

NAMMO DEFENSE SYSTEMS INC.

October 14, 2021

U.S. Environmental Protection Agency – Region 9
EPA Pacific Southwest San Francisco Office
75 Hawthorne Street
San Francisco, CA, 94105

NDS Quarterly Progress Report

To Whom It May Concern:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Title: _____

Date: _____


Stephen Cummings
Health, Environment, Safety & Security (HESS) Engineer
10/14/21

14 October 2021

Mr. William Frier
Special Projects Coordinator
US Environmental Protection Agency Region 9
San Francisco, California

**Subject: Third Quarter 2021 Progress Report Nammo Defense Systems Inc.
Facility, Mesa, Arizona**

Dear Mr. Frier,

Pursuant with Paragraph 34 of the Administrative Order of Consent between Nammo Defense Systems Inc. (NDS) and the United States Environmental Protection Agency Region 9 (EPA) effective 9 February 2021, states that NDS shall provide EPA with quarterly progress reports. This report submittal includes a summary of the activities completed during the third quarter (3Q) 2021.

Contact Information and Changes in Project Personnel

Contact Name and Position	Contact Information	Changes
Patrick Frier (EPA, Special Projects Coordinator)	[REDACTED]	N/A
Angel Soto (NDS, HESS Director)	[REDACTED]	N/A
Carole Thompson (NDS, Communications Manager)	[REDACTED]	N/A
Fabrizio Mascioni (Geosyntec Consultants, Project Manager)	[REDACTED]	N/A

Stephen Cummings (NDS, Health, Environment, Safety and Security Engineer	[REDACTED] [REDACTED]	N/A
--	--------------------------	-----

Significant Activities During Reporting Period

Deliverables

Consent Order Project:

- Submittal of a revised Conceptual Site Model based on EPA comments dated 8/4/21 – 9/3/2021
- Submittal of a Current Conditions Report – 8/5/2021
- Project Website Submittal – uploaded Fact Sheet, and 1Q&2Q Progress Reports
- 2Q 2021 TTU Groundwater Monitoring Report – 9/3/2021

Plant 3 and Former WBO Project:

- 1Q 2021 WBO Groundwater Monitoring Report – 7/22/2021
- 2Q 2021 WBO Groundwater Monitoring Report – 9/28/2021

Meetings

- Biweekly meetings between EPA, ADEQ, and NDS related to the Consent Order Project;
- Monthly meetings between ADEQ and NDS related to the WBO project

Field Activities

- Completion of 3Q 2021 groundwater monitoring/sampling at the Former Thermal Treatment Unit (TTU) well network on 7/29-30/2021 and 8/6/2021;
- Completion of 3Q 2021 groundwater monitoring/sampling at the former Water Boreout (WBO) well network during 8/2-4/2021;

Mr. William Frier
14 October 2021
Page 3

Stakeholder Interaction

NA

Notable Analytical Results

At the request of the ADEQ, the additional sampling was completed in select WBO well network wells:

- The most recent dual-nested monitor well installed at Plant 3 (NT-18) was analyzed for perchlorate and VOCs. Perchlorate was detected below the HGBL in the shallow screen and non-detect in the deep screen interval. Both TCE and 1,1-DCE exceeded the Arizona Water Quality Standards (AWQS) in the shallow screen at a concentration of 254 µg/L and 210J µg/L, respectively. TCE and 1,1-DCE were below the AWQS in the deep screen.
- Select wells were sampled for 1,4-Dioxane (WBO-1, NT-6, NT-18, ADEQ-MW-2, ADEQ-MW-5, ADEQ-MW-6, ADEQ-MW-7, ADEQ-MW-8, and NT-5). Results indicate that 1,4-Dioxane was detected in only one well above the MDL, in downgradient ADEQ-MW-5, at a concentration of 41.4 µg/L. All other wells sampled within Plant 3, and downgradient of Plant 3 were non-detect for 1,4-dioxane.
- VOC analysis was included during sampling of NT-3 and NT-4. All VOCs were non-detect, except for 1,1-DCE which was detected below the AWQS at a concentration of 0.249 µg/L in NT-4.

Other Relevant Changes or Updates

Consent Order Project: N/A

Plant 3 and Former WBO Project: N/A

Significant Activities Anticipated During Upcoming Reporting Period

Consent Order Project:

- Submittal of 3Q 2021 TTU Groundwater Monitoring Report – 31 December 2021
- Completion of 4Q 2021 TTU Sampling – November/December 2021

Mr. William Frier
14 October 2021
Page 4

Plant 3 and Former WBO Project:

- Submittal of 3Q 2021 WBO Groundwater Monitoring Report – 31 December 2021
- Completion of 4Q 2021 WBO Sampling – November/December 2021
- Completion of access agreements from City of Mesa for installation of three monitoring wells – well installations installation revised to 1Q 2022 based on access agreement completion and driller availability.
- Continue negotiations for access agreements with LafargeHolcim (property owner of Drake Materials facility) – Estimated negotiations completion by 12/31/21 and sampling during 1Q 2022.

Remediation System Updates

Consent Order Project - P&T System

- TTU-1 and TTU-2 were actively pumping during the reporting period, except for the following dates during which the wells were temporarily shut off.
 - Both wells shut off during 3Q 2021 quarterly sampling from 21 to 29 July 2021;
- TTU-11 was shut off in October 2021 prior to planned injection as part of an *in situ* bio-pilot. The well is planned to remain inactive due to post bio-pilot performance monitoring at TTU-20, which will be completed as part of the month six post injection monitoring event scheduled in September 2021.
- Total volume treated approximately 70,000 gallons.

Plant 3 and Former WBO Project – Fluidized Bed-Reactor

- Extraction well EXT-1 operated from July 1 to July 15 and July 16 to August 3. Extraction well EXT-2 operated from August 4 to September 30. Extraction wells are operated separately to maintain a flowrate at or below 400 gallons per minute in order to avoid overflowing the infiltration basins that receive the treated water.

Mr. William Frier
14 October 2021
Page 5

The system experienced prolonged downtime on:

- July 15 to 16 to troubleshoot a low flow alarm condition. Pulse operation was performed for 18 hours to normalize system readings and clear the alarm condition to resume continuous operation.
- August 23 for four hours when new transducers were installed in extraction wells EXT-1 and EXT-2.

Primary maintenance activities performed have included:

- Strainer cleanings (typically 45 minutes) on July 01, 07, 15, and 29, August 4, 19, and 26, and September 8 and 21;
- Bag filtration system gasket replacement on July 01;
- Temporary system transition to recycle mode on July 20 in order to drain/transfer storm water collected in the auxiliary tank to FBR-370; and
- High ORP alarm troubleshooting on September 7 via adjustments of ethanol dosing to the system.

The system operated consistently for the entire quarter with exception of troubleshooting for one low flow alarm condition. Intermittent 30 minute to 1 hour weekly shut down activities were consistent with minor or planned maintenance activities.

Mr. William Frier
14 October 2021
Page 6

If you have any questions about this report, please contact either Mr. Angel Soto with NDS, or Mr. Fabrizio Mascioni with Geosyntec.

Sincerely,



Fabrizio Mascioni, R.G. 65652 (AZ)
Senior Geologist

cc: Angel Soto, Nammo Defense Systems Inc.
Christopher Horan, Salt River Pima-Maricopa Indian Community
Carol Hibbard, Salt River Pima-Maricopa Indian Community