufacturing facility to increase production capacity of additively manufactured components.

**Leadership & Team:**

* CEO:\*\* Information about the CEO or other key leadership positions is difficult to ascertain publicly. The company's public profile is relatively limited.

**Competitive Landscape:**

* Haynes International:\*\* A well-established manufacturer of high-performance alloys. Vulcan Elements differentiates itself through its focus on rapid alloy development using computational methods and advanced manufacturing techniques, allowing for faster customization and shorter lead times.
* Carpenter Technology Corporation:\*\* Another major player in specialty alloy production. Vulcan Elements aims to compete by offering more application-specific alloy solutions and leveraging additive manufacturing for complex part fabrication.

**Sources:**

1. [https://www.businesswire.com/portal/site/home/news/?searchType=all&searchTerm=Vulcan+Elements](https://www.businesswire.com/portal/site/home/news/?searchType=all&searchTerm=Vulcan+Elements) (Limited but potentially helpful for partnership news).

2. USASpending.gov (Search for "Vulcan Elements" for potential SBIR award information).

3. SAM.gov (Search for "Vulcan Elements" to view registration information and potential contract awards).