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REVISED FINAL TECHNICAL MEMORANDUM EXPANDED SITE INSPECTION RESULTS FOR THE MACHINE GUN BORESIGHT RANGES UNEXPLODED ORDNANCE 5 (UXO 5) AND UNEXPLODED ORDNANCE 10 (UXO 10) NAS OCEANA VA

9/4/2015

CH2M HILL

# Expanded Site Inspection Results for the Machine Gun Boresight Ranges at Naval Air Station Oceana (UXO-5) in Virginia Beach, Virginia, and Naval Auxiliary Landing Field Fentress (UXO-10) in Chesapeake, Virginia

PREPARED FOR: Stephen Mihalko, Virginia DEQ
Krista Parra, NAVFAC Mid-Atlantic

PREPARED BY: CH2M HILL

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# Introduction

This technical memorandum (TM) presents the results of the Expanded Site Inspection (SI) for the delineation of metals contamination at the Naval Air Station (NAS) Oceana (UXO-5) and Naval Auxiliary Landing Field (NALF) Fentress (UXO-10) Machine Gun Boresight Ranges (MGBRs) in Virginia. This TM presents the results of field sampling activities performed at these sites between December 2013 and November 2014. CH2M HILL conducted the 2014 field activities and prepared this document for Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic under the Comprehensive Long-term Environmental Action – Navy (CLEAN) Contract No N62470-11-D-8012, Contract Task Order (CTO) WE68. The December 2013 sampling activities included in this TM were performed under the CLEAN 1000 Contract, CTO WE03.

The purpose of the ESI was to delineate the lateral and vertical extent of soil contamination for the constituents of potential concern (COPCs) identified at each MGBR during the initial Site Investigation (SI) (CH2M HILL, 2013). Field investigation activities were performed in accordance with the following documents:

- *Tier II Sampling and Analysis Plan, Expanded Site Inspection, Machine Gun Boresight Ranges (UXO-5 and UXO-10), Naval Air Station Oceana, Virginia Beach, Virginia* (CH2M HILL, 2013)
- *Work Plan for Additional Delineation Sampling at the Machine Gun Boresight Ranges at Naval Air Station Oceana (UXO-5) in Virginia Beach, Virginia, and Naval Auxiliary Landing Field Fentress (UXO-10) in Chesapeake, Virginia* (CH2M HILL, 2014).

# Site Background

## NAS Oceana

NAS Oceana is located near the Atlantic Ocean, within the southeastern portion of the city of Virginia Beach, Virginia (**Figure 1**). The installation encompasses just over 5,300 acres, as well as approximately 3,600 acres in restrictive easements. In addition, NAS Oceana maintains control over several annex properties and outlying fields in the surrounding Virginia and North Carolina area. The mission of the facility is to support the Navy's Atlantic and Pacific fleet forces of strike-fighter aircraft and joint and interagency operations.

The former MGBR at NAS Oceana (**Figure 2**) covers approximately 1.7 acres and is north of Dorr Place and west of Runway 14. The site was initially used as a maintenance and testing range for aircraft-mounted machine guns and was later converted to a small arms firing range (Malcolm Pirnie, 2008). Ammunition used at the former MGBR was likely limited to .50 and .30 caliber rounds for aircraft guns, as well as 9 millimeter (mm) rounds for small arms. The concrete backstop is still in place in the western portion of the site, which suggests that the direction of fire was toward the west. The concrete backstop is overgrown with trees and brush. The former firing point is approximately 900 feet east of the backstop. There are no wetlands or water bodies within the site boundary.

## NALF Fentress

NALF Fentress is located in Chesapeake, Virginia, approximately 7 miles southwest of NAS Oceana (**Figure 1**). Established in 1940, the installation encompasses just over 2,500 acres and approximately 8,700 acres in restrictive easements. The facility is used primarily by squadrons stationed at NAS Oceana or Naval Station Norfolk Chambers Field for field carrier landing practice operations (Malcolm Pirnie, 2008).

The former MGBR at NALF Fentress (**Figure 3**) encompasses about 1 acre and lies southwest of Runway 1-19, on the northern portion of the facility. The site initially was used as a maintenance and testing range for aircraft-mounted machine guns, but later was converted to a pistol range (Malcolm Pirnie, 2008). The former MGBR is oriented northeast-southwest, with the former firing point at the northernmost end. Ammunition used at the former MGBR was likely limited to .50 and .30 caliber rounds for aircraft guns, as well as 9mm rounds for small arms. Additionally, expended 7mm, 9mm, .38 and .30 caliber, and shotgun rounds were observed during site reconnaissance. The southwestern half of the site is overgrown with brush and trees, while the northeastern half is generally flat and consists of maintained grass along the border of an active aircraft runway. The concrete backstop is still in place in the southwestern portion of the site and is vegetated primarily with maintained grass. Although there are no water bodies within the site boundary, shrub wetlands are located within portions of the site.

## Investigation History

A Preliminary Assessment (PA) (Malcolm Pirnie, 2008) was conducted for the NAS Oceana and NALF Fentress MGBRs to identify possible sources of munitions and explosives of concern (MEC) and metals-related contamination at the sites. The PA did not identify any potential MEC sources; however, potential metals-related contamination including lead, antimony, arsenic, copper, nickel, and zinc consistent with the use of small arms ammunition were identified (Malcolm Pirnie, 2008).

CH2M HILL conducted an initial SI at the former MGBRs in June 2010 to evaluate the presence or absence of elevated metals concentrations in surface and subsurface soil. During the SI, surface soil (0 to 1 feet below ground surface [bgs]) and subsurface soil (1 to 2 feet bgs) samples were collected from eight locations within the berm at each MGBR. The samples were analyzed for lead, antimony, arsenic, copper, nickel, and zinc. Based upon the sampling results from the SI, metals exceeding human health and/or ecological screening values were identified as COPCs (CH2M HILL, 2012). At the NAS Oceana MGBR, antimony, copper, lead, and zinc were identified as COPCs. At the NALF Fentress MGBR, copper, lead, and zinc were identified as COPCs. The horizontal and vertical extents of the COPCs exceeding ecological and/or human health screening values were not fully delineated during the June 2010 SI.

# Field Investigation Activities

Surface and subsurface soil sampling efforts were performed in general accordance with the Tier II SAP (CH2M HILL, 2013) and the Work Plan for Additional Delineation Sampling (CH2M HILL, 2014). Any deviation of methodologies used in the field from the predetermined sampling protocols are included in **Table 1**.

## Soil Sampling Activities

Expanded SI activities were performed at NAS Oceana and NALF Fentress on the following dates:

- December 9 - 16, 2013
- September 22 - October 2, 2014
- October 29 - November 6, 2014

The sample locations from the 2013 and 2014 site investigation activities are presented in **Figure 4** and **Figure 5** for NAS Oceana and NALF Fentress, respectively.

### Soil Sampling Effort (December 2013)

In December 2013, soil sampling was performed at the NAS Oceana and NALF Fentress MGBRs to delineate the horizontal and vertical extents of COPCs exceeding human health and/or ecological screening values. Subsurface

soil samples were collected from 2 to 3-foot and 3 to 4-foot depth intervals from the eight initial SI sampling locations within the berm at each site. Surface (0 to 1 foot bgs) and subsurface (1 to 2 feet bgs) soil samples also were collected from the toe of the berm at NAS Oceana (24 locations) and NALF Fentress (22 locations). Surface and subsurface soil background samples were collected from each installation to evaluate site background concentrations and support the establishment of appropriate cleanup goals. December 2013 soil sampling locations (SO01 through SO37) at NAS Oceana are presented on **Figure 4**. December 2013 soil sampling locations (SO01 through SO35) at NALF Fentress are presented on **Figure 5**. All soil samples were submitted for laboratory analysis. Surface and subsurface samples collected at NAS Oceana were analyzed for antimony, copper, lead, and zinc. Surface and subsurface samples collected at NALF Fentress were analyzed for copper, lead, and zinc.

### X-ray Fluorescence Screening and Soil Sampling Effort (September – November 2014)

During the 2014 XRF screening and soil sampling effort, additional soil sampling was performed at the NAS Oceana and NALF Fentress MGBRs to further delineate the extent of site COPC exceedances. The initial XRF screening locations were selected based on the December 2013 expanded SI analytical results.

XRF screening was performed in the field, and results were compared to human health and ecological screening criteria. For locations with screening criteria exceedances, additional soil samples were collected in a step-wise fashion and underwent XRF screening until two locations with concentrations less than human health and ecological screening values were identified in each direction. Both vertical and horizontal delineation was performed in this manner using 1-foot sample intervals. XRF screening and soil sampling activities continued until the extent of metals concentrations exceeding screening criteria was sufficiently delineated. NAS Oceana XRF screening locations are presented on **Figure 4**. NALF Fentress XRF screening locations are presented on **Figure 5**. Samples were collected for laboratory analysis from a subset of the XRF screening locations to confirm the XRF results. Laboratory samples were collected at 18 of the 200 XRF sample intervals at NAS Oceana and from 25 of 137 XRF sample intervals at NALF Fentress. All soil sample locations from the 2013 and 2014 sampling efforts were surveyed by a professional land surveyor.

## Equipment Decontamination and Investigation-Derived Waste

Non-disposable sampling equipment was decontaminated before use and immediately after each use as described in the expanded SI SAP (CH2M HILL, 2013). Equipment was decontaminated with alternating rinses of deionized water, phosphate-free laboratory detergent, and methanol, and allowed to dry between each use. Disposable equipment was disposed of immediately following use.

Investigation-derived waste generated at the MGBRs included disposable personal protective equipment and sampling supplies. Soil cuttings were returned to the NAS Oceana and NALF Fentress MGBRs for disposal.

# Investigation Results

## NAS Oceana MGBR

Lead was the primary contaminant identified at the site, although exceedances of copper, zinc, and antimony were also identified. Laboratory and XRF results were compared to human health and ecological screening criteria. Laboratory analytical results from the December 2013 sampling event are presented in **Table 2**. XRF screening data from the 2014 sampling efforts are presented in **Table 3**.

XRF results from the 2014 event were compared to the analytical laboratory results for those samples to confirm the effectiveness of the XRF method in determining COPC concentrations. The comparison of the XRF and analytical laboratory results indicates that the XRF method effectively characterized the site contamination and was a suitable method for COPC delineation purposes. Confirmatory laboratory analytical results from 2014 are presented in **Table 4**.

The areal extent of COPCs exceeding screening criteria is presented on **Figure 4**. Contaminant concentrations exceeded screening criteria over approximately 14,000 square feet. The highest contaminant concentrations were observed in the vicinity of the soil berm with contaminant concentrations decreasing in concentration moving

toward the historical firing position. COPC exceedances extend about 200 feet from the backstop toward the historical firing position.

The vertical extent of COPC exceedances ranged from 1 to 10 feet bgs at NAS Oceana. Due to the limitations of the hand auger sampling method, additional delineation of COPC exceedances was not performed at depths greater than 10 feet. Estimated COPC exceedance depth contours are presented on **Figure 6**. The estimated volume of soil with COPC concentrations exceeding screening criteria is approximately 1,300 cubic yards.

In order to refine the proposed remediation area for NAS Oceana, the lateral and vertical extent of remediation was estimated using site-specific 95% UCL calculations. Based on this evaluation, 450 cubic yards of soil covering an area of 4,800 square feet are proposed for remediation at NAS Oceana. The results of the 95% UCL calculations are presented in **Attachment A**.

## NALF Fentress MGBR

Lead was the primary contaminant identified at the site, although exceedances of copper and zinc were also identified. Laboratory and XRF results were compared to human health and ecological screening criteria. NALF Fentress laboratory analytical results from the December 2013 sampling event are presented in **Table 5**. XRF screening data from the 2014 sampling efforts are presented in **Table 6**.

XRF results from the 2014 event were compared to the analytical laboratory results for those samples to confirm the effectiveness of the XRF method in determining COPC concentrations. The comparison of the XRF and analytical laboratory results indicates that the XRF method effectively characterized the site contamination and was a suitable method for COPC delineation purposes. Confirmatory laboratory analytical results from 2014 are presented in **Table 7**.

The areal extent of COPC exceeding screening criteria at NALF Fentress is presented on **Figure 5**. Contaminant concentrations exceeded screening criteria over approximately 12,000 square feet at NALF Fentress. The highest contaminant concentrations were observed in the vicinity of the soil berm with contaminant concentrations decreasing in concentration moving toward the historical firing position. COPC exceedances extend approximately 190 feet from the backstop toward the historical firing position.

The vertical extent of COPC exceedances ranged from 1 to 9 feet bgs at NALF Fentress. Due to the limitations of the hand auger sampling method, additional delineation of COPC exceedances was not performed at depths greater than 10 feet. Estimated COPC exceedance depth contours are presented on **Figure 7**. The estimated volume of soil with COPC concentrations exceeding screening criteria is approximately 1,100 cubic yards.

In order to refine the proposed remediation area for NALF Fentress, the lateral and vertical extent of remediation was estimated using site-specific 95% UCL calculations. Based on this evaluation, 480 cubic yards of soil covering an area of 5,600 square feet are proposed for remediation at NALF Fentress. The results of the 95% UCL calculations are presented in **Attachment A**.

### Background Soil Sampling Results

Background samples at NAS Oceana and NALF Fentress were collected in December 2013 and are shown on **Figure 4** and **Figure 5**, respectively. The background data at both sites indicated all COPCs were detected at concentrations less than human health and ecological screening levels. The background analytical results for NAS Oceana and NALF Fentress are provided in **Tables 8 and 9, respectively**.

# Conclusion

Based on the results of the expanded SI soil sampling and XRF screening effort, the extent of metals COPCs exceeding screening criteria has been effectively delineated at NAS Oceana and NALF Fentress MBGRs. The highest contaminant concentrations were observed in the vicinity of the soil berms with contaminant concentrations decreasing in concentration moving toward the historical firing positions. At NAS Oceana, approximately 1,300 cubic yards of soil exceeds human health or ecological screening criteria. At NALF Fentress, approximately 1,100 cubic yards of soil exceeds screening criteria. Based on the results of the 95% UCL evaluation,

approximately 450 cubic yards of soil at NAS Oceana and 480 cubic yards of soil at NALF Fentress are proposed for remediation. The proposed remediation areas encompass approximately 4,800 square feet at NAS Oceana and 5,600 square feet at NALF Fentress. The results of the expanded SI investigation will be incorporated into an Engineering Evaluation/Cost Analysis for these sites.

# References

CH2M HILL. 2012. *Final Revised Site Inspection Report, Former Small Arms Firing Ranges, Naval Air Station Oceana, Fleet Combat Training Center Dam Neck Annex, and Naval Auxiliary Landing Field Fentress, Virginia Beach, Virginia*. January.

CH2M HILL. 2013. *Tier II Sampling and Analysis Plan Expanded Site Inspection Machine Gun Boresight Ranges (UXO 5 and UXO 10), Naval Air Station Oceana and Naval Auxiliary Landing Field Fentress, Virginia Beach and Chesapeake, Virginia*. November.

CH2M HILL. 2014. *Work Plan for Additional Delineation Sampling at the Machine Gun Boresight Ranges at Naval Air Station Oceana (UXO-5) in Virginia Beach, Virginia, and Naval Auxiliary Landing Field Fentress (UXO-10) in Chesapeake, Virginia*. September.

Malcolm Pirnie. 2008. *Final Preliminary Assessment, Naval Air Station Oceana, Virginia*. October.

# Tables

TABLE 1

Summary of Deviations

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| Type of Deviation | Deviation |
|---|---|
| **Collection of laboratory samples** | Samples for laboratory analysis were to be collected at 15% of the XRF screening sample locations. At NAS Oceana, laboratory samples were collected at a lower frequency than what was planned, at only 9% (18 of 200 locations) of the XRF screening locations. At NALF Fentress, laboratory samples were collected at a greater frequency than what was planned, at 18% (25 of 137 samples) of the XRF screening locations. |
| **Vertical delineation of COPC exceedances** | At NAS Oceana, the vertical extent of COPC exceedances was not delineated at locations SO17 and SO18 at depths greater than 10 ft bgs due to sampling equipment limitations. Additionally, the vertical extent of COPC exceedances was not delineated at SO100, SO101, SO109, and SO114 as it was determined that vertical delineation at these locations was not necessary.<br><br>At NALF Fentress, the vertical extent of COPC exceedances was not delineated at location SO06 at depths greater than 10 ft bgs due to sampling equipment limitations. NAVFAC's approval of these deviations was obtained during the field effort. |
| **Horizontal delineation of COPC exceedances** | At NAS Oceana, the horizontal and vertical extent of COPC exceedances was not delineated at locations SO101 and SO114 as it was determined that horizontal delineation at these locations was not necessary. NAVFAC's approval of this deviation was obtained during the field effort. |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO01 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS01-0610** | **OCMGBR-SB01-0610** | **OCMGBR-SB01-0203-1213** | **OCMGBR-SB01-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.924 U | 0.924 R | 1.48 / 1.06 | 2.38 |
| Copper | 3,100 | 70 | 24.8 | 4.55 L | 37.3 / 26.0 | 22.0 |
| Lead | 400 | 120 | 239 | 13.4 | 380 / 268 | 263 |
| Zinc | NC | 120 | 18.3 | 14.3 | 22.3 / 19.3 | 19.5 |

| | | | SO02 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS02-0610** | **OCMGBR-SB02-0610** | **OCMGBR-SB02-0203-1213** | **OCMGBR-SB02-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 4.66 | 4.31 | 0.886 | 0.175 |
| Copper | 3,100 | 70 | 582 | 251 | 28.4 | 6.2 |
| Lead | 400 | 120 | 9,210 | 4,900 | 327 | 41.6 |
| Zinc | NC | 120 | 87.6 | 49.7 | 18.9 | 13.8 |

| | | | SO03 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS03-0610** | **OCMGBR-SB03-0610** | **OCMGBR-SB03-0203-1213** | **OCMGBR-SB03-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 7.32 | 0.288 | 7.79 | 8.58 |
| Copper | 3,100 | 70 | 187 | 78.7 | 426 | 781 |
| Lead | 400 | 120 | 3,770 | 593 | 2,930 | 2,610 |
| Zinc | NC | 120 | 35.3 | 21.9 | 60.9 | 61.6 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO04 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS04-0610** | **OCMGBR-SB04-0610** | **OCMGBR-SB04-0203-1213** | **OCMGBR-SB04-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.955 U | 0.926 J | 2.97 / 5.35 | 1.49 |
| Copper | 3,100 | 70 | 65.5 | 102 | 153 / 72 | 322 |
| Lead | 400 | 120 | 668 | 970 | 601 / 983 | 444 |
| Zinc | NC | 120 | 26.5 | 31.1 | 29.1 / 31.5 | 26.7 |

| | | | SO05 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS05-0610** | **OCMGBR-SB05-0610** | **OCMGBR-SB05-0203-1213** | **OCMGBR-SB05-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 7.73 | 57.1 | 0.525 J | 0.338 J |
| Copper | 3,100 | 70 | 1,100 | 721 | 15.1 | 12.4 |
| Lead | 400 | 120 | 13,500 | 16,000 | 117 | 75.4 |
| Zinc | NC | 120 | 195 | 159 | 23.5 | 21.3 |

| | | | SO06 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS06-0610** | **OCMGBR-SB06-0610** | **OCMGBR-SB06-0203-1213** | **OCMGBR-SB06-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 4.93 | 0.588 J | 44.0 | 61.7 / 21.3 |
| Copper | 3,100 | 70 | 1,830 | 1,060 | 62.3 | 160 / 292 |
| Lead | 400 | 120 | 3,500 | 747 | 19,400 | 4,730 / 12,200 |
| Zinc | NC | 120 | 371 | 216 | 38.8 | 51.7 / 63.0 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO07 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS07-0610** | **OCMGBR-SB07-0610** | **OCMGBR-SB07-0203-1213** | **OCMGBR-SB07-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.934 | 0.804 U | 27.6 | 34.7 |
| Copper | 3,100 | 70 | 253 | 40.2 | 584 | 1,230 |
| Lead | 400 | 120 | 2,750 | 286 | 8,790 | 28,400 |
| Zinc | NC | 120 | 63.0 | 24.1 | 136 | 248 |

| | | | SO08 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS08-0610** | **OCMGBR-SB08-0610** | **OCMGBR-SB08-0203-1213** | **OCMGBR-SB08-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 13.1 | 0.301 J | 6.49 | 0.685 |
| Copper | 3,100 | 70 | 4,310 | 806 | 172 | 22.9 |
| Lead | 400 | 120 | 19,500 | 740 | 1,330 | 170 |
| Zinc | NC | 120 | 524 | 281 | 55.6 | 15.7 |

| | | | SO09 | | SO10 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS09-0001-1213** | **OCMGBR-SB09-0102-1213** | **OCMGBR-SS10-0001-1213** | **OCMGBR-SB10-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.357 J | 0.253 U | 0.239 | 0.234 U |
| Copper | 3,100 | 70 | 13.2 | 8.0 | 11.3 | 8.0 |
| Lead | 400 | 120 | 85.1 | 20.4 | 83.5 | 22.1 |
| Zinc | NC | 120 | 20.9 | 20.7 | 19.4 | 42.0 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO11 | | SO12 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS11-0001-1213** | **OCMGBR-SB11-0102-1213** | **OCMGBR-SS12-0001-1213** | **OCMGBR-SB12-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.231 | 0.256 U | 0.267 U | 0.249 U |
| Copper | 3,100 | 70 | 20.8 | 12.9 | 9.5 | 7.9 |
| Lead | 400 | 120 | 143 | 25.1 | 59.8 | 40.2 |
| Zinc | NC | 120 | 25.9 | 19.8 | 21.6 | 23.7 |

| | | | SO13 | | SO14 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS13-0001-1213** | **OCMGBR-SB13-0102-1213** | **OCMGBR-SS14-0001-1213** | **OCMGBR-SB14-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.12 | 0.471 | 3.39 | 2.84 |
| Copper | 3,100 | 70 | 35.9 | 23.1 | 115 | 54.5 |
| Lead | 400 | 120 | 537 | 276.0 | 1,740 | 895 |
| Zinc | NC | 120 | 35.5 | 28 | 47.4 | 33.8 |

| | | | SO15 | | SO16 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS15-0001-1213** | **OCMGBR-SB15-0102-1213** | **OCMGBR-SS16-0001-1213** | **OCMGBR-SB16-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 28.0 | 4.04 | 44.4 | 13.3 |
| Copper | 3,100 | 70 | 564 | 503 | 1,440 | 788 |
| Lead | 400 | 120 | 5,130 | 2,290 | 12,100 | 3,950 |
| Zinc | NC | 120 | 100 | 132 | 158 | 233 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO17 | | SO18 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS17-0001-1213** | **OCMGBR-SB17-0102-1213** | **OCMGBR-SS18-0001-1213** | **OCMGBR-SB18-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 7.17 / 9.45 | 3.06 | 18.0 | 14.2 |
| Copper | 3,100 | 70 | 702 / 660 | 365 | 896 | 1,370 |
| Lead | 400 | 120 | 3,520 / 3,580 | 1,630 | 8,450 | 9,250 |
| Zinc | NC | 120 | 107 / 105 | 102 | 163 | 237 |

| | | | SO19 | | SO20 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS19-0001-1213** | **OCMGBR-SB19-0102-1213** | **OCMGBR-SS20-0001-1213** | **OCMGBR-SB20-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.26 | 0.493 J | 0.287 | 0.248 U |
| Copper | 3,100 | 70 | 132 | 64.8 | 25.2 | 16.3 |
| Lead | 400 | 120 | 656 | 276 | 159 | 56.5 |
| Zinc | NC | 120 | 60.0 | 31.3 | 22.4 | 18.2 |

| | | | SO21 | | SO22 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS21-0001-1213** | **OCMGBR-SB21-0102-1213** | **OCMGBR-SS22-0001-1213** | **OCMGBR-SB22-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.19 / 1.34 | 0.68 | 1.83 | 3.06 |
| Copper | 3,100 | 70 | 46.3 / 49.1 | 28.6 | 79.7 | 151 |
| Lead | 400 | 120 | 413 / 435 | 228 | 1,820 | 1,270 |
| Zinc | NC | 120 | 32.5 / 44.4 | 31.8 | 49.7 | 49.3 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO23 | | SO24 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS23-0001-1213** | **OCMGBR-SB23-0102-1213** | **OCMGBR-SS24-0001-1213** | **OCMGBR-SB24-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 5.27 | 2.68 | 2.63 / 3.00 | 40.6 |
| Copper | 3,100 | 70 | 147 | 65.6 | 105 / 92.2 | 221 |
| Lead | 400 | 120 | 2,180 | 759 | 1,030 / 931 | 4,910 |
| Zinc | NC | 120 | 59.4 | 47.1 | 37.6 / 33.4 | 43.4 |

| | | | SO25 | | SO26 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS25-0001-1213** | **OCMGBR-SB25-0102-1213** | **OCMGBR-SS26-0001-1213** | **OCMGBR-SB26-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.33 | 0.637 | 9.47 | 5.12 |
| Copper | 3,100 | 70 | 42.6 | 30.7 | 672 | 444 |
| Lead | 400 | 120 | 472 | 240 | 4,020 | 1,900 |
| Zinc | NC | 120 | 22.4 | 16.8 | 89.7 | 86.2 |

| | | | SO27 | | SO28 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS27-0001-1213** | **OCMGBR-SB27-0102-1213** | **OCMGBR-SS28-0001-1213** | **OCMGBR-SB28-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.14 | 1.17 | 0.55 J | 0.466 J |
| Copper | 3,100 | 70 | 170 | 104 | 82.6 | 57.1 |
| Lead | 400 | 120 | 1,060 | 361 | 245 | 174 |
| Zinc | NC | 120 | 78.9 | 63.1 | 44.2 | 39.8 |

TABLE 2

Soil Analytical Results - June 2010 and December 2013

NAS Oceana Machine Gun Boresight Range

*Virginia Beach, Virginia*

| | | | SO29 | | SO30 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS29-0001-1213** | **OCMGBR-SB29-0102-1213** | **OCMGBR-SS30-0001-1213** | **OCMGBR-SB30-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.45 / 1.20 | 0.674 | 10.7 | 5.1 |
| Copper | 3,100 | 70 | 91.5 / 81.1 | 53.5 | 280 | 191 |
| Lead | 400 | 120 | 419 / 382 | 227 | 3,080 | 1,080 |
| Zinc | NC | 120 | 50.6 / 47.3 | 43.6 | 155 | 171 |

| | | | SO31 | | SO32 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS31-0001-1213** | **OCMGBR-SB31-0102-1213** | **OCMGBR-SS32-0001-1213** | **OCMGBR-SB32-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/11/13 | 12/11/13 | 12/11/13 | 12/11/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 1.51 | 0.581 / 0.592 J | 1.16 | 0.26 J |
| Copper | 3,100 | 70 | 63.4 | 31.4 / 31.9 | 78.5 | 31.3 |
| Lead | 400 | 120 | 402 | 166 / 163 | 353 | 84.6 |
| Zinc | NC | 120 | 45.7 | 34.1 / 35.9 | 54.7 | 43.9 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

J - Analyte present, value may or may not be accurate or precise

L - Analyte present, value may be biased low, actual value may be higher

R - Unreliable Result

U - The material was analyzed for, but not detected

mg/kg - milligrams per kilogram

TABLE 3

XRF Data

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO01 | 4 - 5 | 16 | 29 | 144 | 90 |
| SO01 | 5 - 6 | 16 | 34 | 260 | 34 |
| SO01 | 6 - 7 | 16 | 55 | 397 | 38 |
| SO01 | 7 - 8 | 16 | 17 | 112 | 23 |
| SO01 | 8 - 9 | 16 | 14 | 61 | 26 |
| SO01 | 9 - 10 | 16 | 14 | 10 | 26 |
| SO02 | 4 - 5 | 16 | 14 | 115 | 29 |
| SO03 | 4 - 5 | 16 | 52 | 306 | 39 |
| SO03 | 5 - 6 | 16 | 136 | 1,226 | 60 |
| SO03 | 6 - 7 | 16 | 94 | 1,030 | 53 |
| SO03 | 7 - 8 | 16 | 32 | 226 | 33 |
| SO03 | 8 - 9 | 16 | 21 | 65 | 25 |
| SO03 | 9 - 10 | 16 | 14 | 51 | 25 |
| SO04 | 4 - 5 | 16 | 48 | 375 | 33 |
| SO04 | 5 - 6 | 16 | 47 | 332 | 32 |
| SO04 | 6 - 7 | 16 | 40 | 178 | 40 |
| SO04 | 7 - 8 | 16 | 51 | 247 | 42 |
| SO04 | 8 - 9 | 16 | 14 | 22 | 25 |
| SO04 | 9 - 10 | 16 | 18 | 53 | 27 |
| SO06 | 4 - 5 | 16 | 29 | 249 | 37 |
| SO06 | 5 - 6 | 16 | 64 | 481 | 37 |
| SO06 | 6 - 7 | 16 | 86 | 539 | 41 |
| SO06 | 7 - 8 | 16 | 28 | 270 | 31 |
| SO06 | 8 - 9 | 16 | 19 | 58 | 26 |
| SO06 | 9 - 10 | 16 | 18 | 92 | 28 |
| SO07 | 4 - 5 | 16 | 45 | 120 | 23 |
| SO07 | 5 - 6 | 16 | 30 | 94 | 24 |
| SO08 | 4 - 5 | 16 | 25 | 88 | 27 |
| SO08 | 5 - 6 | 16 | 16 | 26 | 33 |
| SO11 | 2 - 3 | 16 | 14 | 36 | 33 |
| SO13 | 2 - 3 | 16 | 22 | 104 | 36 |
| SO13 | 3 - 4 | 16 | 14 | 34 | 28 |
| SO15 | 2 - 3 | 16 | 63 | 359 | 183 |
| SO15 | 3 - 4 | 16 | 57 | 347 | 34 |
| SO15 | 4 - 5 | 16 | 20 | 21 | 28 |
| SO15 | 5 - 6 | 16 | 14 | 22 | 28 |

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO16 | 2 - 3 | 16 | 78 | 292 | 42 |
| SO16 | 3 - 4 | 16 | 85 | 222 | 41 |
| SO16 | 4 - 5 | 16 | 61 | 225 | 30 |
| SO16 | 5 - 6 | 16 | 22 | 72 | 29 |
| SO16 | 6 - 7 | 16 | 39 | 134 | 34 |
| SO16 | 7 - 8 | 16 | 17 | 87 | 26 |
| SO16 | 8 - 9 | 16 | 21 | 24 | 44 |
| SO16 | 9 - 10 | 16 | 33 | 97 | 33 |
| SO17 | 2 - 3 | 40 | 2500 | 7,006 | 224 |
| SO17 | 3 - 4 | 17 | 755 | 2,507 | 229 |
| SO17 | 4 - 5 | 16 | 25 | 97 | 25 |
| SO17 | 5 - 6 | 16 | 53 | 230 | 40 |
| SO17 | 6 - 7 | 16 | 199 | 637 | 51 |
| SO17 | 7 - 8 | 16 | 89 | 413 | 49 |
| SO17 | 8 - 9 | 16 | 83 | 282 | 36 |
| SO17 | 9 - 10 | 16 | 240 | 1,294 | 85 |
| SO18 | 2 - 3 | 16 | 26 | 53 | 42 |
| SO18 | 3 - 4 | 16 | 118 | 253 | 26 |
| SO18 | 4 - 5 | 16 | 15 | 33 | 28 |
| SO18 | 5 - 6 | 16 | 25 | 158 | 28 |
| SO18 | 6 - 7 | 16 | 18 | 102 | 28 |
| SO18 | 7 - 8 | 16 | 14 | 37 | 35 |
| SO18 | 8 - 9 | 16 | 14 | 45 | 22 |
| SO18 | 9 - 10 | 16 | 52 | 230 | 35 |
| SO19 | 2 - 3 | 16 | 17 | 24 | 44 |
| SO19 | 3 - 4 | 16 | 14 | 25 | 26 |
| SO22 | 2 - 3 | 16 | 14 | 14 | 25 |
| SO22 | 3 - 4 | 16 | 14 | 10 | 26 |
| SO24 | 2 - 3 | 16 | 111 | 470 | 123 |
| SO24 | 3 - 4 | 16 | 103 | 579 | 55 |
| SO24 | 4 - 5 | 16 | 18 | 37 | 40 |
| SO24 | 5 - 6 | 16 | 16 | 24 | 27 |
| SO24 | 6 - 7 | 17 | 14 | 76 | 36 |
| SO24 | 7 - 8 | 16 | 14 | 28 | 36 |

TABLE 3

XRF Data

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO26 | 2 - 3 | 16 | 54 | 180 | 51 |
| SO26 | 3 - 4 | 16 | 34 | 60 | 45 |
| SO26 | 4 - 5 | 16 | 22 | 80 | 31 |
| SO26 | 5 - 6 | 18 | 21 | 52 | 28 |
| SO28 | 2 - 3 | 16 | 14 | 13 | 39 |
| SO28 | 3 - 4 | 16 | 14 | 10 | 71 |
| SO29 | 2 - 3 | 16 | 14 | 21 | 28 |
| SO29 | 3 - 4 | 16 | 22 | 36 | 33 |
| SO31 | 2 - 3 | 16 | 14 | 11 | 27 |
| SO31 | 3 - 4 | 16 | 14 | 11 | 28 |
| SO32 | 2 - 3 | 16 | 14 | 10 | 36 |
| SO38 | 0 - 1 | 16 | 14 | 10 | 16 |
| SO39 | 0 - 1 | 16 | 16 | 54 | 28 |
| SO40 | 0 - 1 | 16 | 14 | 10 | 25 |
| SO41 | 0 - 1 | 16 | 19 | 39 | 33 |
| SO42 | 0 - 1 | 16 | 27 | 19 | 38 |
| SO43 | 0 - 1 | 16 | 14 | 10 | 11 |
| SO44 | 0 - 1 | 29 | 14 | 10 | 12 |
| SO45 | 0 - 1 | 16 | 14 | 22 | 20 |
| SO46 | 0 - 1 | 16 | 14 | 16 | 26 |
| SO47 | 0 - 1 | 16 | 14 | 339 | 26 |
| SO47 | 1 - 2 | 16 | 14 | 20 | 27 |
| SO47 | 2 - 3 | 16 | 14 | 10 | 14 |
| SO48 | 0 - 1 | 16 | 22 | 61 | 39 |
| SO49 | 0 - 1 | 16 | 20 | 40 | 28 |
| SO50 | 0 - 1 | 16 | 54 | 145 | 36 |
| SO50 | 1 - 2 | 16 | 14 | 11 | 21 |
| SO50 | 2 - 3 | 16 | 16 | 12 | 23 |
| SO51 | 0 - 1 | 16 | 30 | 27 | 28 |
| SO52 | 0 - 1 | 16 | 14 | 76 | 40 |
| SO53 | 0 - 1 | 16 | 23 | 34 | 42 |
| SO54 | 0 - 1 | 16 | 14 | 39 | 36 |
| SO55 | 0 - 1 | 16 | 47 | 624 | 46 |
| SO55 | 1 - 2 | 16 | 14 | 21 | 22 |
| SO55 | 2 - 3 | 16 | 16 | 77 | 25 |
| SO55 | 3 - 4 | 16 | 17 | 14 | 35 |
| SO55 | 4 - 5 | 16 | 14 | 12 | 26 |

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO58 | 0 - 1 | 21 | 60 | 102 | 80 |
| SO59 | 0 - 1 | 16 | 148 | 154 | 176 |
| SO59 | 1 - 2 | 16 | 22 | 18 | 35 |
| SO59 | 2 - 3 | 16 | 14 | 12 | 29 |
| SO60 | 0 - 1 | 16 | 269 | 38 | 1215 |
| SO60 | 1 - 2 | 16 | 49 | 10 | 150 |
| SO60 | 2 - 3 | 16 | 27 | 10 | 81 |
| SO60 | 3 - 4 | 16 | 19 | 11 | 53 |
| SO60 | 4 - 5 | 16 | 19 | 10 | 36 |
| SO61 | 0 - 1 | 16 | 14 | 22 | 30 |
| SO62 | 0 - 1 | 16 | 18 | 47 | 25 |
| SO63 | 0 - 1 | 16 | 23 | 26 | 32 |
| SO64 | 0 - 1 | 16 | 14 | 31 | 32 |
| SO65 | 0 - 1 | 16 | 14 | 51 | 31 |
| SO66 | 0 - 1 | 16 | 14 | 47 | 31 |
| SO67 | 0 - 1 | 16 | 67 | 96 | 31 |
| SO68 | 0 - 1 | 16 | 17 | 12 | 26 |
| SO69 | 0 - 1 | 16 | 22 | 12 | 33 |
| SO70 | 0 - 1 | 16 | 14 | 33 | 25 |
| SO71 | 0 - 1 | 16 | 14 | 28 | 29 |
| SO72 | 0 - 1 | 16 | 14 | 33 | 26 |
| SO73 | 0 - 1 | 16 | 18 | 9 | 24 |
| SO74 | 0 - 1 | 16 | 94 | 108 | 166 |
| SO74 | 1 - 2 | 16 | 21 | 21 | 39 |
| SO74 | 2 - 3 | 16 | 14 | 28 | 38 |
| SO75 | 0 - 1 | 16 | 70 | 25 | 109 |
| SO76 | 0 - 1 | 16 | 140 | 60 | 607 |
| SO76 | 1 - 2 | 29 | 56 | 113 | 144 |
| SO76 | 2 - 3 | 16 | 32 | 32 | 69 |
| SO76 | 3 - 4 | 16 | 18 | 15 | 35 |
| SO77 | 0 - 1 | 16 | 18 | 27 | 81 |
| SO78 | 0 - 1 | 16 | 137 | 71 | 301 |
| SO78 | 1 - 2 | 16 | 17 | 23 | 55 |
| SO78 | 2 - 3 | 16 | 19 | 18 | 39 |
| SO79 | 0 - 1 | 16 | 85 | 23 | 387 |
| SO79 | 1 - 2 | 16 | 34 | 14 | 182 |
| SO79 | 2 - 3 | 16 | 64 | 22 | 170 |

TABLE 3

XRF Data

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO56 | 0 - 1 | 16 | 121 | 60 | 90 |
| SO56 | 1 - 2 | 16 | 25 | 14 | 40 |
| SO56 | 2 - 3 | 16 | 19 | 15 | 32 |
| SO57 | 0 - 1 | 16 | 40 | 176 | 39 |
| SO57 | 1 - 2 | 16 | 14 | 12 | 28 |
| SO57 | 2 - 3 | 16 | 14 | 10 | 21 |
| SO83 | 0 - 1 | 16 | 23 | 18 | 35 |
| SO84 | 0 - 1 | 16 | 35 | 46 | 143 |
| SO84 | 1 - 2 | 16 | 14 | 23 | 32 |
| SO84 | 2 - 3 | 16 | 14 | 19 | 38 |
| SO85 | 0 - 1 | 16 | 14 | 19 | 27 |
| SO86 | 0 - 1 | 16 | 19 | 23 | 78 |
| SO87 | 0 - 1 | 16 | 27 | 1,857 | 52 |
| SO87 | 1 - 2 | 16 | 14 | 18 | 45 |
| SO87 | 2 - 3 | 16 | 26 | 14 | 29 |
| SO88 | 0 - 1 | 16 | 23 | 22 | 46 |
| SO89 | 0 - 1 | 16 | 58 | 234 | 30 |
| SO89 | 1 - 2 | 16 | 54 | 99 | 32 |
| SO89 | 2 - 3 | 16 | 20 | 34 | 27 |
| SO90 | 0 - 1 | 16 | 132 | 74 | 133 |
| SO90 | 1 - 2 | 16 | 25 | 54 | 57 |
| SO90 | 2 - 3 | 16 | 14 | 16 | 24 |
| SO91 | 0 - 1 | 16 | 106 | 135 | 170 |
| SO91 | 1 - 2 | 16 | 34 | 92 | 89 |
| SO91 | 2 - 3 | 16 | 14 | 16 | 38 |
| SO92 | 0 - 1 | 16 | 126 | 91 | 116 |
| SO92 | 1 - 2 | 16 | 786 | 91 | 353 |
| SO92 | 2 - 3 | 16 | 20 | 15 | 36 |
| SO92 | 3 - 4 | 16 | 14 | 11 | 12 |
| SO93 | 0 - 1 | 16 | 14 | 21 | 30 |
| SO94 | 0 - 1 | 16 | 48 | 36 | 218 |
| SO94 | 1 - 2 | 16 | 14 | 16 | 65 |
| SO94 | 2 - 3 | 16 | 17 | 20 | 53 |
| SO95 | 0 - 1 | 16 | 14 | 34 | 36 |
| SO96 | 0 - 1 | 16 | 14 | 22 | 21 |
| SO97 | 0 - 1 | 16 | 17 | 16 | 29 |
| SO98 | 0 - 1 | 16 | 16 | 91 | 52 |
| SO99 | 0 - 1 | 16 | 14 | 33 | 35 |
| SO100 | 0 - 1 | 16 | 456 | 2,390 | 85 |
| SO101 | 0 - 1 | 16 | 23 | 143 | 43 |

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO79 | 3 - 4 | 16 | 14 | 12 | 30 |
| SO79 | 4 - 5 | 16 | 14 | 12 | 21 |
| SO80 | 0 - 1 | 16 | 21 | 10 | 37 |
| SO81 | 0 - 1 | 16 | 14 | 11 | 27 |
| SO82 | 0 - 1 | 16 | 14 | 16 | 28 |

TABLE 3

**XRF Data**

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | | |
|---|---|---|---|---|---|
| | | Sb | Cu | Pb | Zn |
| SO102 | 0 - 1 | 16 | 18 | 43 | 27 |
| SO103 | 0 - 1 | 16 | 14 | 16 | 42 |
| SO104 | 0 - 1 | 16 | 14 | 11 | 28 |
| SO105 | 0 - 1 | 16 | 17 | 13 | 27 |
| SO106 | 0 - 1 | 16 | 18 | 41 | 36 |
| SO109 | 0 - 1 | 16 | 17 | 144 | 28 |
| SO110 | 0 - 1 | 16 | 17 | 43 | 31 |
| SO111 | 0 - 1 | 16 | 20 | 77 | 29 |
| SO112 | 0 - 1 | 16 | 14 | 72 | 31 |
| SO113 | 0 - 1 | 16 | 14 | 51 | 30 |
| SO114 | 0 - 1 | 16 | 14 | 34 | 147 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

TABLE 4

Laboratory Confirmation Samples for 2014 XRF Screening

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| | | | SO01 | SO08 | SO17 | S018 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SB01-0405-0914** | **OCMGBR-SB08-0506-0914** | **OCMGBR-SB17-0203-0914** | **OCMGBR-SB18-0203-1114** |
| **Sample Depth** | **HH** | **ECO** | **4 - 5 ft** | **5 - 6 ft** | **2 - 3 ft** | **2 - 3 ft** |
| **Sample Date** | **SL** | **SL** | **9/22/14** | **9/25/14** | **9/24/14** | **11/4/14** |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.254 J | 0.329 J / 0.248 J | 21.4 | 0.355 L |
| Copper | 3,100 | 70 | 16.4 | 20.5 / 20.1 | 2230 | 25.2 J |
| Lead | 400 | 120 | 157 | 130 / 127 | 9720 | 61.4 J |
| Zinc | -- | 120 | 22.4 | 28.4 / 30.0 | 228 | 28.8 |

| | | | SO22 | S028 | SO38 | S043 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SB22-0304-0914** | **OCMGBR-SB28-0203-0914** | **OCMGBR-SS38-0001-0914** | **OCMGBR-SS43-0001-0914** |
| **Sample Depth** | **HH** | **ECO** | **3 - 4 ft** | **2 - 3 ft** | **0 - 1 ft** | **0 - 1 ft** |
| **Sample Date** | **SL** | **SL** | **9/25/14** | **9/24/14** | **9/24/14** | **9/24/14** |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.168 J / 0.234 U | 0.228 U | 0.212 U | 0.205 U |
| Copper | 3,100 | 70 | 5.68 / 5.63 | 7.67 | 3.45 | 1.30 |
| Lead | 400 | 120 | 20.6 / 21.9 | 21.6 | 6.57 | 11.1 |
| Zinc | -- | 120 | 23.4 / 22.7 | 40.2 | 11.9 | 5.78 |

| | | | SO55 | SO62 | SO70 | SO72 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS55-0001-0914** | **OCMGBR-SS62-0001-0914** | **OCMGBR-SS70-0001-0914** | **OCMGBR-SS72-0001-0914** |
| **Sample Depth** | **HH** | **ECO** | **0 - 1 ft** | **0 - 1 ft** | **0 - 1 ft** | **0 - 1 ft** |
| **Sample Date** | **SL** | **SL** | **9/25/14** | **9/25/14** | **9/23/14** | **9/23/14** |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.436 J | 0.262 J | 0.212 L | 0.163 J |
| Copper | 3,100 | 70 | 31.3 | 9.2 | 9.89 | 6.82 |
| Lead | 400 | 120 | 449 | 56.6 | 51.5 | 41.9 |
| Zinc | -- | 120 | 55.0 | 23.0 | 24.2 B | 27.9 B |

TABLE 4

Laboratory Confirmation Samples for 2014 XRF Screening

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| | | | SO76 | SO84 | SO92 | SO94 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SB76-0203-1014** | **OCMGBR-SB84-0102-1114** | **OCMGBR-SB92-0102-1014** | **OCMGBR-SB94-0102-1014** |
| **Sample Depth** | **HH** | **ECO** | **2 - 3 ft** | **1 - 2 ft** | **1 - 2 ft** | **1 - 2 ft** |
| **Sample Date** | **SL** | **SL** | **10/30/14** | **11/3/14** | **10/31/14** | **10/31/14** |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.203 U | 0.205 UL | 0.251 J | 0.200 U / 0.202 U |
| Copper | 3,100 | 70 | 23.5 | 7.78 | 655 | 5.53 / 6.53 |
| Lead | 400 | 120 | 38.0 | 13.6 | 76.9 | 8.43 / 8.96 |
| Zinc | -- | 120 | 67.0 | 21.2 | 325 | 56.1 / 60.0 |

| | | | SO111 | SO113 |
|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS111-0001-1114** | **OCMGBR-SS113-0001-1114** |
| **Sample Depth** | **HH** | **ECO** | **0 - 1 ft** | **0 - 1 ft** |
| **Sample Date** | **SL** | **SL** | **11/5/14** | **11/5/14** |
| | | | | |
| **Total Metals (mg/kg)** | | | | |
| Antimony | 31 | -- | 0.172 L | 0.814 / 0.491 J |
| Copper | 3,100 | 70 | 17.3 | 8.79 / 8.11 |
| Lead | 400 | 120 | 63.4 | 56.6 / 49.9 |
| Zinc | -- | 120 | 25.2 | 21.1 / 18.5 |

Notes:

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

J - Analyte present, value may or may not be accurate or precise

L - Analyte present, value may be biased low, actual value may be higher

U - The material was analyzed for, but not detected

UL - Analyte not detected, quantitation limit is probably higher

mg/kg - milligrams per kilogram

TABLE 5

Soil Sample Analytical Results - June 2010 and December 2013

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO01 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS01-0610** | **OFMGBR-SB01-0610** | **OFMGBR-SB01-0203-1213** | **OFMGBR-SB01-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 727 | 15.0 | 25.0 | 23.2 / 53.5 |
| Lead | 400 | 120 | 5,530 | 706 | 67.8 | 103 / 4,790 |
| Zinc | NC | 120 | 93.7 | 21.4 | 18.3 | 21.2 / 24.9 |

| | | | SO02 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS02-0610** | **OFMGBR-SB02-0610** | **OFMGBR-SB02-0203-1213** | **OFMGBR-SB02-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 206 | 366 | 27.4 | 29.0 |
| Lead | 400 | 120 | 406 | 3,240 | 174 | 158 |
| Zinc | NC | 120 | 46.3 | 43.7 | 18.1 | 17.4 |

| | | | SO03 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS03-0610** | **OFMGBR-SB03-0610** | **OFMGBR-SB03-0203-1213** | **OFMGBR-SB03-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 168 | 31.2 | 16.9 | 17.7 |
| Lead | 400 | 120 | 242 | 62.7 | 58.3 | 146 |
| Zinc | NC | 120 | 24.4 | 18.3 | 17.9 | 16.7 |

| | | | SO04 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS04-0610** | **OFMGBR-SB04-0610** | **OFMGBR-SB04-0203-1213** | **OFMGBR-SB04-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 68,400 | 556 | 6.87 / 6.68 | 7.87 |
| Lead | 400 | 120 | 17,100 | 8,970 | 16.0 / 15.2 | 16.7 |
| Zinc | NC | 120 | 6290 | 198 | 15.7 / 15.3 | 15.0 |

TABLE 5

Soil Sample Analytical Results - June 2010 and December 2013

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO05 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS05-0610** | **OFMGBR-SB05-0610** | **OFMGBR-SB05-0203-1213** | **OFMGBR-SB05-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 191 | 100 | 22.8 | 10.7 |
| Lead | 400 | 120 | 1,280 | 662 | 97.1 | 34.6 |
| Zinc | NC | 120 | 47.2 | 26.1 | 18.3 | 14.2 |

| | | | SO06 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS06-0610** | **OFMGBR-SB06-0610** | **OFMGBR-SB06-0203-1213** | **OFMGBR-SB06-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 457 | 210 | 79.2 | 40.9 |
| Lead | 400 | 120 | 4,790 | 2,080 | 481 | 355 |
| Zinc | NC | 120 | 93.3 | 73.6 | 30.4 | 24.3 |

| | | | SO07 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS07-0610** | **OFMGBR-SB07-0610** | **OFMGBR-SB07-0203-1213** | **OFMGBR-SB07-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 72.8 | 14.6 | 75.5 | 183 |
| Lead | 400 | 120 | 775 | 83.3 | 359 | 93.6 |
| Zinc | NC | 120 | 17.5 | 12.3 | 26.8 | 30.9 |

| | | | SO08 | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS08-0610** | **OFMGBR-SB08-0610** | **OFMGBR-SB08-0203-1213** | **OFMGBR-SB08-0304-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **2 - 3 ft** | **3 - 4 ft** |
| **Sample Date** | **SL** | **SL** | 6/18/10 | 6/18/10 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 338 | 262 | 54.6 | 16.8 |
| Lead | 400 | 120 | 4,050 | 1,980 | 1,710 | 89.2 |
| Zinc | NC | 120 | 80.2 L | 54.2 | 41.3 | 26.3 |

TABLE 5

Soil Sample Analytical Results - June 2010 and December 2013

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO09 | | SO10 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS09-0001-1213** | **OFMGBR-SB09-0102-1213** | **OFMGBR-SS10-0001-1213** | **OFMGBR-SB10-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 69.0 | 32.4 | 19.9 | 12.0 |
| Lead | 400 | 120 | 361 | 164 | 111 | 48.2 |
| Zinc | NC | 120 | 17.1 | 17.3 | 20.6 | 15.6 |

| | | | SO11 | | SO12 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS11-0001-1213** | **OFMGBR-SB11-0102-1213** | **OFMGBR-SS12-0001-1213** | **OFMGBR-SB12-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 248 | 180 | 6.95 | 5.47 |
| Lead | 400 | 120 | 1,220 | 1,020 | 32.6 | 17.7 |
| Zinc | NC | 120 | 43.3 | 53.2 | 13.9 | 16.6 |

| | | | SO13 | | SO14 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS13-0001-1213** | **OFMGBR-SB13-0102-1213** | **OFMGBR-SS14-0001-1213** | **OFMGBR-SB14-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 26.3 / 35.5 | 14.9 | 57.3 | 32.2 |
| Lead | 400 | 120 | 324 / 704 | 164 | 351 | 270 |
| Zinc | NC | 120 | 20.4 / 30.1 | 20.9 | 27.7 | 22.5 |

| | | | SO15 | | SO16 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS15-0001-1213** | **OFMGBR-SB15-0102-1213** | **OFMGBR-SS16-0001-1213** | **OFMGBR-SB16-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 114 | 23.7 | 471 | 139 |
| Lead | 400 | 120 | 1,150 | 268 | 5,080 | 1,140 |
| Zinc | NC | 120 | 42.3 | 33.2 | 115.0 | 33.8 |

TABLE 5

Soil Sample Analytical Results - June 2010 and December 2013

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO17 | | SO18 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS17-0001-1213** | **OFMGBR-SB17-0102-1213** | **OFMGBR-SS18-0001-1213** | **OFMGBR-SB18-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 351 | 153 | 291 | 162 / 160 |
| Lead | 400 | 120 | 7,420 | 3,140 | 3,560 | 2,400 / 2,600 |
| Zinc | NC | 120 | 111 | 48.2 | 59.2 | 55.5 / 44.3 |

| | | | SO19 | | SO20 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS19-0001-1213** | **OFMGBR-SB19-0102-1213** | **OFMGBR-SS20-0001-1213** | **OFMGBR-SB20-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 80.1 | 28.1 | 19.0 | 26.8 |
| Lead | 400 | 120 | 819 | 227 | 117 | 164 |
| Zinc | NC | 120 | 23.0 | 16.9 | 23.6 | 30.8 |

| | | | SO21 | | SO22 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS21-0001-1213** | **OFMGBR-SB21-0102-1213** | **OFMGBR-SS22-0001-1213** | **OFMGBR-SB22-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 26.8 | 20.3 | 14.4 | 9.36 |
| Lead | 400 | 120 | 207 | 99.4 | 91.7 | 55.1 |
| Zinc | NC | 120 | 23.9 | 17.5 | 23.8 | 19.8 |

| | | | SO23 | | SO24 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS23-0001-1213** | **OFMGBR-SB23-0102-1213** | **OFMGBR-SS24-0001-1213** | **OFMGBR-SB24-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 236 / 156 | 223 | 3.7 | 119 / 119 |
| Lead | 400 | 120 | 845 / 640 | 839 | 15.8 | 948 / 703 |
| Zinc | NC | 120 | 101 / 85.3 | 92.4 | 4.4 | 72.6 / 44.8 |

TABLE 5

Soil Sample Analytical Results - June 2010 and December 2013

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO25 | | SO26 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS25-0001-1213** | **OFMGBR-SB25-0102-1213** | **OFMGBR-SS26-0001-1213** | **OFMGBR-SB26-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/13/13 | 12/13/13 | 12/13/13 | 12/13/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 233 | 135 | 59.9 | 24.5 |
| Lead | 400 | 120 | 1,850 | 1,370 | 332 | 133 |
| Zinc | NC | 120 | 68.9 | 45.1 | 28.9 | 22.9 |

| | | | SO27 | | SO28 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS27-0001-1213** | **OFMGBR-SB27-0102-1213** | **OFMGBR-SS28-0001-1213** | **OFMGBR-SB28-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/16/13 | 12/16/13 | 12/16/13 | 12/16/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 430 | 69.3 | 361 | 260 |
| Lead | 400 | 120 | 474 | 104 | 1,190 | 923 |
| Zinc | NC | 120 | 273 | 52.5 | 283 | 200 |

| | | | SO29 | | SO30 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS29-0001-1213** | **OFMGBR-SB29-0102-1213** | **OFMGBR-SS30-0001-1213** | **OFMGBR-SB30-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/16/13 | 12/16/13 | 12/16/13 | 12/16/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 186 | 213 | 174 | 95 |
| Lead | 400 | 120 | 670 | 849 | 659 | 518 |
| Zinc | NC | 120 | 191 | 119 | 135 | 101 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

U: Non-detect

J: Estimated value

L: Value may be biased low

TABLE 6

XRF Data

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | |
|---|---|---|---|---|
| | | Cu | Pb | Zn |
| SO01 | 4 - 5 | 19 | 68 | 29 |
| SO01 | 5 - 6 | 24 | 63 | 20 |
| SO02 | 4 - 5 | 78 | 514 | 37 |
| SO02 | 5 - 6 | 65 | 277 | 30 |
| SO02 | 6 - 7 | 37 | 94 | 27 |
| SO02 | 7 - 8 | 14 | 33 | 30 |
| SO03 | 4 - 5 | 19 | 62 | 28 |
| SO03 | 5 - 6 | 26 | 30 | 24 |
| SO06 | 4 - 5 | 69 | 395 | 32 |
| SO06 | 5 - 6 | 25 | 100 | 24 |
| SO06 | 6 - 7 | 22 | 151 | 27 |
| SO06 | 7 - 8 | 34 | 181 | 26 |
| SO06 | 8 - 9 | 31 | 172 | 27 |
| SO06 | 9 - 10 | 27 | 83 | 31 |
| SO07 | 4 - 5 | 19 | 110 | 31 |
| SO07 | 5 - 6 | 20 | 41 | 27 |
| SO08 | 4 - 5 | 23 | 151 | 29 |
| SO08 | 5 - 6 | 25 | 165 | 30 |
| SO08 | 6 - 7 | 65 | 576 | 39 |
| SO08 | 7 - 8 | 20 | 90 | 25 |
| SO08 | 8 - 9 | 14 | 64 | 22 |
| SO09 | 2 - 3 | 14 | 40 | 28 |
| SO09 | 3 - 4 | 14 | 15 | 22 |
| SO11 | 2 - 3 | 78 | 250 | 32 |
| SO11 | 3 - 4 | 24 | 62 | 21 |
| SO11 | 4 - 5 | 14 | 52 | 21 |
| SO14 | 2 - 3 | 20 | 80 | 22 |
| SO14 | 3 - 4 | 18 | 72 | 30 |
| SO16 | 2 - 3 | 81 | 349 | 40 |
| SO16 | 3 - 4 | 47 | 308 | 42 |
| SO16 | 4 - 5 | 17 | 38 | 24 |
| SO16 | 5 - 6 | 14 | 28 | 24 |
| SO18 | 2 - 3 | 68 | 636 | 36 |
| SO18 | 3 - 4 | 31 | 181 | 32 |
| SO18 | 4 - 5 | 14 | 50 | 25 |
| SO18 | 5 - 6 | 14 | 23 | 25 |

| Location | Depth Interval | Concentration (mg/kg) | | |
|---|---|---|---|---|
| | | Cu | Pb | Zn |
| SO20 | 2 - 3 | 95 | 216 | 32 |
| SO20 | 3 - 4 | 14 | 32 | 19 |
| SO20 | 4 - 5 | 23 | 32 | 34 |
| SO23 | 2 - 3 | 18 | 35 | 27 |
| SO23 | 3 - 4 | 22 | 21 | 24 |
| SO26 | 2 - 3 | 14 | 46 | 25 |
| SO26 | 3 - 4 | 17 | 37 | 20 |
| SO28 | 2 - 3 | 27 | 40 | 30 |
| SO28 | 3 - 4 | 20 | 22 | 35 |
| SO29 | 2 - 3 | 59 | 45 | 69 |
| SO29 | 3 - 4 | 30 | 19 | 28 |
| SO30 | 2 - 3 | 25 | 18 | 22 |
| SO30 | 3 - 4 | 17 | 23 | 29 |
| SO36 | 0 - 1 | 14 | 13 | 20 |
| SO37 | 0 - 1 | 16 | 15 | 25 |
| SO38 | 0 - 1 | 14 | 10 | 18 |
| SO39 | 0 - 1 | 14 | 20 | 23 |
| SO40 | 0 - 1 | 21 | 27 | 27 |
| SO41 | 0 - 1 | 14 | 22 | 24 |
| SO42 | 0 - 1 | 14 | 17 | 19 |
| SO43 | 0 - 1 | 14 | 19 | 18 |
| SO44 | 0 - 1 | 14 | 14 | 23 |
| SO45 | 0 - 1 | 14 | 15 | 19 |
| SO46 | 0 - 1 | 14 | 21 | 28 |
| SO47 | 0 - 1 | 29 | 13 | 29 |
| SO48 | 0 - 1 | 30 | 67 | 24 |
| SO49 | 0 - 1 | 14 | 42 | 24 |
| SO50 | 0 - 1 | 28 | 72 | 41 |
| SO51 | 0 - 1 | 17 | 83 | 45 |
| SO52 | 0 - 1 | 14 | 13 | 27 |
| SO53 | 0 - 1 | 41 | 41 | 94 |
| SO54 | 0 - 1 | 156 | 75 | 279 |
| SO54 | 1 - 2 | 31 | 11 | 79 |
| SO54 | 2 - 3 | 23 | 10 | 61 |
| SO55 | 0 - 1 | 154 | 90 | 270 |
| SO55 | 1 - 2 | 21 | 10 | 97 |
| SO55 | 2 - 3 | 41 | 15 | 24 |

TABLE 6

XRF Data

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| Location | Depth Interval | Concentration (mg/kg) | | |
|---|---|---|---|---|
| | | Cu | Pb | Zn |
| SO56 | 0 - 1 | 490 | 71 | 539 |
| SO56 | 1 - 2 | 20 | 11 | 66 |
| SO56 | 2 - 3 | 26 | 10 | 43 |
| SO57 | 0 - 1 | 401 | 64 | 278 |
| SO57 | 1 - 2 | 60 | 14 | 80 |
| SO57 | 2 - 3 | 19 | 11 | 65 |
| SO58 | 0 - 1 | 14 | 11 | 21 |
| SO59 | 0 - 1 | 65 | 108 | 90 |
| SO60 | 0 - 1 | 16 | 10 | 22 |
| SO61 | 0 - 1 | 51 | 83 | 32 |
| SO62 | 0 - 1 | 14 | 10 | 21 |
| SO63 | 0 - 1 | 27 | 46 | 21 |
| SO64 | 0 - 1 | 18 | 27 | 38 |
| SO65 | 0 - 1 | 14 | 15 | 20 |
| SO66 | 0 - 1 | 14 | 10 | 20 |
| SO67 | 0 - 1 | 14 | 15 | 25 |
| SO68 | 0 - 1 | 25 | 30 | 32 |
| SO69 | 0 - 1 | 25 | 21 | 32 |
| SO70 | 0 - 1 | 14 | 23 | 30 |
| SO71 | 0 - 1 | 17 | 71 | 28 |
| SO72 | 0 - 1 | 14 | 39 | 20 |
| SO73 | 0 - 1 | 21 | 32 | 27 |
| SO74 | 0 - 1 | 68 | 29 | 235 |
| SO74 | 1 - 2 | 52 | 19 | 83 |
| SO74 | 2 - 3 | 17 | 13 | 33 |
| SO75 | 0 - 1 | 108 | 47 | 114 |
| SO75 | 1 - 2 | 21 | 17 | 39 |
| SO75 | 2 - 3 | 19 | 14 | 32 |
| SO76 | 0 - 1 | 559 | 78 | 398 |
| SO76 | 1 - 2 | 58 | 46 | 102 |
| SO76 | 2 - 3 | 20 | 21 | 74 |
| SO77 | 0 - 1 | 369 | 423 | 372 |
| SO77 | 1 - 2 | 19 | 21 | 33 |
| SO77 | 2 - 3 | 28 | 26 | 49 |
| SO78 | 0 - 1 | 18 | 11 | 21 |

| Location | Depth Interval | Concentration (mg/kg) | | |
|---|---|---|---|---|
| | | Cu | Pb | Zn |
| SO79 | 0 - 1 | 14 | 277 | 23 |
| SO79 | 1 - 2 | 14 | 22 | 24 |
| SO79 | 2 - 3 | 17 | 20 | 26 |
| SO80 | 0 - 1 | 14 | 105 | 32 |
| SO81 | 0 - 1 | 17 | 10 | 24 |
| SO82 | 0 - 1 | 46 | 43 | 108 |
| SO83 | 0 - 1 | 68 | 26 | 155 |
| SO83 | 1 - 2 | 18 | 20 | 59 |
| SO83 | 2 - 3 | 20 | 17 | 42 |
| SO84 | 0 - 1 | 32 | 10 | 43 |
| SO85 | 0 - 1 | 14 | 15 | 18 |
| SO86 | 0 - 1 | 14 | 10 | 16 |
| SO87 | 0 - 1 | 22 | 23 | 48 |
| SO88 | 0 - 1 | 14 | 18 | 22 |
| SO89 | 0 - 1 | 20 | 54 | 20 |
| SO90 | 0 - 1 | 60 | 22 | 153 |
| SO90 | 1 - 2 | 14 | 16 | 40 |
| SO90 | 2 - 3 | 18 | 16 | 31 |
| SO91 | 0 - 1 | 14 | 19 | 39 |
| SO92 | 0 - 1 | 18 | 39 | 28 |
| SO93 | 0 - 1 | 14 | 26 | 25 |
| SO94 | 0 - 1 | 18 | 41 | 20 |
| SO95 | 0 - 1 | 14 | 26 | 21 |
| SO96 | 0 - 1 | 14 | 21 | 24 |
| SO97 | 0 - 1 | 14 | 66 | 24 |
| SO98 | 0 - 1 | 19 | 25 | 24 |
| SO99 | 0 - 1 | 19 | 22 | 44 |
| SO100 | 0 - 1 | 14 | 17 | 29 |
| SO101 | 0 - 1 | 14 | 12 | 18 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

TABLE 7

Laboratory Confirmation Samples for 2014 XRF Screening

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO06 | SO08 | SO11 | SO16 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SB06-0506-1014 | OFMGBR-SB08-0607-1014 | OFMGBR-SB11-0405-1014 | OFMGBR-SB16-0405-1014 |
| **Sample Depth** | **HH** | **ECO** | 5 - 6 ft | 6 - 7 ft | 4 - 5 ft | 4 - 5 ft |
| **Sample Date** | **SL** | **SL** | 10/2/14 | 10/3/14 | 10/3/14 | 10/3/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 20.4 | 47.8 | 13 | 17 |
| Lead | **400** | **120** | 153 | 868 | 68.3 | 110 |
| Zinc | **--** | **120** | 19.4 B | 32.8 B | 19.8 B | 28.2 B |

| | | | SO18 | SO20 | SO23 | SO30 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SB18-0506-1014 | OFMGBR-SB20-0304-1014 | OFMGBR-SB23-0203-1014 | OFMGBR-SB30-0304-1014 |
| **Sample Depth** | **HH** | **ECO** | 5 - 6 ft | 3 - 4 ft | 2 - 3 ft | '3 - 4 ft |
| **Sample Date** | **SL** | **SL** | 10/3/14 | 10/2/14 | 10/2/14 | 10/2/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 6.3 | 11.7 | 11.5 / 9.37 | 9.66 |
| Lead | **400** | **120** | 26.7 | 38.3 | 27.9 / 27.0 | 22.6 |
| Zinc | **--** | **120** | 19.3 B | 15.3 B | 20.5 B / 18.3 B | 22.9 B |

| | | | SO38 | SO41 | SO49 | SS52 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SS38-0001-1014 | OFMGBR-SS41-0001-1014 | OFMGBR-SS49-0001-1014 | OFMGBR-SS52-0001-1014 |
| **Sample Depth** | **HH** | **ECO** | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft |
| **Sample Date** | **SL** | **SL** | 10/1/14 | 10/1/14 | 10/1/14 | 10/1/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 3.88 | 5.25 | 8.59 | 9.86 / 9.41 |
| Lead | **400** | **120** | 11 | 19.8 | 38.8 | 18.2 / 17.2 |
| Zinc | **--** | **120** | 12 B | 17.7 B | 18.6 B | 22.2 / 20.0 B |

TABLE 7

Laboratory Confirmation Samples for 2014 XRF Screening

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO53 | SO56 | SO57 | SO66 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SB53-0102-1014 | OFMGBR-SS56-0001-1014 | OFMGBR-SB57-0203-1014 | OFMGBR-SS66-0001-1014 |
| **Sample Depth** | **HH** | **ECO** | 1 - 2 ft | 0 - 1 ft | 2 - 3 ft | 0 - 1 ft |
| **Sample Date** | **SL** | **SL** | 10/3/14 | 10/1/14 | 10/3/14 | 10/1/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 13.2 | 642 | 20.8 | 4.33 |
| Lead | **400** | **120** | 11.6 | 72.3 | 16.4 | 13.2 |
| Zinc | **--** | **120** | 101 | 515 | 67.2 | 14.3 B |

| | | | SO71 | SO74 | SO81 | SO89 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SS71-0001-1014 | OFMGBR-SS74-0001-1014 | OFMGBR-SS81-0001-1014 | OFMGBR-SS89-0001-1114 |
| **Sample Depth** | **HH** | **ECO** | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft |
| **Sample Date** | **SL** | **SL** | 10/1/14 | 10/3/14 | 10/3/14 | 11/3/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 9.02 | 63.2 | 3.27 | 7.28 / 7.13 |
| Lead | **400** | **120** | 76.6 | 30.9 | 8.94 | 46.2 / 47.9 |
| Zinc | **--** | **120** | 22.9 | 209 | 15.6 B | 13.9 / 18.6 |

| | | | SO92 | SO094 | SO98 | SO99 |
|---|---|---|---|---|---|---|
| **Sample ID** | | | OFMGBR-SS92-0001-1114 | OFMGBR-SS94-0001-1114 | OFMGBR-SS98-0001-1114 | OFMGBR-SS99-0001-1114 |
| **Sample Depth** | **HH** | **ECO** | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft | 0 - 1 ft |
| **Sample Date** | **SL** | **SL** | 11/5/14 | 11/3/14 | 11/5/14 | 11/5/14 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | **3,100** | **70** | 7.25 | 7.88 | 7.04 | 11.7 |
| Lead | **400** | **120** | 40.2 | 25.7 | 20.9 | 19.5 |
| Zinc | **--** | **120** | 18.4 | 15 | 19.8 | 39.8 |

TABLE 7

Laboratory Confirmation Samples for 2014 XRF Screening

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO100 |
|---|---|---|---|
| **Sample ID** | | | OFMGBR-SS100-0001-1114 |
| | **HH** | **ECO** | 0 - 1 ft |
| **Sample Date** | **SL** | **SL** | 11/5/14 |
| | | | |
| **Total Metals (mg/kg)** | | | |
| Copper | **3,100** | **70** | 7.58 |
| Lead | **400** | **120** | 12.3 |
| Zinc | **--** | **120** | 21.7 |

**Value is greater than human health and ecological screening levels**

**Value is greater than ecological screening level**

**B - Analyte not detected above the level reported in blanks**

**mg/kg - milligrams per kilogram**

TABLE 8

Background Soil Analytical Results

*NAS Oceana Machine Gun Boresight Range*

*Virginia Beach, Virginia*

| | | | SO33 | | SO34 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS33-0001-1213** | **OCMGBR-SB33-0102-1213** | **OCMGBR-SS34-0001-1213** | **OCMGBR-SB34-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/12/13 | 12/12/13 | 12/12/13 | 12/12/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.597 | 0.632 | 0.283 U | 0.252 U |
| Copper | 3,100 | 70 | 4.27 | 3.13 | 3.90 | 2.26 |
| Lead | 400 | 120 | 55.3 | 15.6 | 16.1 | 12.8 |
| Zinc | NC | 120 | 17.2 | 12.9 | 10.7 | 9.8 |

| | | | SO35 | | SO36 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS35-0001-1213** | **OCMGBR-SB35-0102-1213** | **OCMGBR-SS36-0001-1213** | **OCMGBR-SB36-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/12/13 | 12/12/13 | 12/12/13 | 12/12/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Antimony | 31 | -- | 0.268 U | 0.257 U | 0.271 U | 0.252 U |
| Copper | 3,100 | 70 | 4.91 | 3.62 | 3.39 | 2.56 |
| Lead | 400 | 120 | 23.7 | 14.7 | 16.9 | 10.0 |
| Zinc | NC | 120 | 17.6 | 17.2 | 11.2 | 10.8 |

| | | | SO37 | |
|---|---|---|---|---|
| **Sample ID** | | | **OCMGBR-SS37-0001-1213** | **OCMGBR-SB37-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/12/13 | 12/12/13 |
| | | | | |
| **Total Metals (mg/kg)** | | | | |
| Antimony | 31 | -- | 0.284 U | 0.256 U |
| Copper | 3,100 | 70 | 3.96 | 2.89 |
| Lead | 400 | 120 | 19.0 | 15.6 |
| Zinc | NC | 120 | 11.3 | 11.2 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

U - The material was analyzed for, but not detected

mg/kg - milligrams per kilogram

TABLE 9

Background Soil Analytical Results

*NALF Fentress Machine Gun Boresight Range*

*Chesapeake, Virginia*

| | | | SO31 | | SO32 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS31-0001-1213** | **OFMGBR-SB31-0102-1213** | **OFMGBR-SS32-0001-1213** | **OFMGBR-SB32-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/16/13 | 12/16/13 | 12/16/13 | 12/16/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 7.43 / 6.32 | 4.02 | 4.71 | 6.09 |
| Lead | 400 | 120 | 36.4 / 35.5 | 20.8 | 14.5 | 19.8 |
| Zinc | NC | 120 | 12.8 / 12.1 | 8.46 | 9.47 | 12.9 |

| | | | SO33 | | SO34 | |
|---|---|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS33-0001-1213** | **OFMGBR-SB33-0102-1213** | **OFMGBR-SS34-0001-1213** | **OFMGBR-SB34-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/16/13 | 12/16/13 | 12/16/13 | 12/16/13 |
| | | | | | | |
| **Total Metals (mg/kg)** | | | | | | |
| Copper | 3,100 | 70 | 3.45 | 3.39 | 6.92 | 4.67 |
| Lead | 400 | 120 | 12.7 | 8.63 | 20.9 | 13.6 |
| Zinc | NC | 120 | 9.06 | 10.6 | 12.5 | 12.1 |

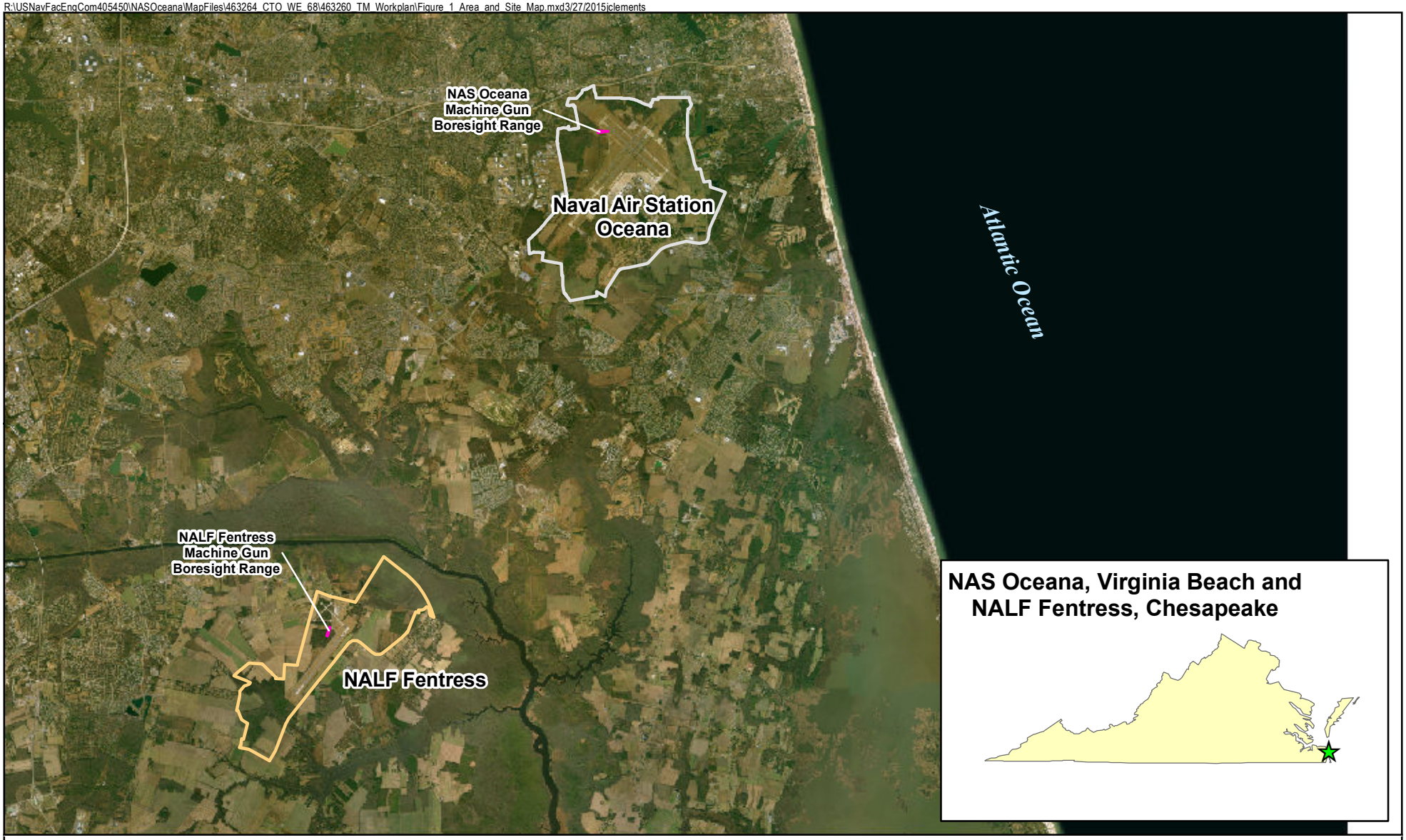
| | | | SO35 | |
|---|---|---|---|---|
| **Sample ID** | | | **OFMGBR-SS35-0001-1213** | **OFMGBR-SB35-0102-1213** |
| **Sample Depth** | **HH** | **ECO** | **0 -1 ft** | **1 -2 ft** |
| **Sample Date** | **SL** | **SL** | 12/16/13 | 12/16/13 |
| | | | | |
| **Total Metals (mg/kg)** | | | | |
| Copper | 3,100 | 70 | 4.08 | 2.49 |
| Lead | 400 | 120 | 12.0 | 7.09 |
| Zinc | NC | 120 | 9.26 | 8.0 |

Value is greater than human health and ecological screening levels

Value is greater than ecological screening level

# Figures

R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_1_Area_and_Site_Map.mxd3/27/2015jclements




**Legend**

- NAS Oceana Boundary
- NALF Fentress Boundary
- MRP Sites

N
W E
S

0 1.25 2.5
Miles

Figure 1
Area and Site Location Map
MGBR Expanded SI Technical Memorandum
NAS Oceana and NALF Fentress
Virginia Beach and Chesapeake, Virginia

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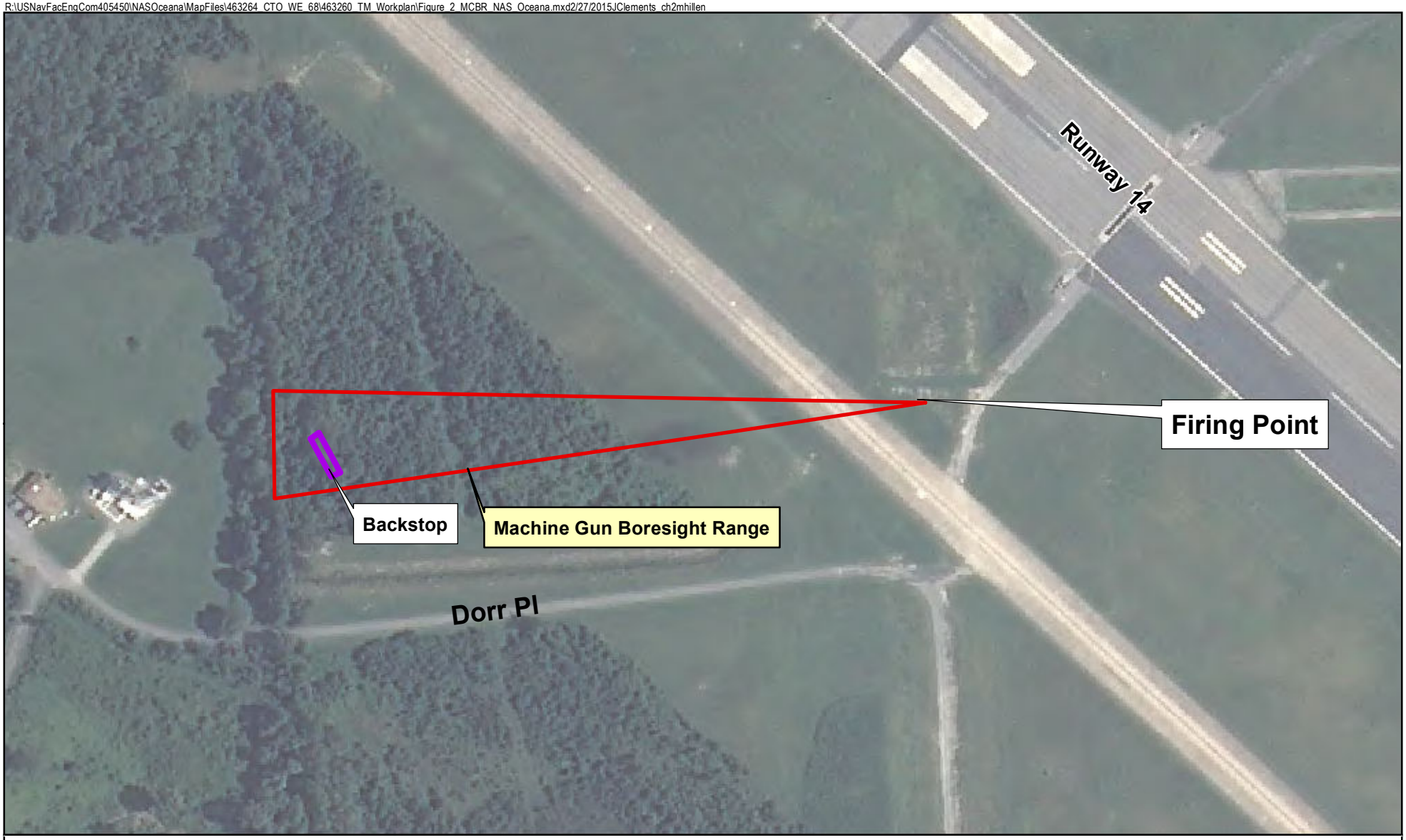


**Legend**

MRP Site

Backstop

N
W E
S

0 100 200
Feet

Figure 2
NAS Oceana MGBR Site Map
MGBR Expanded SI Technical Memorandum
NAS Oceana
Virginia Beach, Virginia

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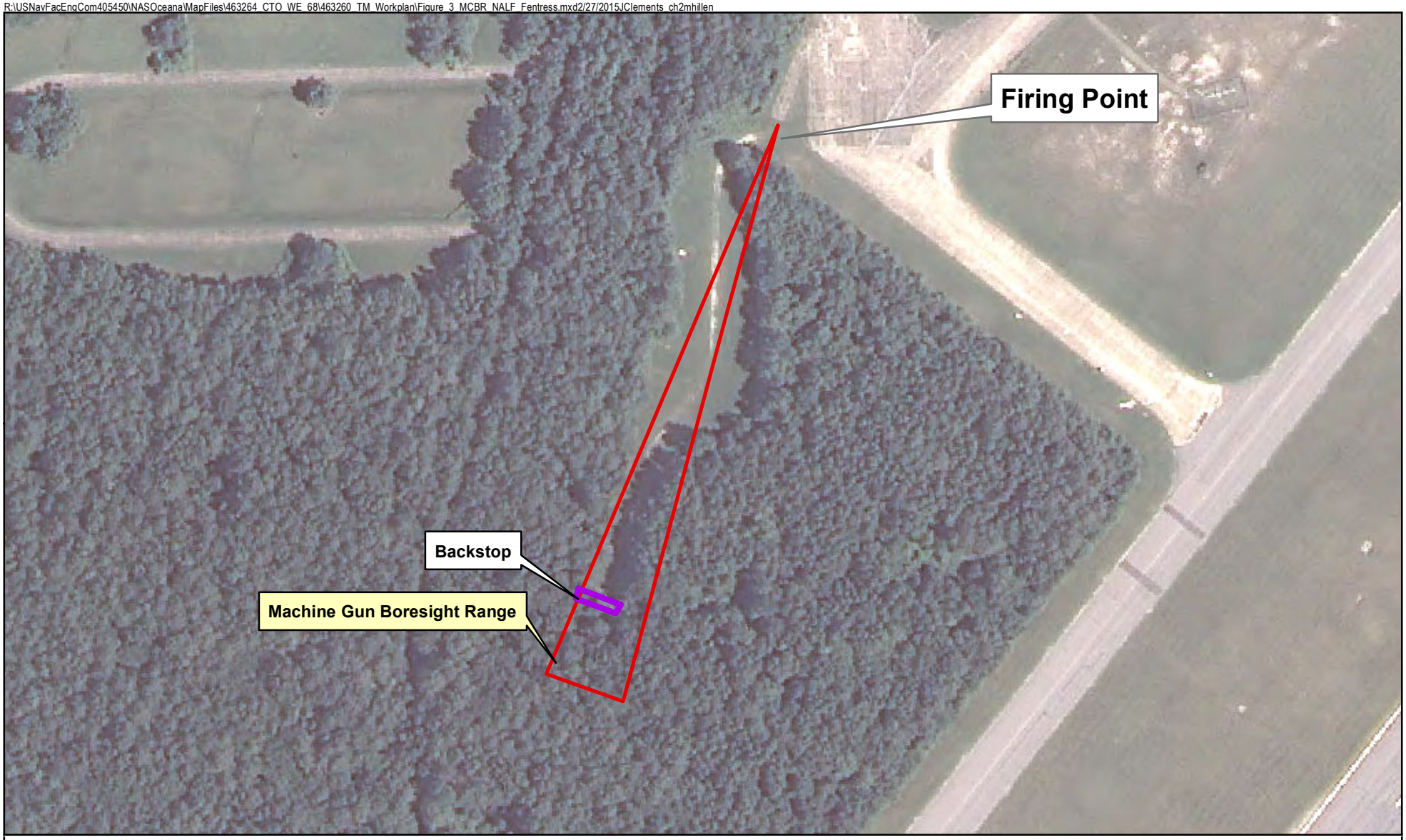
R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_3_MCBR_NALF_Fentress.mxd2/27/2015JClements_ch2mhillen




**Legend**

MRP Site

Backstop

N
W E
S

0 100 200 Feet

Figure 3
NALF Fentress MGBR Site Map
MGBR Expanded SI Technical Memorandum
NALF Fentress
Chesapeake, Virginia

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R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_4_NAS_Oceana_COPC_Contamination.mxd3/30/2015jclements

**Legend**

- Soil Sample Location
- Background Soil Sample Locations
- Elevation Contour Lines (feet)
- Backstop
- MRP Site
- COPC Exceedances (dashed where inferred)
- COPC Exceedances of Ecological and Human Health Criteria

N
W E
S

0 15 30
Feet

Figure 4
NAS Oceana MGBR COPC Exceedances
MGBR Expanded SI Technical Memorandum
NAS Oceana
Virginia Beach, Virginia

Note:
Sample locations from the 2013 and 2014 site investigation activities are presented on this figure.

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R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_5_NALF_Fentress_COPC_Contamination_Eco_HH.mxd3/30/2015jclements

**Legend**

- Soil Sample Location
- Background Soil Sample Location
- Backstop
- MRP Site
- COPC Exceedances of Ecological Criteria
- COPC Exceedances of Ecological and Human Health Criteria

N
W E
S

0 15 30
Feet

Figure 5
NALF Fentress MGBR COPC Exceedances
MGBR Expanded SI Technical Memorandum
NALF Fentress
Chesapeake, Virginia

Note:
Sample locations from the 2013 and 2014 site investigation activities are presented on this figure.

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R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_6_NAS_Oceana_COPC_Exceedances_Eco_HH.mxd3/27/2015jclements

**Legend**

- Soil Sample Location
- Background Soil Sample Locations
- COPC Estimated Excavation Depth Contour
- Backstop
- MRP Site
- COPC Exceedances of Ecological Criteria (dashed where inferred)
- COPC Exceedances of Ecological and Human Health Criteria

N
W E
S

0 15 30
Feet

Figure 6
NAS Oceana COPC Exceedance Depths
MGBR Expanded SI Technical Memorandum
NAS Oceana
Virginia Beach, Virginia

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R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure_7_NALF_Fentress_COPC_Contamination_Eco_HH.mxd3/19/2015jclements

**Legend**

- Soil Sample Location
- Background Soil Sample Location
- COPC Estimated Excavation Depth Contour
- Backstop
- MRP Site
- COPC Exceedances of Ecological Criteria
- COPC Exceedances of Ecological and Human Health Criteria

N
W E
S

0 15 30
Feet

Figure 7
NALF Fentress COPC Exceedance Depths
MGBR Expanded SI Technical Memorandum
NALF Fentress
Chesapeake, Virginia

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# Attachment A
# 95% Upper Confidence Limit (UCL) Evaluation Technical Memorandum

# 95% Upper Confidence Limit (UCL) Evaluation for the Machine Gun Boresight Ranges at Naval Air Station Oceana (UXO-5) in Virginia Beach, Virginia, and Naval Auxiliary Landing Field Fentress (UXO-10) in Chesapeake, Virginia

PREPARED FOR: Krista Parra, NAVFAC Mid-Atlantic

PREPARED BY: CH2M HILL

DATE: July 30, 2015

Site remediation goals (SRGs) were derived based on the lower of the risk-based (ecological and human health) preliminary remediation goals (PRGs) and site-specific background concentrations. Soil screening levels for the protection of groundwater were not applicable to either site as potential PRGs because it was determined that leaching from soil to groundwater would not be likely to result in groundwater concentrations of potential concern to any receptors based on the depth of soil contamination at levels greater than screening values. Table A-1 summarizes the soil SRGs used for this evaluation.

The lateral and vertical extent of remediation was estimated using site-specific 95% UCL calculations. Two scenarios were evaluated: Oceana MGBR residential and Fentress MGBR residential. In addition, “baseline” iterations of each scenario were conducted, whereby the SRGs were directly compared to soil data on a point-to-point basis. This process provided a comparison of utilizing a 95% UCL approach with a point-to-point approach to determine the lateral and vertical extent of remediation.

The UCL evaluations were conducted as follows:

1. The data set used for both the Oceana and Fentress MGBRs was generated from all available soil data (both XRF and laboratory), except the five background samples collected at each site (locations SO33 through SO37 at Oceana and SO31 through SO35 at Fentress). Laboratory results were used in place of XRF results when a confirmation sample was collected from an XRF location.
2. The location and depth of each soil sample was identified. Sample locations are shown on Figures A-1 and A-2. The evaluation was conducted separately for the Oceana MGBR and the Fentress MGBR, and each evaluation used a combined surface soil and subsurface soil data set.
3. For each of the scenarios evaluated, the selected SRG was used for each COC (Table A-1). The SRG was the lower of the human health and ecological PRGs; site-specific background values were less than all PRGs so they did not factor into SRG selection. Although ecological exposures are typically limited to soil depths of 0 to 2 feet bgs (this depth interval was considered surface soil for the purposes of this evaluation), SRGs that were based on ecological PRGs were applied to all soil samples, regardless of depth, because the berms used as backstops at the ranges do not represent a typical soil column scenario. These berms are potentially accessible from the sides, as well as the top, so the sample depth intervals, which are measured from the top of the berm, may not be representative of an exposure depth of a receptor that may burrow into the side of the berm.
4. The greater value between parent and field duplicate samples was used in the evaluation.
5. ProUCL (version 5.0) was used to calculate the UCL statistics, which were at the upper 95% level. Detects and non-detects were identified when the data were input into ProUCL (detects are shaded gray in the COC concentration columns of Tables A-2 through A-5). The recommended UCL value from the ProUCL program was used (using all program defaults and letting the program choose the best distribution) for all decision making in the evaluation, except when the recommended value was not based on the upper 95% level (e.g., 97.5% level); the same statistic reported for the 95% level was used in these cases.

7. The 95% UCL was then calculated for each COC using all relevant data for each scenario and compared with their respective SRGs.
8. Once the initial 95% UCL was determined prior to the removal of any samples, samples to be removed from the data set (to simulate a soil excavation and removal scenario) were identified as follows:
   - For each COC, the ratio of the maximum concentration to the SRG was calculated. The sample with the COC that yielded the highest ratio (for all COCs) was identified for removal at each step.
   - All samples at depths above the selected sample (if the sample was subsurface) were also removed at that step; samples at depths below the sample were not removed at that step (but could be removed in subsequent steps because they remained in the data set).
   - When the sample or samples were removed from the data set, based on the sample concentration-to-SRG ratio, they were not replaced with another value. The UCL was then recalculated for each COC and compared with the respective SRGs. If any of the UCLs exceeded their SRGs, the process was repeated by recalculating the ratio of the maximum concentration (using the remaining samples) to the SRG for each COC and identifying the next sample to be removed. The process was repeated until all of the UCLs (for all COCs) were less than their respective SRGs.
5. A list of the samples removed was generated for each scenario, in the order they were removed, along with the ratio (to the SRGs) values for each of the COCs at each step. These iterations allowed the incremental improvement to be quantitatively measured for each individual COC, and for all COCs combined.
6. Once the UCL was less than the SRG for all COCs, the maximum SRG ratio in the remaining samples was determined. This evaluation was performed to provide the risk managers with information on residual COC concentrations following the completion of the UCL process. Ratio values exceeding 5 were flagged. Further, the maximum and 95% UCL surface soil (0-2 feet) concentration for each COC in the remaining samples was compared with the ecological PRGs to determine the residual COC concentrations to which ecological receptors might be exposed following completion of the UCL process (because a combined surface soil and subsurface soil data set was used). Ratio values that exceeded 5 were flagged.

The results of the evaluation are summarized as follows:

- Oceana MGBR residential scenario
  - For the baseline scenario (that is, SRGs used in a point-to-point comparison), 51 sample locations (out of 107) were identified as exceeding SRGs; 24 based on SRG ratios exceeding 5, and 27 based on SRG ratios between 1 and 5 (Table A-2).
  - Based on the UCL scenario, the removal of samples from 30 locations was sufficient for the UCLs to meet SRGs (Figure A-1; Table A-3). No remaining locations had residual ratios exceeding 5. For surface soil only, the 95% UCL did not exceed ecologically-based PRGs.
  - Approximately 450 cubic yards of soil are proposed for remediation at NAS Oceana, which cover an area of approximately 4,800 square feet. Although excavation of site soil near SO-01 was not required as part of the 95% UCL approach, location SO-01 was included in the proposed remediation area as it was located in proximity to required excavation area, and to simplify the excavation during the remediation effort.
- Fentress residential scenario
  - For the baseline scenario, 38 sample locations (out of 96) were identified as exceeding SRGs; 25 based on SRG ratios exceeding 5 and 13 based on SRG ratios between 1 and 5 (Table A-4).
  - Based on the UCL scenario, the removal of samples from 25 locations was sufficient for the UCLs to meet the SRGs (Figure A-2; Table A-5). Although all UCLs met SRGs following Step 2 (Table A-5), 5 additional samples were also removed in Step 3 (at deeper depths from locations previously identified in Steps 1 or 2) so that all remaining samples met the residential RSL for lead (400 mg/kg). No remaining locations had residual ratios exceeding 5. For surface soil only, the 95% UCL did not exceed ecologically-based PRGs.

- Approximately 480 cubic yards of soil are proposed for remediation at NALF Fentress, which cover an area of approximately 5,600 square feet. Although excavation of site soil near SO-03 was not required as part of the 95% UCL approach, location SO-03 was included in the proposed remediation area as it was located in proximity to required excavation area and to simplify the excavation during the remediation effort.

Based on the UCL scenario, the removal of samples from 25 locations was sufficient for the UCLs to meet the SRGs (Figure A-2; Table A-5). Although all UCLs met SRGs following Step 2 (Table A-5), 5 additional samples were also removed in Step 3 (at deeper depths from locations previously identified in Steps 1 or 2) so that all remaining samples met the residential RSL for lead (400 mg/kg). No remaining locations had residual ratios exceeding 5. For surface soil only, the 95% UCL did not exceed ecologically-based PRGs.

# Tables

TABLE A-1

Oceana/Fentress MGBR Soil PRGs and SRGs

| Chemical | SSL PRG | HHRA PRG | ERA PRG | SRG SS | SRG SB |
|---|---|---|---|---|---|
| **Total Metals (mg/kg)** | | | | | |
| Antimony | NA | 31.0 | -- | 31.0 | 31.0 |
| Copper | NA | 3,100 | 70.0 | 70.0 | 70.0 |
| Lead | NA | 400 | 120 | 120 | 120 |
| Zinc | NA | -- | 120 | 120 | 120 |

Notes:
NA - Not Applicable
PRG - Preliminary Remediation Goal
SRG - Site Remediation Goal
SS - Surface Soil (0-2 feet)
SB - Subsurface Soil (>2 feet)
SSL - Soil Screening Level (leaching to groundwater)
HHRA - Human Health Risk Assessment
ERA - Ecological Risk Assessment

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO01 | OCMGBR-SS01-0610 | 6/18/2010 | 0 | 1 | SS | 0.924 | 24.8 | 239 | 18.3 | | 0.35 | **1.99** | 0.15 | **1.99** | Lead | |
| Oceana | SO01 | OCMGBR-SB01-0610 | 6/18/2010 | 1 | 2 | SS | NA | 4.55 | 13.4 | 14.3 | | 0.07 | 0.11 | 0.12 | 0.12 | | |
| Oceana | SO01 | OCMGBR-SB01-0203-1213 | 12/11/2013 | 2 | 3 | SB | 1.48 | 37.3 | 380 | 22.3 | 0.05 | 0.53 | **3.17** | 0.19 | **3.17** | Lead | |
| Oceana | SO01 | OCMGBR-SB01-0304-1213 | 12/11/2013 | 3 | 4 | SB | 2.38 | 22.0 | 263 | 19.5 | 0.08 | 0.31 | **2.19** | 0.16 | **2.19** | Lead | |
| Oceana | SO01 | OCMGBR-SB01-0405-0914 | 9/22/2014 | 4 | 5 | SB | 0.254 | 16.4 | 157 | 22.4 | 0.01 | 0.23 | **1.31** | 0.19 | **1.31** | Lead | |
| Oceana | SO01 | XRF | | 5 | 6 | SB | 32.0 | 33.7 | 260 | 34.0 | | 0.48 | **2.16** | 0.28 | **2.16** | Lead | |
| Oceana | SO01 | XRF | | 6 | 7 | SB | 32.0 | 54.7 | 397 | 38.0 | | 0.78 | **3.31** | 0.32 | **3.31** | Lead | |
| Oceana | SO01 | XRF | | 7 | 8 | SB | 32.0 | 17.3 | 112 | 23.3 | | 0.25 | 0.93 | 0.19 | 0.93 | | |
| Oceana | SO01 | XRF | | 8 | 9 | SB | 32.0 | 27.0 | 61.3 | 25.7 | | | 0.51 | 0.21 | 0.51 | | |
| Oceana | SO01 | XRF | | 9 | 10 | SB | 32.0 | 27.0 | 20.0 | 26.0 | | | | 0.22 | 0.22 | | |
| Oceana | SO02 | OCMGBR-SS02-0610 | 6/18/2010 | 0 | 1 | SS | 4.66 | 582 | 9,210 | 87.6 | 0.15 | **8.31** | **76.75** | 0.73 | **76.75** | Lead | Copper, Lead |
| Oceana | SO02 | OCMGBR-SB02-0610 | 6/18/2010 | 1 | 2 | SS | 4.31 | 251 | 4,900 | 49.7 | 0.14 | **3.59** | **40.83** | 0.41 | **40.83** | Lead | Lead |
| Oceana | SO02 | OCMGBR-SB02-0203-1213 | 12/11/2013 | 2 | 3 | SB | 0.886 | 28.4 | 327 | 18.9 | 0.03 | 0.41 | **2.73** | 0.16 | **2.73** | Lead | |
| Oceana | SO02 | OCMGBR-SB02-0304-1213 | 12/11/2013 | 3 | 4 | SB | 0.175 | 6.16 | 41.6 | 13.8 | 0.01 | 0.09 | 0.35 | 0.12 | 0.35 | | |
| Oceana | SO02 | XRF | | 4 | 5 | SB | 32.0 | 27.0 | 115 | 29.3 | | | 0.96 | 0.24 | 0.96 | | |
| Oceana | SO03 | OCMGBR-SS03-0610 | 6/18/2010 | 0 | 1 | SS | 7.32 | 187 | 3,770 | 35.3 | 0.24 | **2.67** | **31.42** | 0.29 | **31.42** | Lead | Lead |
| Oceana | SO03 | OCMGBR-SB03-0610 | 6/18/2010 | 1 | 2 | SS | 0.288 | 78.7 | 593 | 21.9 | 0.01 | **1.12** | **4.94** | 0.18 | **4.94** | Lead | |
| Oceana | SO03 | OCMGBR-SB03-0203-1213 | 12/11/2013 | 2 | 3 | SB | 7.79 | 426 | 2,930 | 60.9 | 0.25 | **6.09** | **24.42** | 0.51 | **24.42** | Lead | Copper, Lead |
| Oceana | SO03 | OCMGBR-SB03-0304-1213 | 12/11/2013 | 3 | 4 | SB | 8.58 | 781 | 2,610 | 61.6 | 0.28 | **11.16** | **21.75** | 0.51 | **21.75** | Lead | Copper, Lead |
| Oceana | SO03 | XRF | | 4 | 5 | SB | 32.0 | 52.0 | 306 | 38.7 | | 0.74 | **2.55** | 0.32 | **2.55** | Lead | |
| Oceana | SO03 | XRF | | 5 | 6 | SB | 32.0 | 136 | 1,226 | 59.7 | | **1.94** | **10.21** | 0.50 | **10.21** | Lead | Lead |
| Oceana | SO03 | XRF | | 6 | 7 | SB | 32.0 | 94.0 | 1,030 | 52.7 | | **1.34** | **8.58** | 0.44 | **8.58** | Lead | Lead |
| Oceana | SO03 | XRF | | 7 | 8 | SB | 32.0 | 31.5 | 226 | 32.7 | | 0.45 | **1.88** | 0.27 | **1.88** | Lead | |
| Oceana | SO03 | XRF | | 8 | 9 | SB | 32.0 | 21.2 | 65.3 | 25.0 | | 0.30 | 0.54 | 0.21 | 0.54 | | |
| Oceana | SO03 | XRF | | 9 | 10 | SB | 32.0 | 27.0 | 50.7 | 24.7 | | | 0.42 | 0.21 | 0.42 | | |
| Oceana | SO04 | OCMGBR-SS04-0610 | 6/18/2010 | 0 | 1 | SS | 0.955 | 65.5 | 668 | 26.5 | | 0.94 | **5.57** | 0.22 | **5.57** | Lead | Lead |
| Oceana | SO04 | OCMGBR-SB04-0610 | 6/18/2010 | 1 | 2 | SS | 0.926 | 102 | 970 | 31.1 | 0.03 | **1.46** | **8.08** | 0.26 | **8.08** | Lead | Lead |
| Oceana | SO04 | OCMGBR-SB04-0203-1213 | 12/11/2013 | 2 | 3 | SB | 5.35 | 153 | 983 | 31.5 | 0.17 | **2.19** | **8.19** | 0.26 | **8.19** | Lead | Lead |
| Oceana | SO04 | OCMGBR-SB04-0304-1213 | 12/11/2013 | 3 | 4 | SB | 1.49 | 322 | 444 | 26.7 | 0.05 | **4.60** | **3.70** | 0.22 | **4.60** | Copper | |
| Oceana | SO04 | XRF | | 4 | 5 | SB | 32.0 | 48.3 | 375 | 33.0 | | 0.69 | **3.13** | 0.28 | **3.13** | Lead | |
| Oceana | SO04 | XRF | | 5 | 6 | SB | 32.0 | 47.0 | 332 | 32.3 | | 0.67 | **2.76** | 0.27 | **2.76** | Lead | |
| Oceana | SO04 | XRF | | 6 | 7 | SB | 32.0 | 40.3 | 178 | 40.0 | | 0.58 | **1.49** | 0.33 | **1.49** | Lead | |
| Oceana | SO04 | XRF | | 7 | 8 | SB | 32.0 | 51.3 | 247 | 41.7 | | 0.73 | **2.06** | 0.35 | **2.06** | Lead | |
| Oceana | SO04 | XRF | | 8 | 9 | SB | 32.0 | 27.0 | 22.0 | 25.0 | | | 0.18 | 0.21 | 0.21 | | |
| Oceana | SO04 | XRF | | 9 | 10 | SB | 32.0 | 18.2 | 53.3 | 26.7 | | 0.26 | 0.44 | 0.22 | 0.44 | | |
| Oceana | SO05 | OCMGBR-SS05-0610 | 6/18/2010 | 0 | 1 | SS | 7.73 | 1,100 | 13,500 | 195 | 0.25 | **15.71** | **112.50** | **1.63** | **112.50** | Lead | Copper, Lead |
| Oceana | SO05 | OCMGBR-SB05-0610 | 6/18/2010 | 1 | 2 | SS | 57.1 | 721 | 16,000 | 159 | **1.84** | **10.30** | **133.33** | **1.33** | **133.33** | Lead | Copper, Lead |
| Oceana | SO05 | OCMGBR-SB05-0203-1213 | 12/11/2013 | 2 | 3 | SB | 0.525 | 15.1 | 117 | 23.5 | 0.02 | 0.22 | 0.98 | 0.20 | 0.98 | | |
| Oceana | SO05 | OCMGBR-SB05-0304-1213 | 12/11/2013 | 3 | 4 | SB | 0.338 | 12.4 | 75.4 | 21.3 | 0.01 | 0.18 | 0.63 | 0.18 | 0.63 | | |
| Oceana | SO06 | OCMGBR-SS06-0610 | 6/18/2010 | 0 | 1 | SS | 4.93 | 1,830 | 3,500 | 371 | 0.16 | **26.14** | **29.17** | **3.09** | **29.17** | Lead | Copper, Lead |
| Oceana | SO06 | OCMGBR-SB06-0610 | 6/18/2010 | 1 | 2 | SS | 0.588 | 1,060 | 747 | 216 | 0.02 | **15.14** | **6.23** | **1.80** | **15.14** | Copper | Copper, Lead |
| Oceana | SO06 | OCMGBR-SB06-0203-1213 | 12/11/2013 | 2 | 3 | SB | 44.0 | 62.3 | 19,400 | 38.8 | **1.42** | 0.89 | **161.67** | 0.32 | **161.67** | Lead | Lead |
| Oceana | SO06 | OCMGBR-SB06-0304-1213 | 12/11/2013 | 3 | 4 | SB | 61.7 | 292 | 12,200 | 63.0 | **1.99** | **4.17** | **101.67** | 0.53 | **101.67** | Lead | Lead |
| Oceana | SO06 | XRF | | 4 | 5 | SB | 32.0 | 28.7 | 249 | 37.3 | | 0.41 | **2.08** | 0.31 | **2.08** | Lead | |
| Oceana | SO06 | XRF | | 5 | 6 | SB | 32.0 | 64.3 | 481 | 36.7 | | 0.92 | **4.01** | 0.31 | **4.01** | Lead | |
| Oceana | SO06 | XRF | | 6 | 7 | SB | 32.0 | 86.3 | 539 | 40.7 | | **1.23** | **4.49** | 0.34 | **4.49** | Lead | |
| Oceana | SO06 | XRF | | 7 | 8 | SB | 32.0 | 27.5 | 270 | 31.3 | | 0.39 | **2.25** | 0.26 | **2.25** | Lead | |
| Oceana | SO06 | XRF | | 8 | 9 | SB | 32.0 | 19.3 | 58.0 | 26.3 | | 0.28 | 0.48 | 0.22 | 0.48 | | |
| Oceana | SO06 | XRF | | 9 | 10 | SB | 32.0 | 18.3 | 92.0 | 28.0 | | 0.26 | 0.77 | 0.23 | 0.77 | | |
| Oceana | SO07 | OCMGBR-SS07-0610 | 6/18/2010 | 0 | 1 | SS | 0.934 | 253 | 2,750 | 63.0 | 0.03 | **3.61** | **22.92** | 0.53 | **22.92** | Lead | Lead |

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO07 | OCMGBR-SB07-0610 | 6/18/2010 | 1 | 2 | SS | 0.804 | 40.2 | 286 | 24.1 | | 0.57 | **2.38** | 0.20 | **2.38** | Lead | |
| Oceana | SO07 | OCMGBR-SB07-0203-1213 | 12/11/2013 | 2 | 3 | SB | 27.6 | 584 | 8,790 | 136 | 0.89 | **8.34** | **73.25** | **1.13** | **73.25** | Lead | Copper, Lead |
| Oceana | SO07 | OCMGBR-SB07-0304-1213 | 12/11/2013 | 3 | 4 | SB | 34.7 | 1,230 | 28,400 | 248 | **1.12** | **17.57** | **236.67** | **2.07** | **236.67** | Lead | Copper, Lead |
| Oceana | SO07 | XRF | | 4 | 5 | SB | 32.0 | 45.2 | 120 | 23.3 | | 0.65 | 1.00 | 0.19 | 1.00 | | |
| Oceana | SO07 | XRF | | 5 | 6 | SB | 32.0 | 30.3 | 93.7 | 24.3 | | 0.43 | 0.78 | 0.20 | 0.78 | | |
| Oceana | SO08 | OCMGBR-SS08-0610 | 6/18/2010 | 0 | 1 | SS | 13.1 | 4,310 | 19,500 | 524 | 0.42 | **61.57** | **162.50** | **4.37** | **162.50** | Lead | Copper, Lead |
| Oceana | SO08 | OCMGBR-SB08-0610 | 6/18/2010 | 1 | 2 | SS | 0.301 | 806 | 740 | 281 | 0.01 | **11.51** | **6.17** | **2.34** | **11.51** | Copper | Copper, Lead |
| Oceana | SO08 | OCMGBR-SB08-0203-1213 | 12/11/2013 | 2 | 3 | SB | 6.49 | 172 | 1,330 | 55.6 | 0.21 | **2.46** | **11.08** | 0.46 | **11.08** | Lead | Lead |
| Oceana | SO08 | OCMGBR-SB08-0304-1213 | 12/11/2013 | 3 | 4 | SB | 0.685 | 22.9 | 170 | 15.7 | 0.02 | 0.33 | **1.42** | 0.13 | **1.42** | Lead | |
| Oceana | SO08 | XRF | | 4 | 5 | SB | 32.0 | 25.3 | 88.0 | 27.3 | | 0.36 | 0.73 | 0.23 | 0.73 | | |
| Oceana | SO08 | OCMGBR-SB08-0506-0914 | 9/25/2014 | 5 | 6 | SB | 0.329 | 20.5 | 130 | 30.0 | 0.01 | 0.29 | **1.08** | 0.25 | **1.08** | Lead | |
| Oceana | SO09 | OCMGBR-SS09-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.357 | 13.2 | 85.1 | 20.9 | 0.01 | 0.19 | 0.71 | 0.17 | 0.71 | | |
| Oceana | SO09 | OCMGBR-SB09-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.253 | 7.95 | 20.4 | 20.7 | | 0.11 | 0.17 | 0.17 | 0.17 | | |
| Oceana | SO10 | OCMGBR-SS10-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.239 | 11.3 | 83.5 | 19.4 | 0.01 | 0.16 | 0.70 | 0.16 | 0.70 | | |
| Oceana | SO10 | OCMGBR-SB10-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.234 | 8.02 | 22.1 | 42.0 | | 0.11 | 0.18 | 0.35 | 0.35 | | |
| Oceana | SO11 | OCMGBR-SS11-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.231 | 20.8 | 143 | 25.9 | 0.01 | 0.30 | **1.19** | 0.22 | **1.19** | Lead | |
| Oceana | SO11 | OCMGBR-SB11-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.256 | 12.9 | 25.1 | 19.8 | | 0.18 | 0.21 | 0.17 | 0.21 | | |
| Oceana | SO11 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 36.3 | 33.3 | | | 0.30 | 0.28 | 0.30 | | |
| Oceana | SO12 | OCMGBR-SS12-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.267 | 9.52 | 59.8 | 21.6 | | 0.14 | 0.50 | 0.18 | 0.50 | | |
| Oceana | SO12 | OCMGBR-SB12-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.249 | 7.90 | 40.2 | 23.7 | | 0.11 | 0.34 | 0.20 | 0.34 | | |
| Oceana | SO13 | OCMGBR-SS13-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.12 | 35.9 | 537 | 35.5 | 0.04 | 0.51 | **4.48** | 0.30 | **4.48** | Lead | |
| Oceana | SO13 | OCMGBR-SB13-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.471 | 23.1 | 276 | 28.1 | 0.02 | 0.33 | **2.30** | 0.23 | **2.30** | Lead | |
| Oceana | SO13 | XRF | | 2 | 3 | SB | 32.0 | 21.8 | 104 | 36.3 | | 0.31 | 0.87 | 0.30 | 0.87 | | |
| Oceana | SO13 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 33.7 | 27.7 | | | 0.28 | 0.23 | 0.28 | | |
| Oceana | SO14 | OCMGBR-SS14-0001-1213 | 12/11/2013 | 0 | 1 | SS | 3.39 | 115 | 1,740 | 47.4 | 0.11 | **1.64** | **14.50** | 0.40 | **14.50** | Lead | Lead |
| Oceana | SO14 | OCMGBR-SB14-0102-1213 | 12/11/2013 | 1 | 2 | SS | 2.84 | 54.5 | 895 | 33.8 | 0.09 | 0.78 | **7.46** | 0.28 | **7.46** | Lead | Lead |
| Oceana | SO15 | OCMGBR-SS15-0001-1213 | 12/11/2013 | 0 | 1 | SS | 28.0 | 564 | 5,130 | 100 | 0.90 | **8.06** | **42.75** | 0.83 | **42.75** | Lead | Copper, Lead |
| Oceana | SO15 | OCMGBR-SB15-0102-1213 | 12/11/2013 | 1 | 2 | SS | 4.04 | 503 | 2,290 | 132 | 0.13 | **7.19** | **19.08** | **1.10** | **19.08** | Lead | Copper, Lead |
| Oceana | SO15 | XRF | | 2 | 3 | SB | 32.0 | 62.7 | 359 | 183 | | 0.90 | **2.99** | **1.53** | **2.99** | Lead | |
| Oceana | SO15 | XRF | | 3 | 4 | SB | 32.0 | 56.7 | 347 | 33.7 | | 0.81 | **2.89** | 0.28 | **2.89** | Lead | |
| Oceana | SO15 | XRF | | 4 | 5 | SB | 32.0 | 19.8 | 21.0 | 28.3 | | 0.28 | 0.18 | 0.24 | 0.28 | | |
| Oceana | SO15 | XRF | | 5 | 6 | SB | 32.0 | 27.0 | 21.7 | 28.0 | | | 0.18 | 0.23 | 0.23 | | |
| Oceana | SO16 | OCMGBR-SS16-0001-1213 | 12/11/2013 | 0 | 1 | SS | 44.4 | 1,440 | 12,100 | 158 | **1.43** | **20.57** | **100.83** | **1.32** | **100.83** | Lead | Copper, Lead |
| Oceana | SO16 | OCMGBR-SB16-0102-1213 | 12/11/2013 | 1 | 2 | SS | 13.3 | 788 | 3,950 | 233 | 0.43 | **11.26** | **32.92** | **1.94** | **32.92** | Lead | Copper, Lead |
| Oceana | SO16 | XRF | | 2 | 3 | SB | 32.0 | 77.7 | 292 | 42.0 | | **1.11** | **2.43** | 0.35 | **2.43** | Lead | |
| Oceana | SO16 | XRF | | 3 | 4 | SB | 32.0 | 85.0 | 222 | 41.0 | | **1.21** | **1.85** | 0.34 | **1.85** | Lead | |
| Oceana | SO16 | XRF | | 4 | 5 | SB | 32.0 | 61.0 | 225 | 30.3 | | 0.87 | **1.88** | 0.25 | **1.88** | Lead | |
| Oceana | SO16 | XRF | | 5 | 6 | SB | 32.0 | 21.5 | 72.3 | 28.7 | | 0.31 | 0.60 | 0.24 | 0.60 | | |
| Oceana | SO16 | XRF | | 6 | 7 | SB | 32.0 | 38.7 | 134 | 34.0 | | 0.55 | **1.12** | 0.28 | **1.12** | Lead | |
| Oceana | SO16 | XRF | | 7 | 8 | SB | 32.0 | 17.0 | 87.0 | 25.7 | | 0.24 | 0.73 | 0.21 | 0.73 | | |
| Oceana | SO16 | XRF | | 8 | 9 | SB | 32.0 | 20.5 | 24.0 | 44.3 | | 0.29 | 0.20 | 0.37 | 0.37 | | |
| Oceana | SO16 | XRF | | 9 | 10 | SB | 32.0 | 33.3 | 97.0 | 33.3 | | 0.48 | 0.81 | 0.28 | 0.81 | | |
| Oceana | SO17 | OCMGBR-SS17-0001-1213 | 12/11/2013 | 0 | 1 | SS | 9.45 | 702 | 3,580 | 107 | 0.30 | **10.03** | **29.83** | 0.89 | **29.83** | Lead | Copper, Lead |
| Oceana | SO17 | OCMGBR-SB17-0102-1213 | 12/11/2013 | 1 | 2 | SS | 3.06 | 365 | 1,630 | 102 | 0.10 | **5.21** | **13.58** | 0.85 | **13.58** | Lead | Copper, Lead |
| Oceana | SO17 | OCMGBR-SB17-0203-0914 | 9/24/2014 | 2 | 3 | SB | 21.4 | 2,230 | 9,720 | 228 | 0.69 | **31.86** | **81.00** | **1.90** | **81.00** | Lead | Copper, Lead |
| Oceana | SO17 | XRF | | 3 | 4 | SB | 17.3 | 755 | 2,507 | 229 | 0.56 | **10.78** | **20.89** | **1.91** | **20.89** | Lead | Copper, Lead |
| Oceana | SO17 | XRF | | 4 | 5 | SB | 32.0 | 25.2 | 97.3 | 24.7 | | 0.36 | 0.81 | 0.21 | 0.81 | | |
| Oceana | SO17 | XRF | | 5 | 6 | SB | 32.0 | 53.3 | 230 | 39.7 | | 0.76 | **1.92** | 0.33 | **1.92** | Lead | |
| Oceana | SO17 | XRF | | 6 | 7 | SB | 32.0 | 199 | 637 | 50.7 | | **2.85** | **5.31** | 0.42 | **5.31** | Lead | Lead |
| Oceana | SO17 | XRF | | 7 | 8 | SB | 32.0 | 89.0 | 413 | 49.3 | | **1.27** | **3.44** | 0.41 | **3.44** | Lead | |

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO17 | XRF | | 8 | 9 | SB | 32.0 | 82.7 | 282 | 36.0 | | **1.18** | **2.35** | 0.30 | **2.35** | Lead | |
| Oceana | SO17 | XRF | | 9 | 10 | SB | 32.0 | 240 | 1,294 | 85.0 | | **3.43** | **10.78** | 0.71 | **10.78** | Lead | Lead |
| Oceana | SO18 | OCMGBR-SS18-0001-1213 | 12/11/2013 | 0 | 1 | SS | 18.0 | 896 | 8,450 | 163 | 0.58 | **12.80** | **70.42** | **1.36** | **70.42** | Lead | Copper, Lead |
| Oceana | SO18 | OCMGBR-SB18-0102-1213 | 12/11/2013 | 1 | 2 | SS | 14.2 | 1,370 | 9,250 | 237 | 0.46 | **19.57** | **77.08** | **1.98** | **77.08** | Lead | Copper, Lead |
| Oceana | SO18 | OCMGBR-SB18-0203-1114 | 11/4/2014 | 2 | 3 | SB | 0.355 | 25.2 | 61.4 | 28.8 | 0.01 | 0.36 | 0.51 | 0.24 | 0.51 | | |
| Oceana | SO18 | XRF | | 3 | 4 | SB | 32.0 | 118 | 253 | 26.0 | | **1.69** | **2.11** | 0.22 | **2.11** | Lead | |
| Oceana | SO18 | XRF | | 4 | 5 | SB | 32.0 | 14.7 | 32.7 | 28.0 | | 0.21 | 0.27 | 0.23 | 0.27 | | |
| Oceana | SO18 | XRF | | 5 | 6 | SB | 32.0 | 24.8 | 158 | 28.3 | | 0.35 | **1.31** | 0.24 | **1.31** | Lead | |
| Oceana | SO18 | XRF | | 6 | 7 | SB | 32.0 | 18.3 | 102 | 28.0 | | 0.26 | 0.85 | 0.23 | 0.85 | | |
| Oceana | SO18 | XRF | | 7 | 8 | SB | 32.0 | 27.0 | 37.0 | 34.7 | | | 0.31 | 0.29 | 0.31 | | |
| Oceana | SO18 | XRF | | 8 | 9 | SB | 32.0 | 27.0 | 45.0 | 22.0 | | | 0.38 | 0.18 | 0.38 | | |
| Oceana | SO18 | XRF | | 9 | 10 | SB | 32.0 | 52.3 | 230 | 35.0 | | 0.75 | **1.92** | 0.29 | **1.92** | Lead | |
| Oceana | SO19 | OCMGBR-SS19-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.26 | 132 | 656 | 60.0 | 0.04 | **1.89** | **5.47** | 0.50 | **5.47** | Lead | Lead |
| Oceana | SO19 | OCMGBR-SB19-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.493 | 64.8 | 276 | 31.3 | 0.02 | 0.93 | **2.30** | 0.26 | **2.30** | Lead | |
| Oceana | SO19 | XRF | | 2 | 3 | SB | 32.0 | 16.7 | 23.7 | 43.7 | | 0.24 | 0.20 | 0.36 | 0.36 | | |
| Oceana | SO19 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 25.3 | 25.7 | | | 0.21 | 0.21 | 0.21 | | |
| Oceana | SO20 | OCMGBR-SS20-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.287 | 25.2 | 159 | 22.4 | 0.01 | 0.36 | **1.33** | 0.19 | **1.33** | Lead | |
| Oceana | SO20 | OCMGBR-SB20-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.248 | 16.3 | 56.5 | 18.2 | | 0.23 | 0.47 | 0.15 | 0.47 | | |
| Oceana | SO21 | OCMGBR-SS21-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.34 | 49.1 | 435 | 44.4 | 0.04 | 0.70 | **3.63** | 0.37 | **3.63** | Lead | |
| Oceana | SO21 | OCMGBR-SB21-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.680 | 28.6 | 228 | 31.8 | 0.02 | 0.41 | **1.90** | 0.27 | **1.90** | Lead | |
| Oceana | SO22 | OCMGBR-SS22-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.83 | 79.7 | 1,820 | 49.7 | 0.06 | **1.14** | **15.17** | 0.41 | **15.17** | Lead | Lead |
| Oceana | SO22 | OCMGBR-SB22-0102-1213 | 12/11/2013 | 1 | 2 | SS | 3.06 | 151 | 1,270 | 49.3 | 0.10 | **2.16** | **10.58** | 0.41 | **10.58** | Lead | Lead |
| Oceana | SO22 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 13.7 | 24.7 | | | 0.11 | 0.21 | 0.21 | | |
| Oceana | SO22 | OCMGBR-SB22-0304-0914 | 9/25/2014 | 3 | 4 | SB | 0.168 | 5.68 | 21.9 | 23.4 | 0.01 | 0.08 | 0.18 | 0.20 | 0.20 | | |
| Oceana | SO23 | OCMGBR-SS23-0001-1213 | 12/11/2013 | 0 | 1 | SS | 5.27 | 147 | 2,180 | 59.4 | 0.17 | **2.10** | **18.17** | 0.50 | **18.17** | Lead | Lead |
| Oceana | SO23 | OCMGBR-SB23-0102-1213 | 12/11/2013 | 1 | 2 | SS | 2.68 | 65.6 | 759 | 47.1 | 0.09 | 0.94 | **6.33** | 0.39 | **6.33** | Lead | Lead |
| Oceana | SO24 | OCMGBR-SS24-0001-1213 | 12/11/2013 | 0 | 1 | SS | 3.00 | 105 | 1,030 | 37.6 | 0.10 | **1.50** | **8.58** | 0.31 | **8.58** | Lead | Lead |
| Oceana | SO24 | OCMGBR-SB24-0102-1213 | 12/11/2013 | 1 | 2 | SS | 40.6 | 221 | 4,910 | 43.4 | **1.31** | **3.16** | **40.92** | 0.36 | **40.92** | Lead | Lead |
| Oceana | SO24 | XRF | | 2 | 3 | SB | 32.0 | 111 | 470 | 123 | | **1.59** | **3.92** | **1.03** | **3.92** | Lead | |
| Oceana | SO24 | XRF | | 3 | 4 | SB | 32.0 | 103 | 579 | 55.3 | | **1.47** | **4.82** | 0.46 | **4.82** | Lead | |
| Oceana | SO24 | XRF | | 4 | 5 | SB | 32.0 | 18.3 | 36.7 | 39.7 | | 0.26 | 0.31 | 0.33 | 0.33 | | |
| Oceana | SO24 | XRF | | 5 | 6 | SB | 32.0 | 16.3 | 24.0 | 27.3 | | 0.23 | 0.20 | 0.23 | 0.23 | | |
| Oceana | SO24 | XRF | | 6 | 7 | SB | 17.0 | 27.0 | 76.3 | 36.0 | 0.55 | | 0.64 | 0.30 | 0.64 | | |
| Oceana | SO24 | XRF | | 7 | 8 | SB | 32.0 | 27.0 | 28.3 | 36.0 | | | 0.24 | 0.30 | 0.30 | | |
| Oceana | SO25 | OCMGBR-SS25-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.33 | 42.6 | 472 | 22.4 | 0.04 | 0.61 | **3.93** | 0.19 | **3.93** | Lead | |
| Oceana | SO25 | OCMGBR-SB25-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.637 | 30.7 | 240 | 16.8 | 0.02 | 0.44 | **2.00** | 0.14 | **2.00** | Lead | |
| Oceana | SO26 | OCMGBR-SS26-0001-1213 | 12/11/2013 | 0 | 1 | SS | 9.47 | 672 | 4,020 | 89.7 | 0.31 | **9.60** | **33.50** | 0.75 | **33.50** | Lead | Copper, Lead |
| Oceana | SO26 | OCMGBR-SB26-0102-1213 | 12/11/2013 | 1 | 2 | SS | 5.12 | 444 | 1,900 | 86.2 | 0.17 | **6.34** | **15.83** | 0.72 | **15.83** | Lead | Copper, Lead |
| Oceana | SO26 | XRF | | 2 | 3 | SB | 32.0 | 53.7 | 180 | 51.0 | | 0.77 | **1.50** | 0.43 | **1.50** | Lead | |
| Oceana | SO26 | XRF | | 3 | 4 | SB | 32.0 | 34.0 | 60.0 | 45.3 | | 0.49 | 0.50 | 0.38 | 0.50 | | |
| Oceana | SO26 | XRF | | 4 | 5 | SB | 32.0 | 22.2 | 79.7 | 31.3 | | 0.32 | 0.66 | 0.26 | 0.66 | | |
| Oceana | SO26 | XRF | | 5 | 6 | SB | 18.0 | 20.7 | 52.0 | 28.0 | 0.58 | 0.30 | 0.43 | 0.23 | 0.58 | | |
| Oceana | SO27 | OCMGBR-SS27-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.14 | 170 | 1,060 | 78.9 | 0.04 | **2.43** | **8.83** | 0.66 | **8.83** | Lead | Lead |
| Oceana | SO27 | OCMGBR-SB27-0102-1213 | 12/11/2013 | 1 | 2 | SS | 1.17 | 104 | 361 | 63.1 | 0.04 | **1.49** | **3.01** | 0.53 | **3.01** | Lead | |
| Oceana | SO28 | OCMGBR-SS28-0001-1213 | 12/11/2013 | 0 | 1 | SS | 0.550 | 82.6 | 245 | 44.2 | 0.02 | **1.18** | **2.04** | 0.37 | **2.04** | Lead | |
| Oceana | SO28 | OCMGBR-SB28-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.466 | 57.1 | 174 | 39.8 | 0.02 | 0.82 | **1.45** | 0.33 | **1.45** | Lead | |
| Oceana | SO28 | OCMGBR-SB28-0203-0914 | 9/24/2014 | 2 | 3 | SB | 0.228 | 7.67 | 21.6 | 40.2 | | 0.11 | 0.18 | 0.34 | 0.34 | | |
| Oceana | SO28 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 20.0 | 71.0 | | | | 0.59 | 0.59 | | |
| Oceana | SO29 | OCMGBR-SS29-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.45 | 91.5 | 419 | 50.6 | 0.05 | **1.31** | **3.49** | 0.42 | **3.49** | Lead | |
| Oceana | SO29 | OCMGBR-SB29-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.674 | 53.5 | 227 | 43.6 | 0.02 | 0.76 | **1.89** | 0.36 | **1.89** | Lead | |

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO29 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 21.0 | 28.3 | | | 0.18 | 0.24 | 0.24 | | |
| Oceana | SO29 | XRF | | 3 | 4 | SB | 32.0 | 22.2 | 36.3 | 32.7 | | 0.32 | 0.30 | 0.27 | 0.32 | | |
| Oceana | SO30 | OCMGBR-SS30-0001-1213 | 12/11/2013 | 0 | 1 | SS | 10.7 | 280 | 3,080 | 155 | 0.35 | **4.00** | **25.67** | **1.29** | **25.67** | Lead | Lead |
| Oceana | SO30 | OCMGBR-SB30-0102-1213 | 12/11/2013 | 1 | 2 | SS | 5.10 | 191 | 1,080 | 171 | 0.16 | **2.73** | **9.00** | **1.43** | **9.00** | Lead | Lead |
| Oceana | SO31 | OCMGBR-SS31-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.51 | 63.4 | 402 | 45.7 | 0.05 | 0.91 | **3.35** | 0.38 | **3.35** | Lead | |
| Oceana | SO31 | OCMGBR-SB31-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.592 | 31.9 | 166 | 35.9 | 0.02 | 0.46 | **1.38** | 0.30 | **1.38** | Lead | |
| Oceana | SO31 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 10.7 | 26.7 | | | 0.09 | 0.22 | 0.22 | | |
| Oceana | SO31 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 10.7 | 27.7 | | | 0.09 | 0.23 | 0.23 | | |
| Oceana | SO32 | OCMGBR-SS32-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.16 | 78.5 | 353 | 54.7 | 0.04 | **1.12** | **2.94** | 0.46 | **2.94** | Lead | |
| Oceana | SO32 | OCMGBR-SB32-0102-1213 | 12/11/2013 | 1 | 2 | SS | 0.260 | 31.3 | 84.6 | 43.9 | 0.01 | 0.45 | 0.71 | 0.37 | 0.71 | | |
| Oceana | SO32 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 20.0 | 36.3 | | | | 0.30 | 0.30 | | |
| Oceana | SO38 | OCMGBR-SS38-0001-0914 | 9/24/2014 | 0 | 1 | SS | 0.212 | 3.45 | 6.57 | 11.9 | | 0.05 | 0.05 | 0.10 | 0.10 | | |
| Oceana | SO39 | XRF | | 0 | 1 | SS | 32.0 | 16.3 | 53.7 | 28.3 | | 0.23 | 0.45 | 0.24 | 0.45 | | |
| Oceana | SO40 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 20.0 | 24.7 | | | | 0.21 | 0.21 | | |
| Oceana | SO41 | XRF | | 0 | 1 | SS | 32.0 | 19.3 | 39.3 | 32.7 | | 0.28 | 0.33 | 0.27 | 0.33 | | |
| Oceana | SO42 | XRF | | 0 | 1 | SS | 32.0 | 27.3 | 18.7 | 38.3 | | 0.39 | 0.16 | 0.32 | 0.39 | | |
| Oceana | SO43 | OCMGBR-SS43-0001-0914 | 9/24/2014 | 0 | 1 | SS | 0.205 | 1.30 | 11.1 | 5.78 | | 0.02 | 0.09 | 0.05 | 0.09 | | |
| Oceana | SO44 | XRF | | 0 | 1 | SS | 28.7 | 27.0 | 20.0 | 25.0 | 0.92 | | | | 0.92 | | |
| Oceana | SO45 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 22.3 | 20.3 | | | 0.19 | 0.17 | 0.19 | | |
| Oceana | SO46 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 16.3 | 26.3 | | | 0.14 | 0.22 | 0.22 | | |
| Oceana | SO47 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 339 | 25.7 | | | **2.83** | 0.21 | **2.83** | Lead | |
| Oceana | SO47 | XRF | | 1 | 2 | SS | 32.0 | 27.0 | 20.0 | 27.0 | | | 0.17 | 0.23 | 0.23 | | |
| Oceana | SO47 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 20.0 | 14.2 | | | | 0.12 | 0.12 | | |
| Oceana | SO48 | XRF | | 0 | 1 | SS | 32.0 | 21.5 | 61.3 | 39.0 | | 0.31 | 0.51 | 0.33 | 0.51 | | |
| Oceana | SO49 | XRF | | 0 | 1 | SS | 32.0 | 20.2 | 40.3 | 27.7 | | 0.29 | 0.34 | 0.23 | 0.34 | | |
| Oceana | SO50 | XRF | | 0 | 1 | SS | 32.0 | 54.0 | 145 | 36.3 | | 0.77 | **1.21** | 0.30 | **1.21** | Lead | |
| Oceana | SO50 | XRF | | 1 | 2 | SS | 32.0 | 27.0 | 10.7 | 21.0 | | | 0.09 | 0.18 | 0.18 | | |
| Oceana | SO50 | XRF | | 2 | 3 | SB | 32.0 | 16.3 | 12.3 | 23.0 | | 0.23 | 0.10 | 0.19 | 0.23 | | |
| Oceana | SO51 | XRF | | 0 | 1 | SS | 32.0 | 30.3 | 26.7 | 28.0 | | 0.43 | 0.22 | 0.23 | 0.43 | | |
| Oceana | SO52 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 76.3 | 40.3 | | | 0.64 | 0.34 | 0.64 | | |
| Oceana | SO53 | XRF | | 0 | 1 | SS | 32.0 | 22.5 | 34.3 | 42.3 | | 0.32 | 0.29 | 0.35 | 0.35 | | |
| Oceana | SO54 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 38.7 | 35.7 | | | 0.32 | 0.30 | 0.32 | | |
| Oceana | SO55 | OCMGBR-SS55-0001-0914 | 9/25/2014 | 0 | 1 | SS | 0.436 | 31.3 | 449 | 55.0 | 0.01 | 0.45 | **3.74** | 0.46 | **3.74** | Lead | |
| Oceana | SO55 | XRF | | 1 | 2 | SS | 32.0 | 27.0 | 21.0 | 22.0 | | | 0.18 | 0.18 | 0.18 | | |
| Oceana | SO55 | XRF | | 2 | 3 | SB | 32.0 | 16.3 | 77.3 | 25.0 | | 0.23 | 0.64 | 0.21 | 0.64 | | |
| Oceana | SO55 | XRF | | 3 | 4 | SB | 32.0 | 16.7 | 14.0 | 35.3 | | 0.24 | 0.12 | 0.29 | 0.29 | | |
| Oceana | SO55 | XRF | | 4 | 5 | SB | 32.0 | 27.0 | 12.0 | 25.7 | | | 0.10 | 0.21 | 0.21 | | |
| Oceana | SO56 | XRF | | 0 | 1 | SS | 32.0 | 121 | 60.0 | 90.3 | | **1.73** | 0.50 | 0.75 | **1.73** | Copper | |
| Oceana | SO56 | XRF | | 1 | 2 | SS | 32.0 | 24.8 | 13.7 | 40.0 | | 0.35 | 0.11 | 0.33 | 0.35 | | |
| Oceana | SO56 | XRF | | 2 | 3 | SB | 32.0 | 19.3 | 14.7 | 32.3 | | 0.28 | 0.12 | 0.27 | 0.28 | | |
| Oceana | SO57 | XRF | | 0 | 1 | SS | 32.0 | 40.3 | 176 | 38.7 | | 0.58 | **1.47** | 0.32 | **1.47** | Lead | |
| Oceana | SO57 | XRF | | 1 | 2 | SS | 32.0 | 27.0 | 12.0 | 28.0 | | 0.39 | 0.10 | 0.23 | 0.39 | | |
| Oceana | SO57 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 20.0 | 21.3 | | 0.39 | 0.17 | 0.18 | 0.39 | | |
| Oceana | SO58 | XRF | | 0 | 1 | SS | 20.7 | 60.3 | 102 | 80.3 | 0.67 | 0.86 | 0.85 | 0.67 | 0.86 | | |
| Oceana | SO59 | XRF | | 0 | 1 | SS | 32.0 | 148 | 154 | 176 | | **2.11** | **1.28** | **1.47** | **2.11** | Copper | |
| Oceana | SO59 | XRF | | 1 | 2 | SS | 32.0 | 21.5 | 18.3 | 35.0 | | 0.31 | 0.15 | 0.29 | 0.31 | | |
| Oceana | SO59 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 12.3 | 29.0 | | | 0.10 | 0.24 | 0.24 | | |
| Oceana | SO60 | XRF | | 0 | 1 | SS | 32.0 | 269 | 38.0 | 1,215 | | **3.85** | 0.32 | **10.12** | **10.12** | Zinc | Zinc |
| Oceana | SO60 | XRF | | 1 | 2 | SS | 32.0 | 49.3 | 20.0 | 150 | | 0.70 | | **1.25** | **1.25** | Zinc | |
| Oceana | SO60 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 20.0 | 81.0 | | 0.39 | | 0.68 | 0.68 | | |

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO60 | XRF | | 3 | 4 | SB | 32.0 | 19.0 | 11.3 | 53.3 | | 0.27 | 0.09 | 0.44 | 0.44 | | |
| Oceana | SO60 | XRF | | 4 | 5 | SB | 32.0 | 19.0 | 20.0 | 36.3 | | 0.27 | | 0.30 | 0.30 | | |
| Oceana | SO61 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 22.3 | 29.7 | | | 0.19 | 0.25 | 0.25 | | |
| Oceana | SO62 | OCMGBR-SS62-0001-0914 | 9/25/2014 | 0 | 1 | SS | 0.262 | 9.20 | 56.6 | 23.0 | 0.01 | 0.13 | 0.47 | 0.19 | 0.47 | | |
| Oceana | SO63 | XRF | | 0 | 1 | SS | 32.0 | 22.5 | 25.7 | 32.0 | | 0.32 | 0.21 | 0.27 | 0.32 | | |
| Oceana | SO64 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 31.3 | 32.3 | | | 0.26 | 0.27 | 0.27 | | |
| Oceana | SO65 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 50.7 | 31.0 | | | 0.42 | 0.26 | 0.42 | | |
| Oceana | SO66 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 47.0 | 30.7 | | | 0.39 | 0.26 | 0.39 | | |
| Oceana | SO67 | XRF | | 0 | 1 | SS | 32.0 | 67.3 | 96.0 | 31.3 | | 0.96 | 0.80 | 0.26 | 0.96 | | |
| Oceana | SO68 | XRF | | 0 | 1 | SS | 32.0 | 17.3 | 12.0 | 25.7 | | 0.25 | 0.10 | 0.21 | 0.25 | | |
| Oceana | SO69 | XRF | | 0 | 1 | SS | 32.0 | 21.5 | 11.7 | 32.7 | | 0.31 | 0.10 | 0.27 | 0.31 | | |
| Oceana | SO70 | OCMGBR-SS70-0001-0914 | 9/23/2014 | 0 | 1 | SS | 0.212 | 9.89 | 51.5 | 24.2 | 0.01 | 0.14 | 0.43 | | 0.43 | | |
| Oceana | SO71 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 28.0 | 29.0 | | | 0.23 | 0.24 | 0.24 | | |
| Oceana | SO72 | OCMGBR-SS72-0001-0914 | 9/23/2014 | 0 | 1 | SS | 0.163 | 6.82 | 41.9 | 27.9 | 0.01 | 0.10 | 0.35 | | 0.35 | | |
| Oceana | SO73 | XRF | | 0 | 1 | SS | 32.0 | 18.0 | 9.33 | 23.7 | | 0.26 | 0.08 | 0.20 | 0.26 | | |
| Oceana | SO74 | XRF | | 0 | 1 | SS | 32.0 | 94.0 | 108 | 166 | | **1.34** | 0.90 | **1.39** | **1.39** | Zinc | |
| Oceana | SO74 | XRF | | 1 | 2 | SS | 32.0 | 20.5 | 20.7 | 39.0 | | 0.29 | 0.17 | 0.33 | 0.33 | | |
| Oceana | SO74 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 27.7 | 38.0 | | | 0.23 | 0.32 | 0.32 | | |
| Oceana | SO75 | XRF | | 0 | 1 | SS | 32.0 | 69.7 | 25.0 | 109 | | 1.00 | 0.21 | 0.91 | 1.00 | | |
| Oceana | SO76 | XRF | | 0 | 1 | SS | 32.0 | 140 | 59.7 | 607 | | **2.00** | 0.50 | **5.06** | **5.06** | Zinc | Zinc |
| Oceana | SO76 | XRF | | 1 | 2 | SS | 29.3 | 55.7 | 113 | 144 | 0.95 | 0.80 | 0.94 | **1.20** | **1.20** | Zinc | |
| Oceana | SO76 | OCMGBR-SB76-0203-1014 | 10/30/2014 | 2 | 3 | SB | 0.203 | 23.5 | 38.0 | 67.0 | | 0.34 | 0.32 | 0.56 | 0.56 | | |
| Oceana | SO76 | XRF | | 3 | 4 | SB | 32.0 | 17.7 | 15.0 | 35.0 | | 0.25 | 0.13 | 0.29 | 0.29 | | |
| Oceana | SO77 | XRF | | 0 | 1 | SS | 32.0 | 18.0 | 27.3 | 80.7 | | 0.26 | 0.23 | 0.67 | 0.67 | | |
| Oceana | SO78 | XRF | | 0 | 1 | SS | 32.0 | 137 | 71.0 | 301 | | **1.95** | 0.59 | **2.51** | **2.51** | Zinc | |
| Oceana | SO78 | XRF | | 1 | 2 | SS | 32.0 | 17.3 | 23.0 | 55.0 | | 0.25 | 0.19 | 0.46 | 0.46 | | |
| Oceana | SO78 | XRF | | 2 | 3 | SB | 32.0 | 18.7 | 17.7 | 39.0 | | 0.27 | 0.15 | 0.33 | 0.33 | | |
| Oceana | SO79 | XRF | | 0 | 1 | SS | 32.0 | 85.3 | 23.0 | 387 | | **1.22** | 0.19 | **3.22** | **3.22** | Zinc | |
| Oceana | SO79 | XRF | | 1 | 2 | SS | 32.0 | 34.3 | 14.3 | 182 | | 0.49 | 0.12 | **1.52** | **1.52** | Zinc | |
| Oceana | SO79 | XRF | | 2 | 3 | SB | 32.0 | 64.3 | 21.7 | 170 | | 0.92 | 0.18 | **1.41** | **1.41** | Zinc | |
| Oceana | SO79 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 12.3 | 29.7 | | | 0.10 | 0.25 | 0.25 | | |
| Oceana | SO79 | XRF | | 4 | 5 | SB | 32.0 | 27.0 | 11.7 | 21.3 | | | 0.10 | 0.18 | 0.18 | | |
| Oceana | SO80 | XRF | | 0 | 1 | SS | 32.0 | 21.2 | 20.0 | 36.7 | | 0.30 | | 0.31 | 0.31 | | |
| Oceana | SO81 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 10.7 | 27.0 | | | 0.09 | 0.23 | 0.23 | | |
| Oceana | SO82 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 16.0 | 27.7 | | | 0.13 | 0.23 | 0.23 | | |
| Oceana | SO83 | XRF | | 0 | 1 | SS | 32.0 | 22.5 | 18.3 | 35.0 | | 0.32 | 0.15 | 0.29 | 0.32 | | |
| Oceana | SO84 | XRF | | 0 | 1 | SS | 32.0 | 34.7 | 46.0 | 143 | | 0.50 | 0.38 | **1.19** | **1.19** | Zinc | |
| Oceana | SO84 | OCMGBR-SB84-0102-1114 | 11/3/2014 | 1 | 2 | SS | 0.205 | 7.78 | 13.6 | 21.2 | | 0.11 | 0.11 | 0.18 | 0.18 | | |
| Oceana | SO84 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 19.0 | 38.3 | | | 0.16 | 0.32 | 0.32 | | |
| Oceana | SO85 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 19.0 | 27.3 | | | 0.16 | 0.23 | 0.23 | | |
| Oceana | SO86 | XRF | | 0 | 1 | SS | 32.0 | 18.5 | 23.0 | 78.3 | | 0.26 | 0.19 | 0.65 | 0.65 | | |
| Oceana | SO87 | XRF | | 0 | 1 | SS | 32.0 | 26.5 | 1,857 | 52.0 | | 0.38 | **15.47** | 0.43 | **15.47** | Lead | Lead |
| Oceana | SO87 | XRF | | 1 | 2 | SS | 32.0 | 27.0 | 17.7 | 45.0 | | | 0.15 | 0.38 | 0.38 | | |
| Oceana | SO87 | XRF | | 2 | 3 | SB | 32.0 | 26.2 | 14.3 | 28.7 | | 0.37 | 0.12 | 0.24 | 0.37 | | |
| Oceana | SO88 | XRF | | 0 | 1 | SS | 32.0 | 23.2 | 21.7 | 45.7 | | 0.33 | 0.18 | 0.38 | 0.38 | | |
| Oceana | SO89 | XRF | | 0 | 1 | SS | 32.0 | 57.7 | 234 | 30.3 | | 0.82 | **1.95** | 0.25 | **1.95** | Lead | |
| Oceana | SO89 | XRF | | 1 | 2 | SS | 32.0 | 53.7 | 98.7 | 32.0 | | 0.77 | 0.82 | 0.27 | 0.82 | | |
| Oceana | SO89 | XRF | | 2 | 3 | SB | 32.0 | 20.0 | 33.7 | 26.7 | | 0.29 | 0.28 | 0.22 | 0.29 | | |
| Oceana | SO90 | XRF | | 0 | 1 | SS | 32.0 | 132 | 74.3 | 133 | | **1.89** | 0.62 | **1.11** | **1.89** | Copper | |
| Oceana | SO90 | XRF | | 1 | 2 | SS | 32.0 | 25.3 | 53.7 | 57.3 | | 0.36 | 0.45 | 0.48 | 0.48 | | |

TABLE A-2

Oceana MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Oceana | SO90 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 16.3 | 24.3 | | | 0.14 | 0.20 | 0.20 | | |
| Oceana | SO91 | XRF | | 0 | 1 | SS | 32.0 | 106 | 135 | 170 | | **1.51** | **1.13** | **1.42** | **1.51** | Copper | |
| Oceana | SO91 | XRF | | 1 | 2 | SS | 32.0 | 33.7 | 92.0 | 88.7 | | 0.48 | 0.77 | 0.74 | 0.77 | | |
| Oceana | SO91 | XRF | | 2 | 3 | SB | 32.0 | 27.0 | 16.0 | 38.0 | | | 0.13 | 0.32 | 0.32 | | |
| Oceana | SO92 | XRF | | 0 | 1 | SS | 32.0 | 126 | 91.0 | 116 | | **1.80** | 0.76 | 0.97 | **1.80** | Copper | |
| Oceana | SO92 | OCMGBR-SB92-0102-1014 | 10/31/2014 | 1 | 2 | SS | 0.251 | 655 | 76.9 | 325 | 0.01 | **9.36** | 0.64 | **2.71** | **9.36** | Copper | Copper |
| Oceana | SO92 | XRF | | 2 | 3 | SB | 32.0 | 19.5 | 15.0 | 36.3 | | 0.28 | 0.13 | 0.30 | 0.30 | | |
| Oceana | SO92 | XRF | | 3 | 4 | SB | 32.0 | 27.0 | 11.0 | 25.0 | | | 0.09 | | 0.09 | | |
| Oceana | SO93 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 21.3 | 30.0 | | | 0.18 | 0.25 | 0.25 | | |
| Oceana | SO94 | XRF | | 0 | 1 | SS | 32.0 | 47.7 | 36.0 | 218 | | 0.68 | 0.30 | **1.81** | **1.81** | Zinc | |
| Oceana | SO94 | OCMGBR-SB94-0102-1014 | 10/31/2014 | 1 | 2 | SS | 0.202 | 6.53 | 8.96 | 60.0 | | 0.09 | 0.07 | 0.50 | 0.50 | | |
| Oceana | SO94 | XRF | | 2 | 3 | SB | 32.0 | 17.3 | 20.0 | 52.7 | | 0.25 | 0.17 | 0.44 | 0.44 | | |
| Oceana | SO95 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 34.0 | 36.0 | | | 0.28 | 0.30 | 0.30 | | |
| Oceana | SO96 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 22.0 | 21.3 | | | 0.18 | 0.18 | 0.18 | | |
| Oceana | SO97 | XRF | | 0 | 1 | SS | 32.0 | 16.7 | 16.3 | 29.3 | | 0.24 | 0.14 | 0.24 | 0.24 | | |
| Oceana | SO98 | XRF | | 0 | 1 | SS | 32.0 | 16.0 | 91.0 | 51.7 | | 0.23 | 0.76 | 0.43 | 0.76 | | |
| Oceana | SO99 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 33.0 | 35.0 | | | 0.28 | 0.29 | 0.29 | | |
| Oceana | SO100 | XRF | | 0 | 1 | SS | 32.0 | 456 | 2,390 | 85.0 | | **6.51** | **19.92** | 0.71 | **19.92** | Lead | Copper; Lead |
| Oceana | SO101 | XRF | | 0 | 1 | SS | 32.0 | 22.5 | 143 | 42.7 | | 0.32 | **1.19** | 0.36 | **1.19** | Lead | |
| Oceana | SO102 | XRF | | 0 | 1 | SS | 32.0 | 18.0 | 43.3 | 26.7 | | 0.26 | 0.36 | 0.22 | 0.36 | | |
| Oceana | SO103 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 16.0 | 42.3 | | | 0.13 | 0.35 | 0.35 | | |
| Oceana | SO104 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 11.3 | 28.0 | | | 0.09 | 0.23 | 0.23 | | |
| Oceana | SO105 | XRF | | 0 | 1 | SS | 32.0 | 17.0 | 13.3 | 27.3 | | 0.24 | 0.11 | 0.23 | 0.24 | | |
| Oceana | SO106 | XRF | | 0 | 1 | SS | 32.0 | 18.0 | 41.0 | 36.3 | | 0.26 | 0.34 | 0.30 | 0.34 | | |
| Oceana | SO109 | XRF | | 0 | 1 | SS | 32.0 | 17.0 | 144 | 28.0 | | 0.24 | **1.20** | 0.23 | **1.20** | Lead | |
| Oceana | SO110 | XRF | | 0 | 1 | SS | 32.0 | 17.0 | 43.0 | 31.0 | | 0.24 | 0.36 | 0.26 | 0.36 | | |
| Oceana | SO111 | OCMGBR-SS111-0001-1114 | 11/5/2014 | 0 | 1 | SS | 0.172 | 17.3 | 63.4 | 25.2 | 0.01 | 0.25 | 0.53 | 0.21 | 0.53 | | |
| Oceana | SO112 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 71.7 | 31.3 | | | 0.60 | 0.26 | 0.60 | | |
| Oceana | SO113 | OCMGBR-SS113-0001-1114 | 11/5/2014 | 0 | 1 | SS | 0.814 | 8.79 | 56.6 | 21.1 | 0.03 | 0.13 | 0.47 | 0.18 | 0.47 | | |
| Oceana | SO114 | XRF | | 0 | 1 | SS | 32.0 | 27.0 | 33.7 | 147 | | | 0.28 | **1.23** | **1.23** | Zinc | |

Notes:

1 - Red shading indicates maximum ratios >5; orange shading indicates maximum ratios between 2 and 5; green shading indicates maximum ratios between 1 and 2

Gray shaded concentrations indicate detections

NA - Not Available

TABLE A-3

Oceana MGBR - Removal Scenario (UCL)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc |
| **Current Conditions (No Samples Removed)** | | | | | | | | | | | | | | |
| | | | | | **UCL Current Conditions** | | 8.84 | 229 | 1,777 | 75.5 | | | | |
| **STEP 1 (SRG Ratio >10)** | | | | | | | | | | | | | | |
| Oceana | SO07 | OCMGBR-SB07-0304-1213 | 12/11/2013 | 3 | 4 | SB | 34.7 | 1,230 | 28,400 | 248 | **1.12** | **17.57** | **236.67** | **2.07** |
| Oceana | SO07 | OCMGBR-SB07-0203-1213 | 12/11/2013 | 2 | 3 | SB | 27.6 | 584 | 8,790 | 136 | 0.89 | **8.34** | **73.25** | **1.13** |
| Oceana | SO07 | OCMGBR-SB07-0610 | 6/18/2010 | 1 | 2 | SS | 0.804 | 40.2 | 286 | 24.1 | | 0.57 | **2.38** | 0.20 |
| Oceana | SO07 | OCMGBR-SS07-0610 | 6/18/2010 | 0 | 1 | SS | 0.934 | 253 | 2,750 | 63.0 | 0.03 | **3.61** | **22.92** | 0.53 |
| Oceana | SO08 | OCMGBR-SS08-0610 | 6/18/2010 | 0 | 1 | SS | 13.1 | 4,310 | 19,500 | 524 | 0.42 | **61.57** | **162.50** | **4.37** |
| Oceana | SO06 | OCMGBR-SB06-0203-1213 | 12/11/2013 | 2 | 3 | SB | 44.0 | 62.3 | 19,400 | 38.8 | **1.42** | 0.89 | **161.67** | 0.32 |
| Oceana | SO06 | OCMGBR-SB06-0610 | 6/18/2010 | 1 | 2 | SS | 0.588 | 1,060 | 747 | 216 | 0.02 | **15.14** | **6.23** | **1.80** |
| Oceana | SO06 | OCMGBR-SS06-0610 | 6/18/2010 | 0 | 1 | SS | 4.93 | 1,830 | 3,500 | 371 | 0.16 | **26.14** | **29.17** | **3.09** |
| Oceana | SO05 | OCMGBR-SB05-0610 | 6/18/2010 | 1 | 2 | SS | 57.1 | 721 | 16,000 | 159 | **1.84** | **10.30** | **133.33** | **1.33** |
| Oceana | SO05 | OCMGBR-SS05-0610 | 6/18/2010 | 0 | 1 | SS | 7.73 | 1,100 | 13,500 | 195 | 0.25 | **15.71** | **112.50** | **1.63** |
| Oceana | SO06 | OCMGBR-SB06-0304-1213 | 12/11/2013 | 3 | 4 | SB | 61.7 | 292 | 12,200 | 63.0 | **1.99** | **4.17** | **101.67** | 0.53 |
| Oceana | SO16 | OCMGBR-SS16-0001-1213 | 12/11/2013 | 0 | 1 | SS | 44.4 | 1,440 | 12,100 | 158 | **1.43** | **20.57** | **100.83** | **1.32** |
| Oceana | SO17 | OCMGBR-SB17-0203-0914 | 9/24/2014 | 2 | 3 | SB | 21.4 | 2,230 | 9,720 | 228 | 0.69 | **31.86** | **81.00** | **1.90** |
| Oceana | SO17 | OCMGBR-SB17-0102-1213 | 12/11/2013 | 1 | 2 | SS | 3.06 | 365 | 1,630 | 102 | 0.10 | **5.21** | **13.58** | 0.85 |
| Oceana | SO17 | OCMGBR-SS17-0001-1213 | 12/11/2013 | 0 | 1 | SS | 9.45 | 702 | 3,580 | 107 | 0.30 | **10.03** | **29.83** | 0.89 |
| Oceana | SO18 | OCMGBR-SB18-0102-1213 | 12/11/2013 | 1 | 2 | SS | 14.2 | 1,370 | 9,250 | 237 | 0.46 | **19.57** | **77.08** | **1.98** |
| Oceana | SO18 | OCMGBR-SS18-0001-1213 | 12/11/2013 | 0 | 1 | SS | 18.0 | 896 | 8,450 | 163 | 0.58 | **12.80** | **70.42** | **1.36** |
| Oceana | SO02 | OCMGBR-SS02-0610 | 6/18/2010 | 0 | 1 | SS | 4.66 | 582 | 9,210 | 87.6 | 0.15 | **8.31** | **76.75** | 0.73 |
| Oceana | SO15 | OCMGBR-SS15-0001-1213 | 12/11/2013 | 0 | 1 | SS | 28.0 | 564 | 5,130 | 100 | 0.90 | **8.06** | **42.75** | 0.83 |
| Oceana | SO24 | OCMGBR-SB24-0102-1213 | 12/11/2013 | 1 | 2 | SS | 40.6 | 221 | 4,910 | 43.4 | **1.31** | **3.16** | **40.92** | 0.36 |
| Oceana | SO24 | OCMGBR-SS24-0001-1213 | 12/11/2013 | 0 | 1 | SS | 3.00 | 105 | 1,030 | 37.6 | 0.10 | **1.50** | **8.58** | 0.31 |
| Oceana | SO02 | OCMGBR-SB02-0610 | 6/18/2010 | 1 | 2 | SS | 4.31 | 251 | 4,900 | 49.7 | 0.14 | **3.59** | **40.83** | 0.41 |
| Oceana | SO26 | OCMGBR-SS26-0001-1213 | 12/11/2013 | 0 | 1 | SS | 9.47 | 672 | 4,020 | 89.7 | 0.31 | **9.60** | **33.50** | 0.75 |
| Oceana | SO16 | OCMGBR-SB16-0102-1213 | 12/11/2013 | 1 | 2 | SS | 13.3 | 788 | 3,950 | 233 | 0.43 | **11.26** | **32.92** | **1.94** |
| Oceana | SO03 | OCMGBR-SS03-0610 | 6/18/2010 | 0 | 1 | SS | 7.32 | 187 | 3,770 | 35.3 | 0.24 | **2.67** | **31.42** | 0.29 |
| Oceana | SO30 | OCMGBR-SS30-0001-1213 | 12/11/2013 | 0 | 1 | SS | 10.7 | 280 | 3,080 | 155 | 0.35 | **4.00** | **25.67** | **1.29** |
| Oceana | SO03 | OCMGBR-SB03-0203-1213 | 12/11/2013 | 2 | 3 | SB | 7.79 | 426 | 2,930 | 60.9 | 0.25 | **6.09** | **24.42** | 0.51 |
| Oceana | SO03 | OCMGBR-SB03-0610 | 6/18/2010 | 1 | 2 | SS | 0.288 | 78.7 | 593 | 21.9 | 0.01 | **1.12** | **4.94** | 0.18 |
| Oceana | SO03 | OCMGBR-SB03-0304-1213 | 12/11/2013 | 3 | 4 | SB | 8.58 | 781 | 2,610 | 61.6 | 0.28 | **11.16** | **21.75** | 0.51 |
| Oceana | SO17 | XRF | | 3 | 4 | SB | 17.3 | 755 | 2,507 | 229 | 0.56 | **10.78** | **20.89** | **1.91** |
| Oceana | SO100 | XRF | | 0 | 1 | SS | 32.0 | 456 | 2,390 | 85.0 | | **6.51** | **19.92** | 0.71 |
| Oceana | SO15 | OCMGBR-SB15-0102-1213 | 12/11/2013 | 1 | 2 | SS | 4.04 | 503 | 2,290 | 132 | 0.13 | **7.19** | **19.08** | **1.10** |
| Oceana | SO23 | OCMGBR-SS23-0001-1213 | 12/11/2013 | 0 | 1 | SS | 5.27 | 147 | 2,180 | 59.4 | 0.17 | **2.10** | **18.17** | 0.50 |
| Oceana | SO26 | OCMGBR-SB26-0102-1213 | 12/11/2013 | 1 | 2 | SS | 5.12 | 444 | 1,900 | 86.2 | 0.17 | **6.34** | **15.83** | 0.72 |
| Oceana | SO87 | XRF | | 0 | 1 | SS | 32.0 | 26.5 | 1,857 | 52.0 | | 0.38 | **15.47** | 0.43 |
| Oceana | SO22 | OCMGBR-SS22-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.83 | 79.7 | 1,820 | 49.7 | 0.06 | **1.14** | **15.17** | 0.41 |
| Oceana | SO14 | OCMGBR-SS14-0001-1213 | 12/11/2013 | 0 | 1 | SS | 3.39 | 115 | 1,740 | 47.4 | 0.11 | **1.64** | **14.50** | 0.40 |
| Oceana | SO08 | OCMGBR-SB08-0610 | 6/18/2010 | 1 | 2 | SS | 0.301 | 806 | 740 | 281 | 0.01 | **11.51** | **6.17** | **2.34** |
| Oceana | SO08 | OCMGBR-SB08-0203-1213 | 12/11/2013 | 2 | 3 | SB | 6.49 | 172 | 1,330 | 55.6 | 0.21 | **2.46** | **11.08** | 0.46 |
| Oceana | SO17 | XRF | | 9 | 10 | SB | 32.0 | 240 | 1,294 | 85.0 | | **3.43** | **10.78** | 0.71 |
| Oceana | SO17 | XRF | | 8 | 9 | SB | 32.0 | 82.7 | 282 | 36.0 | | **1.18** | **2.35** | 0.30 |
| Oceana | SO17 | XRF | | 7 | 8 | SB | 32.0 | 89.0 | 413 | 49.3 | | **1.27** | **3.44** | 0.41 |
| Oceana | SO17 | XRF | | 6 | 7 | SB | 32.0 | 199 | 637 | 50.7 | | **2.85** | **5.31** | 0.42 |
| Oceana | SO17 | XRF | | 5 | 6 | SB | 32.0 | 53.3 | 230 | 39.7 | | 0.76 | **1.92** | 0.33 |
| Oceana | SO17 | XRF | | 4 | 5 | SB | 32.0 | 25.2 | 97.3 | 24.7 | | 0.36 | 0.81 | 0.21 |

TABLE A-3

Oceana MGBR - Removal Scenario (UCL)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | | CONCENTRATION-to-SRG RATIOS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 31.0 | 70.0 | 120 | 120 | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 31.0 | 70.0 | 120 | 120 | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Antimony | Copper | Lead | Zinc | Antimony | Copper | Lead | Zinc |
| Oceana | SO22 | OCMGBR-SB22-0102-1213 | 12/11/2013 | 1 | 2 | SS | 3.06 | 151 | 1,270 | 49.3 | 0.10 | **2.16** | **10.58** | 0.41 |
| Oceana | SO03 | XRF | | 5 | 6 | SB | 32.0 | 136 | 1,226 | 59.7 | | **1.94** | **10.21** | 0.50 |
| Oceana | SO03 | XRF | | 4 | 5 | SB | 32.0 | 52.0 | 306 | 38.7 | | 0.74 | **2.55** | 0.32 |
| Oceana | SO60 | XRF | | 0 | 1 | SS | 32.0 | 269 | 38.0 | 1,215 | | **3.85** | 0.32 | **10.12** |
| | | | | | **UCL Step 1** | | 3.94 | 45.5 | 191 | 56.2 | | | | |
| | | | | | Maximum | | 29.3 | 655 | 1,080 | 607 | 0.95 | **9.36** | **9.00** | **5.06** |
| **STEP 2 (SRG Ratio >5)** | | | | | | | | | | | | | | |
| Oceana | SO92 | OCMGBR-SB92-0102-1014 | 10/31/2014 | 1 | 2 | SS | 0.251 | 655 | 76.9 | 325 | 0.01 | **9.36** | 0.64 | **2.71** |
| Oceana | SO92 | XRF | | 0 | 1 | SS | 32.0 | 126 | 91.0 | 116 | | **1.80** | 0.76 | 0.97 |
| Oceana | SO30 | OCMGBR-SB30-0102-1213 | 12/11/2013 | 1 | 2 | SS | 5.10 | 191 | 1,080 | 171 | 0.16 | **2.73** | **9.00** | **1.43** |
| Oceana | SO27 | OCMGBR-SS27-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.14 | 170 | 1,060 | 78.9 | 0.04 | **2.43** | **8.83** | 0.66 |
| Oceana | SO03 | XRF | | 6 | 7 | SB | 32.0 | 94.0 | 1,030 | 52.7 | | **1.34** | **8.58** | 0.44 |
| Oceana | SO04 | OCMGBR-SB04-0203-1213 | 12/11/2013 | 2 | 3 | SB | 5.35 | 153 | 983 | 31.5 | 0.17 | **2.19** | **8.19** | 0.26 |
| Oceana | SO04 | OCMGBR-SB04-0610 | 6/18/2010 | 1 | 2 | SS | 0.926 | 102 | 970 | 31.1 | 0.03 | **1.46** | **8.08** | 0.26 |
| Oceana | SO04 | OCMGBR-SS04-0610 | 6/18/2010 | 0 | 1 | SS | 0.955 | 65.5 | 668 | 26.5 | | 0.94 | **5.57** | 0.22 |
| Oceana | SO14 | OCMGBR-SB14-0102-1213 | 12/11/2013 | 1 | 2 | SS | 2.84 | 54.5 | 895 | 33.8 | 0.09 | 0.78 | **7.46** | 0.28 |
| Oceana | SO23 | OCMGBR-SB23-0102-1213 | 12/11/2013 | 1 | 2 | SS | 2.68 | 65.6 | 759 | 47.1 | 0.09 | 0.94 | **6.33** | 0.39 |
| Oceana | SO19 | OCMGBR-SS19-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.26 | 132 | 656 | 60.0 | 0.04 | **1.89** | **5.47** | 0.50 |
| Oceana | SO76 | XRF | | 0 | 1 | SS | 32.0 | 140 | 59.7 | 607 | | **2.00** | 0.50 | **5.06** |
| | | | | | **UCL Step 2** | | 4.25 | 35.5 | 140 | 49.1 | | | | |
| | | | | | Maximum | | 29.3 | 322 | 579 | 387 | 0.95 | **4.60** | **4.82** | **3.22** |
| **STEP 3** | | | | | | | | | | | | | | |
| Oceana | SO24 | XRF | | 3 | 4 | SB | 32.0 | 103 | 579 | 55.3 | | **1.47** | **4.82** | 0.46 |
| Oceana | SO24 | XRF | | 2 | 3 | SB | 32.0 | 111 | 470 | 123 | | **1.59** | **3.92** | **1.03** |
| Oceana | SO04 | OCMGBR-SB04-0304-1213 | 12/11/2013 | 3 | 4 | SB | 1.49 | 322 | 444 | 26.7 | 0.05 | **4.60** | **3.70** | 0.22 |
| Oceana | SO06 | XRF | | 6 | 7 | SB | 32.0 | 86.3 | 539 | 40.7 | | **1.23** | **4.49** | 0.34 |
| Oceana | SO06 | XRF | | 5 | 6 | SB | 32.0 | 64.3 | 481 | 36.7 | | 0.92 | **4.01** | 0.31 |
| Oceana | SO06 | XRF | | 4 | 5 | SB | 32.0 | 28.7 | 249 | 37.3 | | 0.41 | **2.08** | 0.31 |
| Oceana | SO13 | OCMGBR-SS13-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.12 | 35.9 | 537 | 35.5 | 0.04 | 0.51 | **4.48** | 0.30 |
| Oceana | SO25 | OCMGBR-SS25-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.33 | 42.6 | 472 | 22.4 | 0.04 | 0.61 | **3.93** | 0.19 |
| Oceana | SO55 | OCMGBR-SS55-0001-0914 | 9/25/2014 | 0 | 1 | SS | 0.436 | 31.3 | 449 | 55.0 | 0.01 | 0.45 | **3.74** | 0.46 |
| Oceana | SO21 | OCMGBR-SS21-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.34 | 49.1 | 435 | 44.4 | 0.04 | 0.70 | **3.63** | 0.37 |
| Oceana | SO29 | OCMGBR-SS29-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.45 | 91.5 | 419 | 50.6 | 0.05 | **1.31** | **3.49** | 0.42 |
| Oceana | SO31 | OCMGBR-SS31-0001-1213 | 12/11/2013 | 0 | 1 | SS | 1.51 | 63.4 | 402 | 45.7 | 0.05 | 0.91 | **3.35** | 0.38 |
| | | | | | **UCL Step 3** | | 7.12 | 31.6 | 111 | 49.3 | | | | |
| | | | | | Maximum - All depths | | 29.3 | 148 | 397 | 387 | 0.95 | **2.11** | **3.31** | **3.22** |
| | | | | | Maximum - SS | | 29.3 | 148 | 361 | 387 | 0.95 | **2.11** | **3.01** | **3.22** |
| | | | | | UCL - SS | | 8.34 | 35.3 | 106 | 62.1 | 0.27 | 0.50 | 0.89 | 0.52 |

Notes:

Red shading indicates maximum ratios >5; orange shading indicates maximum ratios between 2 and 5; green shading indicates maximum ratios between 1 and 2

Gray shaded concentrations indicate detections

NA - Not Available

Yellow shading indicates sample depths that were removed because they were shallower in the soil column than a sample depth that was removed

TABLE A-4

Fentress MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Fentress | SO01 | OFMGBR-SS01-0610 | 6/18/2010 | 0 | 1 | SS | 727 | 5,530 | 93.7 | **10.39** | **46.08** | 0.78 | **46.08** | Lead | Copper; Lead |
| Fentress | SO01 | OFMGBR-SB01-0610 | 6/18/2010 | 1 | 2 | SS | 15.0 | 706 | 21.4 | 0.21 | **5.88** | 0.18 | **5.88** | Lead | Lead |
| Fentress | SO01 | OFMGBR-SB01-0203-1213 | 12/13/2013 | 2 | 3 | SB | 25.0 | 67.8 | 18.3 | 0.36 | 0.57 | 0.15 | 0.57 | | |
| Fentress | SO01 | OFMGBR-SB01-0304-1213 | 12/13/2013 | 3 | 4 | SB | 53.5 | 4,790 | 24.9 | 0.76 | **39.92** | 0.21 | **39.92** | Lead | Lead |
| Fentress | SO01 | XRF | | 4 | 5 | SB | 18.8 | 68.3 | 28.7 | 0.27 | 0.57 | 0.24 | 0.57 | | |
| Fentress | SO01 | XRF | | 5 | 6 | SB | 24.0 | 63.0 | 19.7 | 0.34 | 0.53 | 0.16 | 0.53 | | |
| Fentress | SO02 | OFMGBR-SS02-0610 | 6/18/2010 | 0 | 1 | SS | 206 | 406 | 46.3 | **2.94** | **3.38** | 0.39 | **3.38** | Lead | |
| Fentress | SO02 | OFMGBR-SB02-0610 | 6/18/2010 | 1 | 2 | SS | 366 | 3,240 | 43.7 | **5.23** | **27.00** | 0.36 | **27.00** | Lead | Copper; Lead |
| Fentress | SO02 | OFMGBR-SB02-0203-1213 | 12/13/2013 | 2 | 3 | SB | 27.4 | 174 | 18.1 | 0.39 | **1.45** | 0.15 | **1.45** | Lead | |
| Fentress | SO02 | OFMGBR-SB02-0304-1213 | 12/13/2013 | 3 | 4 | SB | 29.0 | 158 | 17.4 | 0.41 | **1.32** | 0.15 | **1.32** | Lead | |
| Fentress | SO02 | XRF | | 4 | 5 | SB | 78.3 | 514 | 36.7 | **1.12** | **4.28** | 0.31 | **4.28** | Lead | |
| Fentress | SO02 | XRF | | 5 | 6 | SB | 65.3 | 277 | 29.7 | 0.93 | **2.31** | 0.25 | **2.31** | Lead | |
| Fentress | SO02 | XRF | | 6 | 7 | SB | 36.7 | 94.0 | 26.7 | 0.52 | 0.78 | 0.22 | 0.78 | | |
| Fentress | SO02 | XRF | | 7 | 8 | SB | 27.0 | 33.0 | 30.3 | | 0.28 | 0.25 | 0.28 | | |
| Fentress | SO03 | OFMGBR-SS03-0610 | 6/18/2010 | 0 | 1 | SS | 168 | 242 | 24.4 | **2.40** | **2.02** | 0.20 | **2.40** | Copper | |
| Fentress | SO03 | OFMGBR-SB03-0610 | 6/18/2010 | 1 | 2 | SS | 31.2 | 62.7 | 18.3 | 0.45 | 0.52 | 0.15 | 0.52 | | |
| Fentress | SO03 | OFMGBR-SB03-0203-1213 | 12/13/2013 | 2 | 3 | SB | 16.9 | 58.3 | 17.9 | 0.24 | 0.49 | 0.15 | 0.49 | | |
| Fentress | SO03 | OFMGBR-SB03-0304-1213 | 12/13/2013 | 3 | 4 | SB | 17.7 | 146 | 16.7 | 0.25 | **1.22** | 0.14 | **1.22** | Lead | |
| Fentress | SO03 | XRF | | 4 | 5 | SB | 18.5 | 61.7 | 28.3 | 0.26 | 0.51 | 0.24 | 0.51 | | |
| Fentress | SO03 | XRF | | 5 | 6 | SB | 26.3 | 30.0 | 24.0 | 0.38 | 0.25 | 0.20 | 0.38 | | |
| Fentress | SO04 | OFMGBR-SS04-0610 | 6/18/2010 | 0 | 1 | SS | 68,400 | 17,100 | 6,290 | **977.14** | **142.50** | **52.42** | **977.14** | Copper | Copper; Lead; Zinc |
| Fentress | SO04 | OFMGBR-SB04-0610 | 6/18/2010 | 1 | 2 | SS | 556 | 8,970 | 198 | **7.94** | **74.75** | **1.65** | **74.75** | Lead | Copper; Lead |
| Fentress | SO04 | OFMGBR-SB04-0203-1213 | 12/13/2013 | 2 | 3 | SB | 6.87 | 16.0 | 15.7 | 0.10 | 0.13 | 0.13 | 0.13 | | |
| Fentress | SO04 | OFMGBR-SB04-0304-1213 | 12/13/2013 | 3 | 4 | SB | 7.87 | 16.7 | 15.0 | 0.11 | 0.14 | 0.13 | 0.14 | | |
| Fentress | SO05 | OFMGBR-SS05-0610 | 6/18/2010 | 0 | 1 | SS | 191 | 1,280 | 47.2 | **2.73** | **10.67** | 0.39 | **10.67** | Lead | Lead |
| Fentress | SO05 | OFMGBR-SB05-0610 | 6/18/2010 | 1 | 2 | SS | 100 | 662 | 26.1 | **1.43** | **5.52** | 0.22 | **5.52** | Lead | Lead |
| Fentress | SO05 | OFMGBR-SB05-0203-1213 | 12/13/2013 | 2 | 3 | SB | 22.8 | 97.1 | 18.3 | 0.33 | 0.81 | 0.15 | 0.81 | | |
| Fentress | SO05 | OFMGBR-SB05-0304-1213 | 12/13/2013 | 3 | 4 | SB | 10.7 | 34.6 | 14.2 | 0.15 | 0.29 | 0.12 | 0.29 | | |
| Fentress | SO06 | OFMGBR-SS06-0610 | 6/18/2010 | 0 | 1 | SS | 457 | 4,790 | 93.3 | **6.53** | **39.92** | 0.78 | **39.92** | Lead | Copper; Lead |
| Fentress | SO06 | OFMGBR-SB06-0610 | 6/18/2010 | 1 | 2 | SS | 210 | 2,080 | 73.6 | **3.00** | **17.33** | 0.61 | **17.33** | Lead | Lead |
| Fentress | SO06 | OFMGBR-SB06-0203-1213 | 12/13/2013 | 2 | 3 | SB | 79.2 | 481 | 30.4 | **1.13** | **4.01** | 0.25 | **4.01** | Lead | |
| Fentress | SO06 | OFMGBR-SB06-0304-1213 | 12/13/2013 | 3 | 4 | SB | 40.9 | 355 | 24.3 | 0.58 | **2.96** | 0.20 | **2.96** | Lead | |
| Fentress | SO06 | XRF | | 4 | 5 | SB | 69.3 | 395 | 32.3 | 0.99 | **3.29** | 0.27 | **3.29** | Lead | |
| Fentress | SO06 | OFMGBR-SB06-0506-1014 | 10/2/2014 | 5 | 6 | SB | 20.4 | 153 | 19.4 | 0.29 | **1.28** | | **1.28** | Lead | |
| Fentress | SO06 | XRF | | 6 | 7 | SB | 21.5 | 151 | 26.7 | 0.31 | **1.26** | 0.22 | **1.26** | Lead | |
| Fentress | SO06 | XRF | | 7 | 8 | SB | 33.7 | 181 | 26.3 | 0.48 | **1.51** | 0.22 | **1.51** | Lead | |
| Fentress | SO06 | XRF | | 8 | 9 | SB | 30.7 | 172 | 27.3 | 0.44 | **1.43** | 0.23 | **1.43** | Lead | |
| Fentress | SO06 | XRF | | 9 | 10 | SB | 27.0 | 83.3 | 30.7 | 0.39 | 0.69 | 0.26 | 0.69 | | |
| Fentress | SO07 | OFMGBR-SS07-0610 | 6/18/2010 | 0 | 1 | SS | 72.8 | 775 | 17.5 | **1.04** | **6.46** | 0.15 | **6.46** | Lead | Lead |
| Fentress | SO07 | OFMGBR-SB07-0610 | 6/18/2010 | 1 | 2 | SS | 14.6 | 83.3 | 12.3 | 0.21 | 0.69 | 0.10 | 0.69 | | |
| Fentress | SO07 | OFMGBR-SB07-0203-1213 | 12/13/2013 | 2 | 3 | SB | 75.5 | 359 | 26.8 | **1.08** | **2.99** | 0.22 | **2.99** | Lead | |
| Fentress | SO07 | OFMGBR-SB07-0304-1213 | 12/13/2013 | 3 | 4 | SB | 183 | 93.6 | 30.9 | **2.61** | 0.78 | 0.26 | **2.61** | Lead | |
| Fentress | SO07 | XRF | | 4 | 5 | SB | 19.0 | 110 | 31.0 | 0.27 | 0.92 | 0.26 | 0.92 | | |
| Fentress | SO07 | XRF | | 5 | 6 | SB | 19.5 | 41.0 | 26.7 | 0.28 | 0.34 | 0.22 | 0.34 | | |
| Fentress | SO08 | OFMGBR-SS08-0610 | 6/18/2010 | 0 | 1 | SS | 338 | 4,050 | 80.2 | **4.83** | **33.75** | 0.67 | **33.75** | Lead | Lead |

TABLE A-4

Fentress MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Fentress | SO08 | OFMGBR-SB08-0610 | 6/18/2010 | 1 | 2 | SS | 262 | 1,980 | 54.2 | **3.74** | **16.50** | 0.45 | **16.50** | Lead | Lead |
| Fentress | SO08 | OFMGBR-SB08-0203-1213 | 12/13/2013 | 2 | 3 | SB | 54.6 | 1,710 | 41.3 | 0.78 | **14.25** | 0.34 | **14.25** | Lead | Lead |
| Fentress | SO08 | OFMGBR-SB08-0304-1213 | 12/13/2013 | 3 | 4 | SB | 16.8 | 89.2 | 26.3 | 0.24 | 0.74 | 0.22 | 0.74 | | |
| Fentress | SO08 | XRF | | 4 | 5 | SB | 22.8 | 151 | 29.3 | 0.33 | **1.26** | 0.24 | **1.26** | Lead | |
| Fentress | SO08 | XRF | | 5 | 6 | SB | 25.2 | 165 | 30.3 | 0.36 | **1.38** | 0.25 | **1.38** | Lead | |
| Fentress | SO08 | OFMGBR-SB08-0607-1014 | 10/3/2014 | 6 | 7 | SB | 47.8 | 868 | 32.8 | 0.68 | **7.23** | | **7.23** | Lead | Lead |
| Fentress | SO08 | XRF | | 7 | 8 | SB | 19.8 | 90.3 | 25.3 | 0.28 | 0.75 | 0.21 | 0.75 | | |
| Fentress | SO08 | XRF | | 8 | 9 | SB | 27.0 | 63.7 | 21.7 | | 0.53 | 0.18 | 0.53 | | |
| Fentress | SO09 | OFMGBR-SS09-0001-1213 | 12/13/2013 | 0 | 1 | SS | 69.0 | 361 | 17.1 | 0.99 | **3.01** | 0.14 | **3.01** | Lead | |
| Fentress | SO09 | OFMGBR-SB09-0102-1213 | 12/13/2013 | 1 | 2 | SS | 32.4 | 164 | 17.3 | 0.46 | **1.37** | 0.14 | **1.37** | Lead | |
| Fentress | SO09 | XRF | | 2 | 3 | SB | 27.0 | 39.7 | 28.0 | | 0.33 | 0.23 | 0.33 | | |
| Fentress | SO09 | XRF | | 3 | 4 | SB | 27.0 | 15.0 | 21.7 | | 0.13 | 0.18 | 0.18 | | |
| Fentress | SO10 | OFMGBR-SS10-0001-1213 | 12/13/2013 | 0 | 1 | SS | 19.9 | 111 | 20.6 | 0.28 | 0.93 | 0.17 | 0.93 | | |
| Fentress | SO10 | OFMGBR-SB10-0102-1213 | 12/13/2013 | 1 | 2 | SS | 12.0 | 48.2 | 15.6 | 0.17 | 0.40 | 0.13 | 0.40 | | |
| Fentress | SO11 | OFMGBR-SS11-0001-1213 | 12/13/2013 | 0 | 1 | SS | 248 | 1,220 | 43.3 | **3.54** | **10.17** | 0.36 | **10.17** | Lead | Lead |
| Fentress | SO11 | OFMGBR-SB11-0102-1213 | 12/13/2013 | 1 | 2 | SS | 180 | 1,020 | 53.2 | **2.57** | **8.50** | 0.44 | **8.50** | Lead | Lead |
| Fentress | SO11 | XRF | | 2 | 3 | SB | 77.7 | 250 | 32.0 | **1.11** | **2.08** | 0.27 | **2.08** | Lead | |
| Fentress | SO11 | XRF | | 3 | 4 | SB | 23.5 | 62.3 | 21.0 | 0.34 | 0.52 | 0.18 | 0.52 | | |
| Fentress | SO11 | OFMGBR-SB11-0405-1014 | 10/3/2014 | 4 | 5 | SB | 13.0 | 68.3 | 19.8 | 0.19 | 0.57 | | 0.57 | | |
| Fentress | SO12 | OFMGBR-SS12-0001-1213 | 12/13/2013 | 0 | 1 | SS | 6.95 | 32.6 | 13.9 | 0.10 | 0.27 | 0.12 | 0.27 | | |
| Fentress | SO12 | OFMGBR-SB12-0102-1213 | 12/13/2013 | 1 | 2 | SS | 5.47 | 17.7 | 16.6 | 0.08 | 0.15 | 0.14 | 0.15 | | |
| Fentress | SO13 | OFMGBR-SS13-0001-1213 | 12/13/2013 | 0 | 1 | SS | 35.5 | 704 | 30.1 | 0.51 | **5.87** | 0.25 | **5.87** | Lead | Lead |
| Fentress | SO13 | OFMGBR-SB13-0102-1213 | 12/13/2013 | 1 | 2 | SS | 14.9 | 164 | 20.9 | 0.21 | **1.37** | 0.17 | **1.37** | Lead | |
| Fentress | SO14 | OFMGBR-SS14-0001-1213 | 12/13/2013 | 0 | 1 | SS | 57.3 | 351 | 27.7 | 0.82 | **2.93** | 0.23 | **2.93** | Lead | |
| Fentress | SO14 | OFMGBR-SB14-0102-1213 | 12/13/2013 | 1 | 2 | SS | 32.2 | 270 | 22.5 | 0.46 | **2.25** | 0.19 | **2.25** | Lead | |
| Fentress | SO14 | XRF | | 2 | 3 | SB | 20.3 | 79.7 | 22.3 | 0.29 | 0.66 | 0.19 | 0.66 | | |
| Fentress | SO14 | XRF | | 3 | 4 | SB | 18.0 | 72.3 | 29.7 | 0.26 | 0.60 | 0.25 | 0.60 | | |
| Fentress | SO15 | OFMGBR-SS15-0001-1213 | 12/13/2013 | 0 | 1 | SS | 114 | 1,150 | 42.3 | **1.63** | **9.58** | 0.35 | **9.58** | Lead | Lead |
| Fentress | SO15 | OFMGBR-SB15-0102-1213 | 12/13/2013 | 1 | 2 | SS | 23.7 | 268 | 33.2 | 0.34 | **2.23** | 0.28 | **2.23** | Lead | |
| Fentress | SO16 | OFMGBR-SS16-0001-1213 | 12/13/2013 | 0 | 1 | SS | 471 | 5,080 | 115 | **6.73** | **42.33** | 0.96 | **42.33** | Lead | Copper; Lead |
| Fentress | SO16 | OFMGBR-SB16-0102-1213 | 12/13/2013 | 1 | 2 | SS | 139 | 1,140 | 33.8 | **1.99** | **9.50** | 0.28 | **9.50** | Lead | Lead |
| Fentress | SO16 | XRF | | 2 | 3 | SB | 81.0 | 349 | 40.3 | **1.16** | **2.91** | 0.34 | **2.91** | Lead | |
| Fentress | SO16 | XRF | | 3 | 4 | SB | 47.0 | 308 | 41.7 | 0.67 | **2.57** | 0.35 | **2.57** | Lead | |
| Fentress | SO16 | OFMGBR-SB16-0405-1014 | 10/3/2014 | 4 | 5 | SB | 17.0 | 110 | 28.2 | 0.24 | 0.92 | | 0.92 | | |
| Fentress | SO16 | XRF | | 5 | 6 | SB | 27.0 | 28.3 | 24.0 | | 0.24 | 0.20 | 0.24 | | |
| Fentress | SO17 | OFMGBR-SS17-0001-1213 | 12/13/2013 | 0 | 1 | SS | 351 | 7,420 | 111 | **5.01** | **61.83** | 0.93 | **61.83** | Lead | Copper; Lead |
| Fentress | SO17 | OFMGBR-SB17-0102-1213 | 12/13/2013 | 1 | 2 | SS | 153 | 3,140 | 48.2 | **2.19** | **26.17** | 0.40 | **26.17** | Lead | Lead |
| Fentress | SO18 | OFMGBR-SS18-0001-1213 | 12/13/2013 | 0 | 1 | SS | 291 | 3,560 | 59.2 | **4.16** | **29.67** | 0.49 | **29.67** | Lead | Lead |
| Fentress | SO18 | OFMGBR-SB18-0102-1213 | 12/13/2013 | 1 | 2 | SS | 162 | 2,600 | 55.5 | **2.31** | **21.67** | 0.46 | **21.67** | Lead | Lead |
| Fentress | SO18 | XRF | | 2 | 3 | SB | 67.7 | 636 | 36.3 | 0.97 | **5.30** | 0.30 | **5.30** | Lead | Lead |
| Fentress | SO18 | XRF | | 3 | 4 | SB | 30.7 | 181 | 32.0 | 0.44 | **1.51** | 0.27 | **1.51** | Lead | |
| Fentress | SO18 | XRF | | 4 | 5 | SB | 27.0 | 50.0 | 24.7 | | 0.42 | 0.21 | 0.42 | | |
| Fentress | SO18 | OFMGBR-SB18-0506-1014 | 10/3/2014 | 5 | 6 | SB | 6.30 | 26.7 | 19.3 | 0.09 | 0.22 | | 0.22 | | |
| Fentress | SO19 | OFMGBR-SS19-0001-1213 | 12/13/2013 | 0 | 1 | SS | 80.1 | 819 | 23.0 | **1.14** | **6.83** | 0.19 | **6.83** | Lead | Lead |
| Fentress | SO19 | OFMGBR-SB19-0102-1213 | 12/13/2013 | 1 | 2 | SS | 28.1 | 227 | 16.9 | 0.40 | **1.89** | 0.14 | **1.89** | Lead | |

TABLE A-4

Fentress MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Fentress | SO20 | OFMGBR-SS20-0001-1213 | 12/13/2013 | 0 | 1 | SS | 19.0 | 117 | 23.6 | 0.27 | 0.98 | 0.20 | 0.98 | | |
| Fentress | SO20 | OFMGBR-SB20-0102-1213 | 12/13/2013 | 1 | 2 | SS | 26.8 | 164 | 30.8 | 0.38 | **1.37** | 0.26 | **1.37** | Lead | |
| Fentress | SO20 | XRF | | 2 | 3 | SB | 95.3 | 216 | 31.7 | **1.36** | **1.80** | 0.26 | **1.80** | Lead | |
| Fentress | SO20 | OFMGBR-SB20-0304-1014 | 10/2/2014 | 3 | 4 | SB | 11.7 | 38.3 | 15.3 | 0.17 | 0.32 | | 0.32 | | |
| Fentress | SO20 | XRF | | 4 | 5 | SB | 22.8 | 32.0 | 34.3 | 0.33 | 0.27 | 0.29 | 0.33 | | |
| Fentress | SO21 | OFMGBR-SS21-0001-1213 | 12/13/2013 | 0 | 1 | SS | 26.8 | 207 | 23.9 | 0.38 | **1.73** | 0.20 | **1.73** | Lead | |
| Fentress | SO21 | OFMGBR-SB21-0102-1213 | 12/13/2013 | 1 | 2 | SS | 20.3 | 99.4 | 17.5 | 0.29 | 0.83 | 0.15 | 0.83 | | |
| Fentress | SO22 | OFMGBR-SS22-0001-1213 | 12/13/2013 | 0 | 1 | SS | 14.4 | 91.7 | 23.8 | 0.21 | 0.76 | 0.20 | 0.76 | | |
| Fentress | SO22 | OFMGBR-SB22-0102-1213 | 12/13/2013 | 1 | 2 | SS | 9.36 | 55.1 | 19.8 | 0.13 | 0.46 | 0.17 | 0.46 | | |
| Fentress | SO23 | OFMGBR-SS23-0001-1213 | 12/13/2013 | 0 | 1 | SS | 236 | 845 | 101 | **3.37** | **7.04** | 0.84 | **7.04** | Lead | Lead |
| Fentress | SO23 | OFMGBR-SB23-0102-1213 | 12/13/2013 | 1 | 2 | SS | 223 | 839 | 92.4 | **3.19** | **6.99** | 0.77 | **6.99** | Lead | Lead |
| Fentress | SO23 | OFMGBR-SB23-0203-1014 | 10/2/2014 | 2 | 3 | SB | 11.5 | 27.9 | 20.5 | 0.16 | 0.23 | | 0.23 | | |
| Fentress | SO23 | XRF | | 3 | 4 | SB | 22.2 | 20.7 | 23.7 | 0.32 | 0.17 | 0.20 | 0.32 | | |
| Fentress | SO24 | OFMGBR-SS24-0001-1213 | 12/13/2013 | 0 | 1 | SS | 3.74 | 15.8 | 4.39 | 0.05 | 0.13 | 0.04 | 0.13 | | |
| Fentress | SO24 | OFMGBR-SB24-0102-1213 | 12/13/2013 | 1 | 2 | SS | 119 | 948 | 72.6 | **1.70** | **7.90** | 0.61 | **7.90** | Lead | Lead |
| Fentress | SO25 | OFMGBR-SS25-0001-1213 | 12/13/2013 | 0 | 1 | SS | 233 | 1,850 | 68.9 | **3.33** | **15.42** | 0.57 | **15.42** | Lead | Lead |
| Fentress | SO25 | OFMGBR-SB25-0102-1213 | 12/13/2013 | 1 | 2 | SS | 135 | 1,370 | 45.1 | **1.93** | **11.42** | 0.38 | **11.42** | Lead | Lead |
| Fentress | SO26 | OFMGBR-SS26-0001-1213 | 12/13/2013 | 0 | 1 | SS | 59.9 | 332 | 28.9 | 0.86 | **2.77** | 0.24 | **2.77** | Lead | |
| Fentress | SO26 | OFMGBR-SB26-0102-1213 | 12/13/2013 | 1 | 2 | SS | 24.5 | 133 | 22.9 | 0.35 | **1.11** | 0.19 | **1.11** | Lead | |
| Fentress | SO26 | XRF | | 2 | 3 | SB | 27.0 | 46.3 | 24.7 | | 0.39 | 0.21 | 0.39 | | |
| Fentress | SO26 | XRF | | 3 | 4 | SB | 17.3 | 36.7 | 19.7 | 0.25 | 0.31 | 0.16 | 0.31 | | |
| Fentress | SO27 | OFMGBR-SS27-0001-1213 | 12/16/2013 | 0 | 1 | SS | 430 | 474 | 273 | **6.14** | **3.95** | **2.28** | **6.14** | Copper | Copper |
| Fentress | SO27 | OFMGBR-SB27-0102-1213 | 12/16/2013 | 1 | 2 | SS | 69.3 | 104 | 52.5 | 0.99 | 0.87 | 0.44 | 0.99 | | |
| Fentress | SO28 | OFMGBR-SS28-0001-1213 | 12/16/2013 | 0 | 1 | SS | 361 | 1,190 | 283 | **5.16** | **9.92** | **2.36** | **9.92** | Lead | Copper; Lead |
| Fentress | SO28 | OFMGBR-SB28-0102-1213 | 12/16/2013 | 1 | 2 | SS | 260 | 923 | 200 | **3.71** | **7.69** | **1.67** | **7.69** | Lead | Lead |
| Fentress | SO28 | XRF | | 2 | 3 | SB | 26.5 | 39.7 | 29.7 | 0.38 | 0.33 | 0.25 | 0.38 | | |
| Fentress | SO28 | XRF | | 3 | 4 | SB | 19.5 | 21.7 | 35.0 | 0.28 | 0.18 | 0.29 | 0.29 | | |
| Fentress | SO29 | OFMGBR-SS29-0001-1213 | 12/16/2013 | 0 | 1 | SS | 186 | 670 | 191 | **2.66** | **5.58** | **1.59** | **5.58** | Lead | Lead |
| Fentress | SO29 | OFMGBR-SB29-0102-1213 | 12/16/2013 | 1 | 2 | SS | 213 | 849 | 119 | **3.04** | **7.08** | 0.99 | **7.08** | Lead | Lead |
| Fentress | SO29 | XRF | | 2 | 3 | SB | 59.0 | 44.7 | 68.7 | 0.84 | 0.37 | 0.57 | 0.84 | | |
| Fentress | SO29 | XRF | | 3 | 4 | SB | 30.0 | 19.0 | 27.7 | 0.43 | 0.16 | 0.23 | 0.43 | | |
| Fentress | SO30 | OFMGBR-SS30-0001-1213 | 12/16/2013 | 0 | 1 | SS | 174 | 659 | 135 | **2.49** | **5.49** | **1.13** | **5.49** | Lead | Lead |
| Fentress | SO30 | OFMGBR-SB30-0102-1213 | 12/16/2013 | 1 | 2 | SS | 95.3 | 518 | 101 | **1.36** | **4.32** | 0.84 | **4.32** | Lead | |
| Fentress | SO30 | XRF | | 2 | 3 | SB | 25.0 | 17.7 | 21.7 | 0.36 | 0.15 | 0.18 | 0.36 | | |
| Fentress | SO30 | OFMGBR-SB30-0304-1014 | 10/2/2014 | 3 | 4 | SB | 9.66 | 22.6 | 22.9 | 0.14 | 0.19 | | 0.19 | | |
| Fentress | SO36 | XRF | | 0 | 1 | SS | 27.0 | 12.7 | 20.0 | | 0.11 | 0.17 | 0.17 | | |
| Fentress | SO37 | XRF | | 0 | 1 | SS | 16.0 | 15.0 | 24.7 | 0.23 | 0.13 | 0.21 | 0.23 | | |
| Fentress | SO38 | OFMGBR-SS38-0001-1014 | 10/1/2014 | 0 | 1 | SS | 3.88 | 11.0 | 12.0 | 0.06 | 0.09 | | 0.09 | | |
| Fentress | SO39 | XRF | | 0 | 1 | SS | 27.0 | 20.3 | 23.3 | | 0.17 | 0.19 | 0.19 | | |
| Fentress | SO40 | XRF | | 0 | 1 | SS | 20.5 | 27.0 | 27.3 | 0.29 | 0.23 | 0.23 | 0.29 | | |
| Fentress | SO41 | OFMGBR-SS41-0001-1014 | 10/1/2014 | 0 | 1 | SS | 5.25 | 19.8 | 17.7 | 0.08 | 0.17 | | 0.17 | | |
| Fentress | SO42 | XRF | | 0 | 1 | SS | 27.0 | 17.0 | 19.0 | | 0.14 | 0.16 | 0.16 | | |
| Fentress | SO43 | XRF | | 0 | 1 | SS | 27.0 | 18.7 | 18.0 | | 0.16 | 0.15 | 0.16 | | |
| Fentress | SO44 | XRF | | 0 | 1 | SS | 27.0 | 13.7 | 22.7 | | 0.11 | 0.19 | 0.19 | | |
| Fentress | SO45 | XRF | | 0 | 1 | SS | 27.0 | 14.7 | 18.7 | | 0.12 | 0.16 | 0.16 | | |

TABLE A-4

Fentress MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Fentress | SO46 | XRF | | 0 | 1 | SS | 27.0 | 20.7 | 28.0 | | 0.17 | 0.23 | 0.23 | | |
| Fentress | SO47 | XRF | | 0 | 1 | SS | 28.7 | 13.3 | 29.0 | 0.41 | 0.11 | 0.24 | 0.41 | | |
| Fentress | SO48 | XRF | | 0 | 1 | SS | 30.3 | 66.7 | 23.7 | 0.43 | 0.56 | 0.20 | 0.56 | | |
| Fentress | SO49 | OFMGBR-SS49-0001-1014 | 10/1/2014 | 0 | 1 | SS | 8.59 | 38.8 | 18.6 | 0.12 | 0.32 | | 0.32 | | |
| Fentress | SO50 | XRF | | 0 | 1 | SS | 27.5 | 72.0 | 41.3 | 0.39 | 0.60 | 0.34 | 0.60 | | |
| Fentress | SO51 | XRF | | 0 | 1 | SS | 16.7 | 83.0 | 45.3 | 0.24 | 0.69 | 0.38 | 0.69 | | |
| Fentress | SO52 | OFMGBR-SS52-0001-1014 | 10/1/2014 | 0 | 1 | SS | 9.86 | 18.2 | 22.2 | 0.14 | 0.15 | 0.19 | 0.19 | | |
| Fentress | SO53 | XRF | | 0 | 1 | SS | 41.0 | 40.7 | 94.3 | 0.59 | 0.34 | 0.79 | 0.79 | | |
| Fentress | SO53 | OFMGBR-SB53-0102-1014 | 10/3/2014 | 1 | 2 | SS | 13.2 | 11.6 | 101 | 0.19 | 0.10 | 0.84 | 0.84 | | |
| Fentress | SO54 | XRF | | 0 | 1 | SS | 156 | 74.7 | 279 | **2.22** | 0.62 | **2.32** | **2.32** | Zinc | |
| Fentress | SO54 | XRF | | 1 | 2 | SS | 31.2 | 10.7 | 79.3 | 0.45 | 0.09 | 0.66 | 0.66 | | |
| Fentress | SO54 | XRF | | 2 | 3 | SB | 23.2 | 20.0 | 60.7 | 0.33 | | 0.51 | 0.51 | | |
| Fentress | SO55 | XRF | | 0 | 1 | SS | 154 | 90.0 | 270 | **2.20** | 0.75 | **2.25** | **2.25** | Zinc | |
| Fentress | SO55 | XRF | | 1 | 2 | SS | 20.7 | 20.0 | 97.3 | 0.30 | | 0.81 | 0.81 | | |
| Fentress | SO55 | XRF | | 2 | 3 | SB | 41.2 | 15.0 | 24.0 | 0.59 | 0.13 | 0.20 | 0.59 | | |
| Fentress | SO56 | OFMGBR-SS56-0001-1014 | 10/1/2014 | 0 | 1 | SS | 642 | 72.3 | 515 | **9.17** | 0.60 | **4.29** | **9.17** | Copper | Copper |
| Fentress | SO56 | XRF | | 1 | 2 | SS | 19.8 | 11.3 | 65.7 | 0.28 | 0.09 | 0.55 | 0.55 | | |
| Fentress | SO56 | XRF | | 2 | 3 | SB | 25.5 | 20.0 | 43.0 | 0.36 | | 0.36 | 0.36 | | |
| Fentress | SO57 | XRF | | 0 | 1 | SS | 401 | 64.0 | 278 | **5.73** | 0.53 | **2.31** | **5.73** | Copper | Copper |
| Fentress | SO57 | XRF | | 1 | 2 | SS | 60.3 | 13.7 | 80.0 | 0.86 | 0.11 | 0.67 | 0.86 | | |
| Fentress | SO57 | OFMGBR-SB57-0203-1014 | 10/3/2014 | 2 | 3 | SB | 20.8 | 16.4 | 67.2 | 0.30 | 0.14 | 0.56 | 0.56 | | |
| Fentress | SO58 | XRF | | 0 | 1 | SS | 13.5 | 11.3 | 21.3 | 0.19 | 0.09 | 0.18 | 0.19 | | |
| Fentress | SO59 | XRF | | 0 | 1 | SS | 65.0 | 108 | 89.7 | 0.93 | 0.90 | 0.75 | 0.93 | | |
| Fentress | SO60 | XRF | | 0 | 1 | SS | 16.0 | 20.0 | 22.0 | 0.23 | | 0.18 | 0.23 | | |
| Fentress | SO61 | XRF | | 0 | 1 | SS | 51.3 | 82.7 | 32.0 | 0.73 | 0.69 | 0.27 | 0.73 | | |
| Fentress | SO62 | XRF | | 0 | 1 | SS | 13.5 | 20.0 | 21.3 | 0.19 | | 0.18 | 0.19 | | |
| Fentress | SO63 | XRF | | 0 | 1 | SS | 26.8 | 46.0 | 21.0 | 0.38 | 0.38 | 0.18 | 0.38 | | |
| Fentress | SO64 | XRF | | 0 | 1 | SS | 18.3 | 27.3 | 38.3 | 0.26 | 0.23 | 0.32 | 0.32 | | |
| Fentress | SO65 | XRF | | 0 | 1 | SS | 27.0 | 14.7 | 20.3 | | 0.12 | 0.17 | 0.17 | | |
| Fentress | SO66 | OFMGBR-SS66-0001-1014 | 10/1/2014 | 0 | 1 | SS | 4.33 | 13.2 | 14.3 | 0.06 | 0.11 | | 0.11 | | |
| Fentress | SO67 | XRF | | 0 | 1 | SS | 27.0 | 15.0 | 25.3 | | 0.13 | 0.21 | 0.21 | | |
| Fentress | SO68 | XRF | | 0 | 1 | SS | 24.5 | 30.3 | 31.7 | 0.35 | 0.25 | 0.26 | 0.35 | | |
| Fentress | SO69 | XRF | | 0 | 1 | SS | 24.7 | 21.3 | 32.0 | 0.35 | 0.18 | 0.27 | 0.35 | | |
| Fentress | SO70 | XRF | | 0 | 1 | SS | 27.0 | 23.0 | 30.3 | | 0.19 | 0.25 | 0.25 | | |
| Fentress | SO71 | OFMGBR-SS71-0001-1014 | 10/1/2014 | 0 | 1 | SS | 9.02 | 76.6 | 22.9 | 0.13 | 0.64 | 0.19 | 0.64 | | |
| Fentress | SO72 | XRF | | 0 | 1 | SS | 27.0 | 39.3 | 20.0 | | 0.33 | 0.17 | 0.33 | | |
| Fentress | SO73 | XRF | | 0 | 1 | SS | 20.8 | 31.7 | 27.3 | 0.30 | 0.26 | 0.23 | 0.30 | | |
| Fentress | SO74 | OFMGBR-SS74-0001-1014 | 10/3/2014 | 0 | 1 | SS | 63.2 | 30.9 | 209 | 0.90 | 0.26 | **1.74** | **1.74** | Zinc | |
| Fentress | SO74 | XRF | | 1 | 2 | SS | 52.0 | 19.0 | 83.0 | 0.74 | 0.16 | 0.69 | 0.74 | | |
| Fentress | SO74 | XRF | | 2 | 3 | SB | 16.7 | 13.0 | 33.0 | 0.24 | 0.11 | 0.28 | 0.28 | | |
| Fentress | SO75 | XRF | | 0 | 1 | SS | 108 | 47.0 | 114 | **1.55** | 0.39 | 0.95 | **1.55** | Copper | |
| Fentress | SO75 | XRF | | 1 | 2 | SS | 21.2 | 16.7 | 39.3 | 0.30 | 0.14 | 0.33 | 0.33 | | |
| Fentress | SO75 | XRF | | 2 | 3 | SB | 19.0 | 13.7 | 31.7 | 0.27 | 0.11 | 0.26 | 0.27 | | |
| Fentress | SO76 | XRF | | 0 | 1 | SS | 559 | 77.7 | 398 | **7.99** | 0.65 | **3.31** | **7.99** | Copper | Copper |
| Fentress | SO76 | XRF | | 1 | 2 | SS | 58.0 | 46.0 | 102 | 0.83 | 0.38 | 0.85 | 0.85 | | |

TABLE A-4

Fentress MGBR - Removal Scenario (Baseline)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc | **Maximum Ratio[1]** | **COC** | **COCs with Ratios >5** |
| Fentress | SO76 | XRF | | 2 | 3 | SB | 20.0 | 21.0 | 73.7 | 0.29 | 0.18 | 0.61 | 0.61 | | |
| Fentress | SO77 | XRF | | 0 | 1 | SS | 369 | 423 | 372 | **5.27** | **3.53** | **3.10** | **5.27** | Copper | Copper |
| Fentress | SO77 | XRF | | 1 | 2 | SS | 18.7 | 21.3 | 33.0 | 0.27 | 0.18 | 0.28 | 0.28 | | |
| Fentress | SO77 | XRF | | 2 | 3 | SB | 28.3 | 25.7 | 48.7 | 0.40 | 0.21 | 0.41 | 0.41 | | |
| Fentress | SO78 | XRF | | 0 | 1 | SS | 17.7 | 11.0 | 21.3 | 0.25 | 0.09 | 0.18 | 0.25 | | |
| Fentress | SO79 | XRF | | 0 | 1 | SS | 27.0 | 277 | 23.0 | | **2.31** | 0.19 | **2.31** | Lead | |
| Fentress | SO79 | XRF | | 1 | 2 | SS | 27.0 | 21.7 | 24.3 | | 0.18 | 0.20 | 0.20 | | |
| Fentress | SO79 | XRF | | 2 | 3 | SB | 17.3 | 20.0 | 26.0 | 0.25 | 0.17 | 0.22 | 0.25 | | |
| Fentress | SO80 | XRF | | 0 | 1 | SS | 27.0 | 105 | 32.0 | | 0.87 | 0.27 | 0.87 | | |
| Fentress | SO81 | OFMGBR-SS81-0001-1014 | 10/3/2014 | 0 | 1 | SS | 3.27 | 8.94 | 15.6 | 0.05 | 0.07 | | 0.07 | | |
| Fentress | SO82 | XRF | | 0 | 1 | SS | 46.0 | 42.7 | 108 | 0.66 | 0.36 | 0.90 | 0.90 | | |
| Fentress | SO83 | XRF | | 0 | 1 | SS | 67.7 | 26.0 | 155 | 0.97 | 0.22 | **1.29** | **1.29** | Zinc | |
| Fentress | SO83 | XRF | | 1 | 2 | SS | 18.0 | 20.0 | 58.7 | 0.26 | 0.17 | 0.49 | 0.49 | | |
| Fentress | SO83 | XRF | | 2 | 3 | SB | 20.2 | 17.3 | 41.7 | 0.29 | 0.14 | 0.35 | 0.35 | | |
| Fentress | SO84 | XRF | | 0 | 1 | SS | 31.7 | 20.0 | 43.0 | 0.45 | | 0.36 | 0.45 | | |
| Fentress | SO85 | XRF | | 0 | 1 | SS | 27.0 | 15.0 | 18.3 | | 0.13 | 0.15 | 0.15 | | |
| Fentress | SO86 | XRF | | 0 | 1 | SS | 27.0 | 20.0 | 16.3 | | | 0.14 | 0.14 | | |
| Fentress | SO87 | XRF | | 0 | 1 | SS | 22.2 | 22.7 | 48.0 | 0.32 | 0.19 | 0.40 | 0.40 | | |
| Fentress | SO88 | XRF | | 0 | 1 | SS | 27.0 | 18.3 | 21.7 | | 0.15 | 0.18 | 0.18 | | |
| Fentress | SO89 | OFMGBR-SS89-0001-1114 | 11/3/2014 | 0 | 1 | SS | 7.28 | 47.9 | 18.6 | 0.10 | 0.40 | 0.16 | 0.40 | | |
| Fentress | SO90 | XRF | | 0 | 1 | SS | 59.7 | 22.3 | 153 | 0.85 | 0.19 | **1.28** | **1.28** | Zinc | |
| Fentress | SO90 | XRF | | 1 | 2 | SS | 27.0 | 16.3 | 39.7 | | 0.14 | 0.33 | 0.33 | | |
| Fentress | SO90 | XRF | | 2 | 3 | SB | 18.0 | 15.7 | 31.0 | 0.26 | 0.13 | 0.26 | 0.26 | | |
| Fentress | SO91 | XRF | | 0 | 1 | SS | 27.0 | 19.0 | 39.3 | | 0.16 | 0.33 | 0.33 | | |
| Fentress | SO92 | OFMGBR-SS92-0001-1114 | 11/5/2014 | 0 | 1 | SS | 7.25 | 40.2 | 18.4 | 0.10 | 0.34 | 0.15 | 0.34 | | |
| Fentress | SO93 | XRF | | 0 | 1 | SS | 27.0 | 26.0 | 24.7 | | 0.22 | 0.21 | 0.22 | | |
| Fentress | SO94 | OFMGBR-SS94-0001-1114 | 11/3/2014 | 0 | 1 | SS | 7.88 | 25.7 | 15.0 | 0.11 | 0.21 | 0.13 | 0.21 | | |
| Fentress | SO95 | XRF | | 0 | 1 | SS | 27.0 | 26.3 | 20.7 | | 0.22 | 0.17 | 0.22 | | |
| Fentress | SO96 | XRF | | 0 | 1 | SS | 27.0 | 20.7 | 23.7 | | 0.17 | 0.20 | 0.20 | | |
| Fentress | SO97 | XRF | | 0 | 1 | SS | 27.0 | 66.0 | 24.3 | | 0.55 | 0.20 | 0.55 | | |
| Fentress | SO98 | OFMGBR-SS98-0001-1114 | 11/5/2014 | 0 | 1 | SS | 7.04 | 20.9 | 19.8 | 0.10 | 0.17 | 0.17 | 0.17 | | |
| Fentress | SO99 | OFMGBR-SS99-0001-1114 | 11/5/2014 | 0 | 1 | SS | 11.7 | 19.5 | 39.8 | 0.17 | 0.16 | 0.33 | 0.33 | | |
| Fentress | SO100 | OFMGBR-SS100-0001-1114 | 11/5/2014 | 0 | 1 | SS | 7.58 | 12.3 | 21.7 | 0.11 | 0.10 | 0.18 | 0.18 | | |
| Fentress | SO101 | XRF | | 0 | 1 | SS | 27.0 | 12.0 | 18.0 | | 0.10 | 0.15 | 0.15 | | |

Notes:

1 - Red shading indicates maximum ratios >5; orange shading indicates maximum ratios between 2 and 5; green shading indicates maximum ratios between 1 and 2

Gray shaded concentrations indicate detections

NA - Not Available

TABLE A-5

Fentress MGBR - Removal Scenario (UCL)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc |
| **Current Conditions (No Samples Removed)** | | | | | | | | | | | | |
| | | | | | **UCL Current Conditions** | | 1,785 | 1,012 | 140 | | | |
| **STEP 1 (SRG Ratio >10)** | | | | | | | | | | | | |
| Fentress | SO04 | OFMGBR-SS04-0610 | 6/18/2010 | 0 | 1 | SS | 68,400 | 17,100 | 6,290 | **977.14** | **142.50** | **52.42** |
| Fentress | SO04 | OFMGBR-SB04-0610 | 6/18/2010 | 1 | 2 | SS | 556 | 8,970 | 198 | **7.94** | **74.75** | **1.65** |
| Fentress | SO17 | OFMGBR-SS17-0001-1213 | 12/13/2013 | 0 | 1 | SS | 351 | 7,420 | 111 | **5.01** | **61.83** | 0.93 |
| Fentress | SO01 | OFMGBR-SS01-0610 | 6/18/2010 | 0 | 1 | SS | 727 | 5,530 | 93.7 | **10.39** | **46.08** | 0.78 |
| Fentress | SO16 | OFMGBR-SS16-0001-1213 | 12/13/2013 | 0 | 1 | SS | 471 | 5,080 | 115 | **6.73** | **42.33** | 0.96 |
| Fentress | SO01 | OFMGBR-SB01-0304-1213 | 12/13/2013 | 3 | 4 | SB | 53.5 | 4,790 | 24.9 | 0.76 | **39.92** | 0.21 |
| Fentress | SO01 | OFMGBR-SB01-0203-1213 | 12/13/2013 | 2 | 3 | SB | 25.0 | 67.8 | 18.3 | 0.36 | 0.57 | 0.15 |
| Fentress | SO01 | OFMGBR-SB01-0610 | 6/18/2010 | 1 | 2 | SS | 15.0 | 706 | 21.4 | 0.21 | **5.88** | 0.18 |
| Fentress | SO06 | OFMGBR-SS06-0610 | 6/18/2010 | 0 | 1 | SS | 457 | 4,790 | 93.3 | **6.53** | **39.92** | 0.78 |
| Fentress | SO08 | OFMGBR-SS08-0610 | 6/18/2010 | 0 | 1 | SS | 338 | 4,050 | 80.2 | **4.83** | **33.75** | 0.67 |
| Fentress | SO18 | OFMGBR-SS18-0001-1213 | 12/13/2013 | 0 | 1 | SS | 291 | 3,560 | 59.2 | **4.16** | **29.67** | 0.49 |
| Fentress | SO02 | OFMGBR-SB02-0610 | 6/18/2010 | 1 | 2 | SS | 366 | 3,240 | 43.7 | **5.23** | **27.00** | 0.36 |
| Fentress | SO02 | OFMGBR-SS02-0610 | 6/18/2010 | 0 | 1 | SS | 206 | 406 | 46.3 | **2.94** | **3.38** | 0.39 |
| Fentress | SO17 | OFMGBR-SB17-0102-1213 | 12/13/2013 | 1 | 2 | SS | 153 | 3,140 | 48.2 | **2.19** | **26.17** | 0.40 |
| Fentress | SO18 | OFMGBR-SB18-0102-1213 | 12/13/2013 | 1 | 2 | SS | 162 | 2,600 | 55.5 | **2.31** | **21.67** | 0.46 |
| Fentress | SO06 | OFMGBR-SB06-0610 | 6/18/2010 | 1 | 2 | SS | 210 | 2,080 | 73.6 | **3.00** | **17.33** | 0.61 |
| Fentress | SO08 | OFMGBR-SB08-0610 | 6/18/2010 | 1 | 2 | SS | 262 | 1,980 | 54.2 | **3.74** | **16.50** | 0.45 |
| Fentress | SO25 | OFMGBR-SS25-0001-1213 | 12/13/2013 | 0 | 1 | SS | 233 | 1,850 | 68.9 | **3.33** | **15.42** | 0.57 |
| Fentress | SO08 | OFMGBR-SB08-0203-1213 | 12/13/2013 | 2 | 3 | SB | 54.6 | 1,710 | 41.3 | 0.78 | **14.25** | 0.34 |
| Fentress | SO25 | OFMGBR-SB25-0102-1213 | 12/13/2013 | 1 | 2 | SS | 135 | 1,370 | 45.1 | **1.93** | **11.42** | 0.38 |
| Fentress | SO05 | OFMGBR-SS05-0610 | 6/18/2010 | 0 | 1 | SS | 191 | 1,280 | 47.2 | **2.73** | **10.67** | 0.39 |
| Fentress | SO11 | OFMGBR-SS11-0001-1213 | 12/13/2013 | 0 | 1 | SS | 248 | 1,220 | 43.3 | **3.54** | **10.17** | 0.36 |
| | | | | | **UCL Step 1** | | 80.2 | 235 | 59.0 | | | |
| | | | | | Maximum | | 642 | 1,190 | 515 | **9.17** | **9.92** | **4.29** |
| **STEP 2 (SRG Ratio >5)** | | | | | | | | | | | | |
| Fentress | SO28 | OFMGBR-SS28-0001-1213 | 12/16/2013 | 0 | 1 | SS | 361 | 1,190 | 283 | **5.16** | **9.92** | **2.36** |
| Fentress | SO15 | OFMGBR-SS15-0001-1213 | 12/13/2013 | 0 | 1 | SS | 114 | 1,150 | 42.3 | **1.63** | **9.58** | 0.35 |
| Fentress | SO16 | OFMGBR-SB16-0102-1213 | 12/13/2013 | 1 | 2 | SS | 139 | 1,140 | 33.8 | **1.99** | **9.50** | 0.28 |
| Fentress | SO56 | OFMGBR-SS56-0001-1014 | 10/1/2014 | 0 | 1 | SS | 642 | 72.3 | 515 | **9.17** | 0.60 | **4.29** |
| Fentress | SO11 | OFMGBR-SB11-0102-1213 | 12/13/2013 | 1 | 2 | SS | 180 | 1,020 | 53.2 | **2.57** | **8.50** | 0.44 |
| Fentress | SO76 | XRF | | 0 | 1 | SS | 559 | 77.7 | 398 | **7.99** | 0.65 | **3.31** |
| Fentress | SO24 | OFMGBR-SB24-0102-1213 | 12/13/2013 | 1 | 2 | SS | 119 | 948 | 72.6 | **1.70** | **7.90** | 0.61 |
| Fentress | SO24 | OFMGBR-SS24-0001-1213 | 12/13/2013 | 0 | 1 | SS | 3.74 | 15.8 | 4.39 | 0.05 | 0.13 | 0.04 |
| Fentress | SO28 | OFMGBR-SB28-0102-1213 | 12/16/2013 | 1 | 2 | SS | 260 | 923 | 200 | **3.71** | **7.69** | **1.67** |
| Fentress | SO08 | OFMGBR-SB08-0607-1014 | 10/3/2014 | 6 | 7 | SB | 47.8 | 868 | 32.8 | 0.68 | **7.23** | |
| Fentress | SO08 | XRF | | 5 | 6 | SB | 25.2 | 165 | 30.3 | 0.36 | **1.38** | 0.25 |
| Fentress | SO08 | XRF | | 4 | 5 | SB | 22.8 | 151 | 29.3 | 0.33 | **1.26** | 0.24 |
| Fentress | SO08 | OFMGBR-SB08-0304-1213 | 12/13/2013 | 3 | 4 | SB | 16.8 | 89.2 | 26.3 | 0.24 | 0.74 | 0.22 |
| Fentress | SO29 | OFMGBR-SB29-0102-1213 | 12/16/2013 | 1 | 2 | SS | 213 | 849 | 119 | **3.04** | **7.08** | 0.99 |

TABLE A-5

Fentress MGBR - Removal Scenario (UCL)

| | | | | | | | CONCENTRATIONS (mg/kg) | | | CONCENTRATION-to-SRG RATIOS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SRG - Surface Soil (SS): | 70.0 | 120 | 120 | | | |
| | | | | | | SRG - Subsurface Soil (SB): | 70.0 | 120 | 120 | | | |
| **Area** | **Station ID** | **Sample ID** | **Sample Date** | **Top of Sample (ft)** | **Sample Bottom (ft)** | **Sample Designation** | Copper | Lead | Zinc | Copper | Lead | Zinc |
| Fentress | SO29 | OFMGBR-SS29-0001-1213 | 12/16/2013 | 0 | 1 | SS | 186 | 670 | 191 | **2.66** | **5.58** | **1.59** |
| Fentress | SO23 | OFMGBR-SS23-0001-1213 | 12/13/2013 | 0 | 1 | SS | 236 | 845 | 101 | **3.37** | **7.04** | 0.84 |
| Fentress | SO23 | OFMGBR-SB23-0102-1213 | 12/13/2013 | 1 | 2 | SS | 223 | 839 | 92.4 | **3.19** | **6.99** | 0.77 |
| Fentress | SO19 | OFMGBR-SS19-0001-1213 | 12/13/2013 | 0 | 1 | SS | 80.1 | 819 | 23.0 | **1.14** | **6.83** | 0.19 |
| Fentress | SO07 | OFMGBR-SS07-0610 | 6/18/2010 | 0 | 1 | SS | 72.8 | 775 | 17.5 | **1.04** | **6.46** | 0.15 |
| Fentress | SO27 | OFMGBR-SS27-0001-1213 | 12/16/2013 | 0 | 1 | SS | 430 | 474 | 273 | **6.14** | **3.95** | **2.28** |
| Fentress | SO13 | OFMGBR-SS13-0001-1213 | 12/13/2013 | 0 | 1 | SS | 35.5 | 704 | 30.1 | 0.51 | **5.87** | 0.25 |
| Fentress | SO57 | XRF | | 0 | 1 | SS | 401 | 64.0 | 278 | **5.73** | 0.53 | **2.31** |
| Fentress | SO05 | OFMGBR-SB05-0610 | 6/18/2010 | 1 | 2 | SS | 100 | 662 | 26.1 | **1.43** | **5.52** | 0.22 |
| Fentress | SO30 | OFMGBR-SS30-0001-1213 | 12/16/2013 | 0 | 1 | SS | 174 | 659 | 135 | **2.49** | **5.49** | **1.13** |
| Fentress | SO18 | XRF | | 2 | 3 | SB | 67.7 | 636 | 36.3 | 0.97 | **5.30** | 0.30 |
| Fentress | SO77 | XRF | | 0 | 1 | SS | 369 | 423 | 372 | **5.27** | **3.53** | **3.10** |
| | | | | | **UCL Step 2** | | 33.9 | 118 | 42.6 | | | |
| | | | | | Maximum | | 183 | 518 | 279 | **2.61** | **4.32** | **2.32** |
| **STEP 3** | | | | | | | | | | | | |
| Fentress | SO30 | OFMGBR-SB30-0102-1213 | 12/16/2013 | 1 | 2 | SS | 95.3 | 518 | 101 | **1.36** | **4.32** | 0.84 |
| Fentress | SO02 | XRF | | 4 | 5 | SB | 78.3 | 514 | 36.7 | **1.12** | **4.28** | 0.31 |
| Fentress | SO02 | OFMGBR-SB02-0304-1213 | 12/13/2013 | 3 | 4 | SB | 29.0 | 158 | 17.4 | 0.41 | **1.32** | 0.15 |
| Fentress | SO02 | OFMGBR-SB02-0203-1213 | 12/13/2013 | 2 | 3 | SB | 27.4 | 174 | 18.1 | 0.39 | **1.45** | 0.15 |
| Fentress | SO06 | OFMGBR-SB06-0203-1213 | 12/13/2013 | 2 | 3 | SB | 79.2 | 481 | 30.4 | **1.13** | **4.01** | 0.25 |
| | | | | | **UCL Step 3** | | 32.8 | 104 | 42.7 | | | |
| | | | | | Maximum - All depths | | 183 | 395 | 279 | **2.61** | **3.29** | **2.32** |
| | | | | | Maximum - SS | | 168 | 361 | 279 | **2.40** | **3.01** | **2.32** |
| | | | | | UCL - SS | | 33.3 | 77.8 | 50.8 | 0.48 | 0.65 | 0.42 |

Notes:

Red shading indicates maximum ratios >5; orange shading indicates maximum ratios between 2 and 5; green shading indicates maximum ratios between 1 and 2

Gray shaded concentrations indicate detections

NA - Not Available

Yellow shading indicates sample depths that were removed because they were shallower in the soil column than a sample depth that was removed

# Figures

R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure A-1, NAS Oceana Proposed Remediation Areas.mxd7/27/2015FCain_ch2mhillenvgis

**Legend**

- Soil Sample Location
- COPC Estimated Excavation Depth Contour
- Proposed Remediation Areas (based on 95% UCL Mean Concentration)
- Backstop
- MRP Site

N
W E
S

0 15 30
Feet

Figure A-1
NAS Oceana Proposed Remediation Areas
MGBR Expanded SI Technical Memorandum
NAS Oceana
Virginia Beach, Virginia

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R:\USNavFacEngCom405450\NASOceana\MapFiles\463264_CTO_WE_68\463260_TM_Workplan\Figure A-2 - NALF Fentress Proposed Remediation Areas.mxd7/29/2015FCain_ch2mhillenvgis

**Legend**

- Soil Sample Location
- COPC Estimated Excavation Depth Contour
- Proposed Remediation Areas (based on 95% UCL Mean Concentration)
- Backstop
- MRP Site

N
W E
S

0 15 30
Feet

Figure A-2
NALF Fentress Proposed Remediation Areas
MGBR Expanded SI Technical Memorandum
NALF Fentress
Chesapeake, Virginia

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