# REPORT

RTN 3-0518

#### Licensed Site Professional Opinion Linking of Release Tracking Number 3-28282 to Release Tracking Number 3-0518 Former GE Facility 50 Fordham Road Wilmington, Massachusetts

Lockheed Martin Corporation 2950 North Hollywood Way Suite 125 Burbank, California 91505

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# LSP Opinion

# Linking of Release Tracking Number 3-28282 to Release Tracking Number 3-0518

CDM Smith Inc. (CDM Smith), serving as the environmental consultant for Lockheed Martin Corporation (Lockheed Martin), has prepared this Licensed Site Professional (LSP) Opinion to support the linking of Release Tracking Number (RTN) 3-28282 to the main site RTN 3-0518. Both RTNs are associated with coincident releases appearing to have originated due to activities and actions at the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts (the Site). RTN 3-0518 is classified as a Tier IA site with Permit Number 83052. RTN 3-28282 is classified as a Tier IC site with Permit Number E283132. As the main site RTN is classified as a Tier IA site, the addition of the secondary RTN will not require any change in the Tier Classification of the Site.

This opinion is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) via eDEP in conjunction with a Tier I Minor Permit Modification, which serves to link RTN 3-28282 to RTN 3-0518. For a more comprehensive property and release and remedial history than provided herein, please refer to historical reports for both RTNs.

# 1.0 Release Tracking Number 3-0518

Analytical data have shown that six primary types of organic and inorganic compounds are associated with RTN 3-0518. These include chlorinated volatile organic compounds (CVOCs), total petroleum hydrocarbons (TPH), BTEX compounds (sum of benzene, toluene, ethylbenzene, and xylene isomers), methyl tert butyl ether (MTBE), metals, and light non-aqueous phase liquid (LNAPL) identified as Stoddard fuel (solvent). The Site was divided into four separate Operable Units as follows:

- 1. Eastern Parking Lot: localized occurrence of trace amounts of LNAPL (Stoddard fuel) in soils under the water table, localized areas of TPH-impacted soil, and periodic occurrence of LNAPL in monitoring wells between the Tank Farm and Eastern Parking Lot;
- 2. Impacted Groundwater: CVOCs associated with a release in the Tank Farm area;
- 3. Outfall 001 and 002: possible remnant metals and petroleum hydrocarbons in sediments; and
- 4. Tank K: gasoline-related BTEX and MTBE compounds in shallow groundwater.

In 1994, MassDEP classified the Site as Tier IA and provided a permit to authorize comprehensive remedial response actions to meet the requirements of the Massachusetts Contingency Plan (MCP).

While each of the four Operable Units at the Site was addressed under separate MCP response actions until 2006, a Remedy Operation Status (ROS) Opinion was submitted for the entirety of RTN 3-0518 in April 2006. Since that time, semi-annual Status Reports to Maintain ROS have been submitted to MassDEP.

Partial Response Action Outcomes have been submitted for Outfall 001 and 002 and Tank K since the 2006 ROS Opinion was submitted, and work on these two Operable Units is complete. Work under



RTN 3-0518 continues with respect to the Eastern Parking Lot and Impacted Groundwater. A summary of current work under ROS can be found in the Status Report to Maintain ROS submitted to MassDEP on March 08, 2012.

## 2.0 Release Tracking Number 3-28282

In November 2007, groundwater sampling and analysis for arsenic was conducted at the Site at the request of Lockheed Martin to evaluate emerging contaminants. Sample results from the November 2007 sampling event were transmitted to Lockheed Martin in a TRC report in September 2008. These results identified total arsenic concentrations in excess of the arsenic RCGW-1 Reportable Concentration in groundwater samples collected from four wells at a maximum concentration of 84.4 micrograms per liter (ug/L), which constituted a 120 day Reporting Condition. The groundwater collected from these four wells also exhibited mildly reducing groundwater chemistry, with redox potentials ranging from +3.9 to -83.5 millivolts. These four wells are located in areas with historical petroleum hydrocarbon contamination from gasoline, Stoddard fuel, other fuels, and petroleum derived solvents. Subsequent assessment indicates that the arsenic is mainly in the dissolved state and is coincident with other releases at the Site. These findings suggest its presence is associated with and due largely to these other, previously identified releases, and is not likely a separate condition.

On January 8, 2009, notification of this 120 day Reporting Condition was provided to MassDEP. In response, MassDEP issued a Notice of Responsibility to Lockheed Martin on February 26, 2009, and issued RTN 3-28282 to the condition.

On January 8, 2010, the Numerical Ranking Scoresheet identifying this RTN as a Tier IC site, the Tier IC Permit Application, the Phase I Initial Site Investigation Report and Completion Statement, and the Phase II Scope of Work were submitted to MassDEP. An Interim Phase II Comprehensive Site Assessment was submitted on January 7, 2012 for this RTN. Based on the assessment contained in the Interim Phase II submittal, which essentially established the coincident and interrelated nature of the arsenic plume, this linking appears appropriate at this time.

## 3.0 Summary of Nature and Extent of Release Tracking Number 3-28282

Investigations conducted at the Site with respect to arsenic suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases related to RTN 3-0518.

Based on site investigations conducted to date, and as summarized in CDM Smith's Interim Phase II CSA submitted to MassDEP in January 2012, CDM Smith observes the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site in excess of the background value of 20 mg/kg total arsenic established by MassDEP for natural and urban fill soils containing ash. However, there is no information to suggest a release of arsenic from former or current facility operations. Nevertheless, other undocumented historic uses may have contributed arsenic to the site soils.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contain naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low oxidation-reduction



potential due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.

- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic have been detected in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron have been detected in groundwater samples collected onsite from nine monitoring wells. For the most part, these arsenic and iron exceedances were detected in groundwater samples collected from monitoring wells in areas impacted by the releases associated with RTN 3-0518, and are considered to be wholly, or at least partly, associated with chemical changes due to these primarily organic releases.
- Surface water samples indicated that surface water is potentially impacted at the Site, with
  elevated concentrations of iron; however arsenic concentrations in surface water are below the
  applicable United States Environmental Protection Agency screening criterion. It is important
  to note that surface water samples collected in locations considered as background and/or
  unimpacted by RTN 3-0518 plumes contained elevated concentrations of iron.
- A condition of No Significant Risk to human health, public welfare, and the environment does
  not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in
  samples collected from the Site. A condition of No Significant Risk to safety does currently exist
  at the Site. As a result of the presence of the groundwater concentrations above the applicable
  standards, additional remedial action is required at the Site.

## 4.0 Licensed Site Professional Opinion on Linking Release Tracking Number 3-28282 to Release Tracking Number 3-0518

Arsenic impacts observed in groundwater samples collected from the Site are believed to be attributable to elevated, naturally-occurring, background concentrations and from dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, further assessment and management of the high organic content related to RTN 3-0518 must proceed concurrently with the arsenic investigation presently associated with RTN 3-28282, and singular attention only to the arsenic impacts in groundwater will not serve to address the probable cause of high arsenic concentrations in groundwater. Thus, CDM Smith concludes that it is most appropriate to evaluate and remediate the Site with consideration of impacts related to RTN 3-0518 and RTN 3-28282 together, instead of separately.

Based on the preponderance of data collected from the Site that suggest that the arsenic in groundwater associated with RTN 3-28282 is due in part to reducing groundwater chemistry partially caused by organic carbon content from releases associated with RTN 3-0518, it is the opinion of Licensed Site Professional (LSP) #6406, William R. Swanson, that it is appropriate to link RTN 3-28282 to main site RTN 3-0518.

Therefore, with this submittal, CDM Smith is linking RTN 3-28282 to parent RTN 3-0518. Further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted.



Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

