Florida Department of

Memorandum — Environmental Protection

To: Nicanor Madrid
Hazardous Waste Permitting Section

From: Thomas Deck
Environmental Assessment Section

Date: July 12th 2005

Subject: Final Report – Lockheed Martin Ocala
Performance Audit Date – April 14th 2005

The DEP Hazardous Waste Regulation Section, in fulfillment of cooperative agreements with EPA Region IV, requested the referenced audit for the management of RCRA permitting activities.

The permitee was asked to respond to both the "Summary of Audit Deficiencies" in the body of the subject DEP preliminary field audit report, dated May 6th 2005, as well as the specific deficiency items designated in the audit checklists attached to the report.

The permittee's responses to the Department's request for specific corrective actions for each reported deficiency are contained in the consultant's report dated June 23rd 2005. The consultant has adequately responded to all deficiencies noted in the field audit report.

With this memo, the Environmental Assessment Section has determined that the permittee's consultant has taken appropriate corrective actions pursuant to the subject audit report. The draft audit report and checklists, taken together with the consultant's response and this memo will comprise the final audit report.

If you have any further questions concerning this audit, please call me at 245-8075 or email me at thomas.deck@dep.state.fl.us

Attachment: Lockheed Martin Response

Copies to: file

HSW

June 23, 2005

Nicanor A. Madrid
Environmental Specialist III
Hazardous Waste Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
MS 4560
Tallahassee, Florida 32399-2400

Re: FDEP Field Sampling Performance Audit Report for field audit conducted at Lockheed Martin Missiles and Fire Control, Ocala Operations (Lockheed Martin) on April 14, 2005 (FLD 061 993 606)

Dear Mr. Madrid:

On behalf of Lockheed Martin, HSW Engineering, Inc., is providing responses to audit findings resulting from the referenced audit. These responses were prepared following in-depth discussions with the auditor, Mr. Tom Deck, who indicated verbally that the responses and corrective actions would be acceptable.

Please note that the primary contact at the Lockheed Martin Ocala facility is now Mr. Bob Hisey, ESH Manager. His contact information is as follows.

Lockheed Martin Missiles and Fire Control, Ocala Operations
498 Oak Road MP A-33
Ocala, Florida 34472-3099
352-687-5207
robert.r.hisey@lmco.com

Please contact either Mr. Hisey or the undersigned at HSW if you have questions concerning these responses.

Sincerely,

HSW ENGINEERING, INC.

Cindy Lee Westergard

Cindy Lee Westergard
Senior Scientist

Patricia A. Pompeo for

Ms. Carol D. Henry
Vice President/Principal Hydrologist

CDW/CDH/pap

Attachment

cc: Mr. Bob Hisey, Lockheed Martin, Ocala Operations
Mr. Jim Roberts, Lockheed Martin, Ocala Operations
Ms. Lisbeth House, Lockheed Martin Orlando
Mr. Bob Cook, FDEP

HSW

FDEP Field Sampling Performance Audit
Field Activities Conducted April 14, 2005
Lockheed Martin Missiles and Fire Control, Ocala Operations

Responses to Findings of "N" or "?" on Audit Checklist

35. Measured dissolved oxygen and turbidity were below the following thresholds. (FS 2212, section 3.1)

36. DO ≤20% saturation at the measured temperature (No)

Alternate criteria for stabilization when DO readings are above 20% were met (see acceptable finding for Item 39).

37. Turbidity ≤20 NTU (No)

Alternate criteria for stabilization when turbidity readings are above 20 N.T.U. were met (see acceptable finding for Item 40).

47. All field-testing equipment and instruments brought to the field appeared to function properly. (FT 1000, section 2.1) (No)

The turbidity meter (an HF Scientific that uses sealed gel standards for a three-point calibration) failed at the beginning of the day. Ordinarily, the field technician would have performed other tasks until a replacement meter could be provided; however, split samples of these two locations had been specifically requested by FDEP for this field audit.

48. All sample measurements were chronologically bracketed between calibration verifications. (FT 1000, section 2.2.1) (No)

Regarding turbidity, refer to response to Item 47.

Regarding pH, the pH measured during purging at the first location, PZ-22UF, was about 10.25, and a check of the 10 standard yielded a reading of 13, indicating that the instrument was not in calibration at the high end of the pH scale. This was corrected in the field by recalibrating the instrument with two standards, with the 7 standard used first.

The field technician performed an optional check of DO after the first well was sampled. The reading of 7.11 was more than ±0.3 mg/L of the theoretical value (7.57 mg/L at 29.9 °C). This was corrected in the field by recalibrating the instrument. Note that DO (and other field parameters) are used for ensuring stabilization only for the

collection of representative groundwater samples and are not reported to FDEP or otherwise used.

49. All sample measurements were quantitatively bracketed with an appropriate choice of calibration standards for calibrations or verifications (FT 1000, section 2.2.1) (No)

Regarding turbidity, refer to response to Item 47.

Regarding pH, refer to response to Item 48.

50. Instruments failing to meet calibration verification acceptance criteria were recalibrated or removed from service. (FT 1000, section 2.4.4.1) (No)

Refer to response to Item 47.

55. A pH 7 buffer was used as the first calibration standard for the initial calibration. (FT 1100, section 2.3.3) (No)

Although the field technician believes that he performed the manual two-point calibration correctly (calibrating first with the 7 standard and then with the 4 standard, following a rough, off-the-record autocalibration with the 4 standard), the auditor stated that he observed otherwise (incorrect calibration first with the 4 standard and then with the 7 standard). Field personnel have been reminded that the proper procedure is always to calibrate first with the 7 standard and then with a second standard (either 4 or 10, depending on the expected pH of samples) and to perform verifications of these standards before taking sample measurements.

56. All sample measurements were chronologically bracketed with calibration verifications. (FT 1100, section 2.3.2) (No)

> **"Sampling crew was unable to verify the pH after the first well. Likely due to calibrating with a pH 4 buffer first."**

Refer to response to Items 48 and 55 regarding corrective action. We recognize that if the field technician was mistaken and did calibrate with the 4 standard first rather than the 7 standard, this may have been the cause of the instrument not being in calibration at the high end of the pH scale.

57. All sample measurements were quantitatively bracketed with an appropriate choice of at least two calibration buffers for calibrations or verifications. (FT 1100, sections 1.2, 2.3.3 & 2.3.4) (No)

> **"Sampling crew was unable to verify the pH after the first well. Likely due to calibrating with a pH 4 buffer first."**

Refer to responses to Items 48, 55, and 56.

58. All calibration verifications met the acceptance criteria of ± 0.2 standard pH units. (FT 1100, section 2.1.2 & 2.3.4.1) (No)

> **"Sampling crew was unable to verify the pH after the first well. Likely due to calibrating with a pH 4 buffer first."**

Refer to responses to Items 48, 55, and 56. Note that this finding applies only to the verification of the 10 standard as verifications of the 4 and 7 standards recorded on the Equipment Calibration and Performance Summary were acceptable in all instances.

59. The meter system was checked on a weekly basis to ensure a ≥90% theoretical electrode slope. (FT 1100, section 2.1.3) (?)

This item is not applicable to the Horiba U-10.

63. All sample measurements were quantitatively bracketed with an appropriate choice of calibration standards for calibrations or verifications. (FT 1200, section 3.2.1) (No)

> **"Sampling team used a two point calibration using air as a zero standard and a Horiba multi-cal solution (at 4.49 mS/cm). An air calibration at zero is not acceptable."**

The instrument was zeroed using atmospheric air per the manufacturer's instructions, calibrated with a single standard (4.49 mmhos/cm), and verifications performed with the 4.49 mmhos/cm standard and with a 447 umhos/cm standard.

64. All continuing calibration verifications were performed using standards within the range of sample measurements. (FT 1200, section 3.2.4) (No)

> **"See above (63)."**

Refer to response to Item 63.

66. All measurements were manually or automatically corrected for temperature. (FT 1200, sections 1.2, 3.2.3 & 3.4) (No)

> **"Sampling team was correcting the conductivity for temperature compensation. On further inspection it appears that the instrument automatically corrects for temperature."**

The instrument corrects for temperature when in the autocalibration mode but not in the manual calibration mode (see attached excerpt from instruction manual stating that the conductivity standard should be at 25 °C when performing a manual calibration for

conductivity). Field personnel calibrated the Horiba U-10 in manual mode and therefore corrected the calibration standard reading to adjust for temperature according to the conversion table printed on the standard bottle label.

67. The temperature sensor calibration was verified according to FT 1400. (FT 1200, section 3.1.2) (?)

The temperature calibration of all HSW field instruments will be verified with a NIST-traceable thermometer according to FT 1400. The results of this study will be used to determine how frequently the temperature feature of these instruments will need to be rechecked.

71. All sample measurements were quantitatively bracketed with calibration verifications of the temperature measurement device at a minimum of two temperatures using the NIST–traceable thermometer. (FT 1400, section 2.2.2) (?)

Refer to response to Item 67.

72. All sample measurements were chronologically bracketed with acceptable calibration verifications. (FT 1400, section 2.2.1) (?)

Refer to response to Item 67.

73. Historical, device-specific data justified calibration verification intervals of greater than one month. (FT 1400, section 2.2.3.1) (?)

Refer to response to Item 67.

77. All sample measurements were chronologically bracketed with calibration verifications. (FT 1500, sections 2.2 & 2.3) (No)

"Sampling crew was unable to verify the DO after the first well."

Refer to response to Item 48.

78. All calibration verifications met the acceptance criteria of ±0.3 mg/L dissolved oxygen when compared to the table of theoretical values for water-saturated air. (FT 1500, sections 1.1., 2.2.2.2,. 2.3.1., 2.4.1, 2.4.2 and 2.4.3) (No)

"Theoretical values were not used to calibrate."

Corrected in the field. Note that comparisons of actual DO readings with theoretical values indicated that the ±0.3 mg/L requirement was met in all instances except for the verification performed after the first sample was collected.

80. The temperature sensor calibration was verified according to FT 1400. (FT 1500, section 1.1) (?)

Refer to the response to Item 67.

84. All sample measurements were chronologically bracketed with calibration verifications. (FT 1600, section 3.2.1) (No)

85. All sample measurements were quantitatively bracketed with an appropriate choice of calibration standards for calibrations and verifications. (FT 1600, section 3.2.1) (No)

> **"Sampling crew was unable to calibrate or verify the turbidity meter."**

Refer to response to Item 47 regarding the unexpected failure of the HF Scientific turbidity meter and corrective action.

87. All calibration verifications met the DEP SOP acceptance applicable to the NTU ranges associated the verification standard values. (FT 1600, section 3.2.2) (No)

> **"Sampling crew was unable to calibrate or verify the turbidity meter."**

Refer to response to Item 47 regarding the unexpected failure of the HF Scientific turbidity meter and corrective action.

89. Errors in documentation were corrected without obliteration. (FD 1100, section 2.6) (No)

The field records indicate two minor instances in which entries were not corrected properly; other entries were corrected properly. Field personnel have been reminded to draw a single line through the entry, record the correct information to the side, and initial and date the corrected entry.

90. All instrument calibrations were properly documented. (FD 4100, sections 1 – 2.7) (No)

> **"Failure in pH verification was not recorded."**

The failure of the verification of the 10 standard (13.00 S.U.) following sampling of the first well was recorded in the margin of the form (upper right-hand corner). The Equipment Calibration and Performance Summary form has been revised to allow field personnel to more clearly document when calibrations or verifications do not meet FDEP SOPs.

94. Ambient field conditions were recorded for all samples. (FD 5000, section 2.3) (No)

Ambient temperature and conditions (whether raining or not) were recorded on the sampling logs for PZ-2D and PZ-22UF (upper right-hand corner).

97. The types, number, collection location and collection sequence of all field quality control samples was recorded in the field record. (FD 5000, section 2.11) (?)

No field quality control samples were collected during the audit. Field quality control samples were collected during the week-long event and the information recorded on the proper form.

98. Preservation information and verification was recorded for each sample, as applicable. (FD 5100, section 1 – 1.4) (No)

"Use of ice for thermally preserved samples was not recorded."

The use of ice can be assumed, based on the temperature of the cooler upon receipt (recorded as 3 °C on the chain-of-custody form). HSW uses ice to preserve samples for volatile organics analysis without exception.

104. Well casing composition is recorded (FS 5100, sections 2.1 – 2.3) (No)

Well installation logs, in which the well casing composition is recorded, are maintained in project files and available upon request.

118. Unique identification (designation code) for the instrument calibrated is recorded (FD 4100, sections 2.1 - 2.11) (No)

This information will be recorded on all future field logs.

121. Instrument reading or result (display value) for all calibration verifications, with appropriate measurement units is recorded (FD 4100, sections 2.1 – 2.11) (No)

"Units for DO verification were not recorded."

The field technician inadvertently did not circle the units of measurement (% or mg/L) that are preprinted on the form. This form has been revised to allow field personnel to record this information in mg/L only.

123. Designation of each calibration standard used to calibrate or verify the instrument, linked to the associated records for the calibration standard is recorded (FD 4100, section 2.1 – 2.11) (No)

"Only the value of the standard was recorded. No additional information provided (e.g., lot number, expiration date)."

Acknowledged. The Equipment Calibration and Performance Summary form has been revised to allow the lot number, expiration date, and whether the standard is being used for the first time to be recorded for each standard used. In addition, HSW maintains an electronic database of information regarding field standards (e.g., person ordering, source/manufacturer, lot number, concentration, date received, date opened, date of first use, expiration date, and applicable instrument).

124. The acceptance criteria for each calibration and verification used to accept the instrument calibration or verification is recorded. (FD 4100, sections 2.1 – 2.11) (No)

This information is in the FDEP SOPs, a complete copy of which accompanies all field personnel when performing field work. The Equipment Calibration and Performance Summary form has a column for indicating whether or not calibrations and verifications met SOP requirements or not and also references the FDEP SOP that is being used (left-hand column of form).

126. A description or citation of the specific calibration and verification procedures used for the instrument (DEP SOP or internal SOP) is recorded (FD 4100, sections 2.1 – 2.11) (No)

This information is preprinted on the Equipment Calibration and Performance Summary form.

128. Information about all calibration standards and reagents used for field-testing were linked to the calibration information associated with the field testing measurements for the project. (FD 4000) (No)

Refer to the response to Item 123.

129. The concentration of the assay value, the vendor catalog number and the description of the standard or reagent were recorded for all preformulated solutions, neat liquids and powders. (FD 4100, sections 1.1 – 1.1.1) (No)

Refer to the response to Item 123.

130. Certificates of assay, grade and other vendor specifications for all standards and reagents were retained and recorded for the standards and reagents linked to the sampling project. (FD 4100, sections 1.1.2 – 1.1.2.1) (No)

This information is maintained at HSW's Tampa office. Refer also to the response to Item 123 regarding lot numbers now being recorded on all Equipment Calibration and Performance Summary forms.

131. Expiration for all calibration standards and reagents used on the sampling project were recorded. (FD 4100, section 1.3) (No)

Refer to the response to Item 123.

132. Each applicable instrument or equipment unit (inventory item) was identified with a unique designation or identification code that distinguishes the unit from all others. (FD 3000, section 1.3) (No)

This information will be recorded on all future logs.