FACT SHEET

Environmental Cleanup Project at Nammo Defense Systems Inc.

July 2021

Overview

This Fact Sheet is being published by Nammo Defense Systems (NDS) as required by an Administrative Order on Consent (Order). The Order, dated February 9, 2021, is an enforceable agreement between the United States Environmental Protection Agency (EPA) and NDS that provides a framework for environmental investigation and cleanup of the land and groundwater at and around the NDS facility in northeast Mesa, Arizona. This initial Fact Sheet summarizes information about the ongoing investigation and cleanup activities at the NDS facility and provides references to additional information and project contacts for interested stakeholders. Although the Order is between EPA and NDS, EPA is working closely with the Arizona Department of Environmental Quality (ADEQ) and the Salt River Pima Maricopa Indian Community's (SRPMIC) Environmental Protection and Natural Resources Division to oversee the environmental work at this facility.

FAST FACTS

- The site is in northeast Mesa, AZ. It is located north of Arizona State Route 202 (Red Mountain Freeway) and east of the Salt River Canal. The NDS facility is adjacent to, but not on, SRPMIC land.
- NDS is an aerospace and defense company that manufactures specialty ammunition and rocket motors. NDS acquired Talley Defense Systems (the site's prior owner/operator) in 2007. NDS has managed environmental cleanup efforts at the site since acquisition of Talley Defense Systems.
- Existing environmental data indicate that contaminants are present in groundwater and soil.
- The contamination is likely due to manufacturing operations that occurred between the 1960s and the early 2000s.
- Environmental contamination at the site is located in two distinct areas, both of which are part of the NDS facility: 1.) the former Thermal Treatment Unit (TTU) and 2.) the former Water Bore-Out (WBO) facility.
- Although groundwater contamination exists in this area, the affected groundwater is not a source of public drinking water.
- Environmental assessment and cleanup efforts first began in the 1990s under Talley Defense Systems.
- Soil and groundwater testing provide data to support ongoing environmental management and cleanup. NDS has continued this environmental cleanup effort and has installed groundwater monitoring wells.

Corporate History & Background

Talley Industries, Inc. operated in Mesa (on the site now occupied by Nammo Defense Systems Inc.) from 1960 until the mid-1980s. Talley specialized in the design, development and manufacture of ammunition and energetic material solutions for defense and commercial applications. The site in Mesa has a rich history in the aerospace and defense industry developing aircrew escape systems, automobile airbag components, shoulder-fired weapon systems, and other propellant-loaded devices. In 1984, they became Talley Defense Systems, Inc. and continued operations until 2007. The NDS Group currently owns the original Talley company and now operates the Mesa facility.

Environmental History

The environmental regulatory history of the facility includes two contaminant release areas: the former Thermal Treatment Unit (TTU) and the former Water Bore-Out (WBO). Substantial groundwater and soil testing has been conducted to characterize the nature of contamination as part of an ongoing environmental investigation. Additional work is required to fully characterize the site and determine next steps.

Former Thermal Treatment Unit (TTU)

The former Talley Industries Inc. TTU is located approximately 1.25 miles north-northeast of the intersection of East Thomas Road and North Higley Road, Mesa AZ. Talley commenced operations at the TTU in the 1960s. At that time hazardous waste propellants were treated by means of open burning. Upon arrival at the TTU, hazardous waste was unloaded and temporarily stored in designated pits and/or burn apparatuses. Once in place, the hazardous waste was burnt by remote ignition.

Testing has identified:

- Contaminants of concern in soil include lead, perchlorate, and 2,3,7,8-Tetrachlorodibenzodioxin, which currently exceed Arizona Soil Remediation Levels (per Ariz. Admin. Code § 18-7-210). Perchlorate exceeds the Soil Remediation Level outside the boundary of the TTU, on the company's site, and off-site.
- Contaminants of concern in groundwater (perchlorate, 1,4-dioxane, and volatile organic compounds including trichloroethene, tetrachloroethene, benzene, 1,1-dichloroethene, dichloromethane and, 1,1,2-trichloroethane) have resulted in a groundwater contamination plume that currently measures approximately 0.25-miles long, extending off-site to the west, down gradient of the former TTU, and within Salt River Pima-Maricopa Indian Community property.
- Contaminants of concern in soil vapor (volatile organic compounds) appear to be limited to the TTU source area, and its vicinity.

Interim cleanup measures, including source area soil removal and installation of a groundwater pump and treat system, have been implemented and an in-situ biological injection pilot study is currently being conducted. Currently available information helps to define the extent of the impacts. Future regulatory requirements for the TTU include: 1.) completion of a Conceptual Site Model; 2.) additional assessment to refine the current understanding of the extent of releases in soil, soil-vapor and groundwater; and 3.) remediation of contaminants in all media found above regulatory levels. Environmental cleanup efforts at the TTU are subject to the Order. NDS is conducting environmental work at the TTU under the regulatory oversite of EPA.

Former Water Bore-Out (WBO)

The Talley Industries Inc. WBO site occupies approximately 100 acres of land within the current NDS facility and contains two main buildings and multiple other smaller buildings where research, design, testing, assembly, and packaging is currently conducted by NDS. When in operation, the WBO facility used a high-pressure water jet to remove waste material from manufactured components.

During the years the site was owned and operated by Talley Industries Inc., contaminants – now identified as contaminants of concern, were released into the environment. Presently, NDS (as the current business owner) is conducting an investigation under the regulatory oversight of the ADEQ and working within the ADEQ Voluntary Remediation Program (VRP) to clean up the WBO site.

The Site Today and Future Plans

NDS's current facility houses four separate plants and covers approximately 534 acres of land. It is located about 20 miles east-northeast of downtown Phoenix in the northern part of the City of Mesa in Maricopa County, Arizona.

While continuing as a valued defense contractor and employer in the East Valley, NDS plans to continue with the ongoing environmental investigation and cleanup. Substantial characterization and monitoring have been conducted. Work continues to completely characterize the nature of the contamination. As studies are completed, NDS will consolidate all the existing site characterization data into a report so that the information may then be used to proceed with clean-up.

NDS has developed this Fact Sheet, and is working on a community involvement plan outline and a scope of work for the environmental work related to the Order. At the company's manufacturing facilities, work continues to design, develop, produce, and deliver on current and anticipated contracts with the United States Department of Defense.

"We are committed to protecting the environment."

How May the Public be Involved?

NDS will keep the public informed through fact sheets, public meetings, and mailings. Please sign-up for the mailing list to be notified of site progress and upcoming meetings. Please let us know if there are others who should be provided notices by using the "Contact for Information" link provided on the www.ttuproject.info website. Alternatively, please call 480.898.2200 and provide contact information along with a request to receive information about this project.

Information Repository

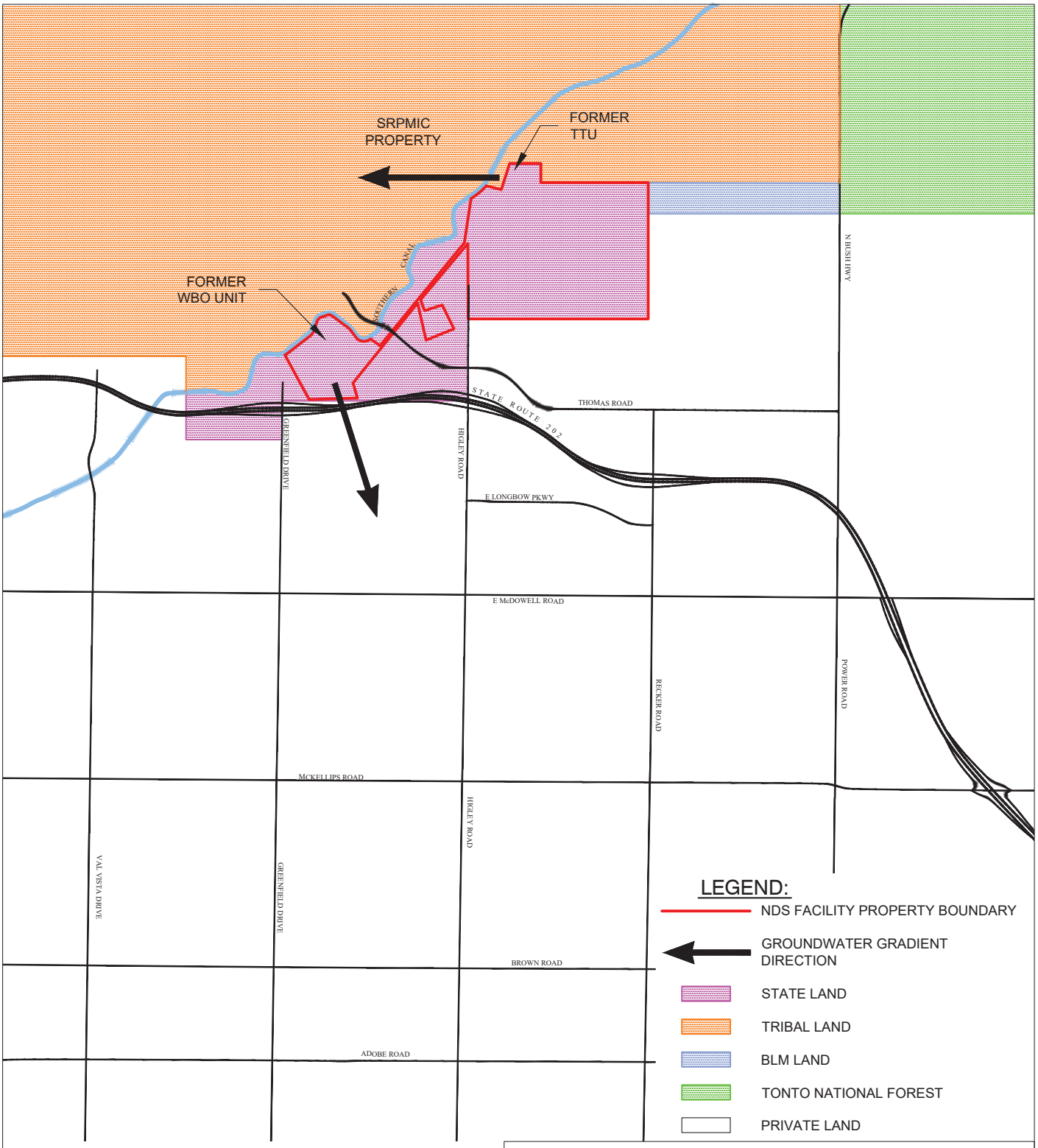
All publicly available information and documents related to this Consent Order are available through the www.ttuproject.info website. Additionally, we are in the process of establishing a physical location where materials will be on file and available to the public. Information about that resource will be provided on the website soon.

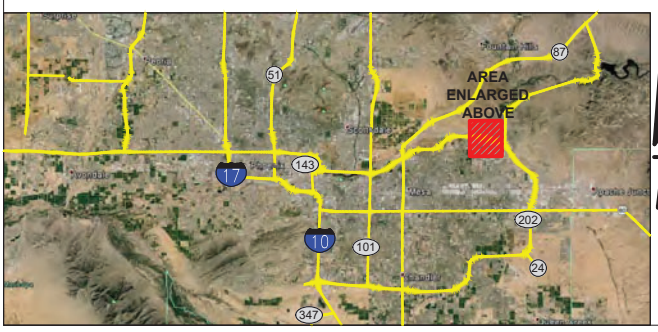
Additional Informational Resources

- **United States Environmental Protection Agency, Region 9**
  Project Coordinator: Patrick Frier
  Email: frier.william@epa.gov
  Phone: (415)-972-3984

- **Arizona Department of Environmental Quality**
  Project Coordinator: Kyle Johnson
  Email: johnson.kyle@azdeq.gov
  Phone: (602)-771-8704

- **Nammo Defense Systems Inc. in Mesa, Arizona**
  NDS Public Affairs: C.J. Thompson
  Email: cthompson@nammo.us
  Phone: (480)-898-2565





NAMMO DEFENSE SYSTEMS CLEANUP SITE

Nammo Defense Systems Inc.
Mesa, Arizona

Geosyntec consultants

Phoenix, AZ | July 2021

Figure

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Environmental Cleanup Project at Nammo Defense Systems Inc.

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Benzene
Benzene is an organic chemical compound that is a colorless or light yellow liquid at room temperature. It has a sweet odor and is highly flammable. Benzene evaporates into the air very quickly and its vapor is heavier than air and may sink into low-lying areas. Benzene dissolves only slightly in water and will float on top of water.

1-2 Dichloroethane (1,2-DCA)
A colorless, oily solvent that is primarily used to make other chemicals, including plastic and vinyl products, and as an industrial degreaser. It is also a degradation product of other chlorinated solvents.

1-1 Dichloroethylene (1,1-DCE)
A colorless solvent commonly used to make certain plastics, packaging materials, and flame-retardant coatings. It is also a degradation product of other chlorinated solvents.

Dichloromethane
Dichloromethane, commonly called methylene chloride, is a solvent that is widely used in chemical research and manufacturing. It is a highly volatile liquid, but it is neither flammable nor explosive in air.

1,4-Dioxane
1,4-Dioxane is a synthetic industrial chemical that is completely miscible (fully dissolvable in each other at any concentration) in water. It is a flammable liquid and a fire hazard and is potentially explosive if exposed to light or air. 1,4-Dioxane may be found at many federal facilities because of its widespread use as a stabilizer in certain chlorinated solvents, paint strippers, greases and waxes.

Lead
Lead is a naturally occurring element found in small amounts in the earth's crust. While it has some beneficial uses, it can be toxic to humans and animals, causing health effects.

Nitrate
A colorless, odorless, and tasteless compound that is present in groundwater. Nitrates form when microorganisms break down fertilizers, decaying plants, manures, or other organic residues. Usually plants take up these nitrates, but sometimes rain water can leach them into groundwater. Although nitrate occurs naturally in some groundwater, higher levels are thought to result from human activities. Common sources include fertilizers and manure, animal feedlots, municipal waste and sludge, and septic systems.

Perchlorate
Perchlorate is a negatively charged molecule made of one chlorine atom and four oxygen atoms. Perchlorate can occur naturally or be man-made and also forms naturally in the atmosphere. It occurs naturally in arid states in the Southwest United States. Manufactured perchlorate is used as an industrial chemical and can be found in rocket propellant, explosives, fireworks, and road flares.

Tetrachloroethene (PCE)
A clear, colorless, nonflammable solvent that readily evaporates at room temperature. PCE is widely used for dry cleaning of fabrics and degreasing/drying of metals.

2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD)
Pure 2,3,7,8-TCDD is a colorless solid with no distinguishable odor at room temperature. It is usually formed as an unwanted product in burning processes of organic materials or as a side product in organic synthesis.

Trichloroethene (TCE)
TCE is a nonflammable, colorless solvent that readily evaporates at room temperature. TCE is used mainly for degreasing/drying of metals and for dry cleaning of fabrics.

1,1,2-Trichloroethane
A colorless, sweet-smelling liquid. It does not burn easily, can be dissolved in water and evaporates easily. It is used as a solvent (a chemical that dissolves other substances) and as an intermediate in the production of the chemical, 1,1-dichloroethane. 1,1,2-Trichloroethane is sometimes present as an impurity in other chemicals, and it may be formed when another chemical breaks down in the environment under conditions where there is no air.

Volatile organic compounds (VOCs)
A large group of carbon-containing chemicals that readily evaporate at room temperature. Examples of VOCs are isopropyl alcohol (rubbing alcohol), acetone (found in some nail polish removers), and the solvents PCE and TCE (used in dry cleaning and metal degreasing).