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Subject: First Quarter 2022 Progress Report Nammo Defense Systems Inc. Facility, Mesa, Arizona

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 first quarter (1Q) 2022.

Contact Information and Changes in Project Personnel

Contact Name and Position	Contact Information	Changes
Jocelyn Clark (EPA, Special Projects Coordinator)	Clark.Jocelyn@EPA.gov (415) 972-3324	None Applicable (N/A)
Angel Soto (NDS, Health, Environment, Safety and Security [HESS] Director)	JSoto@Nammo.us (602) 309-5819	N/A
Carole Thompson (NDS, Communications Manager)	CThompson@Nammo.us (480) 898-2565	N/A
Stephen Cummings (NDS, HESS Engineer)	Scummings@Nammo.us (480) 536-3456	N/A
Fabrizio Mascioni (Geosyntec Consultants, Project Manager)	FMascioni@Geosyntec.com (602) 513-5816	N/A

Christopher Funk (Pinyon Environmental [Pinyon], Groundwater Sampling Project Manager)	Funk@pinyon-env.com (602) 274-0533	Changed from Fabrizio Mascioni.

Significant Activities During Reporting Period

Deliverables

Consent Order Project:

- Project Website Submittal – uploaded Fourth Quarter (4Q) 2021 Progress Report and the website has been made searchable and indexed to be searched on any search engine;
- 4Q 2021 Former Thermal Treatment Unit (TTU) Groundwater Monitoring Report – 3/8/2022; and,
- The Conceptual Site Model, submitted to the EPA in September 2021, was approved as final after EPA review on 2/9/2022.

Plant 3 and Former Water Bore Out (WBO) Project:

- 2021 Annual Groundwater Monitoring Report, Former Plant 3 WBO Facility – March 2022 (submitted to ADEQ on 4/1/2022).

Meetings

- Biweekly meetings between EPA, Arizona Department of Environmental Quality (ADEQ), and NDS related to the Consent Order Project; and,
- Monthly meetings between ADEQ and NDS related to the WBO project.

Field Activities

- Completion of 1Q 2022 groundwater monitoring/sampling at the Former TTU well network on 3/21/2022 through 3/22/2022, and 3/26/2022;
- Completion of 1Q 2022 groundwater monitoring/sampling at the former WBO well network during 3/23/2022 through 4/1/2022; and,

- Drilling and installation for new monitoring wells NT-16 and NT-17 commenced on 1/19/2022. Final well development activities were completed by 3/30/2022.

Stakeholder Interaction

Consent Order Project:

- Meeting on 3/15/2022 with NDS and the Salt River Pima-Maricopa Indian Community to discuss consent order updates and address concerns with the 4Q concentration of perchlorate in monitoring well TTU-14.

Plant 3 and Former WBO Project: N/A

Notable Analytical Results

Consent Order Project:

- The concentration of perchlorate in monitoring well TTU-14 has decreased from the 4Q 2021 measured concentration of 12,600,000 µg/L to 178,000 µg/L during the 1Q 2022 sampling event; and,

- The concentration of perchlorate in bounding well TTU-17 has increased from non-detectable concentration in 4Q 2021 to 24.1 µg/L in 1Q 2022, exceeding the health-based guidance level of 14 µg/L.

Plant 3 and Former WBO Project: N/A (Results were recently received and have not been fully reviewed by Pinyon)

Other Relevant Changes or Updates

Consent Order Project:

- Submittal of a Former TTU IRA Focused Feasibility Study to EPA on 1/11/2022.

Plant 3 and Former WBO Project:

- The draft access agreement was received from the City of Mesa Falcon Field Airport for monitoring well NT-15 on 3/31/2022 and is currently in review by NDS; and,
- A work plan and safety plan for drilling at the Drake Materials facility was submitted to LafargeHolcim on 1/17/2022. Lafarge Holcim has not yet provided comments, however a meeting to discuss the work plan was scheduled for 4/4/2022. LafargeHolcim indicated that an access agreement is being processed.

Significant Activities Anticipated During Upcoming Reporting Period

Consent Order Project:

- Submittal of facility-wide Quality Assurance Project Plan (QAPP) on 4/15/2022;
- Submittal of TTU groundwater monitoring Sampling and Analysis Plan 30-days after QAPP submittal;
- Submittal of Revised 4Q 2021 TTU Groundwater Monitoring Report 4/22/2022;
- Submittal of 1Q 2022 TTU Groundwater Monitoring Report 60 days from receipt of laboratory reports; and,
- Completion of 2Q 2022 TTU Sampling approximately 6/13/2022 through 6/24/2022.

Plant 3 and Former WBO Project:

- Submittal of 1Q 2022 WBO Groundwater Monitoring Report 60 days from receipt of laboratory reports;
- Completion of 2Q 2022 WBO Sampling approximately 6/13/2022 through 6/24/2022;
- Sampling of newly installed monitoring wells NT-16 and NT-17 on 4/12/2022;
- Distribution of community notices for installation of monitoring wells NT-15;
- Tentative start of installation of monitoring well NT-15 within City of Mesa property during the first week of May 2022, pending a fully executed access agreement and driller availability; and,
- Continue negotiations for access agreements with LafargeHolcim (property owner of Drake Materials facility).

Remediation Systems Updates

Consent Order Project - P&T System:

- TTU-1 was not pumping from 3/11/2022 to 3/25/2022 due to a faulty float gauge on the storage tank;
- TTU-2 was actively pumping during the reporting period;
- TTU-11 was shut off in October 2020 prior to planned injection as part of an *in situ* bio-pilot. The well is planned to remain inactive as additional in situ bio-pilot activities are being considered by NDS. One additional round of post bio-pilot performance monitoring at TTU-20 is recommended during 1Q;
- Total volume treated approximately 26,000 gallons.

Plant 3 and Former WBO Project – Fluidized Bed-Reactor (FBR)

- Groundwater was extracted from well EXT-2 from January 1 to January 26. EXT-1 remained offline during troubleshoot and repair of the EXT-1 well control panel air conditioning (AC) unit. The failed AC parts were replaced, and groundwater extraction from EXT-1 was resumed on January 27. Groundwater was extracted from EXT-1 for the remainder of the 1Q period through March 31.

- The extraction wells can be operated simultaneously, but are typically operated to preferentially extract from well EXT-1 in order to target groundwater with historically elevated concentrations of perchlorate (in comparison to groundwater extracted from EXT-2).

- The extraction system and FBR vessels are designed to operate and treat groundwater at a flow rate up to 800 gallons per minute (gpm) but is maintained at a flowrate at or below 400 gpm for optimized infiltration basin performance.

The system experienced prolonged downtime on:

- January 3 to 5, due to low phosphoric acid supply. A delivery of two 275-gallon phosphoric acid totes was received on the 5th, and the FBR system was transitioned from recycling mode back to single-pass operations after approximately 48 hours of downtime;

- January 26, to move the A/C unit from EXT-2 to EXT-1. The system was moved back to single-pass operations after approximately 2 hours;

- February 21 to 22, for approximately 13 hours when the system was remotely shut down by the operator to clear an alarm for the auxiliary transfer pump. The auxiliary tank transfer pump was restored and water was discharged to the FBR system. The FBR system was transitioned back to single-pass operations following the completion of auxiliary tank services;

- February 25, for approximately 4 hours due to piping services to fix spool on FBR-370;

- March 20, due to a low flow alarm on EXT-1 after operating hours transitioned the system into recycle mode. The system was transitioned back to single-pass operations on March 21 after approximately 17 hours.

Primary maintenance activities performed have included:

- Strainer cleanings on January 11 and 24, February 1, 17 and 22, as well as March 1, 15, 22 and 31 have resulted in FBR system temporary downtime of approximately 50 minutes for each event;

- Settled bed height measurement on March 16 resulting in the FBR system temporary downtime for approximately 60 minutes;

- Service of an observed piping leak on the FBR-230 return line from February 17 to 21 resulting in FBR-230 transition to recycling mode while FBR-370 continued discharge to the infiltration basins; and,

- Service of an observed piping leak and malfunctioning flow control valve from February 25 to 28 resulting in FBR-230 transition to recycling mode while FBR-370 continued discharge to the infiltration basins.

The system operated in single-pass mode for the majority of the first quarter with exception of the above-described activities. Several aboveground PVC piping sections and flanges at the FBR treatment area that had minor leaks or flange deterioration were replaced with stainless steel components.

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