Appendix D: Digital Geophysical Mapping Survey Report

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FINAL

Digital Geophysical Mapping Survey Report Sites UXO 3 Step-outs

Basewide Site Inspection Munitions Response Program Sites Naval Base Kitsap Bangor, WA

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AES	AES Consultants, Inc
APP	Accident Prevention Plan
CORS	Continuously Operating Reference Station
CSM	Conceptual Site Model
DGM	Digital Geophysical Mapping
DFW	Definable Features of Work
DUA	Data Usability Assessment
FCR	Field Change Request
GIS	Geographic Information System
GPR	Ground Penetrating Radar
HAZWOPER	Hazardous Waste Operations and Emergency Response
IAW	In Accordance With
IVS	Instrument Verification Strip
MDAS	Material Documented as Safe
MEC	Munitions and Explosives of Concern
MPC	Measurement Performance Criterion
MPPEH	Material Potentially Presenting an Explosive Hazard
MQO	Measurement Quality Objective
MRP	Munitions Response Program
mV	Millivolt
NAD83	North American Datum 1983
NBK	Naval Base Kitsap
OSHA	Occupational Safety and Health Administration
PLS	Professional Land Surveyor
QA	Quality Assurance
QC	Quality Control
QAPP	Quality Assurance Project Plan
QRIR	Quality Receiving Inspection Report
RCA	Root Cause Analysis
RMS	Root Mean Square
RTS	Robotic Total Station
SI	Site Inspection

Acronyms/Abbreviations	Definition
SOP	Standard Operating Procedure
SRA	Saturated Response Area
SSHP	Site Safety and Health Plan
US	United States
UXO	Unexploded Ordnance
V	Volts
WA	Washington

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1.0 INTRODUCTION

This digital geophysical mapping (DGM) survey report addendum has been prepared under United States (US) Navy contract N6247016D9008, Contract Task Order N4425519F4112, in support of the site inspection (SI) at multiple basewide munitions response program (MRP) sites at Naval Base Kitsap Bangor (NBK) in Silverdale, Washington (WA).

This report details work completed as part of definable features of work (DFWs) 1, 5, 6, 8, and 10 in the Final Munitions Response Quality Assurance Project Plan (QAPP) for Munitions and Explosives of Concern (MEC QAPP) dated June 2021. The geophysical surveys were completed by Tetra Tech, Inc. in accordance with (IAW) the MEC QAPP, Tetra Tech's quality system, and with applicable Standard Operating Procedures (SOPs). This report also includes a data usability assessment (DUA) following the steps in MEC QAPP Worksheet #37.

Tetra Tech completed terrestrial DGM transect surveys at Unexploded Ordnance (UXO) 03 in 2022 and step-out sites UXO 03 N, UXO 03 NW, UXO 3 SE, and UXO 3 SW in 2023 and 2024 in support of the SI. This addendum report documents the results of the step-out sites. The DGM surveys were completed using the Geonics, Ltd. EM61-MK2 high power sensor (EM61-MK2 HP). The DGM survey objective was to assess the presence of metal in the subsurface, which may be associated with munitions associated with the historic military use of the sites. The overall SI objective is to assess the absence or presence of MEC/material potentially presenting an explosive hazard (MEC/MPPEH) at this site. Historical documents indicate the MRP sites may contain MEC on the surface and/or in the subsurface, which poses an unacceptable risk to current and future site receptors.

Full coverage surveys and the use of previous geophysical technology (e.g., TEM-8g and ground penetrating radar [GPR]) were not included as part of the data collection approach for the UXO 03 step-out sites.

2.0 SUMMARY OF DEFINABLE FEATURES OF WORK

The DFWs applicable to this report are summarized in Sections 2.1 through 2.6. These sections address the geophysical components of this investigation. Tetra Tech implemented the three phases of control process during each relevant DFW. The Tetra Tech quality control (QC) Geophysicist led virtual preparatory and initial inspections prior to the start of the work tasks and immediately after the field tasks commenced. Ongoing quality inspections were conducted throughout the execution of the DFWs and documented via weekly DGM QC reports IAW the MEC QAPP. Daily DGM field reports and weekly QC reports are in Appendix A and B to this report, respectively.

2.1 MOBILIZATION AND SITE PREPARATION (DFW 1)

The project objectives for DFW 1 were to mobilize personnel and equipment to the project site in a phased manner corresponding to project tasks. The Tetra Tech UXO site management team mobilized to NBK prior to the start of geophysical operations to prepare the site (e.g., surface sweeps, vegetation reduction, etc.). These site preparation activities are discussed in the SI report addendum, along with relevant munitions findings and site observations.

The Tetra Tech UXO site management team conducted site-specific training for geophysical field personnel upon their arrival to the site and prior to the commencement of fieldwork IAW the MEC QAPP and with the accident prevention plan/site safety and health plan (APP/SSHP). All geophysical field personnel were confirmed to have completed the US Department of Labor Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) 40-hour training course, and current 8-hour refreshers. Additionally, geophysical personnel obtained the required base access passes IAW NBK security protocols.

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One Tetra Tech geophysical team mobilized to NBK a total of five times between October 30, 2023, and February 12, 2024, in support of the site UXO 03 step-out surveys. All geophysical and geodetic equipment remained on-site and assembled during the collection periods of October 31, 2023, through November 20, 2023, and January 21, 2024, through February 23, 2024. Initial DGM equipment receipt inspections, inventory, assembly, and function testing were performed on October 31, 2023, and January 21, 2024. SOPs on specific tasks were provided to field personnel for review prior to the start of fieldwork. After the team arrived on base at NBK, additional training or refreshers were provided by the Tetra Tech Site Geophysicist or their designee. Appendix C contains all field SOP checklists completed throughout this effort. All QC SOP checklists and relevant quality receiving inspection reports (QRIRs) were submitted as part of the weekly QC reports (Appendix B).

As part of DFW 1, a Microsoft Access database was created for project data compilation, storage, and management. The database includes relevant DGM data tracked throughout the project, including key information such as production details, and the running QC summaries. This database was updated regularly throughout the project and provided with each data package submittal to the Navy. The final master DGM project database is provided as an electronic submittal to this report (Appendix F).

AES Consultants, Inc. (AES), a Washington Licensed Professional Land Surveyor (PLS) established temporary control points at the MRP site UXO 03 IAW DGM SOP 7. Temporary control points were tied to a Continuously Operating Reference Station (CORS) network and were reported as Washington North State Plane, North American Datum 1983 (NAD83), in units of US Survey Feet. Additional temporary control points were placed by AES on September 21, 2023, October 31. 2023, November 16, 2023, and December 8, 2023, to support geophysical data collection. The surveyor report is provided in Appendix G.

Other temporary control points used by Tetra Tech during DGM operations were established throughout the UXO 03 step-out sites to facilitate accurate positioning of DGM data. The independent survey control was used as the starting point for all subsequent temporary controls set by Tetra Tech IAW DGM SOP 7.

INSTRUMENT VERIFICATION STRIP ESTABLISHMENT (DFW 5)

The project objectives for DFW 5 were to verify the correct assembly and operation of geophysical systems to be used for the detection survey. The instrument assembly and initial Instrument Verification Strip (IVS) surveys at the existing IVS 01 location for the EM61-MK2 HP systems are detailed in the IVS Technical Memorandum Addendum 03 and 04 (Appendix E). Each DGM system brought to the site for data collection underwent initial validation at the IVS IAW DGM SOP 02.

The IVS Technical Memorandum Addendum 03 and 04 also present the basis for the target picking thresholds used for the DGM surveys. The threshold for EM61-MK2 HP surveys remained at 5 millivolts (mV) on Channel 2, which is consistent with previous EM61-MK2 HP surveys performed at other MRP sites as part of this SI.

EM61-MK2 DGM FIELD SURVEYS (DFW 6)

The project objective of DFW 6 was to conduct DGM surveys using the EM61-MK2 HP at site UXO 03 step-outs. The DGM surveys were completed between October 30, 2023, and February 23, 2024, after completion of site preparation activities.

2.1.1 EM61-MK2 Surveys

Table 1 summarizes the DGM transect survey coverage at UXO 03 step-outs. The EM61-MK2 HP system was configured for person portable mode with the sensor attached to the manufacturer's wheels. Positions were recorded using a Leica Robotic Total Station (RTS) system. Geophysical and positional data were simultaneously streamed to hand-held tablet computers and recorded to a raw data file. Data at all four step-out sites were

collected IAW DGM SOP 4. Relevant site features recorded in the field were also incorporated into the project Geographic Information System (GIS).

Site **Planned** Actual **Transects** Comments Coverage **Transect** (feet) (acres) Coverage (acres) **UXO 03** 1.80 2.05 30.218 No additional surveying was done in the western section in accordance with the Ν direction provided to site management. **UXO 03** 0.27 0.32 4,875 No additional surveying was done in the NW northern section in accordance with the direction provided to site management. **UXO 03** 1.19 0.94 13.330 Sections along the western side of the survey SE area were inaccessible due to infrastructure and environmental obstructions. **UXO 03** 0.52 0.49 6,942 SW 3.78 3.8 55.365 Totals

Table 1. EM61-MK2 HP Data Collection Summary

Transect surveys included a single pass of the EM61-MK2 HP sensor along each cleared transect corridor. Deviations in the collected transect line path from planned transect alignments were primarily caused by trees, impassable terrain, or due to the presence of other obstructions (e.g. surface debris). Plastic pin flags were emplaced by operators along the centerline and endpoints of each transect using a RTS to help maintain proposed survey line spacing.

2.1.2 Digital Geophysical Mapping Field Quality Control

QC measures in the field during the DGM surveys included geodetic function checks for the RTS positioning system, DGM sensor function tests, and twice-daily data collection at the IVS IAW the MEC QAPP. The positioning system checks included recording measurements at temporary control points with known measurements to verify the positioning system was set up properly for use in the field. Sensor function tests confirmed the DGM system sensor was functioning as intended. The IVS surveys were completed to verify each DGM system was properly detecting the seeds in the IVS and that the positioning system was accurately identifying target positions for the IVS seeds.

Throughout the DGM surveys, the DGM field team uploaded raw data daily to a secure Tetra Tech SharePoint site for retrieval by data processing personnel. The Site Geophysicist was responsible for verifying records were complete and that supporting information, such as field logs and stand-alone positioning data (e.g., geodetic QC test measurements) were provided for evaluation. Field logs were captured using Tetra Forms, the company's electronic data capture tool.

The daily logbooks were supplied as part of the raw and processed data packages. Field SOP checklists were also completed in Tetra Forms and submitted with the logbook entries. These SOP checklists are provided as

Appendix C to this report to save the reviewer from having to search through the daily logbook entries to verify the completion of the checklists.

2.1.3 DGM Nonconformances

The NCR process was not applicable for this phase of work, as there were no QC variances associated with the work performed.

DGM PROCESSING AND QC (DFW 8)

The project objective for DFW 8 was to process DGM data, select targets from DGM data, and update the project GIS and Access database. DGM data were processed, and target picking was performed IAW DGM SOP 5. Completed DGM data processing SOP checklists are in Appendix C and QC SOP checklists for dynamic data submittals are appended to the weekly DGM QCRs (Appendix B).

IAW the Final IVS Technical Memorandum Addendum 03 and 04 (Appendix E), targets were selected at or above a threshold of 5 mV in Channel 2 for EM61-MK2 HP data. Production and daily static test data were monitored to confirm the threshold was sufficiently above local background and noise levels. Target selection lists, processed files, and geophysical maps were created for each UXO 3 step-out site.

Initial target selections along transect paths were auto-selected using a peak-picking algorithm in the UXO Land module within Geosoft Oasis Montaj, based on the Channel 2 profile data. After initial target selection, data corresponding to the target selected by the above-mentioned picking method were evaluated to confirm the validity and positioning of each target. Targets found to be invalid or incorrectly located were removed or adjusted. Additionally, peaks that were not selected by the UXO Land module, yet deemed valid, were manually selected as targets. All targeted anomalies occurring at or above the targeting threshold were assigned a unique identification number corresponding to the MRP survey site and the target location (e.g., UXO 03_t0001). Relevant comments regarding derived target locations (i.e., suspected noise, expanded anomaly footprint, potential cultural source, etc.) were provided as part of delivered target lists.

The criteria for selecting and locating targeted anomalies included the following:

- Maximum amplitude of the response with respect to local background conditions, 5x standard deviation;
- Decay of peak response across all channels;
- Lateral extent (width) of the response; and
- Location of the response with respect to the edge of the survey area, inaccessible areas, land features, or cultural features within or adjacent to the survey area.

In some cases, the density of subsurface metal is so high that the selection of individual targets was not possible. These areas identified as Saturated Response Areas (SRAs) are bound by polygons in the processed DGM results. Table 4 summarizes the number of targets, SRAs, and total SRA acreage for the EM61-MK2 HP data at each step-out site.

Site	EM61-MK2 HP Targets	Number of SRAs	SRAs (acres)
UXO 03 N	2598	3	0.16
UXO 03 NW	323	3	0.03
UXO 03 SW	389	5	0.27
UXO 03 SE	842	2	0.25

Table 2. Target Totals for EM61-MK2 HP

2.1.4 DGM Data Deliverables

Following QC review of the DGM data deliverables, the data processing personnel provided DGM results to the Tetra Tech GIS Manager as electronic, georeferenced data layers for inclusion in the master project GIS. This process allowed the DGM data to be overlain on existing aerial imagery and to be combined with other project data (e.g., surface clearance findings) to provide a comprehensive depiction of the SI data. Working versions of these maps served as the basis for regular in-progress reviews with the project team, and to inform decisions on next steps throughout the SI. The maps presenting the DGM results are in Appendix D.

DGM data deliverables were provided on a regular basis to Navy EODTECHDIV for quality assurance (QA) inspection. A separate secure folder was created on the project SharePoint site for the Navy to retrieve the processed data packages after an internal review by Tetra Tech's QC Geophysicist. The master Access database served as the primary repository for running QC summaries and tracking. Data provided in each QA submittal throughout the DGM survey execution included the following:

- Raw DGM data files and field logs
- Processed geophysical data files (production, QC tests, and IVS files)
- Geosoft databases (data and target databases)
- Relevant QC plots for Measurement Quality Objective (MQO) conformance
- · Target lists in CSV format
- Polygon files for SRAs
- Updated version of the master project Access database

2.1.5 Discussion of DGM Results

The DGM survey maps in Appendix D present the EM61-MK2 HP response results, discrete target locations, locations of encountered MEC and MDAS on the surface, and the delineated SRAs. The target counts and SRA acreages are summarized in Table 2. The results at each step-out site demonstrate varying degrees of impact from buried metallic objects.

Because no intrusive investigation of DGM targets is scoped for the SI, there is no information available on the vertical extent of the discrete anomaly sources or the nature of these sources. Based on the surface clearance findings, where MEC/MPPEH was encountered on the ground surface, there may also be MEC/MPPEH present within the subsurface, either as discrete objects or co-mingled with other debris. Without intrusive investigation of targets, the nature of the anomaly sources remains unknown.

Step-out Site UXO 03 SE (Figure 1) data exhibit the presence of widespread metallic debris across the majority of the site. The eastern border of the DGM data includes an SRA, the footprint of which appears to extend from the large, central SRA in the original Site UXO 3 DGM data. This may indicate additional burn trenches or an extension of the original burn trench location across Escolar Road. A large quantity of MEC and material documented as safe (MDAS) identified during the surface clearance corresponds to areas of DGM targets throughout the step-out. The inaccessible areas identified prior to the SI were confirmed to be unsuitable for the EM61-HP system in wheel mode due to steep slopes, ravines, and mounds.

Step-out Site UXO 03 SW (Figure 2) data exhibit the presence of metallic debris across the site, with a heavier concentration of DGM targets and SRAs in the southern half of the step-out. This corresponds to a higher number of recovered MEC and MDAS locations in the southern half of the step-out. The southeastern border of the DGM data includes an SRA, the footprint of which appears to extend from a small SRA in the original Site UXO 3 DGM data. The inaccessible areas identified prior to the SI were confirmed to be unsuitable for the EM61-HP system in wheel mode due to mounds, and water saturated areas.

Step-out Site UXO 03 NW (Figure 3) data exhibit the presence of metallic debris across the site, with MDAS recovered throughout the step-out. Localized dense discrete geophysical target counts were observed, notably along the southwestern and northeastern step-out boundary. Two SRAs were delineated from the DGM data; one of which appears to extend from the large, central SRA in the original Site UXO 3 DGM data. The inaccessible areas identified prior to the SI were confirmed to be unsuitable for the EM61-HP system in wheel mode due to mounds, and water saturated areas.

Step-out Site UXO 03 N (Figure 4) data exhibit the presence of widespread metallic debris across the majority of the site. The southern half of the step-out exhibits a higher concentration of recovered MEC and MDAS, which corresponds to areas of higher target densities and SRAs.

DEMOBILIZATION (DFW 10)

The DGM project objective of DFW 10 was to demobilize field crews and equipment, and to restore field area to pre-survey conditions. Upon completion of fieldwork, pin flags, wooden stakes, and metal nails installed by Tetra Tech as temporary control points were removed from survey areas. The temporary control points emplaced by the land surveyor at each MRP site location and the IVS 1 seeds were not removed prior to demobilization of geophysical personnel. However, the IVS seeds were later removed by the remaining Tetra Tech staff on March 7, 2024.

DGM field teams demobilized on February 23, 2023, after the completion of planned field activities.

DATA USABILITY ASSESSMENT

The following sections present the data usability assessment (DUA) using the four steps described in MEC QAPP Worksheet #37.

2.2 STEP 1: REVIEW PROJECT OBJECTIVES AND SAMPLING DESIGN

The problem statement for the SI at NBK Bangor states, "The presence of MPPEH/MEC on the surface or in the subsurface would potentially pose an unacceptable explosive hazard to the public, site workers, NBK Bangor personnel, and others with access to a site. Potentially incomplete exposure pathways exist for human receptors to be exposed to MPPEH/MEC under current and potential future land uses" (MEC QAPP Worksheet #11 June 2021). Furthermore, the stated objective of the SI is to "assess and verify the absence or presence of MPPEH and support the subsequent path forward..." The problem statement and project objectives for the SI remain unchanged.

The DGM survey approach (i.e., sampling design) for this SI also remained unchanged. Access limitations caused by terrain, trees, or steep slopes, which may have resulted in deviations from planned survey transect alignments or reduced coverage in portions of the site, are not considered sampling design changes as part of this DUA step. No Field Change Requests (FCRs) were issued as part of the survey approach for the UXO 3 step-out sites.

STEP 2: REVIEW DATA VERIFICATION/VALIDATION OUTPUTS AND EVALUATE CONFORMANCE TO MEASUREMENT PERFORMANCE CRITERIA

Data verification and validation outputs are evaluated as follows.

 Review available QC outputs, including daily QC reports and NCRs, with associated Root Cause Analysis (RCA)/CAs

- Evaluate conformance to measurement performance criteria (MPC) documented on MEC QAPP Worksheet #12
- Evaluate conformance to MQOs documented on MEC QAPP Worksheet #22

2.2.1 QC Outputs

Table 3 summarizes relevant verification, validation, and usability outputs applicable to the DGM surveys in MEC QAPP Worksheet #35.

Table 3. Summary of Verification and Validation Outputs

Output	Description	Location
SOP Checklists	Field checklists were completed for applicable SOPs. QC SOP checklists are included in weekly QC reports.	Appendix B; Appendix C
PLS Report	Site control monuments were placed at UXO 3 step-out sites by a WA-licensed PLS. The PLS Report is included in Appendix H.	Appendix G
Weekly QC Reports	QC Reports were completed daily to document all relevant QC activities.	Appendix B
Raw and Processed Data DGM data packages	Raw and processed data were delivered to the Navy via a secure project SharePoint site.	Electronic Data Deliverables Provided During Project Execution
Three Phase of Control Documentation	Preparatory, Initial, and Follow-up Inspections were performed for DFWs 3 and 5-8. Follow-up Inspections are included in weekly geophysical QC reports.	Appendix B
Master Project Access Database	QC metrics were tracked in the project Access Database and included with data deliverables.	Appendix F

2.2.2 Measurement Performance Criteria and Measurement Quality Objectives Conformance

Tables 4 and 5 present the MPC and MQO results that demonstrate the usability of DGM data collected during the SI investigation to support the project DQOs described in Worksheet #11. Note that MQOs associated with DFW 5 are discussed in the Final IVS Technical Memorandum Addendum 03 and Addendum 04 (Appendix E). There were no nonconformances related to the DGM data collected at UXO 3 step-out sites.

Table 4. Conformance to Project MPCs

Measurement	Data Quality Indicator	Specification	Result
Accessibility	Completeness	Access to the site will be pre-arranged to ensure field personnel have authorization to access survey areas. Individual sites are physically accessible to facilitate data collection	Access to the site was coordinated between the Tetra Tech UXO site management team, DGM field teams, and the installation to facilitate access to the survey areas.
Planned Survey Coverage (Transects)	Representativeness/ Completeness	For individual sites where transect approach to data collection will be used, the spacing will be sufficient to delineate the lateral extent (i.e. footprint) of suspected disposal or dunnage areas.	Geophysical surveys were completed within the footprint of step-out sites having undergone vegetation reduction and surface clearance DGM transect spacing is sufficient for delineation of former disposal areas, but for some step-out sites, the disposal areas may extend beyond the current limits of the site boundary based on the locations of SRAs. DGM results do support achievement of the project objectives in supporting the decision-making process for next steps at each MRP site
Detection Threshold (DGM Surveys)	Sensitivity	HP EM61-MK2 surveys will be 5x Root Mean Square (RMS) noise levels (or standard deviation).	The detection threshold is ≥5x standard deviation, as detailed in the Final IVS Technical Memorandum Addendum 03 and Addendum 04 (Appendix E)
Positioning Requirements (Transects)	Accuracy	Actual transect center line positions within ±25 feet of planned alignment.	All transect center line positions were within ±25 feet of planned alignment (Appendix D).
Survey Coverage (Transects)	Accuracy / Completeness	100% of planned transects are surveyed	100% of accessible transect areas were collected and positional data was recorded (Appendix D).

Table 5. Conformance to Project MQOs

Measurement Quality Objective	MQO#	Acceptance Criteria	Results
Geodetic function check	1-6	Measured coordinates at known location is within ±4 in of ground truth	Average = 0.72 in (Appendix F) Max = 2.64 in (Appendix F)
Ongoing Instrument Function Test (EM61- MK2 HP)	3-4	Response (mean static spike minus mean static background within 20% of predicted response for all channels)	Average: 1.675% (Appendix F) Max: 6.6% (Appendix F)
Ongoing dynamic positioning precision (IVS)	3-7	Derived positions of IVS targets ±10 in of the running average positions	Average: 3.03 in (Appendix F) Max: 9.06 in (Appendix F)
In-line measurement spacing	3-8	98% ≤0.75ft between successive measurements; 100% ≤ 3.3-feet gaps are filled or adequately explained (e.g., unsafe terrain or obstructions)	Pass; 98% of along line spacing was achieved at ≤0.75 ft for the EM61-MK2 HP systems. 100% of gaps ≤3.3 ft were filled (Appendix F).
Transect Coverage	3-9	Sensor swath center line within 25ft of planned transect alignment. Missing transects or deviations outside tolerance are explained (e.g., unsafe terrain obstructions)	Pass; transect coverage for EM61-MK2 HP systems was achieved and 100% of sensor line paths ≤ 25ft from planned transect alignment. Gaps were explained and documented due to unsafe terrain, obstructions, etc. (Appendix D)
Battery Voltage (EM61- MK2 HP)	3-14	Battery Voltage must be ≥ 11 volts (V)	Pass; battery voltage was above 11V, battery was changed if voltage fell below 11V (Appendix B)

STEP 3 – DOCUMENT DATA USABILITY, UPDATE THE CSM, AND DRAW CONCLUSIONS

This section reviews the data usability inputs using the following steps:

- Evaluate data completeness.
- Summarize the impacts of non-conformances on data usability.
- Summarize updates to current CSM
- Summarize data usability conclusions

2.2.3 Data Completeness and Impacts on Data Usability

The verification and validation outputs included in this DUA confirm the data quality and quantity are sufficient to support the overall project objectives of the SI.

Update to Conceptual Site Models

Updates to the conceptual site model (CSM) for site UXO 3 are based on the DGM survey results and are limited to site-specific conditions relevant to impacts to data collection. Delineated SRAs in each of the UXO 3 step-out sites indicate high response areas in the DGM data extending beyond the original UXO 3 site boundary. The data indicate SRAs may continue to extend beyond the boundaries of step-out sites UXO 3 N, UXO 3 NW and UXO 3 SW.

Additional updates to the overall CSM for the UXO 3 site in this SI are addressed in the SI report Addendum.

Conclusions

The DGM data collected as part this SI can be used as intended to achieve the project objectives. Updates to the technical approach were considered in cooperation with the project team, and do not adversely impact data usability. The data provided by the geophysical surveys are sufficient to inform decisions regarding the potential absence or presence of munitions-related items at the MRP sites, but without intrusive resolution of anomalies, the nature of the anomalies is unknown.

STEP 4 – DOCUMENT LESSONS LEARNED AND MAKE RECOMMENDATIONS

Lessons learned from the DGM include the following:

- Before mobilization, seasonal weather conditions should be evaluated to proactively waterproof equipment to avoid damage or replacement of parts and delays in data collection.
- Incorporate additional scripting into the data processing routine to help identify possible noise detections to expedite the target selection process.
- Prior to a mobilization event, ensure there are multiple personnel with a valid base access pass. This ensures no unexpected schedule delays if someone allocated to the project can no longer fill that role.

Final	Geophysica	al Mappino	3 Survey	Report.	Site	UXO 3

APPENDIX A – DAILY REPORTS





	PRODUC	CTIO	N SECTIO	N.		Report N	No.
	ricobot		N SECTIO			130	
	ntract No.		Title & Lo				
N6:	247016D9008		Naval Bas	se Kitsap Bangor SI;	Silverdale, WA	10/30/20	023
	ntractor:			Site Superintender			
_	ra Tech, Inc.			Forrest Malone; SU>	(OS		
	Weather:			PM Weather:	N.O.MDU		
_	F. Sunny. Winds S 1 MPH.			57F. Sunny. Winds	S N 2 MPH.		
De	scription of Work Activities for the Day						
- R	sks completed: ental Truck picked up from Enterprise truck re quipment inventory, Equipment checks, and p		rement of r	needed supplies.			
#	Employer or Employee		Number	Т	rade or Position		Hours
1	Brett Yarborough	1		Geophysicist			9
2	Zach Weston	1		UXO Tech II			9
						Total:	18
					I		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	18
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,444.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the en es, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,462.5
Lis	t safety actions taken today/safety inspections	con	ducted:				
Da	ily Safety Inspection. Daily Safety Brief - Prope	er ve	hicle safet	y during cold weathe	er		
Re	marks:						
- Cd	n For Following Day: ontinue equipment testing ace control points in UXO 03						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geor	ohysicist/Tetra Tech	Inc	10/30/20)23
Sin	nature				-		

Brett Yarborough
Date: 2023.10.30 21:04:46 -05'00'



	FOUIDMENT SECTION						Report No.	<u>'</u>	
Cor	ntract No.		Title & Loca	ition:			Date:	Date:	
	247016D9008			Kitsap Bangor SI;	Silverda	e, WA	10/30/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Ju l 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	10/30/2023

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION							Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 10/30/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	10/30/2023



(IE	J. S. C.			KODOOIIO	IVINEI OIVI			
	BRODIIC	`TIC	N SECTIO	N		Report I	No.	
PRODUCTION SECTION				131				
Contract No. Title & Lo				ocation: Date:				
N6	247016D9008		Naval Bas	e Kitsap Bangor SI; Si	Iverdale, WA	10/31/20	023	
	ntractor:			Site Superintendent:				
Tet	ra Tech, Inc.			Forrest Malone; SUXOS	5			
	Weather:			PM Weather:				
36F	F. Sunny. Winds S 1 MPH.			56F. Sunny. Winds N	2 MPH.			
Des	scription of Work Activities for the Day							
- As - PI	sks completed: ssisted surveyor with placement of 3 control po aced additional temporary control points. ollected initial IVS survey.	oints	near the U	JXO 03 area.				
#	Employer or Employee		Number	Trac	de or Position		Hours	
1	Brett Yarborough	1		Geophysicist			10	
2	Zach Weston	1		UXO Tech II			10	
						Total:	20	
						I		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: No:	Total work hours site this date:	I	20	
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work he from previous rep	I	6,462.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the engles, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,482.5	
List	safety actions taken today/safety inspections	con	ducted:	1		'		
Dai	ly Safety Inspection. Daily Safety Brief - Hallo	wee	n Night Saf	·ety				
Rei	marks:							
	n For Following Day: art collection of UXO 03 transects.							
Qua	ality Control		_					
Ant	hony Aguirre							
Cor	ntractor Production Lead		Title/Com	pany		Date		
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech Ind	c	10/31/20)23	
Sign	nature							

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.10.31 21:05:05 -05'00'



	EQUIPMENT SECTION R 1:									
_										
	Contract No. Title & Location:									
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	10/31/2023			
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise				Oct 29, 2023				
14	EM61-MKII HP	KD Jones				Oct 30, 2023				

Contractor Production Lead	Date
Brett Yarborough	10/31/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 10/31/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	10/31/2023



	y .					
	PRODUC)N		Report N	No.	
				132		
Contract No. Title & Loc				Date:	200	
	247016D9008	Navai Bas	se Kitsap Bangor SI; Silv	rerdale, VVA	11/01/20)23
	ntractor:		Site Superintendent:			
_	tra Tech, Inc.		Forrest Malone; SUXOS			
	Weather:		PM Weather:			
_	F. Sunny. Winds S 1 MPH.		56F. Sunny. Winds N 2	Z MPH.		
De	scription of Work Activities for the Day					
	sks completed: XO 03 step out Transects T74, T75, T76, T77,	T78, T79, T80), T81, T82, T83, 100% c	collected, 100% col	mplete.	
#	Employer or Employee	Number	Trade	e or Position		Hours
1	Brett Yarborough	1	Geophysicist			10
2	Zach Weston	1	UXO Tech II			10
					Total:	20
			У О			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		Yes: ⊙ No: ○	Total work hours site this date:	on	20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	Cumulative work h from previous rep		6,482.5
	s trenching/scaffolding/HV electrical/high work of es, attach statement or checklist showing inspe					
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h since start of wo		6,502.5
Lis	t safety actions taken today/safety inspections	conducted:	<u>'</u>			
Da	ily Safety Inspection. Daily Safety Brief - Daylig	ht Hours				
Re	marks:					
	n For Following Day: ontinue collection of UXO 03 step out transects.					
Qua	ality Control					
Ant	hony Aguirre					
Cor	ntractor Production Lead	Title/Com	npany		Date	
Bre	tt Yarborough	Site Geo	ohysicist/Tetra Tech Inc		11/01/20)23
Sia	nature					

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.02 07:35:48 -05'00'



	EQUIPMENT SECTION							
Cor	Contract No. Title & Location:							
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/01/2023	
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	ıls		0	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise				Oct 29, 2023		
14	EM61-MKII HP	KD Jones				Oct 30, 2023		

Contractor Production Lead	Date
Brett Yarborough	11/01/2023

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								Report No. 132	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 11/01/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand		QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	11/01/2023



	J							
PRODUCTION SECTION				ION Repo			rt No.	
						133		
Contract No.					Date:			
	247016D9008	[Navai	Bas	se Kitsap Bangor SI; Silv	/erdale, vvA	11/02/20	J23	
	ntractor:			Site Superintendent:				
_	ra Tech, Inc.			Forrest Malone; SUXOS				
	Weather:			PM Weather:	2 MDU			
	F. Cloudy. Rain. Winds S 1 MPH.			56F. Sunny. Winds N	Z IVIPH.			
De	scription of Work Activities for the Day							
	sks completed: XO 03 step out Transects T66, T67, T68, T69,	T70, T71,	T72	, T73 100% collected, 1	00% complete.			
#	Employer or Employee	Numbe	er	Trade	e or Position		Hours	
1	Brett Yarborough	1		Geophysicist			10	
2	Zach Weston	1		UXO Tech II			10	
						Total:	20	
				Veri C	T. 1			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●				
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: •	Cumulative work h since start of wo		6,522.5	
Lis	t safety actions taken today/safety inspections	conducted:					<u>-</u> -	
Da	ily Safety Inspection. Daily Safety Brief - vehicl	le safety						
Re	marks:							
	n For Following Day: ontinue collection of UXO 03 step out transects.							
Qua	ality Control							
Ant	hony Aguirre							
Cor	ntractor Production Lead	Title/C	om	pany		Date		
Bre	tt Yarborough	Site G	eop	hysicist/Tetra Tech Inc		11/02/20)23	
C:								

QP-01 Rev. 4, Rev Date 03/31/2022

A-10

Brett Yarborough

Digitally signed by Brett Yarborough Date: 2023.11.03 07:40:36 -05'00'



	EQUIPMENT SECTION							
							133	
	ntract No.		Title & Loca				Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/02/2023	
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise				Oct 29, 2023		
14	EM61-MKII HP	KD Jones				Oct 30, 2023		

Contractor Production Lead	Date
Brett Yarborough	11/02/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIAL S SECTION								Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 11/02/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT\ On-Ha	-	QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	11/02/2023

QP-01 Rev. 4, Rev Date 03/31/2022



	J								
	PRODUC	CTION SECTION	ON		Report No.				
	TROBUG	, ion ocom			134				
	ntract No.		e & Location: Date:						
N6:	247016D9008	Naval Ba	ise Kitsap Bangor Sl	11/03/20)23				
	ntractor:		Site Superintende						
_	ra Tech, Inc.	XOS							
	Weather:		PM Weather:	L N C MPH					
40F. Cloudy. Winds S 1 MPH. 57F. Cloudy. Winds N 2 MPH.									
Description of Work Activities for the Day									
Tasks completed: - UXO 03 step out Transects T58, T59, T60, T61, T62, T63, T64, and T65 100% collected, 100% complete.									
#	Employer or Employee	Number	-	Trade or Position		Hours			
1	Brett Yarborough	1	Geophysicist			10			
2	Zach Weston	1	UXO Tech II			10			
					Total:	20			
10/0	a ich acfati, mactina hald this data?		Yes: ⊙	Tatalaul. h aa					
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		No:	Total work hours on site this date:		20			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●						
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work hours since start of work:		6,542.5			
List	t safety actions taken today/safety inspections	conducted:			1				
Dai	Daily Safety Inspection. Daily Safety Brief - Munitions Safety								
Re	marks:								
	Plan For Following Day: - Continue collection of UXO 03 step out transects.								
Qua	ality Control								
Ant	hony Aguirre								
	ntractor Production Lead	Title/Cor	npany		Date				
Bre	tt Yarborough	Site Geo	physicist/Tetra Tech	ı Inc	11/03/20)23			
Cianatura									

QP-01 Rev. 4, Rev Date 03/31/2022

A-13

Brett Yarborough

Digitally signed by Brett Yarborough Date: 2023.11.05 18:21:54 -06'00'



	FOUIDMENT SECTION								
	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	11/03/2023		
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	ıls		0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	11/03/2023

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 11/03	Date: 11/03/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/03/2023



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	PRODUC	TIO	N SECTION			Report I	No.		
	rkoboo	, 110	N SECTION			134			
င္ပ	ntract No.		Title & Loca				Date:		
N6	247016D9008		Naval Base	al Base Kitsap Bangor SI; Silverdale, WA					
Co	ntractor:			Site Superintender	it:				
Tet	tra Tech, Inc.	[F	Forrest Ma l one; SUX	OS					
AM	1 Weather:		1	PM Weather:					
40F	F. Cloudy. Winds S 1 MPH.		[57F. Cloudy. Wind	s N 2 MPH.				
De	scription of Work Activities for the Day								
Tasks completed: - UXO 03 step out Transects T49, T50, T51, T52, T53, T54, T55, T56, and T57 100% collected, 100% complete.									
#	Employer or Employee Number Trade or Position					Hours			
1	Brett Yarborough	1		Geophysicist			10		
2	Zach Weston	1		UXO Tech II		10			
3	Nick Emm	1		Feild Geophysicist			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ Cumulative work hours No: ● from previous report:			6,542.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •					
	s hazardous material/waste released to the envious, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,572.5		
Lis	t safety actions taken today/safety inspections	cond	ducted:						
Da	Daily Safety Inspection. Daily Safety Brief - Proper Lifting								
Re	marks:								
	n For Following Day: ontinue collection of UXO 03 step out transects.								

QP-01 Rev. 4, Rev Date 03/31/2022

Page 1 of 4 Tetra Tech Proprietary Information PRINTED COPIES ARE UNCONTROLLED. CONTROLLED COPIES ARE AVAILABLE ON THE INTRANET



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

11/06/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.07 09:16:57 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location:									
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/06/2023			
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise				Oct 29, 2023				
14	EM61-MKII HP	KD Jones				Oct 30, 2023				

Contractor Production Lead	Date
Brett Yarborough	11/06/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 11/06/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/06/2023



	J							
	PRODUC	TIC	NI SECTION	J		Report I	No.	
PRODUCTION SECTION 136						136	136	
Contract No. Title & Loca				cation: Date:				
N6	247016D9008		Naval Base	e Kitsap Bangor	SI; Silverdale, WA	11/07/20	023	
Со	ntractor:			Site Superinten	dent:			
Tet	tra Tech, Inc.			Forrest Malone; S	SUXOS			
ΑN	l Weather:			PM Weather:				
471	F. Cloudy. Winds W 2 MPH.			53F. Cloudy. W	inds NE 6 MPH.			
De	scription of Work Activities for the Day							
(U-U) (U-U)	sks completed: KO3N Transects T48, T47, T46, T45, and T44, KO3N Transects T43, T42, T41, T40, and T39 emporary control points UXO3N.10, UXO3N.11	mar	rked with RT	S				
#	Employer or Employee		Number		Trade or Position		Hours	
1	Nick Emm	1		Field Geophys	sicist		10	
2	Zach Weston	1		UXO Tech II			10	
				-1		Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	I	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: • from previous report:			6,572.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,592.5	
Lis	t safety actions taken today/safety inspections	con	iducted:					
Da	ily Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Falls	;				
Re	marks:							
- Cd	n For Following Day: ontinue collection of UXO 03 step out transects. TE: -Nick Emm was stung on right hand while mar	rkind	g transects. S	SHO was notified	and logbook entry was ma	de		
11	om SS tests were collected		J :. :: C C C C J O		and the state of t	-		

QP-01 Rev. 4, Rev Date 03/31/2022

A-20



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

11/07/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.08 07:55:41 -06'00'



	EQUIPMENT SECTION									
Cor	ntract No.		Title & Loca	ition:			Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/07/2023			
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise				Oct 29, 2023				
14	EM61-MKII HP	KD Jones				Oct 30, 2023				

Contractor Production Lead	Date
Brett Yarborough	11/07/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 11/07/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/07/2023



(IE	J. S. C.			ROBOOTIO			
	PPODUC	`TIO	N SECTIO	N		Report N	No.
PRODUCTION SECTION 13						137	
Col	ntract No.		Title & Loc		Date:		
N6	247016D9008		Naval Bas	e Kitsap Bangor SI; Si	lverdale, WA	11/08/20	023
	ntractor:			Site Superintendent:			
Tet	ra Tech, Inc.			Forrest Malone; SUXOS			
	Weather:			PM Weather:			
47F	F. Cloudy. Winds S 3 MPH.			54F. Cloudy. Winds S	SE 2 MPH.		
Des	scription of Work Activities for the Day						
-U>	sks completed: (O3N Transects T43, T42, T41, T40, T39, T38 (O3N Transects T35, T34, T33, T32, T31, T30				o complete		
#	Employer or Employee		Number	Trac	le or Position		Hours
1	Nick Emm	1		Field Geophysicist			10
2	Zach Weston	1		UXO Tech II			10
						Total:	20
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: • No: ○	Total work hours site this date:	on	20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,592.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the entes, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,612.5
List	t safety actions taken today/safety inspections	con	ducted:				
Dai	ly Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Fall	s			
Rei	marks:						
	n For Following Day: ontinue collection of UXO 03 step out transects.						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech Ind	;	11/08/20)23
Ciar	noturo						

QP-01 Rev. 4, Rev Date 03/31/2022

A-24

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.09 09:39:49 -06'00'



	EQUIPMENT SECTION								
Cor									
	247016D9008			Kitsap Bangor SI;	Silverda	le, WA	Date: 11/08/2023		
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	11/08/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/08/2023



	PRODUC	TION SECTION)NI		Report I	No.	
	TRODUC	TION SECTION	/I V		138		
Contract No. Title & Loc							
N6:	247016D9008	Naval Bas	se Kitsap Bangor SI; Si	lverdale, WA	11/09/20)23	
	ntractor:		Site Superintendent:				
Tet	ra Tech, Inc.		Forrest Malone; SUXOS				
	Weather:		PM Weather:				
_	F. Cloudy. Winds S 5 MPH.		51F. Cloudy. Rain. W	inds S 6 MPH.			
De	scription of Work Activities for the Day						
	sks completed: (O3N Transects T35, T34, T33, and T32, 100%	% collected, 10	00% complete				
#	Employer or Employee	Number	Trac	le or Position		Hours	
1	Nick Emm	1	Field Geophysicist			10	
2	Zach Weston	1	UXO Tech II			10	
					Total:	20	
(If y	s a job safety meeting held this date? es, attach a copy of meeting minutes.) re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: No: Yes: No: No:	Total work hours site this date: Cumulative work h from previous rep	ours	6,512.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe						
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h since start of wo	I	6,532.5	
List	safety actions taken today/safety inspections	conducted:	,		'		
Dai	ly Safety Inspection. Daily Safety Brief - Comn	nunication					
Re	marks:						
	n For Following Day: ontinue collection of UXO 03 step out transects.						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead	Title/Com	npany		Date		
Bre	tt Yarborough	Site Geo	ohysicist/Tetra Tech Ind		11/09/20)23	
Cia	nature				•		

QP-01 Rev. 4, Rev Date 03/31/2022

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Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.10 13:42:21 -06'00'



	EQUIPMENT SECTION							
	EQUIPMENT SECTION							
Cor	ntract No.		Title & Loca	tion:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/09/2023	
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	ıls		0	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise				Oct 29, 2023		
14	EM61-MKII HP	KD Jones				Oct 30, 2023		

Contractor Production Lead	Date
Brett Yarborough	11/09/2023



	MATERIALS SECTION								
Contract No. N6247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					023
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Ha		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/09/2023



15	3311170		. 0111	ROBOOT				
	PRODUC	:TIO	N SECTIO	N.		Report 1	No.	
	TROBOG		N OLOTIC	139			39	
Contract No.								
N6:	247016D9008		Naval Bas	se Kitsap Bangor S	I; Silverdale, WA	11/10/20)23	
	ntractor:			Site Superintende				
_	ra Tech, Inc.			Forrest Malone; SU	IXOS			
	Weather:			PM Weather:				
_	BF. Cloudy. Winds S 4 MPH.			49F. Cloudy. Rair	n. Winds S 12 MPH.			
De	scription of Work Activities for the Day							
11	sks completed: (O3N Transects T31, T30, T29, 28, 27, and T2	26, 1	00% collec	cted, 100% comple	te			
#	Employer or Employee		Number		Trade or Position		Hours	
1	Nick Emm	1		Field Geophysic	cist		10	
2	Zach Weston	1		UXO Tech II			10	
				1		Total:	20	
				_	T			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,532.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,552.5	
Lis	t safety actions taken today/safety inspections	con	ducted:					
Da	ily Safety Inspection. Daily Safety Brief - Extre	me \	Weather					
Re	marks:							
11	n For Following Day: ontinue collection of UXO 03 step out transects.							
Qua	ality Control							
Ant	hony Aguirre							
Cor	ntractor Production Lead		Title/Com	pany	-	Date		
Bre	tt Yarborough		Site Geor	hysicist/Tetra Tecl	h Inc	11/10/20)23	
Sig	nature							

QP-01 Rev. 4, Rev Date 03/31/2022

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Brett Yarborough

Digitally signed by Brett Yarborough Date: 2023.11.13 09:04:48 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:							Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/10/2023		
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	11/10/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/10/2023



					· · · · · · · · · · · · · · · · · · ·		
	BRODIC	`TIO	N SECTIO	N		Report N	No.
	PRODUC	, 110	N SECTIO	IN .		140	
Co	ntract No.		Title & Loc	cation: Date:			
N6:	247016D9008		Naval Bas	e Kitsap Bangor SI;	Silverdale, WA	11/13/20	ງ23
Contractor:				Site Superintender			
Tetra Tech, Inc.				Forrest Malone; SUX	COS		
	Weather:			PM Weather:			
45F	F. Cloudy. Rain. Winds NW 4 MPH.			51F. Cloudy. Wind	s N 3 MPH.		
De	scription of Work Activities for the Day						
11	sks completed: 〈O3N rev1 Transects T17, T18, T19, T20, T21	, T2	2, T23, T24	4 and T26 100% col	lected, 100% complete		
#	Employer or Employee		Number	Т	rade or Position		Hours
1	Nick Emm	1		Field Geophysicis	st		10
2	Zach Weston	1		UXO Tech II			10
						Total:	20
Mas	s a job safety meeting held this date?			Yes: ●	Total work hours	on	
	es, attach a copy of meeting minutes.)			No: O	site this date:		20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,552.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						l
	s hazardous material/waste released to the eness, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,572.5
Lis	t safety actions taken today/safety inspections	con	ducted:			L	<u>`</u>
Dai	ily Safety Inspection. Daily Safety Brief - Safet	y Mi	ndset, Situa	ational Awareness			
Re	marks:						
	n For Following Day: ontinue collection of UXO 03N rev1 step out trans	ects					
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech	Inc	11/13/20)23
Sic	naturo					1 1	

QP-01 Rev. 4, Rev Date 03/31/2022

-01 Rev. 4, Rev Date 03/31/2022 A-33

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.14 12:10:47 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location: D									
N62	47016D9008		Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	11/13/2023			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		0	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise				Oct 29, 2023				
14	EM61-MKII HP	KD Jones				Oct 30, 2023				

Contractor Production Lead	Date
Brett Yarborough	11/13/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION 1								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 11/13/2	Date: 11/13/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Page 3 of 3

Contractor Production Lead	Date
Brett Yarborough	11/13/2023



	33111101		10111	(CDCCTIC	IVINEI OIVI			
	PPODUC	`TIC	N SECTION	1		Report N	No.	
	PRODUC	,,,,	JN SECTION	`		141		
	ntract No.	_	Title & Loc				Date:	
N6:	247016D9008		Naval Base	e Kitsap Bangor SI; Si	lverdale, WA	11/14/20	023	
	Contractor:			Site Superintendent:				
Tet	ra Tech, Inc.			Forrest Malone; SUXOS	5			
	Weather:			PM Weather:				
37F	F. Sunny. Winds N 4 MPH.			50F. Cloudy. Winds N	N 3 MPH.			
De	scription of Work Activities for the Day							
-U>	sks completed: (O3N rev1 Transects T60, T61, T62, T63, T64), T81, T82, T83, T84, T85, T86, T87, and T88				T72, T73, T74, T75,	T76, T77	, T78, T79,	
#	Employer or Employee		Number	Trac	de or Position		Hours	
1	Nick Emm	1		Field Geophysicist			10	
2	Zach Weston	1		UXO Tech II			10	
						Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,572.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h		6,592.5	
List	t safety actions taken today/safety inspections	con	iducted:	1				
Dai	lly Safety Inspection. Daily Safety Brief - Safety	y Mi	indset					
Re	marks:							
	n For Following Day: ontinue collection of UXO 03N rev1 step out trans	ects						
Qua	ality Control							
Ant	hony Aguirre							
Cor	ntractor Production Lead		Title/Comp	pany		Date		
Bre	tt Yarborough		Site Geoph	nysicist/Tetra Tech Ind	C	11/14/20)23	
Sia	nature			<u> </u>	<u> </u>			

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.15 10:00:36 -06'00'



	EQUIPMENT SECTION								
		EQUIPMEN	1 SECTION				141	141	
Cor	ntract No.		Title & Loca	tion:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/14/2023		
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	ıls		0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	11/14/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 11/14/2	Date: 11/14/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/14/2023



LIE.	3311177			NODOO!			
	PRODUC	TIO	N SECTIO	.NI		Report I	No.
	PRODUC	HO	N SECTIO	'IN		142	
Co	ntract No.		Title & Loc	cation:	Date:		
N6	247016D9008		Naval Bas	se Kitsap Bangor S	; Silverdale, WA	11/15/20	023
	ntractor:			Site Superintende			
Tet	ra Tech, Inc.		Forrest Malone; SU	XOS			
	Weather:			PM Weather:			
38F	F. Cloudy. Winds N 2 MPH.			57F. Sunny. Wind	s NE 4 MPH.		
De	scription of Work Activities for the Day						
-U>	sks completed: (O3N rev1 Transects T31, T32, T33, T34, T35 1, T52, T53, T54, T55, T56, T57, T58, and T59				42, T43, T44, T45, T46,	T47, T48	3, T49, T50,
#	Employer or Employee		Number	-	Trade or Position		Hours
1	Nick Emm	1		Field Geophysic	ist		10
2	Zach Weston	1		UXO Tech II			10
						Total:	20
				Yes C			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: • No: ○	Total work hours site this date:	I	20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work he from previous rep	I	6,592.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h	I	6,612.5
List	t safety actions taken today/safety inspections	con	ducted:		1		
Dai	ily Safety Inspection. Daily Safety Brief - Safet	/ Mi	ndset				
Re	marks:						
- Cd	n For Following Day: ontinue collection of UXO 03N rev1 step out trans art Collection of UXO 03W step out transects.	ects					
Qua	ality Control			_			
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech	n Inc	11/15/20	023
Sig	nature						

QP-01 Rev. 4, Rev Date 03/31/2022

A-39

Brett Yarborough

Digitally signed by Brett Yarborough Date: 2023.11.16 10:04:33 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location: Da									
N62	47016D9008		Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	11/15/2023			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		0	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise				Oct 29, 2023				
14	EM61-MKII HP	KD Jones				Oct 30, 2023				

Contractor Production Lead	Date
Brett Yarborough	11/15/2023



	MATERIALS SECTION								
Contract No. N6247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/15/2023



	J							
	PRODUC	TION SEC	CTIO	ON			eport No.	
			,			143		
Contract No. Title & Lo				71				
	247016D9008	Naval	Bas	e Kitsap Bangor SI		11/16/20	023	
Contractor:				Site Superintende				
	Tetra Tech, Inc. Forrest Malone; SUXOS AM Westher: DM Westher:							
	AM Weather: 38F. Cloudy, Winds NE 5 MPH. 49F. Sunny, Winds N 3 MPH.							
38F. Cloudy. Winds NE 5 MPH. 49F. Sunny. Winds N 3 MPH. Description of Work Activities for the Day								
Des	scription of Work Activities for the Day							
-U>	sks completed: (O3N rev1 Transects T24, T26, T27, T28, T29 (O3W Transects T1, T2, T3, and T4 100% coll				complete			
# Employer or Employee Number Trade or Position							Hours	
1	Nick Emm	1		Field Geophysic	ist		10	
2	Zach Weston	1		UXO Tech II			10	
						Total:	20	
					1			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,612.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed)	Yes: ○ No: ●	Cumulative work h since start of wo	I	6,632.5	
List	safety actions taken today/safety inspections	conducted	:		1			
Dai	ly Safety Inspection. Daily Safety Brief - Hydra	ation						
Rei	marks:							
	n For Following Day: ontinue collection of UXO 03W step out transects.							
Qua	ality Control							
Ant	hony Aguirre							
	ntractor Production Lead	Title/	Com	pany		Date		
Bre	tt Yarborough	Site 0	Зеор	hysicist/Tetra Tech	Inc	11/16/20)23	

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.17 11:58:18 -06'00'



			Report No.					
		143						
Cor	ntract No.		Title & Loca	ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/16/2023	
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise				Oct 29, 2023		
14	EM61-MKII HP	KD Jones				Oct 30, 2023		

Contractor Production Lead	Date
Brett Yarborough	11/16/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			111	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/16/2023



	PRODUC	PRODUCTION SECTION Report No.									
						144					
	ontract No.		Title & Loca			Date:					
	2247016D9008			e Kitsap Bangor S		11/17/20	J23 				
	ontractor:		Site Superintende								
_	Tetra Tech, Inc. Forrest Malone; SUXOS AM Weather: PM Weather:										
AM Weather: PM Weather: [545] Claudy, Mindo NE 3 MPH											
36F. Cloudy. Winds N 4 MPH. 51F. Sunny. Winds NE 2 MPH.											
De	scription of Work Activities for the Day										
-U; -Oi	sks completed: XO3W Transects T5, T6, T7, T8 and T9 100% -UXO3N and UXO3W initial collection complete rganization of equipment for demobilization leaning and Maintenance of work vehicles		ected, 100%	complete							
#	Employer or Employee		Number	-	Trade or Position		Hours				
1	Nick Emm	1		Field Geophysic	cist		10				
2	Zach Weston	1		UXO Tech II			10				
		<u> </u>				l Total:	20				
	s a job safety meeting held this date?			Yes: •	Total work hours	on	20				
(IT y	res, attach a copy of meeting minutes.)			No: O	site this date:						
	re there any lost time accidents this date? ves, attach a copy of completed OSHA report.)			Yes: C Cumulative work hours No: From previous report:			6,632.5				
	s trenching/scaffolding/HV electrical/high work res, attach statement or checklist showing insp										
	s hazardous material/waste released to the envices, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,652.5				
Lis	st safety actions taken today/safety inspections	con	ducted:								
Da	illy Safety Inspection. Daily Safety Brief - Fatigu	ue M	lanagement								
Re	marks:										
-Fil	n For Following Day: Il any potential gaps in collected data te Restoration eaning and packing equipment										

QP-01 Rev. 4, Rev Date 03/31/2022

Page 1 of 4
Tetra Tech Proprietary Information
PRINTED COPIES ARE UNCONTROLLED. CONTROLLED COPIES ARE AVAILABLE ON THE INTRANET



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

11/17/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.20 10:06:18 -06'00'



			Report No.					
		EQUIPMEN	T SECTION		144			
Cor	ntract No.		Title & Loca	ition:	Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/17/2023	
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise				Oct 29, 2023		
14	EM61-MKII HP	KD Jones				Oct 30, 2023		

Contractor Production Lead	Date
Brett Yarborough	11/17/2023



	MATERIALS SECTION								
Contract No. N6247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/17/2023



					• • • • • • • • • • • • • • • • • • • •			
	ppopuo	Rep			Report No.			
PRODUCTION SECTION				145			145	
Contract No. Title & Lo			cation: Date:					
N62	247016D9008		Naval Bas	e Kitsap Bangor SI;	Silverdale, WA	11/20/20	023	
Cor	ntractor:			Site Superintender	nt:			
Tet	ra Tech, Inc.			Forrest Malone; SUX	OS			
AM	Weather:			PM Weather:				
37F	F. Cloudy. Winds W 2 MPH.			49F. Cloudy. Winds	s SE 2 MPH.			
Des	scription of Work Activities for the Day							
-Sit	sks completed: te restoration in UXO3N and UXO3W complete eaning, packaging, and shipping of equipment ental truck returned to Enterprise in Fife, WA		untsville W	arehouse and KD Jo	ones completed			
#	Employer or Employee		Number	T	rade or Position		Hours	
1	Nick Emm	1		Field Geophysicis	st		10	
2	Zach Weston	1		UXO Tech II			10	
						Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,652.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the engles, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,672.5	
List	t safety actions taken today/safety inspections	cond	ducted:					
Dai	ily Safety Inspection. Daily Safety Brief - Prope	er Liff	ting					
Rei	marks:							
All	geophysical equipment and personnel have dem	obiliz	zed from th	e site.				
Qua	ality Control							
Ant	hony Aguirre							
Cor	ntractor Production Lead	pany		Date				
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech	Inc	11/20/20)23	
Sia	nature		-			1 5		

QP-01 Rev. 4, Rev Date 03/31/2022

A-49

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.11.21 08:12:50 -06'00'



	EQUIDMENT SECTION							Report No.	
	EQUIPMENT SECTION						145		
Contract No. Title & Location:							Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	11/20/2023		
#	Equipment (Type, Model No, Serial No.)	Vei	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise				Oct 29, 2023			
14	EM61-MKII HP	KD Jones				Oct 30, 2023			

Contractor Production Lead	Date
Brett Yarborough	11/20/2023

QP-01 Rev. 4, Rev Date 03/31/2022

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MATERIALS SECTION							Report No. 145		
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 11/20/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Ha	nd	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	11/20/2023



(IE		. •					
PRODUCTION SECTION						Report No.	
146					146		
Contract No. Title & Location: Date:					Date:		
N6	247016D9008		Naval Base	e Kitsap Bangor S	I; Silverdale, WA	01/20/20	ე24
Col	ntractor:			Site Superintende			
Tet	ra Tech, Inc.			Forrest Malone; SU	IXOS		
AM	Weather:			PM Weather:			
35F	F. Cloudy. Winds N 2 MPH.			42F. Cloudy. Win	ds E 2 MPH.		
Des	scription of Work Activities for the Day						
-Tra	sks completed: ansport of equipment to NBK Bangor lay dowr sembly and testing of Leica RTS and Geonics						
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
						Total:	10
					I		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: • No: •	Total work hours site this date:	I	10
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: ○ No: ●	oort:	6,672.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the en es, attach description of incident and propose	Yes: ○ No: ●	Cumulative work h	I	6,682.5		
List	safety actions taken today/safety inspections	con	iducted:		•		
Dai	ly Safety Inspection. Daily Safety Brief - Extre	me '	Weather				
Rei	marks:						
-Ac -Da -Be	n For Following Day: quire rental truck from Enterprise in Fife niel Pigeon Badging and Site Specific Training gin marking transects in UXO3SW gin Collection of UXO3SW transects						
Qua	ality Control		_				
Ant	hony Aguirre]				
Cor	ntractor Production Lead		Title/Comp	oany		Date	
Brett Yarborough Site Geophysicist/Tetra Tech Inc 01/20/2024)24		

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.24 08:33:30 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
	247016D9008			Kitsap Bangor SI;	Silverda	le, WA	01/20/2024		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		OR	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise			OR	Oct 29, 2023			
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024			
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024			

Contractor Production Lead	Date
Brett Yarborough	01/20/2024



	MATERIALS SECTION								
	ntract No. 247016D9008		Title & Locat Naval Base	tion: Kitsap Bangor SI; Silverdale, WA			Date: 01/20/	Date: 01/20/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	01/20/2024



Tt	TETRA TECH CONTRA	CIC	RP	RODUCI	ION REPORT	I				
		.=				Report I	No.			
	PRODUCTION SECTION 147									
Contract No. Title & Locat				ation:		Date:				
N6:	247016D9008	Nav	√al Base	Kitsap Bangor S	SI; Silverdale, WA	01/22/20	 024			
Co	ntractor:			Site Superintend	ent:					
Tet	tra Tech, Inc.			Forrest Malone; S	UXOS					
AM	l Weather:			PM Weather:						
43F	F. Cloudy. Rain. Winds SE 1 MPH.			49F. Cloudy. Wii	nds S 9 MPH.					
De	scription of Work Activities for the Day									
-Ac -Da -ini -ad -cc	sks completed: Equire rental truck from Enterprise in Fife Aniel Pigeon Badged Itial IVS reran (ran 2 files, was not sure if I skip Iditional control points UXO3SW.01 - UXO3SW Introl points 95A and 96A shot in UXO3SW(po	V.06 sho oints 95 a	t in UXO and 96 a	3SW re surveyor poin	,					
#	Employer or Employee	Nur	mber		Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10.5			
2	Daniel Pigeon	1		UXO Tech II			9.5			
						Total:	20			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: •	Cumulative work h	I	6,682.5			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp			Yes: ○ d.) No: •						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,702.5			
Lis	List safety actions taken today/safety inspections conducted:									
Da	ily Safety Inspection. Daily Safety Brief - Vehic	le Safet	/							
Re	marks:									
-Co -Be	n For Following Day: ontinue marking transects in UXO3SW gin Collection of UXO3SW transects gin Equipment Training for Daniel Pigeon									

QP-01 Rev. 4, Rev Date 03/31/2022



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

01/22/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.24 08:53:06 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location:							Date:		
N62	47016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	01/22/2024			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise			OR	Oct 29, 2023				
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024				
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024				

Contractor Production Lead	Date
Brett Yarborough	01/22/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
	ntract No. 247016D9008		Title & Locat Naval Base					Date: 01/22/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	_	QTY -Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	01/22/2024



It	TETRA TECH	O		KODOOTI	ON INEI OINI				
	PRODUC	`TIC	N SECTIO	ıN		Report I	Report No.		
	PRODUC	, 110	N SECTIO	148			148		
Co	ntract No.		Title & Loc	cation:		Date:			
N6	247016D9008		Naval Bas	se Kitsap Bangor SI	; Silverdale, WA	01/23/20	024		
Co	ntractor:			Site Superintende	nt:	•			
Tet	tra Tech, Inc.			Forrest Malone; SU)	KOS				
AM	l Weather:			PM Weather:					
47	F. Cloudy. Winds S 8 MPH.			53F. Cloudy. Wind	ls S 7 MPH.				
De	scription of Work Activities for the Day								
Tasks completed: UXO3SW Transects T1, T2, T3, T4, T5, and T6 50%collected, 50% Complete									
#	Employer or Employee		Number	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			11		
2	Daniel Pigeon	1		UXO Tech II			10		
				•		Total:	21		
10/0/	s a job safety meeting held this date?			Yes: •	Total work hours	on l			
	es, attach a copy of meeting minutes.)			No:	site this date:	OII	21		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h	6,702.5			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the en es, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,723.5		
Lis	t safety actions taken today/safety inspections	con	ducted:			'			
Da	Daily Safety Inspection. Daily Safety Brief - Safety Mindset, Situational Awareness								
Re	marks:								
-Co	n For Following Day: ontinue marking transects in UXO3SW ontinue Collection of UXO3SW transects ontinue Equipment Training for Daniel Pigeon								
Qua	ality Control								
Ant	hony Aguirre								
Cor	ntractor Production Lead			pany		Date			
Bre	ett Yarborough		Site Geop	hysicist/Tetra Tech	Inc	01/23/20)24		
Sia	nature		J E						

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.24 09:10:30 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location: D							Date:		
N62	47016D9008		Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	01/23/2024			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise			OR	Oct 29, 2023				
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024				
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024				

Contractor Production Lead	Date
Brett Yarborough	01/23/2024



	MATERIALS SECTION								
Contract No. N6247016D9008			111	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	01/23/2024



(IE	J. S. C.			(CDCC)			
	PRODUC	`TIO	N SECTIO	ıNı		Report N	No.
	PRODUC	, 110	N SECTIO	/IN		149	
Contract No			cation:	Date:			
N6	247016D9008		Naval Bas	se Kitsap Bangor S	I; Silverdale, WA	01/24/20)24
	ntractor:			Site Superintende			
Tet	ra Tech, Inc.			Forrest Malone; SU	IXOS		
	Weather:			PM Weather:			
42F	Rain. Winds S 3 MPH.			49F. Rain. Winds	S 8 MPH.		
Des	scription of Work Activities for the Day						
	sks completed: O3SW Transects T8 and T9 50%collected, 50	% C	omplete				
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Daniel Pigeon	1		UXO Tech II			9.5
		l				Total:	19.5
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		19.5
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,723.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the en- es, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h		6,743
List	safety actions taken today/safety inspections	con	ducted:				
Dai	ly Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Fal	s.			
Rei	marks:						
-Co -Co	n For Following Day: ntinue marking transects in UXO3SW ntinue Collection of UXO3SW transects ntinue Equipment Training for Daniel Pigeon						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geor	hysicist/Tetra Tecl	h Inc	01/24/20)24
Sign	nature						

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.25 09:40:36 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:							Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	01/24/2024		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		OR	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise			OR	Oct 29, 2023			
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024			
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024			

Contractor Production Lead	Date
Brett Yarborough	01/24/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
Contract No. N6247016D9008			111	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	01/24/2024



	PRODUC	TIO	N SECTIO	ıNı		Report I	Vo.
	PRODUC	, IIO	N SECTIO	/IN	150		
Co	ntract No.		Title & Loc	cation:	Date:		
N6	247016D9008		Naval Bas	se Kitsap Bangor S	SI; Silverdale, WA	01/29/20	024
Co	ntractor:			Site Superintende			
Tet	tra Tech, Inc.			Forrest Malone; SU	JXOS		
	l Weather:			PM Weather:			
501	F. Cloudy. Winds S 4 MPH.			60F. Rain. Winds	S S 7 MPH.		
De	scription of Work Activities for the Day						
ux	sks completed: O3SW TransectsT1, T2, T3, T6, and T8 50%c O3SW initial collection complete.	collec	cted, 100%	Complete.			
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jason Null	1		UXO Tech II			10
				-		Total:	20
					T		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h	I	6,743
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the en es, attach description of incident and proposed			Yes: ○ No: ●			
Lis	t safety actions taken today/safety inspections	con	ducted:		1		
Da	ily Safety Inspection. Daily Safety Brief - High	Wind	ds				
Re	marks:						
-ga -cl∈	n For Following Day: p fill if needed ean and consolidate equipment in NBK lay down a ean and return rental truck to Enterprise Truck Rer						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany	Date		
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tec	h Inc	01/29/20	024
Sig	nature						

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.31 07:19:40 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	01/29/2024		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		OR	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise			OR	Oct 29, 2023			
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024			
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024			

Contractor Production Lead	Date
Brett Yarborough	01/29/2024



	MATERIALS SECTION									
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 01/29/20	024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY n-Hand	QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	01/29/2024



	PRODUC	`TIC	N SECTIO	N		Report I	No.
	PRODUC	, 110	N SECTIO	IN .		151	
Co	ntract No.		Title & Loc	cation:		Date:	
N6:	247016D9008		Naval Bas	e Kitsap Bangor SI	; Silverdale, WA	01/30/20	024
	ntractor:			Site Superintende			
Tet	ra Tech, Inc.			Forrest Malone; SU	XOS		
	Weather:			PM Weather:			
_	F. Cloudy, Rain. Winds SW 2 MPH.			57F. Cloudy. Wind	ds NNE 2 MPH.		
De	scription of Work Activities for the Day						
-CI	sks completed: eaned and consolidated equipment in NBK La eturned rental vehicle to Enterprise Truck Rent			onex			
#	Employer or Employee		Number	7	rade or Position		Hours
1	Zach Weston	1		UXO Tech II			7
2	Jason Null	1		UXO Tech II			6.5
						Total:	13.5
					I		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		13.5
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,763
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the entes, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h		6,776.5
List	t safety actions taken today/safety inspections	con	ducted:				
Dai	ly Safety Inspection. Daily Safety Brief - Chair	ısaw	/ Safety				
Re	marks:						
Jaso	on Null will demob on 01-31-2024.						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead		Title/Com	pany		Date	
Bre	tt Yarborough		Site Geop	hysicist/Tetra Tech	Inc	01/30/20)24
Sic	naturo						

QP-01 Rev. 4, Rev Date 03/31/2022

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Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.01.31 07:25:47 -06'00'



		EQUIPMEN	IT SECTION				Report No. 151	
Cor	ntract No.		Title & Loca	ition:			Date:	
N6247016D9008			Naval Base	Kitsap Bangor SI;	Silverda	le, WA	01/30/2024	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		OR	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	01/30/2024



	MATERIALS SECTION 1								
	Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 01/30/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	01/30/2024



	J							
	PROPILE	TIC	N SECTION	1		Report N	No.	
	PRODUC	, I IC	ON SECTION			152		
Col	ntract No.		Title & Loca	cation: Date			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor	SI; Silverdale, WA	02/12/20)24	
Col	ntractor:			Site Superinten	dent:			
Tet	ra Tech, Inc.		[F	orrest Malone;	SUXOS			
AM	Weather:			PM Weather:				
43F	F. Cloudy. Winds S 5 MPH.			49F. Cloudy. W	inds N 3 MPH.			
Des	scription of Work Activities for the Day							
-Ac -Us -Sh -Ma -Be	sks completed: equired Rental Truck from Enterprise sed RTS to reacquire AES control points CP10 not in temporary control points UXO3SE.01 - Userked Obstacles with RTS in UXO3SE egan Marking UXO3SE Transects KO3SE TransectsT5 and T6 30%collected, 30%	XO:	3SE.07	P27 near UXO	3SE			
#	Employer or Employee		Number		Trade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10.5	
2	Jason Null	1		UXO Tech II			10	
						Total:	20.5	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: No:	Total work hours of site this date:	on	20.5	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work ho from previous repo		6,776.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ I.) No: ●				
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: •	Cumulative work ho since start of wor		6,797	
List	t safety actions taken today/safety inspections	con	iducted:					
Dai	lly Safety Inspection. Daily Safety Brief - Slips,	Trip	ps, and Falls					
Rei	marks:							
	n For Following Day: ntinue Collection of UXO3SE Transects							

QP-01 Rev. 4, Rev Date 03/31/2022



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

02/12/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.13 09:27:28 -06'00'



		EQUIPMEN	IT SECTION				Report No. 152	
Cor	itract No.		Title & Loca	Title & Location:			Date:	
N6247016D9008			Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	02/12/2024	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	02/12/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION 1								
Contract No. N6247016D9008			11	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 02/12/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H	-	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/12/2024



)						
	PRODUC	:TIC	ON SECTION			Report 1	No.
	1 1.050					153	
	ntract No.	_	Title & Loca			Date:	
N62	247016D9008	Naval Base Kitsap Bangor SI; Silverdale, WA)24	
	ntractor:			Site Superinten			
Tetra Tech, Inc. Forrest Malone; SUXOS							
	Weather:			PM Weather:			
	- Cloudy. Winds N 3 MPH.		_4	19F. Cloudy. W	inds N 4 MPH.		
Des	scription of Work Activities for the Day						
-Sh -Ma -Co -UX -Tra	sks completed: not in temporary control points UXO3SE.08 - Userked Obstacles with RTS in UXO3SE ontinued Marking UXO3SE Transects (O3SE Transects T3 10%collected, 10% Compansects T4, T7, T8, T9, and T10 30% collected ansects T11, T12 and T13 20% collected, 20%	plet	e 0% complete				
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10.5
2	Jason Null	1		UXO Tech II			10
						Total:	20.5
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20.5
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,797
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes:			
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: •	Cumulative work h since start of wo		6,817.5
List	safety actions taken today/safety inspections	cor	iducted:				
Dai	ly Safety Inspection. Daily Safety Brief - Vehic	le S	Safety				
Rer	marks:						
	n For Following Day: ntinue Collection of UXO3SE Transects						

QP-01 Rev. 4, Rev Date 03/31/2022



Quality Control

Anthony Aguirre

Contractor Production Lead

Brett Yarborough

Title/Company

Date

02/13/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.14 09:27:23 -06'00'



		EQUIPMEN	IT SECTION				Report No. 153	
Cor	ntract No.			Date:				
N6247016D9008			Naval Base	Kitsap Bangor SI;	Silverda	le, WA	02/13/2024	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		OR	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	02/13/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
Contract No. N6247016D9008 Title & Location: Naval Base Kitsap Bal				ngor SI; Silve	rdale, WA	Date: 02/13	/2024		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/13/2024



	PRODUC		Report N	No.					
Contract No. Title & Loc				-#i					
	Contract No. Title & Location: Date: N6247016D9008 Naval Base Kitsap Bangor SI; Silverdale, WA 02/14/20						724		
						02/14/20	J2 4		
Contractor: Tetra Tech, Inc. Site Superintendent: Forrest Malone; SUXOS									
AM Weather: PM Weather:									
AM Weather: PM Weather: PM Weather:									
Description of Work Activities for the Day									
Tasks completed: -Marked Obstacles with RTS in UXO3SE -Continued Marking UXO3SE Transects -Transects T4, T5, and T6 15% collected, 45% complete Transects T7, T8, T9 and T10 10% collected, 45% complete Transects T14, T15, T16, and T17 25% collected, 25% complete									
#	Employer or Employee		Number	-		Hours			
1	Zach Weston	1		UXO Tech II		10.5			
2	Jason Null	1		UXO Tech II			10		
						Total:	20.5		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20.5		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,817.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,838		
List	t safety actions taken today/safety inspections	cond	ducted:						
Dai	ily Safety Inspection. Daily Safety Brief - Fatigu	ue M	anagement						
Rei	marks:								
	n For Following Day: ntinue Collection of UXO3SE Transects								

QP-01 Rev. 4, Rev Date 03/31/2022

Page 1 of 4 A-79



Quality Control

Anthony Aguirre

Contractor Production Lead

Brett Yarborough

Title/Company

Date

02/14/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.16 13:23:33 -06'00'



		EQUIPMEN	IT SECTION				Report No.	
Cor	ntract No.		Date:					
N6247016D9008			Naval Base	Kitsap Bangor SI;	Silverda	e, WA	02/14/2024	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		OR	Ju l 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	02/14/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
Contract No. N6247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					024
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H	-	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/14/2024



	,							
	PRODUC	CTION SECTION	NI.		Report I	No.		
	PRODUC	TION SECTION	/IN		155			
Col	Contract No. Title & Location: Date:							
N6247016D9008 Naval Base Kitsap Bangor SI; Silverdale, WA 02/15/20								
Contractor: Tetra Tech, Inc. Site Superintendent: Forrest Malone; SUXOS								
Tet	ra Tech, Inc.		Forrest Malone; SU	XOS				
AM	Weather:		PM Weather:					
34F	F. Rain. Snow. Winds N 7 MPH.		39F. Cloudy. Wind	.HPM 8 WNN at				
Des	scription of Work Activities for the Day							
	sks completed: spected equipment and performed vehicle main	ntenance.						
#	Employer or Employee	Number	-	Trade or Position		Hours		
1	Zach Weston	1	UXO Tech II			2		
2	Jason Null	1	UXO Tech II			2		
		1	1		Total:	4		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		Yes: ⊙ No: ○	Total work hours site this date:		4		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	Cumulative work h		6,838		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: •	Cumulative work h		6,842		
List	t safety actions taken today/safety inspections	conducted:		-				
Dai	lly Safety Inspection. Daily Safety Brief - Extre	me Weather						
Rei	marks:							
-Da	y ended early due to poor site conditions.							
	n For Following Day: ntinue Collection of UXO3SE Transects							



Quality Control

Anthony Aguirre

Contractor Production Lead

Brett Yarborough

Title/Company

Date

02/15/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.16 13:34:05 -06'00'



		EQUIPMEN	IT SECTION				Report No. 155	
Cor	tract No.		Title & Loca	Fitle & Location:			Date:	
			Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	02/15/2024	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech	Warehouse		OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	02/15/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIALS SECTION								
				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/15/2024



	,								
PPODLICTION SECTION							eport No.		
156						156			
Contract No. Title & Loc				cation: D		Date:			
N6247016D9008 Naval Bas			Naval Base	se Kitsap Bangor SI; Silverdale, WA 02/16/2		02/16/20	ງ24		
Contractor:				Site Superintendent:					
Tetra Tech, Inc.				Forrest Malone; SUXOS					
AM Weather:				PM Weather:					
30F. Rain. Snow. Winds NNE 2 MPH.				45F. Cloudy. Winds ENE 5 MPH.					
Description of Work Activities for the Day									
Tasks completed: -Cleaned, fueled, and returned rental vehicle to Enterprise Bremerton -day ended early due to site conditions.									
#	Employer or Employee		Number	Trade or Position			Hours		
1	Zach Weston	1		UXO Tech II			3.5		
2	Jason Null	1		UXO Tech II			3.5		
						Total:	7		
					1				
Was a job safety meeting held this date? (If yes, attach a copy of meeting minutes.)				Yes: ● No: ○	Total work hours on site this date:		7		
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: ○ No: •	Cumulative work hours from previous report:		6,842		
Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●									
Was hazardous material/waste released to the environment? Yes: C (If yes, attach description of incident and proposed action.) No: •					Cumulative work h		6,849		
List safety actions taken today/safety inspections conducted:									
Daily Safety Inspection. Daily Safety Brief - Extreme Weather									
Remarks:									
-Day ended early due to poor site conditions.									
Plan For Following Day: -Continue Collection of UXO3SE Transects									

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Tetra Tech Proprietary Information

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Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

02/16/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.16 15:00:12 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location: D							Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	02/16/2024			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		OR	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise			OR	Oct 29, 2023				
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024				
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024				

Contractor Production Lead	Date
Brett Yarborough	02/16/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	MATERIAL S. SECTION								Report No. 156	
Contract No. N6247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 02/16/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		TY Hand	QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	02/16/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	PRODUC	CTION SECTION	Report 157			rt No.	
Coi	ntract No.	Title & Loc	ation:				
	247016D9008		e Kitsap Bangor SI;	Silverdale, WA	Date: 02/19/20)24	
Coi	ntractor:		Site Superintenden				
Tet	ra Tech, Inc.		Forrest Malone; SUX				
AM	Weather:		PM Weather:				
43F	F. Cloudy. Winds WNW 2 MPH.		57F. Cloudy. Rain.	Winds N 2 MPH.			
Des	scription of Work Activities for the Day						
-Co -Tra -Tra	sks completed: ontinued Marking UXO3SE Transects ansects T9, T11-T17 25% collected, 70% complete ansects T11-T13 40% collected, 60% complete ansects T14-T17 40% collected, 65% complete	e e					
#	Employer or Employee	Number	Tı	rade or Position		Hours	
1	Zach Weston	1	UXO Tech II			8	
2	Jason Null	1	UXO Tech II			10	
3	Nick Emm	1	Geophysicist			11	
					Total:	29	
			V C				
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		Yes: ⊙ No: ○	Total work hours site this date:	on	29	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	ours ort:	6,849		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe						
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h since start of wo		6,878	
List	t safety actions taken today/safety inspections	conducted:	-			-	
Dai	ily Safety Inspection. Daily Safety Brief - Slips,	Trips, and Falls	S				
Rei	marks:						
Zac	h Weston has demobilized from the site.						
	n For Following Day: ntinue Collection of UXO3SE Transects						

QP-01 Rev. 4, Rev Date 03/31/2022

Page 1 of 4
Tetra Tech Proprietary Information
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Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

02/19/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.20 09:29:58 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location:						Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	02/19/2024			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		OR	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise			OR	Oct 29, 2023				
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024				
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024				

Contractor Production Lead	Date
Brett Yarborough	02/19/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 02/19/2024	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/19/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	,						
	PRODUC	OIT	N SECTION			Report N 158	No.
Cor	ntract No.	\Box	Title & Loca	cation: Date:			
N62	247016D9008		Naval Base	Kitsap Bangor S	I; Silverdale, WA	02/20/20)24
Cor	ntractor:			Site Superintende	ent:		
Tet	ra Tech, Inc.		[F	orrest Malone; SU	JXOS		
AM	Weather:		F	PM Weather:			
45F	F. Cloudy. Rain. Winds SSE 4 MPH.			55F. Cloudy. Win	ds SSE 6 MPH.		
Des	scription of Work Activities for the Day		·				
-Tra -Tra -Tra -Tra -Tra	sks completed: ansect T3 70% collected, 80% complete. ansects T4-T8 35% collected, 80% complete ansect T9 10% collected, 80% complete ansect T10 35% collected, 80% complete ansect T11-T13 20% collected, 80% complete ansect T14-T17 15% collected, 80% complete						
#	Employer or Employee		Number	Trade or Position			Hours
1	Nick Emm	1		Geophysicist			10.5
2	Jason Null	1		UXO Tech II			10
						Total:	20.5
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20.5
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,878
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ .) No: •			
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,898.5
List	t safety actions taken today/safety inspections	con	ducted:				
Dai	ily Safety Inspection. Daily Safety Brief - Vehic	ile S	afety				
Rei	marks:	_					
	n For Following Day: ntinue Collection of UXO3SE Transects						

QP-01 Rev. 4, Rev Date 03/31/2022

Tetra Tech Proprietary Information Page 1 of 4 A-95



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

02/20/2024

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.21 09:06:33 -06'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location: D							Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	02/20/2024			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023			
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023			
13	Dodge RAM	Enterprise			OR	Oct 29, 2023				
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024				
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024				

Contractor Production Lead	Date
Brett Yarborough	02/20/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
			11	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA)24
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	_	TY Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/20/2024



)					
	PRODUC	CTION SECTION)N		Report N	No.
	TROBUC	TION SECTION	714	159	59	
	ntract No.	Title & Lo		Date:		
N62	247016D9008	Naval Ba	se Kitsap Bangor S	l; Silverdale, WA	02/21/20)24
	ntractor:		Site Superintende			
	ra Tech, Inc.		Forrest Malone; SU	XOS		
	Weather:		PM Weather:			
_	Cloudy. Rain. Winds SSE 4 MPH.		52F. Cloudy. Rain	n. Winds SE 10 MPH.		
Des	scription of Work Activities for the Day					
-Co	sks completed: Impleted marking of Transects T3-T17 Peared transects of any debris					
#	Employer or Employee	Number	-	Trade or Position		Hours
1	Nick Emm	1	Geophysicist			5.5
2	Jason Null	1	UXO Tech II			5
					Total:	10.5
Was	s a job safety meeting held this date?		Yes: •	Total work hours	on	40.5
(If y	es, attach a copy of meeting minutes.)		No: O	site this date:		10.5
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	Cumulative work h from previous rep	6,898.5	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp					
	s hazardous material/waste released to the engles, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h since start of wo		6,909
List	safety actions taken today/safety inspections	conducted:				
Dai	ly Safety Inspection. Daily Safety Brief - Vehic	le Safety				
Rei	marks:					
	n For Following Day: ntinue Collection of UXO3SE Transects					
Qua	ality Control					
Ant	nony Aguirre					
Cor	tractor Production Lead	Title/Com	npany		Date	
Bre	tt Yarborough	Site Geo	physicist/Tetra Tech	n Inc	02/21/20)24
Sia	aaturo					

QP-01 Rev. 4, Rev Date 03/31/2022

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Brett Yarborough

Digitally signed by Brett Yarborough Date: 2024.02.22 08:59:39 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	02/21/2024		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		OR	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise			OR	Oct 29, 2023			
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024			
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024			

Contractor Production Lead	Date
Brett Yarborough	02/21/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
				Fitle & Location: Naval Base Kitsap Bangor SI; Silverdale, WA)24
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/21/2024

QP-01 Rev. 4, Rev Date 03/31/2022



	PRODUC	CTION SECTI	ON		Report N	No.	
	PRODUC	TION SECTI	ON		160	160	
Contract No. Title & Local			ocation:	cation: Date:			
N6:	247016D9008	Naval Ba	ase Kitsap Bangor S	I; Silverdale, WA	02/22/20)24	
	ntractor:		Site Superintende				
Tet	ra Tech, Inc.		Forrest Malone; SU	IXOS			
	Weather:		PM Weather:				
_	F. Sunny. Winds SSE 4 MPH.		54F. Sunny. Wind	ds SW 10 MPH.			
De	scription of Work Activities for the Day						
	sks completed: empleted initial collection of Transects T1-T17	at UXO3SE (100% complete)				
#	Employer or Employee	Number		Trade or Position		Hours	
1	Nick Emm	1	Geophysicist			10	
2	Jason Null	1	UXO Tech II			10	
					Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		Yes: ⊙ No: ○	Total work hours site this date:		20	
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●				
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h		6,929	
List	safety actions taken today/safety inspections	conducted:					
Dai	ly Safety Inspection. Daily Safety Brief - Prope	er Lifting					
Re	marks:						
	n For Following Day: art demobilization objectives						
Qua	ality Control						
Ant	hony Aguirre						
Cor	ntractor Production Lead	Title/Co	mpany		Date		
Bre	tt Yarborough	Site Ged	ophysicist/Tetra Tech	h Inc	02/22/20)24	
<u> </u>	•						

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.26 10:15:17 -06'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
	.47016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	02/22/2024		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate-C41387X	Herc Renta	als		OR	Jul 17, 2023	Sep 29, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		OR	Jul 16, 2023	Sep 29, 2023		
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023		
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023		
13	Dodge RAM	Enterprise			OR	Oct 29, 2023			
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024			
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024			

Contractor Production Lead	Date
Brett Yarborough	02/22/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION								
				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					024
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/22/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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)								
	PRODUCTION SECTION Report N 161								
	TROBOG								
	ntract No.	ocation: Date:							
N6247016D9008 Naval Bas			se Kitsap Bangor SI	l; Silverdale, WA	02/23/20)24			
	ntractor:		Site Superintende						
Tetra Tech, Inc. Forrest Malone; SUXOS									
AM Weather: PM Weather:									
37F. Cloudy. Winds NW 1 MPH. 54F. Sunny. Cloudy. Winds NW 5 MPH.									
Des	Description of Work Activities for the Day								
-Co	sks completed: impleted site restoration at transects T1-T17 a ipped equipment off site	t UXO3SE							
#	Employer or Employee	Number	-	Trade or Position		Hours			
1	Nick Emm	1	Geophysicist			8			
2	Jason Null	1	UXO Tech II			8			
					Total:	16			
	s a job safety meeting held this date?		Yes: •	Total work hours		16			
(If y	es, attach a copy of meeting minutes.)		No: O	site this date:		16			
	e there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	Cumulative work h		6,929			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the engles, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work h since start of wo		6,945			
List	safety actions taken today/safety inspections	conducted:							
Dai	Daily Safety Inspection. Daily Safety Brief - Proper Lifting								
Rei	marks:								
Tea	m will demobilize from the site on 02/24/2024.								
Qua	ality Control								
Ant	nony Aguirre								
Cor	tractor Production Lead	Title/Con	npany		Date				
Bre	tt Yarborough	Site Geo	physicist/Tetra Tech	n Inc	02/23/20)24			
Sia	ignaturo								

QP-01 Rev. 4, Rev Date 03/31/2022

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Brett Yarborough Digitally signed by Brett Yarborough Date: 2024.02.26 10:21:18 -06'00'



EQUIPMENT SECTION							Report No.	
Cor	Contract No. Title & Location:							
N62	47016D9008		Naval Base	Kitsap Bangor SI;	Silverdal	e, WA	02/23/2024	
#	Equipment (Type, Model No, Serial No.)	Vendor		PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate-C41387X	Herc Rentals			OR	Jul 17, 2023	Sep 29, 2023	
10	Kia Soul: License Plate-CGU4435	Avis Renta	ıls		OR	Jul 16, 2023	Sep 29, 2023	
11	EM61-MKII HP	KD Jones			OR	Jul 18, 2023	Sep 29, 2023	
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023	Sep 29, 2023	
13	Dodge RAM	Enterprise			OR	Oct 29, 2023		
14	EM61-MKII HP	KD Jones			0	Jan 20, 2024		
15	ieca RTS-TS16	Tetra Tech	Warehouse		0	Jan 20, 2024		

Contractor Production Lead	Date
Brett Yarborough	02/23/2024

QP-01 Rev. 4, Rev Date 03/31/2022

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	MATERIALS SECTION						Report I	No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA			I	Date: 02/23/2024		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY n-Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	02/23/2024

QP-01 Rev. 4, Rev Date 03/31/2022



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report, Site UXO 3
ADDENDIN D. WEEKLY OO DEDOOTS	
APPENDIX B – WEEKLY QC REPORTS	





Weekly Quality Control Report

From: 10/30/2023	To: 11/03/2023	Report #:	034					
Client: NAVFAC NW		Project:	179-8015					
Contract Name: Naval Base Kits	Location:	Silverdale, WA						
Contract #: N6247016D90	008	Task Order #:	N4425519F4112					
Project Description:								
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.								
See Contractor Production Report for	information on work performed, safety, v	weather, and subcont	ractor hours.					
SUMMARY OF QUALITY CONTR	ROL ACTIVITIES PERFORMED:							
Preparatory Inspection (DFW):	None		Activity/Task #:	N/A				
Initial Inspection (DFW):	None		Activity/Task #:	N/A				
Follow-Up Inspection (DFW): DFW5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC				
Rework Status:		Activity/Task #:	N/A					
(Enter a summary of weekly quality activities for the site activities performed.)								

DFW #5 (IVS Establishment): RTS Positioning systems and EM61-HP system were received and inspected as part of submitted QRIRs. All geodetic and geophysical systems were assembled and tested IAW DGM SOPs 04 and 07. QC checklists associated with EM61-HP Assembly and Instrument Verification are attached to this report. IVS Technical Memorandum Addendum 03 preparation in progress.

DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 step-outs. QC checklists associated with Civil Survey are attached to this report.

DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. Technical reporting is ongoing.

Tests Performed and Results:

- Verified RTS Positioning System Assembly IAW MQO # 1-4 (Passed Geo1 Logbooks).
- Verified Initial Geodetic Function Check for RTS IAW MQO # 1-5 (Passed Access DB).
- Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed Access DB).
- Verified EM61-HP Assembly IAW MQO # 3-1 (Passed Geo1 Logbooks).
- Verified Initial Sensor Function Test for G6 EM61-HP sensor IAW MQO # 3-2 (Passed)
- Verified Ongoing Sensor Function Tests for G6 EM61-HP sensor IAW MQO # 3-4 (Passed Access DB)
- Verified Initial IVS Dynamic Positioning Precision for G6 EM61-HP sensor IAW MQO # 3-6 (Passed Access DB).
- Verified Ongoing IVS Dynamic Positioning Precision for G6 EM61-HP sensor IAW MQO # 3-7 (Passed Access DB).
- Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed Access DB).
- Verified Battery Voltage for G6 EM61-HP sensor IAW MQO # 3-14 (Passed Geo1 Logbooks)

QP-01 Rev. 3, Rev Date 04/12/2022

Page 1 of 3

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Weekly Quality Control Report

Contract #: N6247016D9008 Date: Nov 3, 2023

Materials and Equipment Received and Results of Inspection: - All geophysical equipment and materials received and inspected by Tetra Tech Field Personnel. Refer to completed QRIRs on 10/31/2023 and 11/01/2023 for equipment specifics. Deficiencies/Non-conformances & Status (include a tracking # if assigned): None. Field Change Requests Initiated or Status: None. JOB SAFETY: (LIST OBSERVATIONS) - Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log. COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION - Weekly Field Work Status call on 11/01/2023 with project team. Refer to project files for approved meeting minutes.



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Nov 3, 2023

PROJECT PHOTOS				
				_
				$\overline{}$
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specificatio	is report is compl ns to the best of r	ete and o	correct, and all materials used and work performed during this reporting places, except as may be noted above.	g
	1			_
NAME: Jessie Powers	TITLE/COM	PANY:	QC Geophysicist	
	SIGNATURE	≣:	Jessie Powers Digitally signed by Jessie Powers Date: 2023.11.15 14:22:29 -05'00'	





Abbreviated QRIR

Contract No. N62470-16-D-9008

Abbreviated QRIR	Abbreviated QRIR					
Date	2023-10-31 11:15:00					
Project	Kitsap Bangor					
Inspector	Brett Yarborough					
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes					
Inspector Signature	BALL					

Scan all equipment barcodes and enter any external equipment.					
Date/Time	2023-11-08 11:15:53				
Is this an External instrument?	No				
Barcode	304684				
Serial Number	3011788				
Model	TS16				

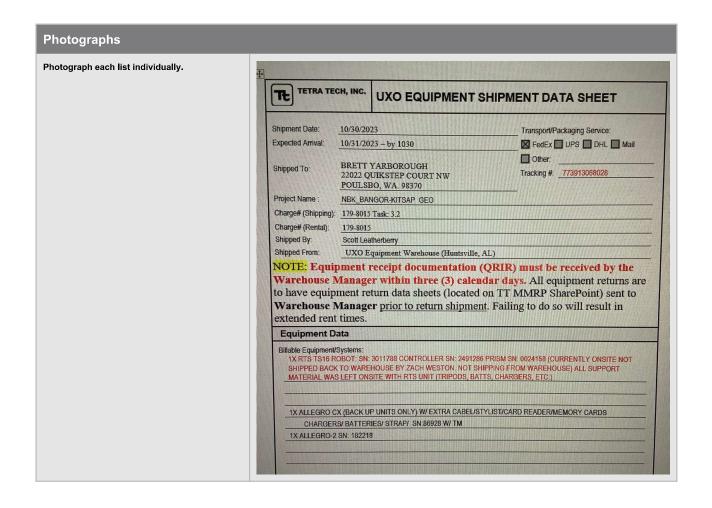
Page 1/2 B-4



Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Equipment Source Tetra Tech Warehouse



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Abbreviated QRIR

Contract No. N62470-16-D-9008

Abbreviated QRIR				
Date	2023-11-01 09:19:45			
Project	Kitsap Bangor			
Inspector	Brett Yarborough			
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes			
Inspector Signature	I A A A A A A A A A A A A A A A A A A A			

Scan all equipment barcodes and enter any external equipment.						
Date/Time	2023-11-01 09:20:39					
Is this an External instrument?	Yes					
External Instrument	Other					
Enter "Other" external instrument	EM61 HP					

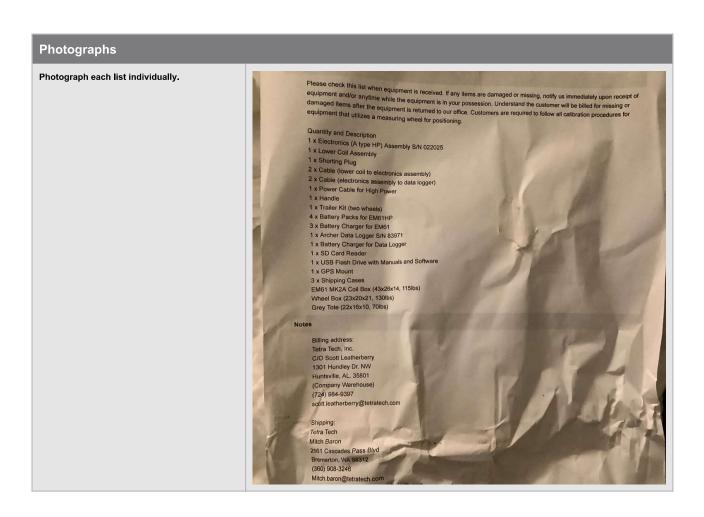
Page 1/2 B-6



Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-01 09:24:23
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse



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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Checklist for EM61 HP Assembly

Record: 12	ecord: 12	
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed with all required photos?	Yes	
Item 1 Comments	Field checklist submitted on 10/31/2023 and uploaded to the SP Site. No assembly photos have been approved as of the date of this checklist.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A	
Item 2 Comments	There are no DOCs required for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is designated as an SME for this equipment (letter on the MMRP SP Site)	
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes	
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass	
Item 4 Comments	Initial SS accuracy test passes compared to existing HP response curve. No data spikes or identified failures	
QC Geophysicist Signature	Jessue L Cowers	
Date	2023-11-08	

QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

ecord: 15	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	Yes
Item 2 Comments	There are no DOCs for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is a designated SME for this equipment (letter on MMRP SP Site)
Item 3: Were all required data files uploaded to the project files?	Yes
Item 3 Comments	IVS filename: 231031g8initivs
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.48inches of control point CP23 ground truth
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	Ongoing SS test was within 20% of established initial baseline average values
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sampe Separation passed. Target Locations passed: IVS01 = 0.33ft, IVS02 = 0.30ft, IVS03 = 0.29ft
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes

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QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes
Item 8 Comments	
QC Geophysicist Signature	Jesse L Powers
Date	2023-11-08

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TETRA TECH

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 342	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications/SME designation letter for Geo1 operators on MMRP SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 10/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

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QC Geo Contract No. N62470	0-16-D-9008 Naval Base Kitsap Bangor
QC Geophysicist Signature	Jesse L. Powers
Date	2023-10-31

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QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

ecord: 345	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231101 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/01/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Navai Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L'Pouvers
Date	2023-11-01

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QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Project Kitsap Bangor QC Geophysicist Jessie Powers Leica RTS Leica RTS Item 1: Was the Field Checklist completed? Item 1: Was the Field Checklist completed? Item 1 Comments Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231102 G1 Logbook. Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 aperators on Project SP Site. Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference	Record: 348	
PLS Subcontractor AES Consultants Loice RTS Item 1: Was the Field Checklist completed? Item 1 Comments Assembly and geodetic checkshats for Geo1 using Leica RTS verified in 231102 G1 Logbook. Item 2: Is there documentation to confirm that all applicable personnel have a current DDC or have been designated as a SME? Item 3: Was the correct project coordinate system used? Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Item 4 Comments Control established control, was their sufficient data collected for an OPUS solution? Item 4 Comments All checkshots for Leice positioning system on 11/02/2023 were within 4 inches of ground truth (passed). Item 5: Did all geodetic functionality tests meet the project MQGs? Item 5: Did all installed stakes and/or flags meet the Yos Item 6: Did all installed stakes and/or flags meet the	Project	Kitsap Bangor
Positioning Sensor Type	QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	PLS Subcontractor	AES Consultants
Item 1 Comments	Positioning Sensor Type	Leica RTS
Item 2: Sthere documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?		Yes
Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NADB3 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4: Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5: Did all installed stakes and/or flags meet the	Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231102 G1 Logbook.
Item 3: Was the correct project coordinate system used? Yes	Is there documentation to confirm that all applicable personnel have a current DOC or	Yes
Was the correct project coordinate system used?	Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Was the correct project coordinate system	Yes
Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 11/02/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
If we established control, was their sufficient data collected for an OPUS solution? Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 4 Comments Yes Item 5: Yes Did all geodetic functionality tests meet the project MQOs? All checkshots for Leica positioning system on 11/02/2023 were within 4 inches of ground truth (passed). Item 6: Yes Did all installed stakes and/or flags meet the Yes	Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS	Yes
Item 5: Did all geodetic functionality tests meet the project MQOs?	If we established control, was their sufficient	N/A
Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 11/02/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 6: Did all installed stakes and/or flags meet the	Did all geodetic functionality tests meet the	Yes
Did all installed stakes and/or flags meet the	Item 5 Comments	All checkshots for Leica positioning system on 11/02/2023 were within 4 inches of ground truth (passed).
project MQOs?		Yes
Item 6 Comments Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	Item 6 Comments	



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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Q	C Geophysicist Signature	Jesse	L Powers
Da	ate	2023-11-02	



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 351	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231103 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 11/03/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	Jusse L Powers
Date	2023-11-03



WQCR INFORMATION							
From: 11/04/202	<u> </u>	╗	To: 11/10/2023	Report #:	035		
Client:	: NAVFAC NW		Project:	179-80	179-8015		
Contract Name:	Naval Base Kits	ap [Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90)08		Task Order #:	N442	5519F4112	
Project Descript	tion:						
Silverdale, WA. T regarding potent	The objective of tial future action	the ns/ir	t of a Site Investigation (SI) at for SI is to assess and verify the abnvestigations at each MRS.	sence or presence	of MPF	PEH to support the	
	•		rmation on work performed, safety, v	weather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL	ACTIVITIES PERFORMED:				
Preparatory Insp	pection (DFW):	No	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A
Follow-Up Inspe	ection (DFW):	DF	W5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC
Rework Status:		No	ne			Activity/Task #:	N/A
(Enter a summary	of weekly qualit	ty ac	ctivities for the site activities perf	ormed.)			
11/10/2023. DFW #6 (DGM	DFW #5 (IVS Establishment): IVS Technical Memorandum Addendum 03 and Initial IVS Data Package deliverable submitted on 11/10/2023. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 step-outs. QC checklists associated with Civil Survey are attached to this report.					ort transect data	
DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 11/10/23 includes G6 EM61-HP QC data from week 11/01/23 - 11/03/23.							
Tests Performed and Results:							
 - Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB). - Verified Ongoing Sensor Function Tests for G6 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) - Verified Ongoing IVS Dynamic Positioning Precision for G6 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). - Verified Battery Voltage for G6 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 							
Materials and Equipment Received and Results of Inspection:							
N/A							

QP-01 Rev. 3, Rev Date 04/12/2022

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Tetra Tech Proprietary Information
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Contract #: N6247016D9008 Date: Nov 10, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None.
Field Change Requests Initiated or Status:
None.
JOB SAFETY: (LIST OBSERVATIONS)
- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION
- Weekly Field Work Status call on 11/08/2023 with project team. Refer to project files for approved meeting minutes.



Contract #: N6247016D9008 Date: Nov 10, 2023

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specificatio	is report is compl ns to the best of r	ete and c my knowle	orrect, and all materials used and work performed during this reporting edge, except as may be noted above.
	1		
NAME: Jessie Powers	TITLE/COM		QC Geophysicist
	SIGNATURE	Ξ:	Jessie Powers Date: 2023.11.15 14:36:51 -05'00'

QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 354	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231106 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/06/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470	16-D-9008 Naval Base Kitsap Bangor
QC Geophysicist Sig	nature	Jessie Z Powers
Date		2023-11-06

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 357	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231107 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature

Date 2023-11-07

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 360	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231108 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/08/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N6247	0-16-D-9008 Naval Base Kitsap Bangor
QC Geophysicist Signature	
	Jesse Z Dowers
Date	2023-11-08



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 363	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231109 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/09/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No	b. N62470-16-D-9008	Naval Base Kitsap Bangor	
QC Geophysicist Signature	Juss	ne L Powers	
Date	2023-11-09		



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 366	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231110 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/10/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Geophysicist Signature

Date

Naval Base Kitsap Bangor



WQCR INFORMATION						
From: 11/11/202	3	To: 11/24/2023	Report #:	036		
Client:	NAVFAC NW		Project:	179-80	015	
Contract Name:	Naval Base Kitsa	ap Bangor	Location:	Silverdale, WA		
Contract #:	N6247016D90	08	Task Order #:	N442	5519F4112	
Project Descript	ion:			<u> </u>		
Silverdale, WA. T	Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.					
See Contractor Pro	duction Report for	information on work performed, safety,	weather, and subcont	tractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	OL ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	None			Activity/Task #	N/A
Initial Inspection	(DFW):	None			Activity/Task #	N/A
Follow-Up Inspe	ction (DFW):	DFW6; DFW 8			Activity/Task #:	DGM Field Surveys; DGM Data Processing and QC
Rework Status: None				Activity/Task #:	N/A	
(Enter a summary	(Enter a summary of weekly quality activities for the site activities performed.)					
DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 step-outs. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing.						
Tests Performed and Results:						
 - Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB). - Verified Ongoing Sensor Function Tests for G6 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB). - Verified Ongoing IVS Dynamic Positioning Precision for G6 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). - Verified Battery Voltage for G6 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 						
Materials and E	Materials and Equipment Received and Results of Inspection:					
N/A						
Deficiencies/No	n-conformance	s & Status (include a tracking #	if assigned):			
None.						

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Nov 24, 2023

Field Change Requests Initiated or Status:		
None.		
JOB SAFETY: (LIST OBSERVATIONS)		
- Daily tailgate safety briefings conducted by UXOSO and docur equipment demobilized from site on 11/20/2023.	nented in Daily Safety Log. All geophysical personnel and	
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	LIENT OR REPRESENTATIVE OR OTHER INFORMATION	
- Weekly Field Work Status call on 11/15/2023 with project team	. Refer to project files for approved meeting minutes.	
PROJECT PHOTOS		



Contract #: N6247016D9008 Date: Nov 24, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.

NAME: Jessie Powers

TITLE/COMPANY: QC Geophysicist

SIGNATURE: Jessie Powers

Digitally signed by Jessie Powers

Date: 2023.11.28 18:53:32 -05'00'

QP-01 Rev. 3, Rev Date 04/12/2022

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 369		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231113 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning system on 11/13/2023 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	



QC Geo	Contract No. N6247	D-16-D-9008 Naval Bas	e Kitsap Bangor
QC Geophysicist S	Signature		
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		المرادات	· 00 / 10 / 2_

Date 2023-11-13



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 372	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231114 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/14/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse Z Powers
Date	2023-11-14

TETRA TECH

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 375	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231115 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/15/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-11-15

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 378	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231116 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/16/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-11-16



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 381	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231117 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/17/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessue L'Powers
Date	2023-11-17



From: 11/25/2023 To: 12/08/2023 Report #: 037 Client: NAVFAC NW Project: 179-8015 Contract Name: Naval Base Kitsap Bangor Location: Silverdale, WA Contract #: N6247016D9008 Task Order #: N4425519F4112 Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Activity/Task #: N/A Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Contract Name: Naval Base Kitsap Bangor Location: Silverdale, WA Contract #: N6247016D9008 Task Order #: N4425519F4112 Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Activity/Task #: N/A Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Contract #: N6247016D9008 Task Order #: N4425519F4112 Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): DFW 8 Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Activity/Task #: N/A Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None						
Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS. See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours. SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED: Preparatory Inspection (DFW): None						
Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Preparatory Inspection (DFW): None Activity/Task #: N/A Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Activity/Task #: N/A Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Initial Inspection (DFW): None Activity/Task #: N/A Follow-Up Inspection (DFW): DFW 8 Activity/Task #: DGM Data Processing and QC Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Follow-Up Inspection (DFW): DFW 8 Activity/Task #: DGM Data Processing and QC Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Rework Status: None Activity/Task #: N/A (Enter a summary of weekly quality activities for the site activities performed.) DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
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DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
reporting for IVS and production data are ongoing. QA data package delivered for week end 12/01/23 includes EM61-HP QC data from weeks 11/06/23 - 11/10/23 and 11/13/23 - 11/17/23.						
Tools Devisioned and Describe.						
Tests Performed and Results:						
 - Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB). - Verified Ongoing Sensor Function Tests for G6 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) - Verified Ongoing IVS Dynamic Positioning Precision for G6 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS, UXO-3N and UXO-3W datasets IAW MQO # 3-8 (Passed - Access DB). - Verified transect coverage for UXO-3W and UXO-3N datasets IAW MQO # 3-9 (Passed - Geosoft line paths). - Verified Battery Voltage for G6 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 						
Materials and Equipment Received and Results of Inspection:						
N/A						
Deficiencies/Non-conformances & Status (include a tracking # if assigned):						
None.						

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Dec 8, 2023

Field Change Requests Initiated or Status:	
None.	
JOB SAFETY: (LIST OBSERVATIONS)	
- N/A: All geophysical personnel and equipment are no longer of	n-site.
1 white and the isological personal and equipment and the isological	51.5.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	LIENT OR REPRESENTATIVE OR OTHER INFORMATION
- Weekly Field Work Status call on 12/04/2023 with project team	. Refer to project files for approved meeting minutes.
- QA concurrence on Draft IVS Technical Memorandum Addend	um 03 received on 12/04/23 and finalized on 12/07/23.
PROJECT PHOTOS	



Contract #: N6247016D9008 Date: Dec 8, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.

NAME: Jessie Powers

TITLE/COMPANY: QC Geophysicist

SIGNATURE: Jessie Powers

Digitally signed by Jessie Powers

Date: 2023.12.11 14:45:44 -05'00'

Page 3 of 3 QP-01 Rev. 3, Rev Date 04/12/2022



WQCR INFORMATION							
From: 12/09/202	3	To:	12/15/2023	Report #:	038		
Client:	NAVFAC NW Project: 179-8015						
Contract Name:	Naval Base Kits	ap Bang	gor	Location:	Silverdale, WA		
Contract #:	N6247016D90	08		Task Order #:	N442	5519F4112	
Project Descript	ion:						
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.							
See Contractor Prod	duction Report for	informat	ion on work performed, safety, v	weather, and subconti	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	OL AC	TIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	None				Activity/Task #:	N/A
Initial Inspection	(DFW):	None			Activity/Task #: N/A		N/A
Follow-Up Inspe	Follow-Up Inspection (DFW): DFW 8				Activity/Task #:	DGM Data Processing and QC	
Rework Status: None Activity/Task #: N/A				N/A			
(Enter a summary	of weekly qualit	y activit	ties for the site activities perf	ormed.)			
DFW #8 (DGM Data Processing and QC): QA data package delivered for week end 12/15/23 includes UXO-3W and UXO-3N transect data. QC checklists associated with UXO-3 data deliverables are attached to this report. Final geophysical maps will be incorporated into GIS as part of the Data Usability Report.							
Tests Performed and Results:							
N/A							
Materials and Equipment Received and Results of Inspection:							
N/A							
Deficiencies/Non-conformances & Status (include a tracking # if assigned):							
None.							

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Dec 15, 2023

Field Change Requests Initiated or Status:	
None.	
JOB SAFETY: (LIST OBSERVATIONS)	
- N/A: All geophysical personnel and equipment are no longer on-site.	
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION	
None.	
PROJECT PHOTOS	
PROJECT PROTOS	



Contract #: N6247016D9008 Date: Dec 15, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.

NAME: Jessie Powers

TITLE/COMPANY: QC Geophysicist

SIGNATURE: Jessie Powers

Digitally signed by Jessie Powers

Date: 2023.12.19 08:19:41-05:00'

Page 3 of 3 QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Dynamic Data Submittal

Record: 23	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T70N, T71N, T72N, T73N, T74N, T75N, T76N, T77N, T78N, T79N, T80N, T81N, T82N, T83N
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T77N, T78N, T79N, T80N, T81N, T82N, T83N
Data Collection Start Date	2023-11-01
Data Collection End Date	2023-11-16
Operators	Zach Weston, Nick Emm
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G6 system was submitted and posted to the project SP site on 231101.
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The data processing checklist submitted for UXO-3W and UXO-3N transects. Checklist posted to the project SP site on 231219.



Naval Base Kitsap Bangor

Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS and SS data associated with UXO-3W and UXO-3N pass project MQOs and were delivered in the 231212 Running Access Database.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database.
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data.
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jesse L Powers
Date	2023-12-19



WQCR INFORMATION							
From: 01/19/2024	m: 01/19/2024 To: 01/26/2024		Report #:	039			
Client: NAVFAC NW			Project:	179-80)-8015		
Contract Name: Naval Base K	tsap E	Bangor	Location:	Silver	Silverdale, WA		
Contract #: N6247016D	8000		Task Order #:	N442	N4425519F4112		
Project Description:							
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.							
See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours.							
SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED:							
Preparatory Inspection (DFW	on (DFW): DFW5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC		
Initial Inspection (DFW):	DF	DFW5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC	
Follow-Up Inspection (DFW):	None				Activity/Task #:	N/A	
Rework Status:	No	None			Activity/Task #:	N/A	

(Enter a summary of weekly quality activities for the site activities performed.)

DFW #5 (IVS Establishment): RTS Positioning systems and EM61-HP system were received and inspected as part of submitted QRIR. All geodetic and geophysical systems were assembled and tested IAW DGM SOPs 04 and 07. QC checklists associated with EM61-HP Assembly and Instrument Verification are attached to this report. IVS Technical Memorandum Addendum 04 preparation in progress.

DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 SW step-outs. QC checklists associated with Civil Survey are attached to this report.

DFW #8 (DGM Data Processing and QC): Initial IVS EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing.

Tests Performed and Results:

- Verified RTS Positioning System Assembly IAW MQO # 1-4 (Passed Geo1 Logbooks).
- Verified Initial Geodetic Function Check for RTS IAW MQO # 1-5 (Passed Access DB).
- Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed Access DB).
- Verified EM61-HP Assembly IAW MQO # 3-1 (Passed Geo1 Logbooks).
- Verified Initial Sensor Function Test for G7 EM61-HP sensor IAW MQO # 3-2 (Passed Access DB)
- Verified Initial IVS Dynamic Positioning Precision for G7 EM61-HP sensor IAW MQO # 3-6 (Passed Access DB).
- Verified In-line measurement spacing for Initial IVS dataset IAW MQO # 3-8 (Passed Access DB).
- Verified Battery Voltage for G7 EM61-HP sensor IAW MQO # 3-14 (Passed Geo1 Logbooks)

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Contract #: N6247016D9008 Date: Jan 26, 2024

Materials and Equipment Received and Results of Inspection:

- All geophysical equipment and materials received and inspected by Tetra Tech Field Personnel. Refer to completed QRIR-12 on 01/20/2024 for equipment specifics.

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

None.

Field Change Requests Initiated or Status:

None.

JOB SAFETY: (LIST OBSERVATIONS)

- No geophysical personnel or equipment were on-site 11/20/2023 01/19/2024.
- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- Weekly Field Work Status call on 01/10/2024 with project team. Refer to project files for approved meeting minutes.
- QA Approval of Weekly Geo QC Report_WE121523 on 12/26/2023
- QA Approval of Weekly Geo QC Report WE120123 WE120823 on 01/02/2024
- QA acceptance of all geophysical data for site UXO-03N and UXO-03W step outs was documented in 01/10/2024 weekly meeting minutes.

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Jan 26, 2024

PROJECT PHOTOS		
Contractor's Verification: On behalf of the Contractor, I certiful period are in compliance with the contract plans and specific	fy this report is complete an ations to the best of my kno	nd correct, and all materials used and work performed during this reporting lowledge, except as may be noted above.
NAME: Jessie Powers	TITI E/COMPAN	Y: QC Geophysicist
	SIGNATURE:	Jessie Powers Digitally signed by Jessie Powers Date: 2024.02.02 09:44:43 -0500'
		Date: 2024.02.02 00.44.40 -03 00



Con	ntract Name: Naval Base Kitsap Bangor						
Con	ntract #: N6247016D9008		Date:	01/19/202	4		
Tas	k Order #: N4425519F4112			Reference:	QAPP, SC)Ps	
DFV	N/Activity #: DFW#5 - IVS Establishm	ent; DFW #6 - DGM Field Surveys; DF	W #8 - I	Client Notifi	ed Yes	○ No	○N/A
I. P	ersonnel Present:						
#	Name	Position		Company/C	Sovernment	Agency	
1	Jessie Powers	QC Geo	Tetra To	etra Tech			
2	Matthew Barner	Project Geo	Tetra To	etra Tech			
3	Mitch Baron	PM	Tetra To	tra Tech			
4	Brett Yarborough	Data Processor	Tetra To	Tetra Tech			
5	Anthony Aguirre	UXOQCS	Tetra Tech				
6	Melissa King	QA Geo	USN				
7	Simon Jobman	Data Manager	Tetra To	ech			
8	Zachary Weston	Site Geophysicist	Tetra Tech				
9	Daniel Pigeon	Field Geophysicist	Tetra Te	ech			

QP-01 Rev. 5, Rev Date 04/18/2022



Contract #: N6247016D9008 Date: Jan 19, 2024

II. Deliverables or Submittals
1.a. Review Deliverable/Submittal Register (if used). Have all applicable deliverables/submittals been approved?
1.b. Are the work plan and SOPs available on site?
If No, what items have not been submitted and why?
a.
b.
c.
Are all resources (personnel, materials and equipment) on hand to perform the work?
If No, what items are missing?
a.
b.
c.
Check approved resources against delivered resources. (This should be done as they arrive.)
Comments:
All delivered resources will be documented on QRIR 12; Daniel will be badged Monday AM (01/22/2024); Site Control/Transect Data will be posted for field team
III. Equipment Checkouts
Has all equipment in function checked?
○ Yes
1. Have all coordinates systems been verified against the plans?
1. Are coordinates systems / measurements / units of measure consistent with the plans?
● Yes
If No, what action is taken?
Comments:
RTS and EM61-HP systems will be assembled and tested once personnel are on-site; coordinate system will be verified when loaded to the RTS
IV. Material Storage
Are materials stored properly?
● Yes
If No, what action is taken?
Comments:

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Contract #: N6247016D9008 Date: Jan 19, 2024

V. Specifications/Reference

- 1. Review each paragraph of Specification/Reference
- Assemble and test all positioning system (RTS) and DGM sensor (EM61-MK2 HP)
- Collect an Initial IVS with the EM61 and RTS system; perform any necessary operator certifications.
- Collect ongoing IVS and Instrument Function Tests for the EM61 and RTS being used in production mapping
- Collect transect surveys for sites with planned geophysical coverage
- Retrieve and verify all raw data packages from the field
- Process data and communicate with field team on need for infill surveys or additional documentation
- Review QC test results and perform ongoing data review and interpretation
- Target processed DGM survey data
- Upload processed data packages for QC Geo review
- 2. Discuss procedure for accomplishing the work.

Field Geophysicists will assemble and test all geophysical and positional equipment IAW DGM SOPs 04 and 07. An initial IVS survey will be collected IAW DGM SOP 02 prior to production data collection. Following validation, data will be collected using the EM61-MK2 HP IAW DGM SOP 05.

Data processors will retrieve raw data from the SP site and verify any relevant details impacting data processing with daily logbook entries. QC and production data will be processed IAW DGM SOP 06 and verified against MQOs in WS#22 Table 22-3. Any datasets requiring gap-fill will be issued to the field for collection. All complete datasets will be targeted IAW the sitespecific picking threshold. All processed data will be uploaded to the SP site for QC Geo review prior to weekly QA data submittal.

3. Clarify any	differences.				
This inspection	does not cover IVS	Installation or GPR	survey data process	sing	
VI Proliminant	Mark and Darmita				
vi. Preiminary	Work and Permits				
1. Ensure prelin	ninary work is corre	ect and permits or lice	enses are on file.		
○ Yes	○ No	N/A			
If No, what action	on is taken?				
2. Are utility ma	rkouts established	?			
∩Yes	○ No	N/A			

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Contract #: N6247016D9008 Date: Jan 19, 2024

VII. Testing (material or equipment, prior to use or operation)

- 1. Identify test to be performed, frequency, and by whom.
- Initial Geodetic Check Shot once following assembly Field Geo
- Ongoing Geodetic Check Shot each time system is moved (RTS) Field Geo
- Initial Instrument Function Test once following assembly Field Geo
- Ongoing Instrument Function Test AM/PM and battery change (EM61) Field Geo
- Initial IVS once during initial sensor validation Field Geo
- Ongoing IVS AM/PM for each day sensor is used for production collection Field Geo
- Initial Geodetic Check Shot once following assembly Data Processor/Database Manager
- Ongoing Geodetic Check Shot every day systems are used Data Processor/Database Manager
- Initial Instrument Function Test once following assembly Data Processor
- Ongoing Instrument Function Test every day systems are used Data Processor
- Initial IVS positioning accuracy once during initial sensor validation Data Processor
- Ongoing IVS positioning precision- every day systems are used for production data Data Processor
- In-line measurement spacing every completed dataset Data Processor
- Transect coverage every completed transect Data Processor
- Valid Position Data every RTS dataset Data Processor

2. Where required?

- Initial Geodetic Check Shot At an established control point
- Ongoing Geodetic Check Shot At an established control point
- Initial Instrument Function Test In the field
- Ongoing Instrument Function Test In the field
- Initial IVS Established IVS location
- Ongoing IVS Established IVS location
- Initial Geodetic Check Shot Running QC summary/Access Database
- Ongoing Geodetic Check Shot Running QC summary/Access Database
- Initial Instrument Function Test Running QC summary/Access Database
- Ongoing Instrument Function Test Running QC summary/Access Database
- Initial IVS positioning accuracy Running QC summary/Access Database
- Ongoing IVS positioning precision- Running QC summary/Access Database
- In-line measurement spacing Running QC summary/Access Database

- Transect coverage - Running QC summary/Access Database - Valid Position Data - Geosoft Database			
3. Review testing plan. If there is offsite testing required, identify it below	W.		
N/A			
4. Has test facility been approved?			
N/A			
VIII. Training			
Was site-specific training conducted and documented?	○ Yes	No	
2. Was an AGC demonstration of capability (DOC) performed?	○Yes	○ No	N/A
3. Was the DOC documented and filed in the project records?	○ Yes	○ No	● N/A

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Preparatory Inspection Checklist Contract #: N6247016D9008 Date: Jan 19, 2024

Project Quality Manager

IX. Safety					
1. Review applicable portion of the Task Order Site Health and Safety Plan.					
2. Activity hazard analysis updated and approved?	Yes	○No			
3. APP signature page and AHAs signed?					
4. Emergency contact personnel identified and contact list posted?	Yes	○No			
5. Emergency contact list current?	Yes	○No			
6. Emergency action drill conducted and documented?	Yes	○No			
7. Do all personal performing this DFW have current medical clearance and certifications (e.g., EOD/UXO, HAZWOPER, 8hr Refresher, OSHA Supervise		No			
X. Attach any DFW-specific checklist to the report, if used.					
Comments:					
XI. Summary of Action Items or Punch List:					
Action Items:					
* Perform DGM/RTS certifications for Daniel Pigeon and post to Project SP site/MMRP SP site * Complete QRIR-12 * Complete initial testing for EM61-HP and RTS * Perform on-site training and review of APP/AHAs for Daniel Pigeon * Post transect endpoints for incorporation into TetraForms * Confirm receipt of personnel certs for Daniel Pigeon					
XII. Risks					
Have risks (Safety, Scope, Schedule, Budget, Level of Quality) been reviewed and updated based on current site conditions for this DFW?	Yes	○ No			
XIII. Client comments during meeting:					
Comments:					
Date: 01/19/2024 Date: 01/19/2024					
Matthew Barner Date: 2024.01.19 16:41:35 -05'00' Date: 2024.01.19 16:41:35 -05'00' Date: 2024.02.02 09:52:35 -05'00'					

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Site Superintendent or Equivalent



Initial Inspection Checklist

Cor	Contract Name: Naval Base Kitsap Bangor						
Cor	ntract #: N6	6247016D9008		Date:	01/29/2024		
Tas	sk Order #: N4	1425519F4112		Reference:	QAPP, SOPs		
DF\	DFW/Activity #: DFW#5 - IVS Establishment; DFW #6 - DGM Field Surveys; DFW #8 - Client Notified • Yes ONO ON/A						
Par	Part I. Personnel Present:						
#		Name	Position		Company/G	overnment Agency	
1	Jessie Powers		QC Geo	Tetra Te	ech		
2	Eugene Mikell		QCM	Tetra Te	ech		
3	Brett Yarborou	gh	Data Processor	Tetra Te	ech		
4	Anthony Aguirr	re	UXOQCS	Tetra Te	ech		
5	5 Simon Jobman Database Manager Tetra Tech						
6	Melissa King		QA Geo	USN			
7 Zachary Weston		on	Site Geophysicist	Tetra Te	Tetra Tech		
				,			
Par	Part II. Preparatory punch list/deficiencies are resolved/corrected?						
● Y							
Part III. Summarize compliance with procedures (be specific) identified at preparatory inspection. Coordinate plans, specifications, and submittals.							
Comments:							
			e assembled, tested and inspected IA				
		cted with the EM61-HP I SOP 05 starting on 01	coupled with RTS on 01/22/2024 IAW /23/2024.	/ DGM S	OP 02. Tran	isect data were coll	ected in
	Part IV. Preliminary Work. Ensure preliminary work is complete and correct. If not, describe the action(s) taken. Attach DFW-specific checklist to this report, if used.						
Act	tions:						
	All necessary control points have been emplaced by PLS in support of geophysical survey operations. All vegetation reduction and surface clearance operations have been completed in UXO-03 where DGM transects are scoped.						
	TetraForms checklists completed for EM61 Assembly; Checklists for Civil Survey,IVS Instrument Verification and Dynamic Detection Survey will be completed.						

QP-01 Rev. 1, Rev Date 09/01/2021



Initial Inspection Checklist

Contract #: N6247016D9008 Date: Jan 29, 2024

Part V. Establish Levels of Workmanship

Provide performance criteria for DFW from Plans or SOP.

MQO #1-4 - Assemble Positioning Systems (RTS): System was assembled as specified in manual and DGM SOP 07 each time the system was setup for use.

MQO #1-5 - Initial Geodetic Function Checks (RTS): Measured check-shots at known control point established by the PLS were within 4 inches of ground truth following RTS assembly.

MQO #1-6 - Ongoing Geodetic Function Checks (RTS): Measured check-shots at known control points were within 4 inches of ground truth each time the systems were moved to a new location.

MQO #3-1- Assemble system (EM61-HP): Systems were assembled as specified in manuals and DGM SOP 04.

MQO #3-2 - Initial Instrument Function Test (EM61-HP): Initial static test item responses verified to be within 20% of predicted responses based on existing scaled ISO40 response curves

MQO #3-4 - Ongoing Instrument Function Test (EM61-HP): Static test item responses were within 20% of established initial responses

MQO # 3-6 - Initial dynamic positioning accuracy (EM61-HP): Derived positions of IVS targets were within 10" of ground truth locations

MQO # 3-7 - Ongoing survey positioning precision (EM61-HP): Derived positions of IVS targets were within 10" of running average locations

MQO # 3-14 - Battery Voltage (EM61-HP): Battery changed before voltage < 11.85V

Part VI. Resolve any differences

Comments:

MQO # 3-8 - In-line measurement spacing (Ongoing IVS/Production data): Ongoing IVS results and production data have not been verified by data processors.

MQO # 3-9 - Transect Coverage (EM61-HP): Production data have not yet been verified by data processors.

MQO # 3-15 - Valid Position Data (Ongoing IVS/Production data): Production data have not yet been verified by data processors.

Part VII. Check Safety

Review job conditions using Site Health and Safety Plan and activity hazard analysis. Comments:

None.

Date: 01/29/2024

Jessie Powers Date: 2024.01.29 13:20:58 -05'00

Project Quality Manager

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Geo1

Abbreviated QRIR

Contract No. N62470-16-D-9008

Abbreviated QRIR	Abbreviated QRIR			
Date	2024-01-20 15:59:56			
Project	Kitsap Bangor			
Inspector	Zach Weston			
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes			
Inspector Signature	yn In			

Scan all equipment barcodes and enter any external equipment.				
Date/Time	2024-01-20 16:00:04			
Is this an External instrument?	Yes			
External Instrument	Other			
Enter "Other" external instrument	EM61 MKII HP			
Barcode				
Serial Number				
Model				
Equipment Source				
Comments	Console Box SN:022025			

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:01:10
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

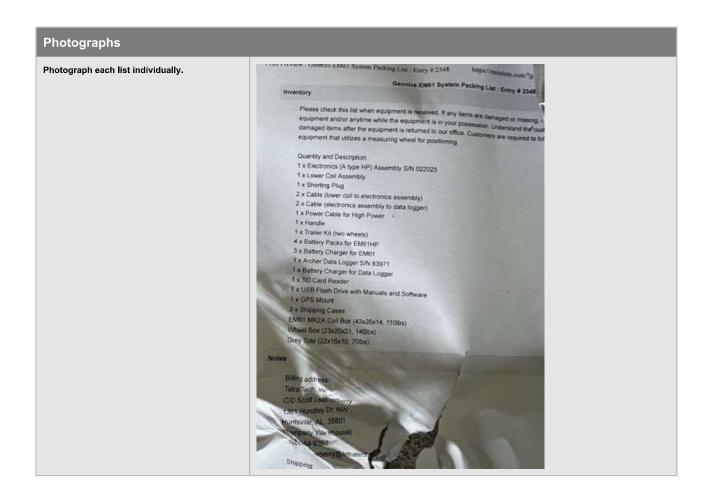
Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:02:14
Is this an External instrument?	No
Barcode	559108
Serial Number	86916
Model	Allegro CX
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.		
Date/Time	2024-01-20 16:02:51	
Is this an External instrument?	No	
Barcode	593963	
Serial Number	2491286	
Model	CS20 (RTS)	



Naval Base Kitsap Bangor

Equipment Source Tetra Tech Warehouse



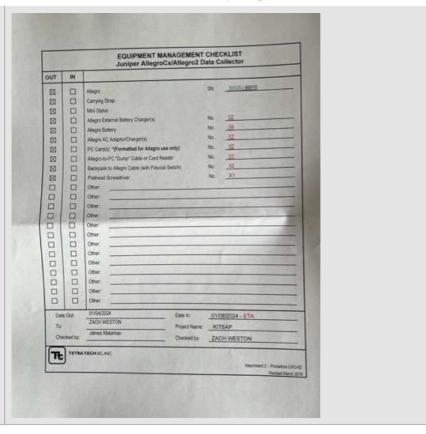
Photographs		

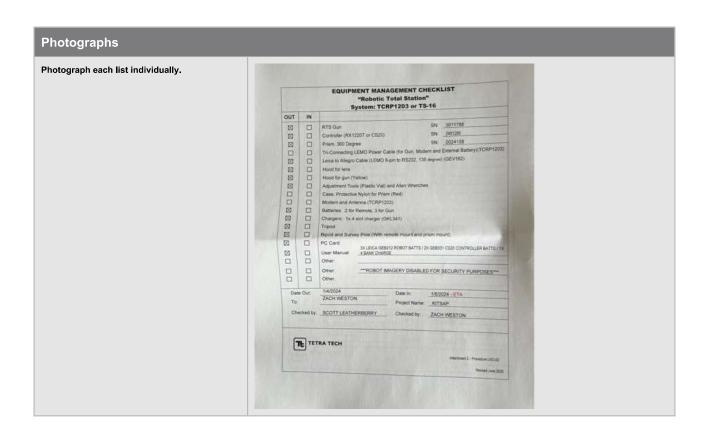
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Naval Base Kitsap Bangor

Photograph each list individually.

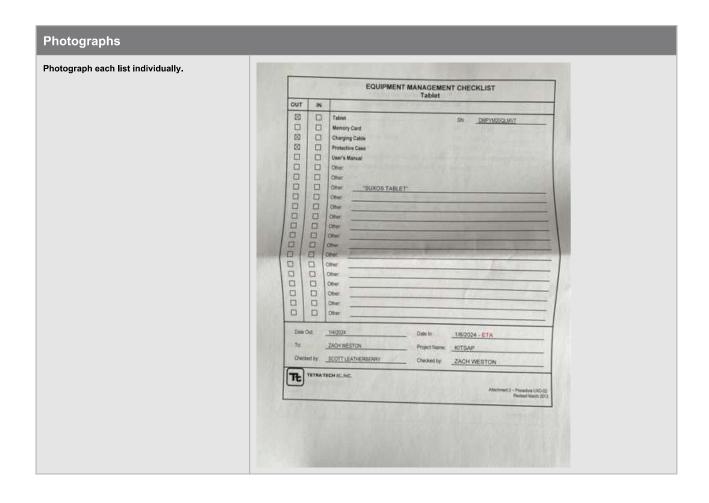


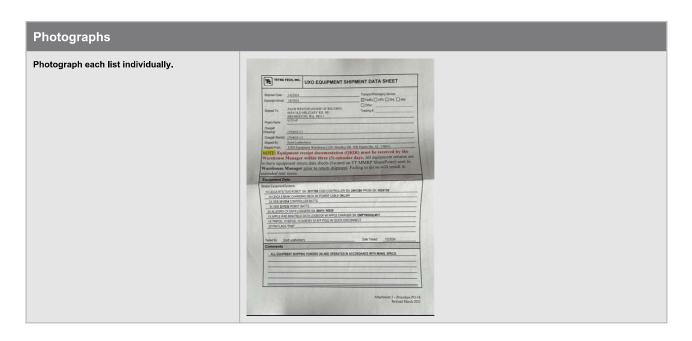


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Geo1





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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

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Naval Base Kitsap Bangor

QC Checklist for EM61 HP Assembly

Record: 17		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed with all required photos?	Yes	
Item 1 Comments	Field checklist submitted on 01/20/2024 and uploaded to the SP Site. No assembly photos have been approved as of the date of this checklist.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A	
Item 2 Comments	There are no DOCs required for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Dan Pigeon is not acting as an equipment operator.	
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes	
Item 3 Comments	File: 240120G7GNDTEST	
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass	
Item 4 Comments	Initial SS accuracy test passes compared to existing HP response curve. No data spikes or identified failures	
QC Geophysicist Signature	gisse L. Pawers	
Date	2024-01-24	

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Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 20	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field Checklist was completed on 01/20/2024 and uploaded to the project SP site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Dan Pigeon is not operating as an equipment operator
Item 3: Were all required data files uploaded to the project files?	Yes
Item 3 Comments	IVS filename: 240120g7ivsinit
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 1.5 inches of control point CP23 ground truth
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	Ongoing SS test was within 20% of established initial baseline average values
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sample Separation passed. Target Locations passed: IVS01 = 0.18ft, IVS02 = 0.10ft, IVS03 = 0.33ft
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes



Naval Base Kitsap Bangor

Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes	
Item 8 Comments	No photos taken as part of Initial IVS testing. Photos may or may not be approved prior to submittal of IVS Technical Memo	
QC Geophysicist Signature	Jesse L Pow	
Date	2024-01-25	

TETRA TECH

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 386	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240120 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 01/20/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	No additional points shot-in on 01/20/2024 - initial testing only



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse Z Powers
Date	2024-01-20



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

	tsap Bangor
QC Geophysicist Jes	
	ssie Powers
PLS Subcontractor AE	ES Consultants
Positioning Sensor Type Lei	ica RTS
Item 1: Yes Was the Field Checklist completed?	es
Item 1 Comments Ass	ssembly and geodetic checkshots for Geo1 using Leica RTS verified in 240122 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Α
Item 2 Comments Pos	ositioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	os
Item 3 Comments NA	AD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	es ·
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	A
Item 4 Comments	ontrol established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	rs ·
Item 5 Comments All	checkshots for Leica positioning system on 01/22/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	A
	ansect endpoint locations marked for navigational purposes in UXO 03; temporary control points corded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	gessu L Powers
Date	2024-01-22



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 392			
Project	Kitsap Bangor		
QC Geophysicist	Jessie Powers		
PLS Subcontractor	AES Consultants		
Positioning Sensor Type	Leica RTS		
Item 1: Was the Field Checklist completed?	Yes		
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240123 G1 Logbook.		
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A		
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.		
Item 3: Was the correct project coordinate system used?	Yes		
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet		
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes		
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A		
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.		
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes		
Item 5 Comments	All checkshots for Leica positioning systems on 01/23/2024 were within 4 inches of ground truth (passed).		
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A		
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.		

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
00.0	4.01	

QC Geophysicist Signature	Jesse L Powers
Date	2024-01-23

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 395	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240124 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 01/24/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Powers
Date	2024-01-24



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 398	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240125 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 01/25/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2024-01-25



			WQCR IN	FORMATION			
From: 01/27/202	4		To: 02/02/2024	Report #:	040		
Client: NAVFAC NW			Project:	179-80	179-8015		
Contract Name:	Naval Base Kits	ар	Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	308		Task Order #:	N4425519F4112		
Project Descript	ion:						
Silverdale, WA. T regarding potent	he objective of ial future action	the ns/ii	t of a Site Investigation (SI) at for SI is to assess and verify the abnvestigations at each MRS.	sence or presence	of MPF	PEH to support the	
	·		rmation on work performed, safety, v	veather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL	. ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	No	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A
Follow-Up Inspection (DFW):		DF	DFW5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC
Rework Status:		No	None			Activity/Task #:	N/A
(Enter a summary	of weekly quali	ty a	ctivities for the site activities perf	ormed.)			
DFW #5 (IVS Es	stablishment):	IVS	Technical Memorandum Ado	dendum 04 prepa	ration	in progress.	
DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 SW step-outs. QC checklist associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): Production and IVS EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QC Review of Draft DGM Survey Report Addendum 01 for sites UXO 08, UXO 10, UXO 15 and UXO 16.							
Tests Performed and Results:							
 - Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB). - Verified Ongoing Sensor Function Test for G7 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) - Verified Ongoing IVS Dynamic Positioning Precision for G7 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). - Verified Battery Voltage for G7 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks). 							
Materials and Equipment Received and Results of Inspection:							
- N/A	- N/A						

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Contract #: N6247016D9008 Date: Feb 2, 2024

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None.
Field Change Requests Initiated or Status:
None.
JOB SAFETY: (LIST OBSERVATIONS)
- Geophysical personnel demobilized from site 01/30/2024 - Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION
- Weekly Field Work Status call on 01/31/2024 with project team. Refer to project files for approved meeting minutes.

B-83



Contract #: N6247016D9008 Date: Feb 2, 2024

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specification	is report is comple ns to the best of n	ete and c ny knowle	correct, and all materials used and work performed during this reporting edge, except as may be noted above.
	1		
NAME: Jessie Powers	TITLE/COMF	PANY:	QC Geophysicist
	SIGNATURE:		Jessie Powers Date: 2024.02.07 11:13:25-05'00'

QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 401		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240129 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning systems on 01/29/2024 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.	



Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
	Contract No. N62470-16-D-9008

QC Geophysicist Signature	Jesse L Powers
Date	2024-01-29



WQCR INFORMATION							
From: 02/03/202	4	\neg	To: 02/16/2024	Report #:	041		
Client: NAVFAC NW		10.02/10/2024		Project:		79-8015	
			Panas				
Contract Name:				Location:	Silverdale, WA		
	N6247016D90	800		Task Order #:	N4425519F4112		
Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.							
See Contractor Pro	duction Report for	info	rmation on work performed, safety, v	weather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL	. ACTIVITIES PERFORMED:				
Preparatory Insp	pection (DFW):	No	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A
Follow-Up Inspe	DFW5; DFW6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC		
Rework Status:		No	ne			Activity/Task #:	N/A
(Enter a summary	of weekly quali	ty a	ctivities for the site activities perf	ormed.)			
DFW #5 (IVS Establishment): Draft IVS Technical Memorandum Addendum 04 and Initial G7 IVS data package submitted for QA review on 02/16/2024. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 SE step-outs. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): Production and IVS EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 02/16/24 includes EM61-HP QC data from 01/22/24 - 01/25/24 and 01/29/2024.							
Tests Performed and Results:							
- Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB) Verified Ongoing Sensor Function Test for G7 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) - Verified Ongoing IVS Dynamic Positioning Precision for G7 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB) Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB) Verified Battery Voltage for G7 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks).							
Materials and Equipment Received and Results of Inspection:							
- N/A							

QP-01 Rev. 3, Rev Date 04/12/2022

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Contract #: N6247016D9008 Date: Feb 16, 2024

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None.
Field Change Requests Initiated or Status:
None.
JOB SAFETY: (LIST OBSERVATIONS)
- No geophysical personnel on-site 01/31/2024 - 02/11/2024 (geophysical equipment remained on site from previous work) Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- Weekly Field Work Status call on 02/07/2024 with project team. Refer to project files for approved meeting minutes.
- QA Approval of Weekly Geo QC Report_WE012624 and Weekly Geo QC Report_WE020224 on 02/10/2024.
- Submittal of Draft DGM Survey Report Addendum 01 for sites UXO 08, UXO 10, UXO 15 and UXO 16 on 02/15/2024.



Contract #: N6247016D9008 Date: Feb 16, 2024

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specification	is report is comple ns to the best of n	ete and c ny knowle	correct, and all materials used and work performed during this reporting edge, except as may be noted above.
	1		
NAME: Jessie Powers	TITLE/COMF		QC Geophysicist
	SIGNATURE	Ē:	Jessie Powers Date: 2024.02.21 16:47:00 -05'00'

QP-01 Rev. 3, Rev Date 04/12/2022

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 404	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240212 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/12/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



OC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse Z Porvers
Date	2024-02-12

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 407	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240213 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators (Z. Weston, J. Null) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 02/13/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.
	I .



QC Geo Contra	ict No. N62470-16-D-9008	Naval Base Kitsap Bangor
QC Geophysicist Signature	Jesse	L Powers
Date	2024-02-13	

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 410	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240214 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/14/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
QC 0C0	Contract No. NOZ TIO TO D 3000	Matat Dase Mitsup Danger

QC Geophysicist Signature	Jesse I Cowers
Date	2024-02-14



WQCR INFORMATION							
From: 02/17/202	4	To: 03/01/2024	Report #:	042			
Client: NAVFAC NW		Project:	179-80	79-8015			
Contract Name:	Naval Base Kits	ap Bangor	Location:	Silver	Silverdale, WA		
Contract #:	N6247016D90	08	Task Order #:	N4425	N4425519F4112		
Conduct geophy Silverdale, WA. T	Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.						
See Contractor Pro-	duction Report for	information on work performed, safety, v	weather, and subcont	tractor ho	ours.		
SUMMARY OF Q	UALITY CONTR	OL ACTIVITIES PERFORMED:					
Preparatory Insp	ection (DFW):	None			Activity/Task #:	N/A	
Initial Inspection	(DFW):	None			Activity/Task #:	N/A	
Follow-Up Inspe	ction (DFW):	DFW6; DFW 8				DGM Field Surveys; DGM Data Processing and QC	
Rework Status:	[None			Activity/Task #:	N/A	
(Enter a summary of weekly quality activities for the site activities performed.)							
DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-03 SE step-outs. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): Production and IVS EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing.							
Tests Performed	d and Results:						
 Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-6 (Passed - Access DB). Verified Ongoing Sensor Function Test for G7 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) Verified Ongoing IVS Dynamic Positioning Precision for G7 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). Verified Battery Voltage for G7 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks). 							
Materials and Equipment Received and Results of Inspection:							
- N/A							
Deficiencies/Non-conformances & Status (include a tracking # if assigned):							
None.							

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Contract #: N6247016D9008 Date: Mar 1, 2024

Field Change Requests Initiated or Status:	
None.	
JOB SAFETY: (LIST OBSERVATIONS)	
- No geophysical personnel on-site 02/12/2024 - 02/18/2024 (ge - All geophysical personnel and equipment demobilized from site	eophysical equipment remained on site from previous work).
- All geophysical personnel and equipment demobilized from sill - Daily tailgate safety briefings conducted by UXOSO and docu	
COMMENTS: MEETING DESIGNED EDON OF	THENT OF REPRESENTATIVE OF OTHER INFORMATION
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	
- QA Approval of IVS Memorandum Addendum 04 and Weekly	QC Data for WE_240126, WE_240202 on 02/23/2024.
PRO IFOT BUOTOS	
PROJECT PHOTOS	



Contract #: N6247016D9008 Date: Mar 1, 2024

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.				
NAME:	Jessie Powers	TITLE/COMPANY:	QC Geophysicist	
		SIGNATURE:	Jessie Powers	Digitally signed by Jessie Powers Date: 2024.03.04 17:16:43 -05'00'

Page 3 of 3 QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 413	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240219 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/19/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jime L Powers
Date	2024-02-19



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 416	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240220 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/20/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse Z Powers
Date	2024-02-20



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 419	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240221 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/21/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



OC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse Z Porvers
Date	2024-02-21



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 422	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240222 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/23/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2024-02-22



	WQCR INFORMATION						
From: 03/02/202	4		Го: 03/29/2024	Report #:	043		
Client:	NAVFAC NW			Project:	179-8015		
Contract Name:	Naval Base Kits	ар В	angor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	800		Task Order #:	N4425	5519F4112	
Project Descript	ion:						
Silverdale, WA. T	he objective of	the S	of a Site Investigation (SI) at fo SI is to assess and verify the ab vestigations at each MRS.				
See Contractor Pro	duction Report for	inforr	mation on work performed, safety, v	weather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL	ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	Non	ie			Activity/Task #:	N/A
Initial Inspection	(DFW):	Non	ne			Activity/Task #:	
Follow-Up Inspe	ction (DFW):	DFV	V 8			Activity/Task #:	DGM Data Processing and QC
Rework Status: None				Activity/Task #:	N/A		
(Enter a summary	of weekly quali	y act	tivities for the site activities perf	ormed.)			
DFW #8 (DGM Data Processing and QC): Production and EM61-HP data processed IAW DGM SOP 06. Data processing and QC for IVS and UXO3 production data are complete. QC checklists associated with UXO3-SE and UXO3-SW data deliverables are attached to this report. Final geophysical maps will be incorporated into GIS as part of the Data Usability Report.							
Tests Performed and Results:							
- Verified In-line measurement spacing for UXO3-SE and UXO3-SW datasets IAW MQO # 3-8 (Passed - Access DB) Verified Transect Coverage for UXO3-SE and UXO3-SW datasets IAW MQO # 3-9 (Passed - Geosoft Linepaths).							
Materials and E	Materials and Equipment Received and Results of Inspection:						
- N/A							
Deficiencies/Non-conformances & Status (include a tracking # if assigned):							
None.							

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Mar 29, 2024

Field Change Requests Initiated or Status:			
- None.			
IOD CAFETY (LIOT ODDEDVATIONS)			
JOB SAFETY: (LIST OBSERVATIONS)			
- No geophysical personnel or equipment on-site .			
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	LIENT OR REPRESENTATIVE OR OTHER INFORMATION		
- None.			
PROJECT PHOTOS			



Contract #: N6247016D9008 Date: Mar 29, 2024

	s Verification: On behalf of the Contractor, I certify th in compliance with the contract plans and specification			
NAME:	Jessie Powers	TITLE/COMPANY:	QC Geophysicist	
		SIGNATURE:	Jessie Powers	Digitally signed by Jessie Powers Date: 2024.03.29 10:15:52 -04'00'

QP-01 Rev. 3, Rev Date 04/12/2022

QC Checklist for Dynamic Data Submittal

Record: 26	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N
Data Collection Start Date	2024-02-13
Data Collection End Date	2024-02-22
Operators	Nick Emm, Jason Null
Data Processors	Brett Yarborough, Jen Kostera
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	J.Null and Nick Emm have valid operator certification forms posted to the Project SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G7 system used for UXO3-SE was submitted and posted to the project SP site on 240123
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The data processing checklist submitted for UXO3-SE transects was posted to the project SP site on 240328
Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes



Naval Base Kitsap Bangor

Item 5 Comments	All passing IVS and SS data associated with UXO3-SE pass project MQOs and were delivered in the 240308 Running Access Database
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jessie L Powers
Date	2024-03-28

Naval Base Kitsap Bangor

QC Checklist for Dynamic Data Submittal

Record: 29	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N
Data Collection Start Date	2024-01-22
Data Collection End Date	2024-01-30
Operators	Zach Weston, Jason Null
Data Processors	Brett Yarborough, Jen Kostera
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	J.Null and Z. Weston have valid operator certification forms posted to the Project SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G7 system used for UXO3-SW was submitted and posted to the project SP site on 240123
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The data processing checklist submitted for UXO3-SW transects was posted to the project SP site on 240329
Item 4: Were all required files included in the deliverable folders?	Yes
Item 4 Comments	



Naval Base Kitsap Bangor

Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS and SS data associated with UXO3-SW pass project MQOs and were delivered in the 240308 Running Access Database
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	gessu L Powers
Date	2024-03-29



Final	Geophysical	Mapping Surv	ev Report. Si	te UXO 3

APPENDIX C - SOP CHECKLISTS



Geo1

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly

Field Checklist for EM61 HP Assembly				
Project	Kitsap Bangor			
Project Geo	Matt Barner			
Field Personnel	Brett Yarborough, Zach Weston			
Positioning Sensor Type	Leica RTK GPS			
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes			
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No			
Item 3: Are you using both a top and bottom coil?	No			
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes			
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.41			
Z-Vertical Offset (up is positive):	0.98			
Y-Offset in direction of travel (forward is positive)	0			
X-Offset perpendicular to direction of travel (right is positive)	0			
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release			
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes			
Item 8: What data acquisition software are you using?	EM61-MK2			
Item 9: Is the sampling rate set to 10Hz or higher?	Yes			

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Naval Base Kitsap Bangor

	20 D 0000 Harat Date Hittage
Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.015
Supervisor	Brett Yarborough
Supervisor Signature	BAM
Date	2023-10-31

QRIR	
Date	2023-11-01 09:19:45
Project	Kitsap Bangor
Inspector	Brett Yarborough

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Inspector Signature	TAMMAN AND AND AND AND AND AND AND AND AND A

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-01 09:20:39
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61 HP

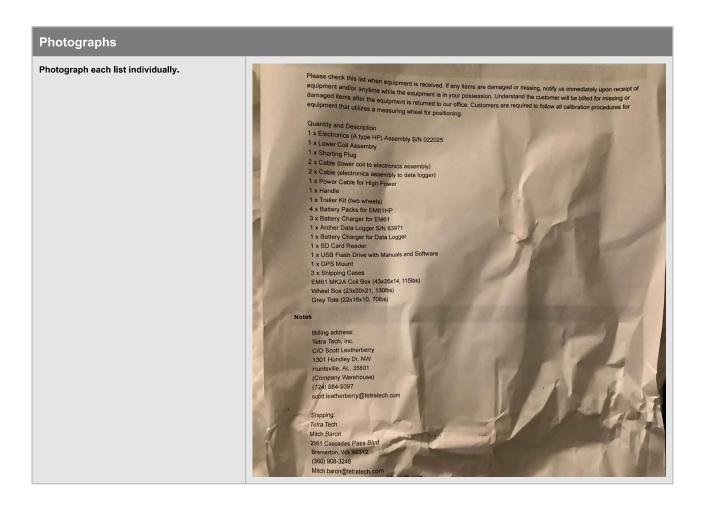
Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-01 09:24:23
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Model	TS16
Equipment Source	Tetra Tech Warehouse



Personnel Signatures	
Date/Time	2023-10-31 18:13:09
SOP	4
Team Member	Brett Yarborough

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Geol	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangoi

Signature	
-----------	--



Personnel Signatures	
Date/Time	2023-10-31 18:13:25
SOP	4
Team Member	Zac Weston
Signature	Zu Juni

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Naval Base Kitsap Bangor

DGM Function Test	
Date/Time	2023-10-30 17:14:00
Operator	Brett Yarborough
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.3
SFT File Name	231030g6initialss
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	0
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Naval Base Kitsap Bangor

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3772
Chan 2	2073
Chan 3	1172
Chan 4	763
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-9
Chan 2	-2
Chan 3	-4
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Field Checklist for EM61 HP Assembly

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.406
Z-Vertical Offset (up is positive):	1.003
Y-Offset in direction of travel (forward is positive)	0.0127
X-Offset perpendicular to direction of travel (right is positive)	0.058
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes

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Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.0143
Supervisor	Zach Weston
Supervisor Signature	yng lm
Date	2024-01-20

QRIR	
Date	2024-01-20 15:59:56
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Inspector Signature	July Un

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:00:04
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61 MKII HP
Barcode	
Serial Number	
Model	
Equipment Source	
Comments	Console Box SN:022025

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:01:10
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:02:14
Is this an External instrument?	No
Barcode	559108
Serial Number	86916
Model	Allegro CX
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-01-20 16:02:51
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

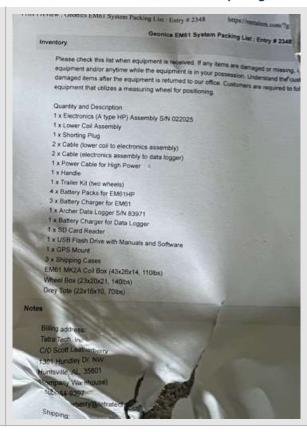
Photographs	

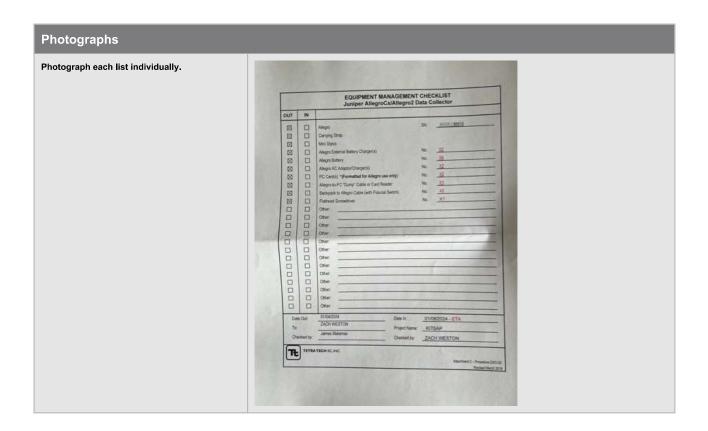
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Naval Base Kitsap Bangor

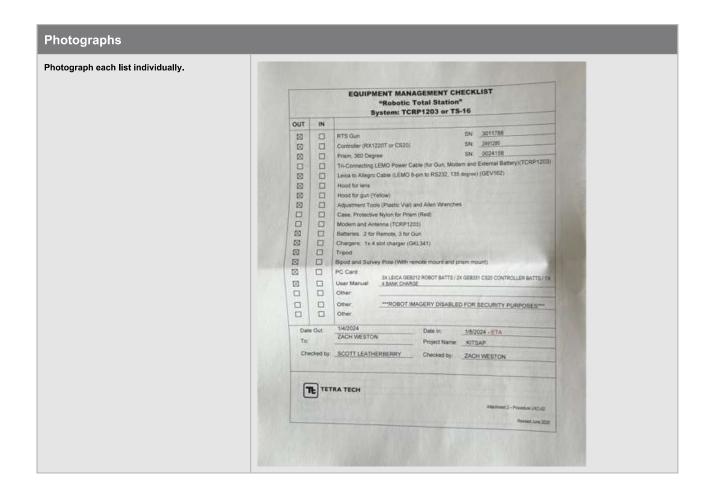
Photograph each list individually.

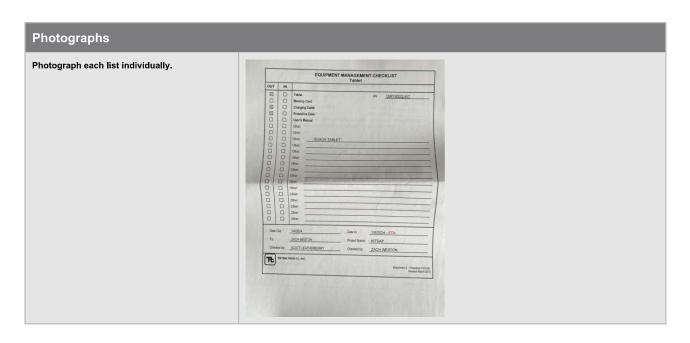




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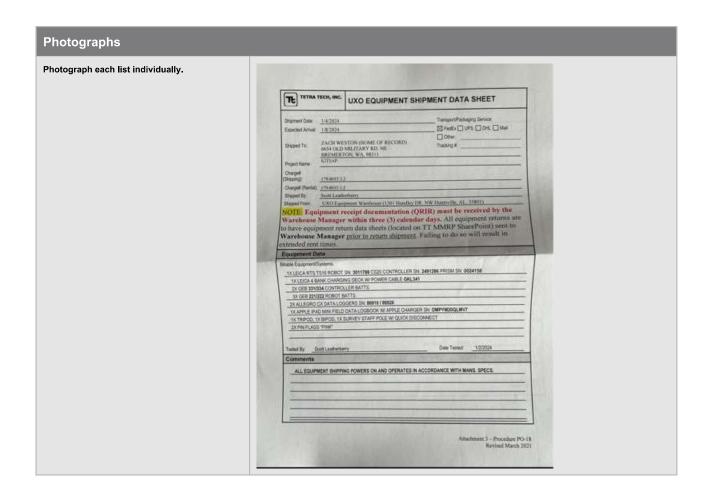




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Geo1

Contract No. N62470-16-D-9008



Personnel Signatures	
Date/Time	2024-01-20 16:11:03
SOP	4
Team Member	Zac Weston
Signature	Jug ins

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Naval Base Kitsap Bangor

DGM Function Test	
Date/Time	2024-01-20 17:06:57
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is wet
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.3
SFT File Name	240120g7ssam
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	0
Chan 1	2
Chan 2	-2
Chan 3	-1
Chan 4	0

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Naval Base Kitsap Bangor

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3960
Chan 2	2149
Chan 3	1234
Chan 4	794
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	5
Chan 2	0
Chan 3	4
Chan 4	-2
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly

Field Checklist for EM61 HP Assembly	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston, Jason Null
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	N/A
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	N/A
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0
Z-Vertical Offset (up is positive):	0
Y-Offset in direction of travel (forward is positive)	0
X-Offset perpendicular to direction of travel (right is positive)	0
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes

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Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0
Supervisor	Zach Weston
Supervisor Signature	La Int
Date	2024-02-12

QRIR	
Date	2024-02-12 23:15:37
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Note: equipment is still G7 system, no change in setup, equipment was stored fully assembled on site in NBK Laydown area conex since 240130 while UXO3SE was being surface swept for UXO and brush cut. Equipment was inspected this morning (240212) and determined to still be in good working order, AM tests were sent to Brett Yarborough for processing to confirm working order before collection.
Inspector Signature	ZJ Zwar

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-02-12 23:17:58
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-02-12 23:18:17
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2024-02-12 23:19:24
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	Em61 MKII HP SN:022025

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Naval Base Kitsap Bangor

DGM Function Test	
Date/Time	2024-02-12 23:31:19
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is wet
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.6
SFT File Name	240212g7ssam
Did the operator verify the filename listed matches the data collector?	Yes
Comments	Insturment was still assembled, see previous assembly checklist for measurements and offsets

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-8
Chan 2	-13
Chan 3	-15
Chan 4	-6
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Naval Base Kitsap Bangor

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3860
Chan 2	2105
Chan 3	1265
Chan 4	772
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	12
Chan 2	5
Chan 3	3
Chan 4	4
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Naval Base Kitsap Bangor

QC Checklist for EM61 HP Assembly

Record: 12	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist submitted on 10/31/2023 and uploaded to the SP Site. No assembly photos have been approved as of the date of this checklist.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is designated as an SME for this equipment (letter on the MMRP SP Site)
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	Initial SS accuracy test passes compared to existing HP response curve. No data spikes or identified failures
QC Geophysicist Signature	Jessue L Cowers
Date	2023-11-08

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Naval Base Kitsap Bangor

QC Checklist for EM61 HP Assembly

Record: 17	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist submitted on 01/20/2024 and uploaded to the SP Site. No assembly photos have been approved as of the date of this checklist.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Dan Pigeon is not acting as an equipment operator.
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 3 Comments	File: 240120G7GNDTEST
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	Initial SS accuracy test passes compared to existing HP response curve. No data spikes or identified failures
QC Geophysicist Signature	gisse L. Powers
Date	2024-01-24

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Brett Yarborough, Zach Weston
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	231031g6initivs
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	N/A
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Brett Yarborough

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Geo1	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

Supervisor Signature	TAMMAN AND SOLVEN SOLVE
Date	2023-10-31

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:54:17
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61-HP
Comments	Console box SN 022025

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:55:38
Is this an External instrument?	No
Barcode	593963

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:56:35
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Personnel Signatures	
Date/Time	2023-10-31 16:57:30
SOP	2
Team Member	Brett Yarborough
Signature	Bet III

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TETRA TECH



Personnel Signatures	
Date/Time	2023-10-31 16:57:48
SOP	2
Team Member	Zac Weston
Signature	yng m

DGM SFT	
Date/Time	2023-10-31 17:01:56
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Battery Level	12.3
SFT File Name	231031G6ssam
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	o
Chan 1	o
Chan 2	o
Chan 3	0
Chan 4	0

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3808
Chan 2	2050
Chan 3	1164
Chan 4	760
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-2
Chan 2	0
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	240120g7ivsinit
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	Yes
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

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Naval Base Kitsap Bangor

Supervisor Signature	
	July mm
Date	2024-01-29

Detection and Positioning Sensors used for initial IVS	
Date/Time	2024-01-29 18:30:50
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2024-01-29 18:31:18
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Detection and Positioning Sensors used for initial IVS	
Date/Time	2024-01-29 18:31:51
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61 Mkli HP 022025

Personnel Signatures	
Date/Time	2024-01-20 13:12:00
SOP	2
Team Member	Zac Weston
Signature	Jungham

DGM SFT	
Date/Time	2024-01-20 13:13:00
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.6

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

SFT File Name	240120g7ssam
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	0
Chan 1	2
Chan 2	-2
Chan 3	-1
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3960
Chan 2	2149
Chan 3	1234
Chan 4	794
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	5
Chan 2	0
Chan 3	4
Chan 4	-2
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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QC Checklist for Instrument Verification at IVS

Record: 15		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	Yes	
Item 2 Comments	There are no DOCs for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is a designated SME for this equipment (letter on MMRP SP Site)	
Item 3: Were all required data files uploaded to the project files?	Yes	
Item 3 Comments	IVS filename: 231031g8initivs	
Item 4: Did the geodetic functionality test meet the project MQO?	Yes	
Item 4 Comments	Checkshot was within 0.48inches of control point CP23 ground truth	
Item 5: Did the processed SFT data meet project MQOs?	Yes	
Item 5 Comments	Ongoing SS test was within 20% of established initial baseline average values	
Item 6: Were initial IVS data collected IAW the SOP?	Yes	
Item 6b: Did the processed IVS data meet project MQOs?	Yes	
Item 6 Comments	Sampe Separation passed. Target Locations passed: IVS01 = 0.33ft, IVS02 = 0.30ft, IVS03 = 0.29ft	
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes	

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QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes
Item 8 Comments	
QC Geophysicist Signature	Jesse L Powers
Date	2023-11-08

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Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 20		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Field Checklist was completed on 01/20/2024 and uploaded to the project SP site	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A	
Item 2 Comments	There are no DOCs for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Dan Pigeon is not operating as an equipment operator	
Item 3: Were all required data files uploaded to the project files?	Yes	
Item 3 Comments	IVS filename: 240120g7ivsinit	
Item 4: Did the geodetic functionality test meet the project MQO?	Yes	
Item 4 Comments	Checkshot was within 1.5 inches of control point CP23 ground truth	
Item 5: Did the processed SFT data meet project MQOs?	Yes	
Item 5 Comments	Ongoing SS test was within 20% of established initial baseline average values	
Item 6: Were initial IVS data collected IAW the SOP?	Yes	
Item 6b: Did the processed IVS data meet project MQOs?	Yes	
Item 6 Comments	Sample Separation passed. Target Locations passed: IVS01 = 0.18ft, IVS02 = 0.10ft, IVS03 = 0.33ft	
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes	

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Naval Base Kitsap Bangor

Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes
Item 8 Comments	No photos taken as part of Initial IVS testing. Photos may or may not be approved prior to submittal of IVS Technical Memo
QC Geophysicist Signature	Jesse L Pow
Date	2024-01-25

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Project Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey		
Project	Kitsap Bangor	
Project Geo	Matt Barner	
Operator	Brett Yarborough, Zach Weston	
Dynamic Detection System	EM61-HP	
Positioning System	RTS	
Survey Unit(s)	T79N, T80N, T81N, T82N, T83N	
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes	
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes	
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes	
System current and/or battery level are within the acceptable range.	Yes	
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes	
A passing SFT was collected.	Yes	
IVS was collected IAW SOP2 prior to starting production data collection.	Yes	
Confirm you are a minimum of 200ft from other systems on site.	Yes	
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	N/A	
Item 4: Enter the maximum acceptable line spacing for this project:	25	

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Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

rioject ded contract No. Noz	Wavat base Kitsap ballgol
Unit of Measure	Feet
Item 5: Navigation Method:	Flags
Item 7: Were all obstacles circled in the data or documented on the FDS?	Yes
Item 8: Were all raw data downloaded for transfer to the project files?	Yes
Supervisor	Brett Yarborough
Supervisor Signature	13/1///
Date	2023-11-01

Personnel Signatures	
Date/Time	2023-11-01 12:57:00
SOP	5
Team Member	Brett Yarborough

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Project Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
Signature		September 18 and

Personnel Signatures	
Date/Time	2023-11-01 12:57:13
SOP	5
Team Member	Zac Weston
Signature	Zv mm

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Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-11-01 13:10:09
SOP	9
Team Member	Zac Weston
Signature	My min

Personnel Signatures	
Date/Time	2023-11-01 13:10:31
SOP	9
Team Member	Brett Yarborough
Signature	Deff

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Contract No. N62470-16-D-9008

Item 6: Complete the FDS for this Survey Unit.	
Date/Time	2023-11-01 12:58:17
Survey Unit/Grid	T81N, T82N, T83N
Data Type	Initial Dynamic
Status	Started & Completed
Operator(s)	Zach Weston
Datum	NAD83 CONUS
Coordinate System	State Plane
Terrain	Level, Rolling, Ruts
Tree Cover	Medium
Brush	Light
Weather	Cloudy
Battery Voltage or Transmit Current Start	12.45
Battery Voltage or Transmit Current End	12.45
Raw Data File Names	231101g6uxo3

Grid Drawing(s)	
Direction of Travel	N/S

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Operator	Zach Weston
Dynamic Detection System	EM61-HP
Positioning System	RTS
Survey Unit(s)	UXO03_T1N, UXO03_T1S, UXO03_T2N, UXO03_T2S, UXO03_T3N, UXO03_T3S, UXO03_T4N, UXO03_T4S, UXO03_T5N, UXO03_T5S, UXO03_T6N, UXO03_T6S
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes
System current and/or battery level are within the acceptable range.	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
A passing SFT was collected.	Yes
IVS was collected IAW SOP2 prior to starting production data collection.	Yes
Confirm you are a minimum of 200ft from other systems on site.	Yes
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	Yes
Item 4: Enter the maximum acceptable line spacing for this project:	25

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Unit of Measure	Feet
Item 5: Navigation Method:	Flags
Item 7: Were all obstacles circled in the data or documented on the FDS?	Yes
Item 8: Were all raw data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston
Supervisor Signature	Mhar
Date	2024-01-23

Personnel Signatures	
Date/Time	2024-01-23 14:59:53
SOP	5
Team Member	Zac Weston
Signature	Zuf hit

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2024-01-23 15:00:10
SOP	9
Team Member	Zac Weston
Signature	
	Tong Min

Item 6: Complete the FDS for this Survey Unit.	
Date/Time	2024-01-23 15:05:20
Survey Unit/Grid	UXO03_T1N, UXO03_T1S, UXO03_T2N, UXO03_T2S, UXO03_T3N, UXO03_T3S, UXO03_T4N, UXO03_T4S, UXO03_T5N, UXO03_T5S, UXO03_T6N, UXO03_T6S
Data Type	Initial Dynamic
Status	Started & Completed
Operator(s)	Zach Weston
Datum	NAD83 CONUS
Coordinate System	State Plane
Terrain	Level, Moderate Slope, Rolling, Ruts, Swampy
Tree Cover	Medium
Brush	Light
Weather	Sunny, Cloudy
Battery Voltage or Transmit Current Start	12.45
Battery Voltage or Transmit Current End	12
Raw Data File Names	240123g7uxo3sw
	240123g7uxo3swa
	240123g7uxo3swb

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Naval Base Kitsap Bangor

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Operator	Zach Weston, Nick Emm, Jason Null
Dynamic Detection System	EM61-HP
Positioning System	RTS
Survey Unit(s)	T09-N, T09-S, T11-N, T11-S, T12-N, T12-S, T13-N, T13-S, T14-N, T14-S, T15-N, T15-S, T16-N, T16-S, T17-N, T17-S
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes
System current and/or battery level are within the acceptable range.	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
A passing SFT was collected.	Yes
IVS was collected IAW SOP2 prior to starting production data collection.	Yes
Confirm you are a minimum of 200ft from other systems on site.	Yes
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	Yes
Item 4: Enter the maximum acceptable line spacing for this project:	25

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

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Item 6: Complete the FDS for this Survey Unit.	
Date/Time	2024-02-19 12:20:12
Survey Unit/Grid	T04-N, T04-S, T05-N, T05-S, T06-N, T06-S, T07-N, T07-S, T08-N, T08-S, T09-N, T09-S, T10-N, T10-S, T11-N, T11-S, T12-N, T12-S, T13-N, T13-S, T14-N, T14-S, T15-N, T15-S, T16-N, T16-S, T17-N, T17-S
Data Type	Initial Dynamic
Status	Started & Incomplete
Operator(s)	Zach Weston, Nick Emm, Jason Null
Datum	NAD83 CONUS
Coordinate System	State Plane
Terrain	Steep, Ruts, Swampy, Dangerous
Tree Cover	Thick
Brush	Thick

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Weather	Cloudy, Drizzle, Rain
Battery Voltage or Transmit Current Start	12.45
Battery Voltage or Transmit Current End	12.3
Raw Data File Names	240219g7Uxo03se
	240219g7Uxo03sea

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 21	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Jen Kostera
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-Spline, Smoothness = 0.8, Tension = 0.8
Item 7: Enter latency correction in seconds:	-0.03
Item 8: Enter Gridding parameters:	Minimum Curvature, Ch2_lev, Grid Cell Size = 0.25, Blanking Distance - 2
Item 9: Enter the calculated standard deviation of the background response:	0.84

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Troject ded contract No. No.	Navat base Kitsap ballgol
The minimum recommended target selection threshold is: (auto-filled)	4.2
Item 10: Target Selection Method:	Amplitude
Additional Notes or Comments	Target picking channel = Ch2_lev
Project Geophysicist Signature	112
Date	2023-11-07
QC Geophysicist Signature	Jusse L. Cowers
Date	2023-11-07

Personnel Signatures	
Date/Time	2023-11-07 11:24:59
SOP	6
Team Member	Jen Kostera
Signature	2hAHost

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Naval Base Kitsap Bangor

Item 11: Dynamic IVS Target Information	
Date/Time	2023-11-07 11:34:56
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.30
Detection Sensor	em61_hp
Expected Response	31
Observed Response	40.90678422

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 11: Dynamic IVS Target Information	
Date/Time	2023-11-07 11:37:00
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	АМ
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.29
Detection Sensor	em61_hp
Expected Response	232
Observed Response	244.9636943

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 11: Dynamic IVS Target Information	
Date/Time	2023-11-07 11:38:48
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.33
Detection Sensor	em61_hp
Expected Response	165
Observed Response	80.94878883

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Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 26	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	WGS 84
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline; smoothness =0.8, Tension=0.8
Item 7: Enter latency correction in seconds:	0.1
Item 8: Enter Gridding parameters:	Minimum Curvature, Ch2_lev, grid Cell size =0.2, Blanking distance = 2
Item 9: Enter the calculated standard deviation of the background response:	1.27

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The minimum recommended target selection threshold is: (auto-filled)	6.35
Item 10: Target Selection Method:	Amplitude
Additional Notes or Comments	Target picking = Ch2_lev. Target picking threshold will be 5 mV on Ch2_lev for consistency with previous DGM surveys completed for the subject project location and MRS. This threshold is less than 5x the standard deviation references in a previous section of this form. See IVS technical memorandum for more detail.
Project Geophysicist Signature	NZ
Date	2024-02-01
QC Geophysicist Signature	Jesse L Powers
Date	2024-02-01

Personnel Signatures	
Date/Time	2024-02-01 11:42:39
SOP	4
Team Member	Brett Yarborough
Signature	BAJIII-

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Personnel Signatures	
Date/Time	2024-02-01 11:42:58
SOP	6
Team Member	Brett Yarborough
Signature	BAJAL.

Item 11: Dynamic IVS Target Information	
Date/Time	2024-02-01 11:50:49
Team ID	Geo1
Data Collection Date	2024-01-22
Time of day	AM
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	

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Target Offset (auto-filled)	0.18
Detection Sensor	em61_hp
Expected Response	165
Observed Response	84

Item 11: Dynamic IVS Target Information	
Date/Time	2024-02-01 11:52:25
Team ID	Geo1
Data Collection Date	2024-01-22
Time of day	AM
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.01
Detection Sensor	em61_hp
Expected Response	31

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Observed Response	41

Item 11: Dynamic IVS Target Information	
Date/Time	2024-02-01 11:53:22
Team ID	Geo1
Data Collection Date	2024-01-22
Time of day	АМ
Location within IVS	ISO_03
Seed Type	Small ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.33
Detection Sensor	em61_hp
Expected Response	232
Observed Response	269

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 59	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T77N, T78N, T79N, T80N, T81N, T82N, T83N
Data Collection Team ID	Geo1
Collection Date(s)	11/01 though 11/16/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	Yes
Item 6: Was the in-line spacing metric achieved for this grid?	Yes
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Ravat Base Kitsap Ballgoi	
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	No
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	No
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	N/A
Footprint Coverage .pdf	N/A
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	BA Julia
Date	2023-12-19

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-12-19 11:32:09
SOP	6
Team Member	Brett Yarborough
Signature	Sat John !

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 62	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Jen Kostera, Brett Yarborough
Survey Unit ID	UXO_03 transects, T17N, T16N, T15N, T14N, T13N, T12N, T11N, T10N, T9N, T8N, T7N, T6N, T5N, T4N, T3N, T2N, T1N
Data Collection Team ID	Geo1
Collection Date(s)	02/13/2024 through 02/22/2024
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A
Item 6: Was the in-line spacing metric achieved for this grid?	Yes
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No

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riocessoi contract No. No24	Navat Base Kitsap Ballgol
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	Yes
Describe deviations from standard processing routine:	Bspline filtering with a smoothness and tension that varied from 0.6 to 0.8 for each parameter.
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	No
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	N/A
Footprint Coverage .pdf	N/A
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	JAKOST
Date	2024-03-28

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Personnel Signatures	
Date/Time	2024-03-28 12:54:40
SOP	6
Team Member	Brett Yarborough
Signature	Belfh

Personnel Signatures	
Date/Time	2024-03-28 13:20:46
SOP	6
Team Member	Jen Kostera
Signature	OLARIST

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 65	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Jen Kostera, Brett Yarborough
Survey Unit ID	T9N, T8N, T7N, T6N, T5N, T4N, T3N, T2N, T1N
Data Collection Team ID	Geo1
Collection Date(s)	01/20/2024 through 01/30/2024
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A
Item 6: Was the in-line spacing metric achieved for this grid?	Yes
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No

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Processor Contract No. N624	170-16-D-9008 Navai Base Kitsap Bangor
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	Yes
Describe deviations from standard processing routine:	Tension and smoothness ranging from 0.6-0.8. Demean filter for a few lines with the parameters - low 0%, high 5-50%, window length 5-100.
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	N/A
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	N/A
Footprint Coverage .pdf	N/A
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	G1 A Kist
Date	2024-03-29

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2024-03-29 11:49:54
SOP	6
Team Member	Brett Yarborough
Signature	BA My

Personnel Signatures	
Date/Time	2024-03-29 12:42:55
SOP	6
Team Member	Jen Kostera
Signature	GHA Kost

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QC Checklist for Dynamic Data Submittal

Record: 23	Record: 23	
Project	Naval Base Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T70N, T71N, T72N, T73N, T74N, T75N, T76N, T77N, T78N, T79N, T80N, T81N, T82N, T83N	
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T70N, T71N, T72N, T73N, T74N, T75N, T76N, T77N, T78N, T79N, T80N, T81N, T82N, T83N	
Data Collection Start Date	2023-11-01	
Data Collection End Date	2023-11-16	
Operators	Zach Weston, Nick Emm	
Data Processors	Brett Yarborough	
Detection Sensor	EM61-HP	
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes	
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.	
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes	
Item 2 Comments	Yes - the initial dynamic detection checklist for the G6 system was submitted and posted to the project SP site on 231101.	
Item 3: Were all required Data Processing Checklists completed?	Yes	
Item 3 Comments	The data processing checklist submitted for UXO-3W and UXO-3N transects. Checklist posted to the project SP site on 231219.	

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Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS and SS data associated with UXO-3W and UXO-3N pass project MQOs and were delivered in the 231212 Running Access Database.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database.
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data.
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jesse L Powers
Date	2023-12-19

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QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 26	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N
Data Collection Start Date	2024-02-13
Data Collection End Date	2024-02-22
Operators	Nick Emm, Jason Null
Data Processors	Brett Yarborough, Jen Kostera
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	J.Null and Nick Emm have valid operator certification forms posted to the Project SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G7 system used for UXO3-SE was submitted and posted to the project SP site on 240123
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The data processing checklist submitted for UXO3-SE transects was posted to the project SP site on 240328
Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Tage applications of the control of	To be be the second of the sec
Item 5 Comments	All passing IVS and SS data associated with UXO3-SE pass project MQOs and were delivered in the 240308 Running Access Database
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jessie L. Powers
Date	2024-03-28

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QC Geo Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 29	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N
Survey Units Reviewed by QC	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N
Data Collection Start Date	2024-01-22
Data Collection End Date	2024-01-30
Operators	Zach Weston, Jason Null
Data Processors	Brett Yarborough, Jen Kostera
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	J.Null and Nick Emm have valid operator certification forms posted to the Project SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G7 system used for UXO3-SW was submitted and posted to the project SP site on 240123
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The data processing checklist submitted for UXO3-SW transects was posted to the project SP site on 240329
Item 4: Were all required files included in the deliverable folders?	Yes
Item 4 Comments	

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC GCG CONTRACT NO. NOZ-17	Navat base Nitsap Ballgol
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS and SS data associated with UXO3-SW pass project MQOs and were delivered in the 240308 Running Access Database
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transect data met in-line spacing MQO @ 3.3ft and 0.75ft. All transect data were within 25ft of planned transect locations, unless a documented obstruction/reason for deviation was recorded.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Potential noise targets are masked and commented in the target database
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds were installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	gessu L Powers
Date	2024-03-29

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QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Project Production Dynamic Data Processing

Record: 11	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
Survey Unit ID	T1N, T2N, T3N, T4N, T5N, T6N, T7N, T8N, T9N, T10N, T11N, T12N, T13N, T14N, T15N, T16N, T17N, T18N, T19N, T20N, T21N, T22N, T23N, T24N, T25N, T26N, T27N, T28N, T29N, T30N, T31N, T32N, T33N, T34N, T35N, T36N, T37N, T38N, T39N, T40N, T41N, T42N, T43N, T44N, T45N, T46N, T47N, T48N, T49N, T50N, T51N, T52N, T53N, T54N, T55N, T56N, T57N, T58N, T59N, T60N, T61N, T62N, T63N, T64N, T65N, T66N, T67N, T68N, T69N, T70N, T71N, T72N, T73N, T74N, T75N, T76N, T77N, T78N, T79N, T80N, T81N, T82N, T83N
Data Collection Team ID	Geo1
Collection Dates	11/01/2023 through 11/16/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
UTM Zone	10N
Item 5: Describe the method and parameters used to level the data?	B-spline filter: 0.8 smoothness and 0.8 tension
Item 6: Enter latency correction in seconds:	0.1

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Naval Base Kitsap Bangor

QC Geo Contract No. N6247	0-16-D-3008 Navat base Kitsap bangor
Item 7: Enter Gridding parameters:	.20ft grid cell; blanking distance of 2 ft
Item 8: Enter the project specific coverage MQO:	Collected transects are within 25ft of planned
Item 8b: Was the coverage metric achieved for this grid?	Yes
Item 9: Enter the project specific in-line spacing MQO:	0.75ft and 3.3ft
Item 9b: Was the in-line spacing metric achieved for this grid?	Yes
Item 10: Are the position and orientation data valid and reasonable?	Yes
Item 11: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 12: Target Selection Method:	Amplitude
Item 13: Enter the defined target selection threshold for this project:	5
Item 13b: What method are you using to confirm all selected targets have proper decay?	Amplitude respone; removed one data point spikes
Additional Notes or Comments	UTM zone is N/A for this project; Data delivered in WA State Plane grid.
Project Geophysicist Signature	A3
Date	2023-12-19
QC Geophysicist Signature	Jesse Z Powers
Date	2023-12-19



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-12-19 11:22:51
SOP	6
Team Member	Brett Yarborough
Signature	BAJAL

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Naval Base Kitsap Bangor

Checklist for Project Production Dynamic Data Processing

Record: 14	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO03_T1S, UXO03_T2S, UXO03_T3S, UXO03_T4S, UXO03_T5S, UXO03_T6S, UXO03_T7S, UXO03_T8S, UXO03_T9S
Data Collection Team ID	Geo1
Collection Dates	01/23/2024 through 01/29/2024
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
UTM Zone	10N
Item 5: Describe the method and parameters used to level the data?	B-Spline filter: 0.8 smoothness and 0.8 tension 01/29/2024: data was put through a low pass filter Cutoff wavelength = 20
Item 6: Enter latency correction in seconds:	0.03
Item 7: Enter Gridding parameters:	0.20 ft grid cell; blanking of 2 ft



Naval Base Kitsap Bangor

Item 8: Enter the project specific coverage MQO: Item 8b: Yes	ected transects are within 25ft of planned
Item 8b: Yes	
Was the coverage metric achieved for this grid?	
Item 9: Enter the project specific in-line spacing MQO:	ft and 3.3ft
Item 9b: Was the in-line spacing metric achieved for this grid? Yes	
Item 10: Are the position and orientation data valid and reasonable?	
Item 11: (MM2x2 only) Is the minimum transmit current >6A?	
Item 12: Amp	litude
Item 13: Enter the defined target selection threshold for this project:	
Item 13b: What method are you using to confirm all selected targets have proper decay?	litude response; removed one point data spikes
Additional Notes or Comments	I zone is N/A for this project. Data delivered in WA state plane grid
Project Geophysicist Signature	AS
Date 2024	1-02-12
QC Geophysicist Signature	Jesse L Powers
Date 2024	4-02-12



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2024-02-12 16:24:51
SOP	6
Team Member	Brett Yarborough
Signature	Pall for the second of the sec

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey	
Project	Kitsap Bangor
Project Geo	Jessie Powers
Field Personnel	Brett Yarborough
PLS Subcontractor	AES Consultants Inc.
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Item 3: Have you been trained on anomaly avoidance procedures?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Will you be establishing control at the site?	No
Item 6: Civil Survey Tasks to be performed:	Other
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes
Supervisor	Brett Yarborough

Geo1	Contract No. N62470-	16-D-9008 Naval Base Kitsap Bangor
Supervisor Signatu	ure	BAJA
Date		2023-10-31

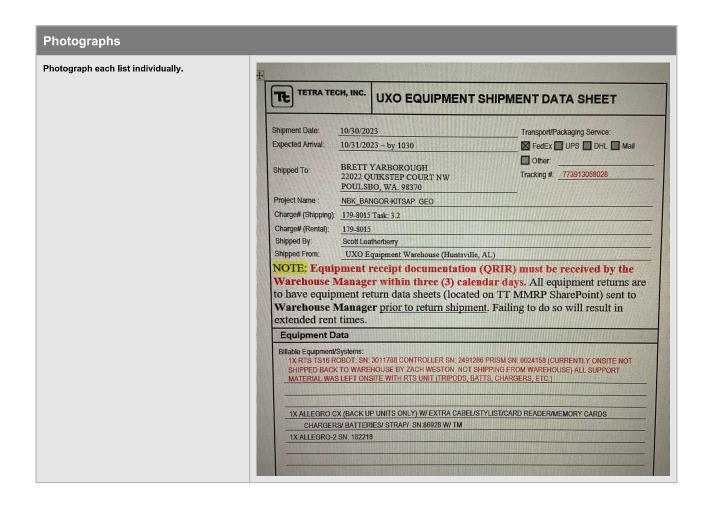
QRIR	
Date	2023-10-31 11:15:00
Project	Kitsap Bangor
Inspector	Brett Yarborough
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Inspector Signature	BALL



Geo1

Contract No. N62470-16-D-9008

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-08 11:15:53
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse



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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-10-31 11:11:00
SOP	11
Team Member	Brett Yarborough
Signature	BAJAH

Geodetic Functionality	
Date/Time	2023-10-31 11:23:00
Operator	Brett Yarborough
Control Point	Cp23
Control Point Easting	
Control Point Northing	
Checkshot Easting	
Checkshot Northing	
Offset	0.040261644383552

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checkshot Filename	231031g6cs1
Sensor Type	RTS

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey			
Project	Kitsap Bangor		
Project Geo	Matt Barner		
Field Personnel	Zach Weston		
PLS Subcontractor	AES		
Positioning Sensor Type	Leica RTS		
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes		
Item 2: Do you need to perform any DOC's at this time?	No		
Item 3: Have you been trained on anomaly avoidance procedures?	Yes		
Datum	NAD83 CONUS		
Coordinate System	State Plane		
Item 5: Will you be establishing control at the site?	No		
Item 6: Civil Survey Tasks to be performed:	Boundary Stakeout		
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes		
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes		
Supervisor	Zach Weston		
Supervisor Signature	Tyrt Wh		



Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Date	2024-01-20

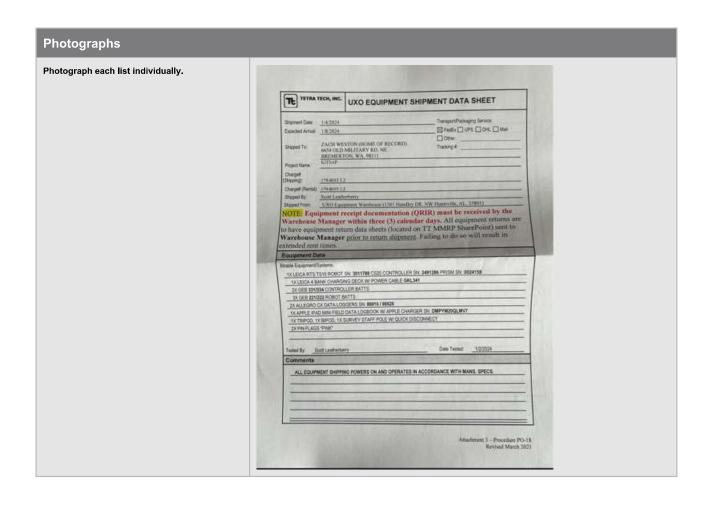
QRIR			
Date	2024-01-20 12:18:00		
Project	Kitsap Bangor		
Inspector	Zach Weston		
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes		
Inspector Signature	my mi		

Scan all equipment barcodes and enter any external equipment.		
Date/Time	2024-01-29 12:44:25	
Is this an External instrument?	No	
Barcode	593963	
Serial Number	2491286	
Model	CS20 (RTS)	
Equipment Source	Tetra Tech Warehouse	



Naval Base Kitsap Bangor

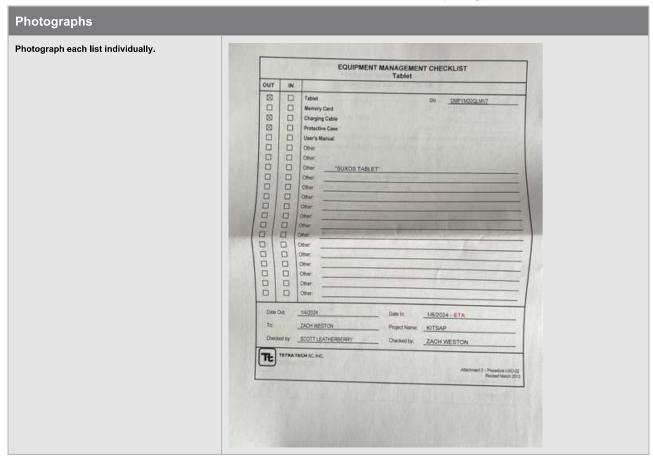
Scan all equipment barcodes and enter any external equipment.		
Date/Time	2024-01-29 12:44:47	
Is this an External instrument?	No	
Barcode	3011788 TS16	
Serial Number		
Model		
Equipment Source	Tetra Tech Warehouse	

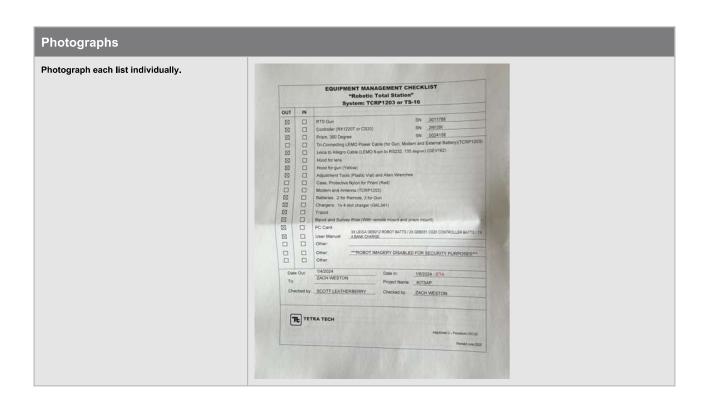


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Naval Base Kitsap Bangor





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Photographs			
Photograph each list individually.	19	90	
			EQUIPMENT MANAGEMENT CHECKLIST Juniper AllegroCx/Allegro2 Data Collector
	OUT	IN	Administration of the second o
1,000			96 1001/899
1000	M	00	Alegts Carrying Strap
	S	0	Mn Syks
	12	0	Alego Esterna Battery Charger(s) No. <u>12</u>
1000	8	0	Alego Batary No. 16
1000	183		Allego AC Adaptor Charger (s) No. 12
	123		
	E		
	0		
100	8		Fatherd Spreicher No. XT
100	00	00	Other:
100		0	Other
		0	Other:
1988		0	Other
2010			Other:
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Personnel Signatures			
Date/Time	2024-01-20 12:20:00		
SOP	11		
Team Member	Zac Weston		
Signature	End mu		

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Naval Base Kitsap Bangor

Geodetic Functionality		
Date/Time	2024-01-20 16:00:00	
Operator	Zach Weston	
Control Point	Cp23	
Control Point Easting		
Control Point Northing		
Checkshot Easting		
Checkshot Northing		
Offset	0.12314625467638	
Checkshot Filename	230120g7cs1	
Sensor Type	RTS	

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QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 342			
Project	Kitsap Bangor		
QC Geophysicist	Jessie Powers		
PLS Subcontractor	AES Consultants		
Positioning Sensor Type	Leica RTS		
Item 1: Was the Field Checklist completed?	Yes		
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site		
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes		
Item 2 Comments	Positioning System Operator Certifications/SME designation letter for Geo1 operators on MMRP SP Site.		
Item 3: Was the correct project coordinate system used?	Yes		
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet		
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes		
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A		
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.		
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes		
Item 5 Comments	All checkshots for Leica positioning system on 10/31/2023 were within 4 inches of ground truth (passed).		
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A		
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.		
	I.		



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	gesse L'Powers	
Date	2023-10-31	

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 345			
Project	Kitsap Bangor		
QC Geophysicist	Jessie Powers		
PLS Subcontractor	AES Consultants		
Positioning Sensor Type	Leica RTS		
Item 1: Was the Field Checklist completed?	Yes		
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231101 G1 Logbook.		
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes		
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.		
Item 3: Was the correct project coordinate system used?	Yes		
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet		
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes		
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A		
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.		
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes		
Item 5 Comments	All checkshots for Leica positioning system on 11/01/2023 were within 4 inches of ground truth (passed).		
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A		
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.		



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Ban	Contract No. N62470-16-D-9008 Naval	Base Kitsap Bang
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QC Geophysicist Signature	Jesse L'Pouvers
Date	2023-11-01

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231102 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/02/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	Yes
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

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QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers
Date	2023-11-02

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 351	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231103 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 11/03/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	June L Powers
Date	2023-11-03



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 354	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231106 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/06/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers	
Date	2023-11-06	

QC Geo

QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 357	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231107 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse Z 6 overs_
Date	2023-11-07

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 360		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231108 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning system on 11/08/2023 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	



Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers	
Date	2023-11-08	



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 363	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231109 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/09/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	Jusse L'Owers
Date	2023-11-09



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 366	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231110 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/10/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470	-16-D-9008 Naval Base Kitsap Bangor	
QC Geophysicist S	Signature		
		Jesse L D'orvers	

Date 2023-11-10



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 369	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231113 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/13/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Owers
Date	2023-11-13

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 372	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231114 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/14/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse Z Powers
Date	2023-11-14

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 375	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231115 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/15/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo Contract No. N62470-16-D-9008 Na	val Base Kitsap Bango
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QC Geophysicist Signature	Jesse L Powers	
Date	2023-11-15	

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 378	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231116 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/16/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers
Date	2023-11-16

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 381	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 231117 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 11/17/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Eowers
Date	2023-11-17

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

December 200	
Record: 386	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240120 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 01/20/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	No additional points shot-in on 01/20/2024 - initial testing only

QC Geo Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2024-01-20

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 389	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240122 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 01/22/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.



OC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	gessu L Powers
Date	2024-01-22

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 392	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240123 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 01/23/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470	D-16-D-9008	Naval Base Kitsap Bangor
QC Geophysicist Sig	nature	Jessie	L Powers

Date 2024-01-23



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 395	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240124 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 01/24/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.

QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers
Date	2024-01-24

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 398		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240125 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning system on 01/25/2024 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.	

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2024-01-25

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 401		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240129 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning systems on 01/29/2024 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO 03; temporary control points recorded IAW DGM SOP 07.	



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers	
Date	2024-01-29	

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 404	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240212 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/12/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



OC GEO CONTRACT NO. NOZ4/U-10-D-3000 NAVAL DASE KILSAD DANS	OC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bango
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QC Geophysicist Signature	Jesse Z Porvers	
Date	2024-02-12	

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 407	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240213 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators (Z. Weston, J. Null) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 02/13/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Geophysicist Signature

Date

2024-02-13



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 410	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240214 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operator (Z. Weston) on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/14/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations and obstructions marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Ba	ng
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QC Geophysicist Signature	Jesse I Cowers
Date	2024-02-14



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 413	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240219 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/19/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
QC Geo	Contract No. N62470-16-D-9008	Navat Base Kitsap Bangor

QC Geophysicist Signature	gime L Powers
Date	2024-02-19

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 416	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240220 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/20/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.

Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
	Contract No. N62470-16-D-9008

QC Geophysicist Signature	Jesse Z Powers
Date	2024-02-20

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 419	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240221 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 02/21/2024 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.

Bangor

QC Geophysicist Signature	Jesse L Porvers
Date	2024-02-21



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

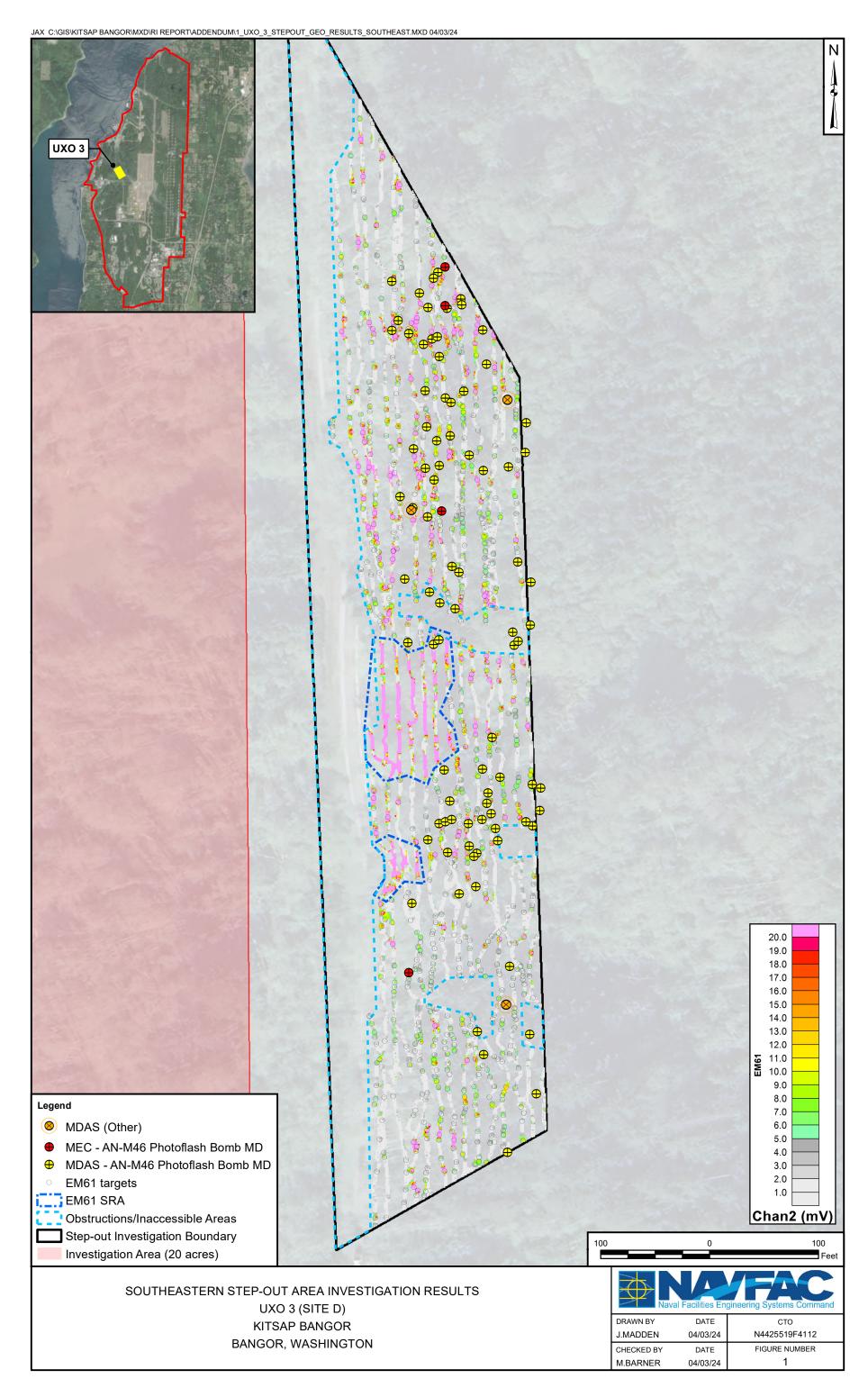
Record: 422	Record: 422	
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 240222 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes	
Item 2 Comments	Geo1 operator (N. Emm) designated SME as site geophysicist.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning system on 02/23/2024 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes in UXO3-SE; temporary control points recorded IAW DGM SOP 07.	

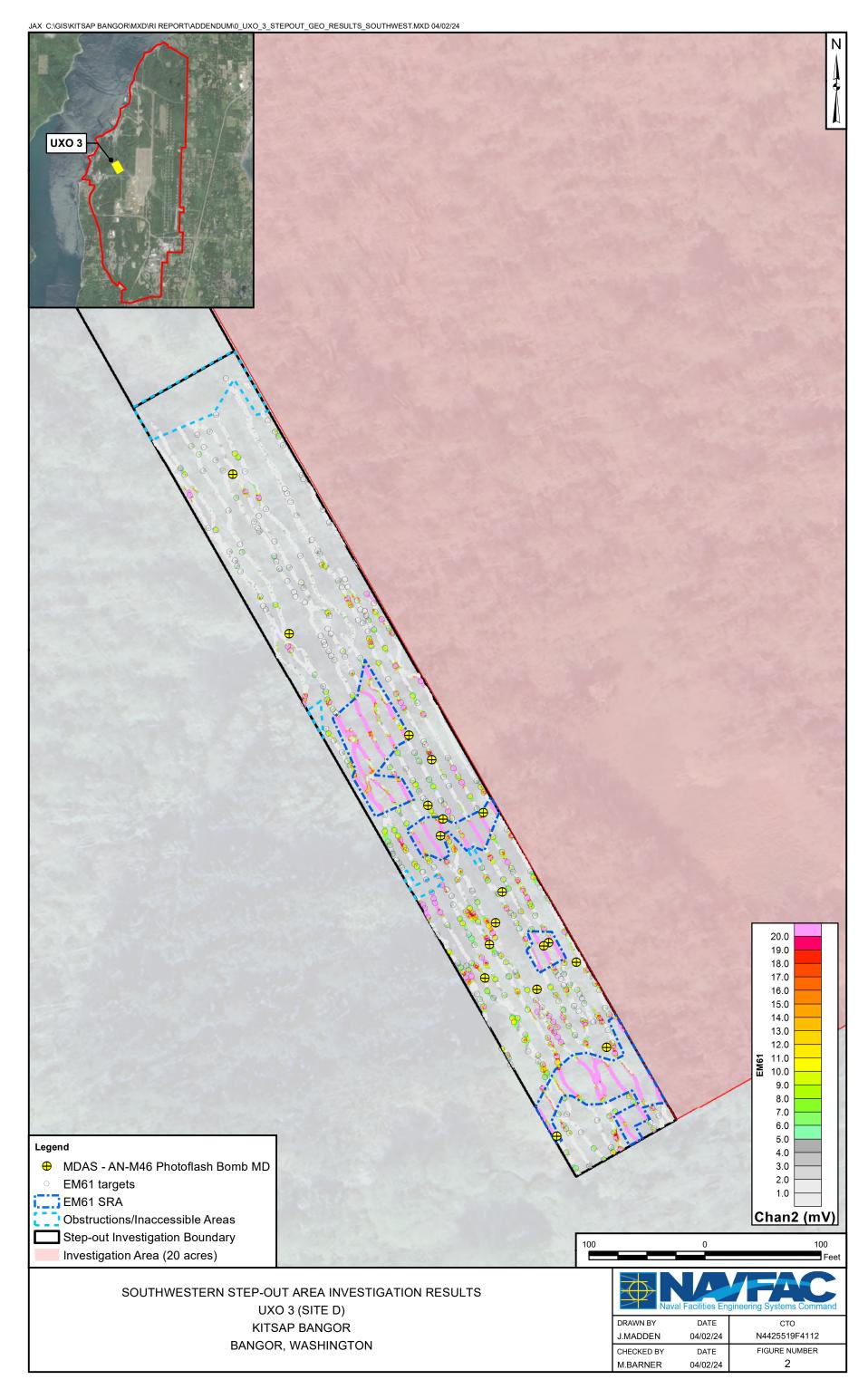
QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

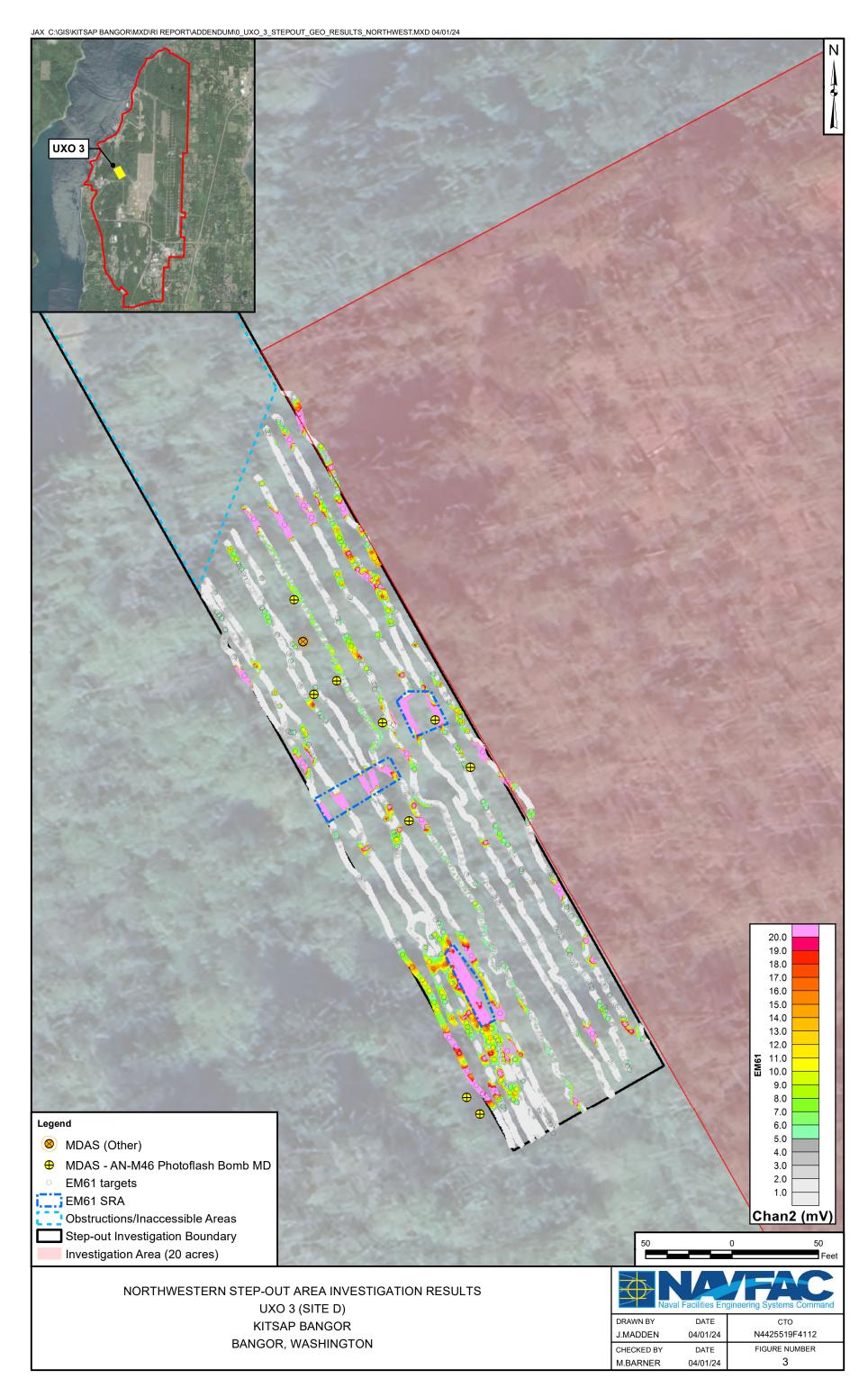
QC Geophysicist Signature	Jesse L Powers
Date	2024-02-22

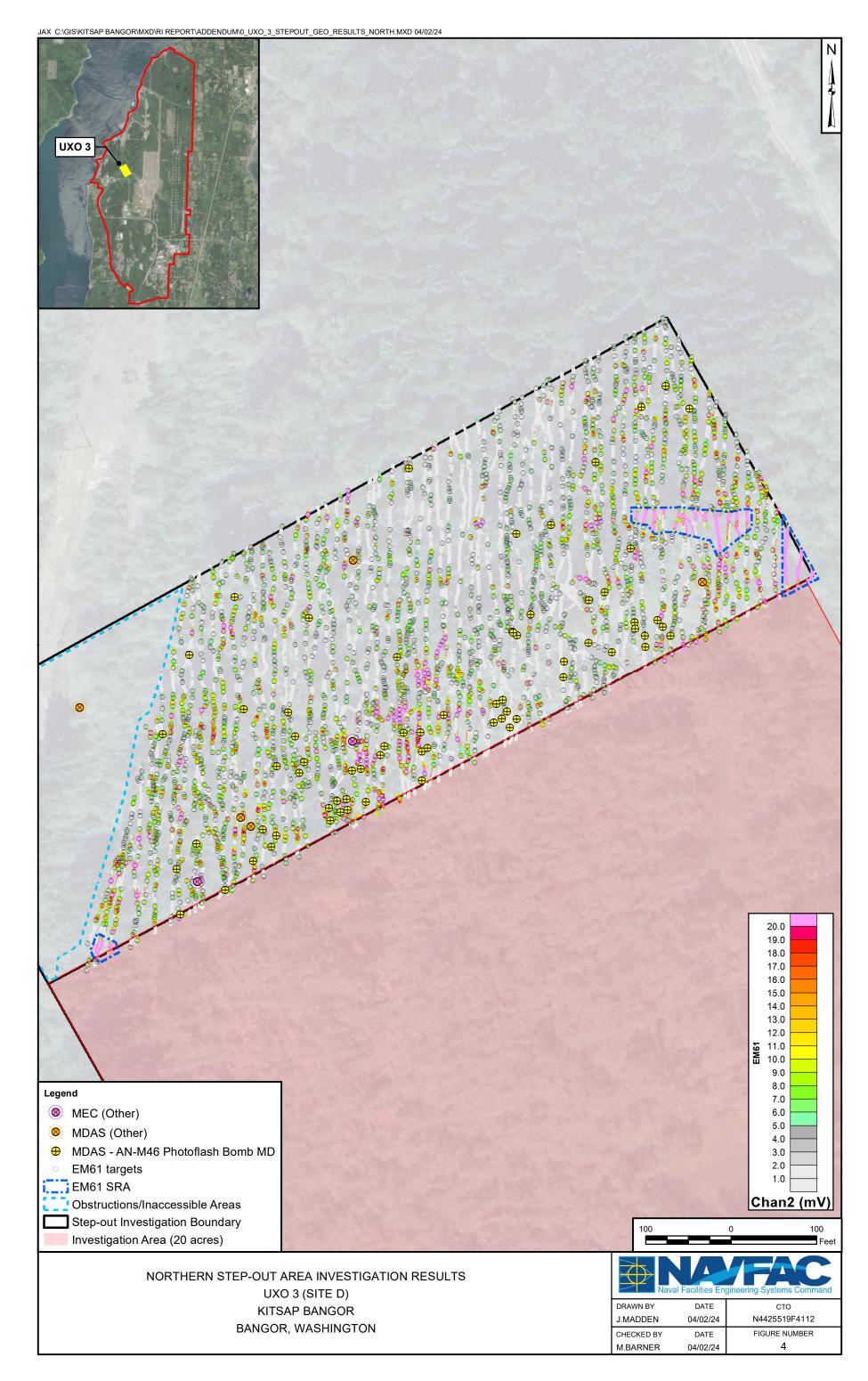
APPENDIX D – DGM MAPS

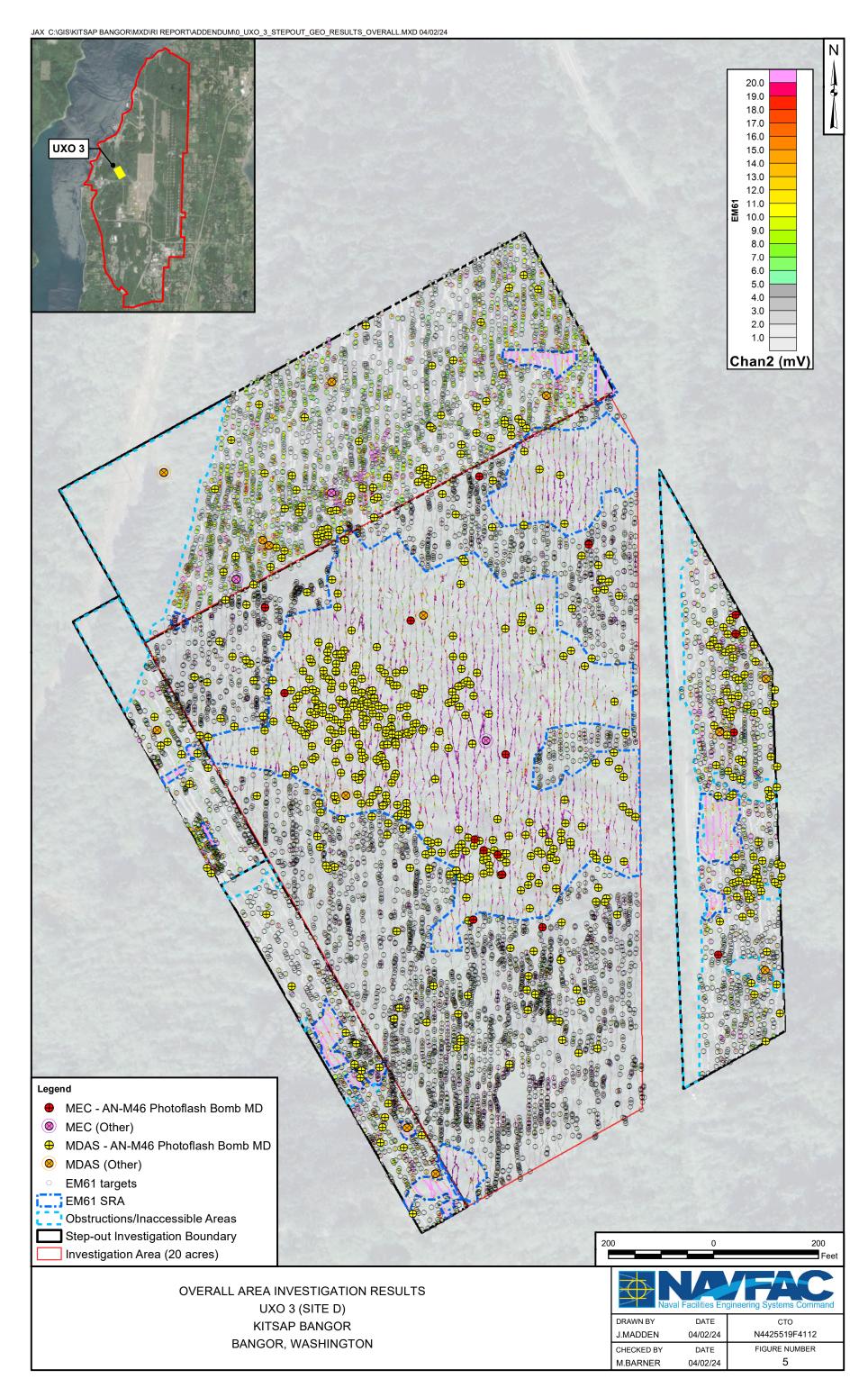


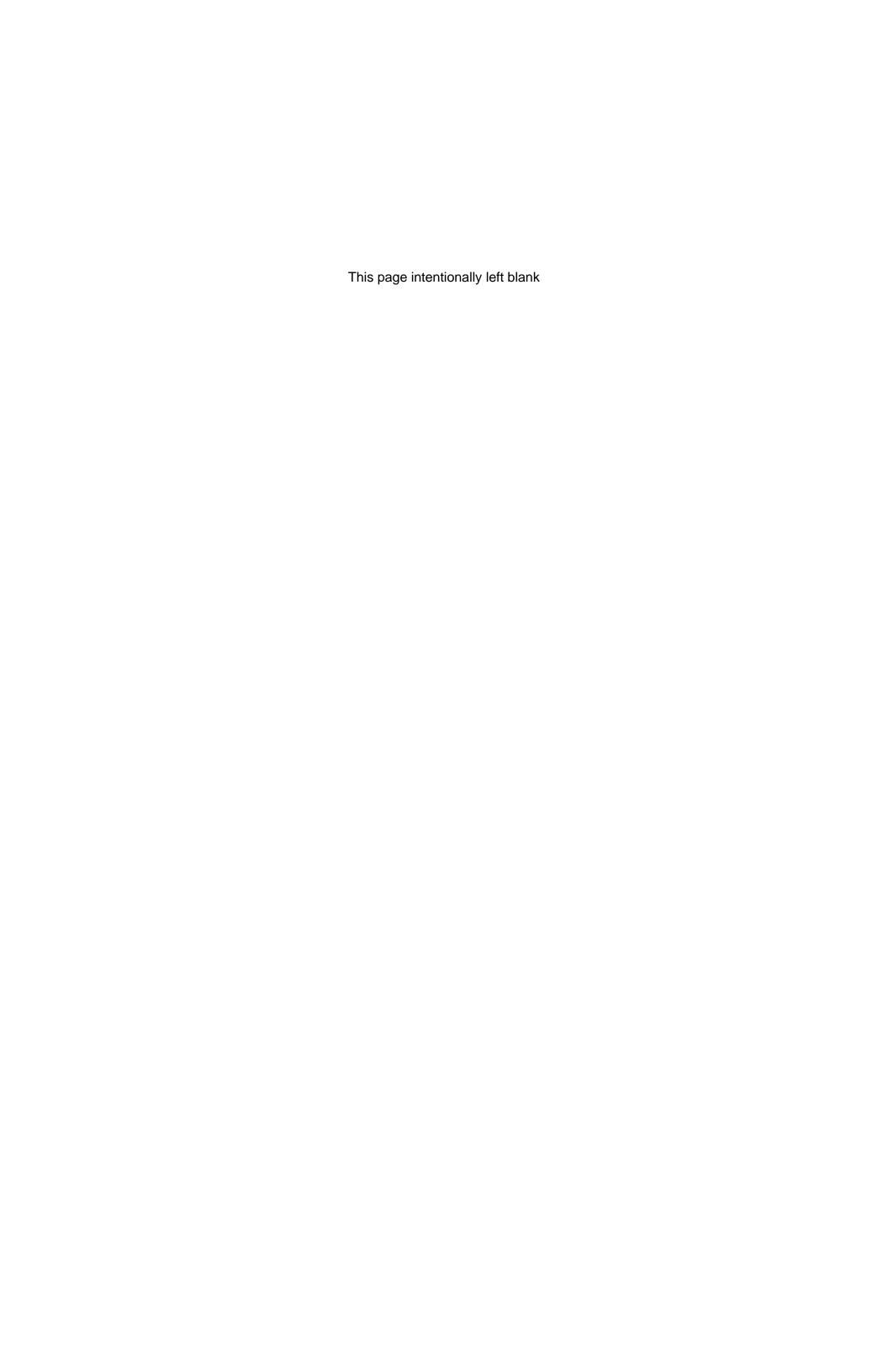












Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report, Site UXO 3
	1 3 1 3

APPENDIX E – IVS MEMORANDA



FINAL

Addendum 03: Instrument Verification Strip Technical Memorandum

Site Inspection Multiple Munitions Response Program Sites Naval Base Kitsap Bangor, WA

Contract Number: N6247016D9008

Task Order Number: N4425519F4112

Document Control Number: NBK-179-8015-DOC-007

November 10, 2023

PRESENTED TO

UNITED STATES DEPARTMENT OF THE NAVY Naval Facilities Engineering Command Northwest 1101 Tautog Circle Silverdale, WA 98315-1101

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12/06/2023

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Approved for Public Release: Distribution Unlimited

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1

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Appendix A - Applicable SOP Checklists

Appendix B - EM61-MK2HP Response Measurements

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
DGM	Digital Geophysical Mapping
HP	High Power
ISO	Industry Standard Object
IVS	Instrument Verification Strip
MEC	Munitions and Explosives of Concern
MRP	Munitions Response Program
MQO	Measurement Quality Objective
mV	Millivolt
NAD83	North American Datum 1983
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QRIR	Quality Receiving Inspection Reports
RTS	Robotic Total Station
SI	Site Inspection
SOP	Standard Operating Procedure
V	volt

1.0 INTRODUCTION

This addendum presents the results of digital geophysical mapping (DGM) system validation at the Instrument Verification Strip (IVS) established at Naval Base Kitsap Bangor in support of a Site Inspection (SI) of multiple installation munitions response program (MRP) sites. This document is submitted as Addendum No. 03 to the Final Instrument Verification Strip Technical Memorandum, Site Inspection, Naval Base Kitsap Bangor, WA, dated September 14, 2022 (hereafter referred to as the "final IVS technical memorandum").

The subject of this addendum is the validation of person-portable Geonics, Ltd. EM61-MK2 High Power (EM61-MK2HP) system to be used for DGM, upon re-mobilization to the project site in October 2023. A system ID "G6" was assigned for the EM61-MK2HP sensor mobilized for this phase of work. The results of the G6 sensor are presented in this addendum.

Standard operating procedures (SOPs) applicable to this addendum, and which are included with the Munitions and Explosives of Concern (MEC) Quality Assurance Project Plan (QAPP), include the following: Validation at the IVS (DGM SOP-2); EM61-MK2HP assembly (DGM SOP-4); EM61-MK2HP data processing (DGM SOP-6); and Civil Survey Instrument Assembly and Use (DGM SOP-7). Completed field and quality control (QC) checklists associated with these SOPs relevant to system validation at the IVS are included as Appendix A to this memorandum.

2.0 IVS LOCATION AND AS-BUILT DETAILS

Validation of the G6 system was performed at IVS #1, located at the Tetra Tech field operations staging area. The IVS as-built construction details remain unchanged from previous IVS technical memoranda. Prior to beginning work, the Tetra Tech field team verified the IVS remained intact and that the previously presented construction details are still valid.

Coordinates presented in this memorandum are Washington North State Plane, North American Datum 1983 (NAD83), and units of U.S. Survey Feet. Site controls at the IVS area from the final IVS technical memorandum remain unchanged.

3.0 DGM SYSTEM VALIDATION RESULTS

The G6 EM61-MK2HP sensor was assembled by the Tetra Tech field team on October 30, 2023, in accordance with the relevant SOPs listed in Section 1.0. Photographs of the assembled sensors were taken by Navy personnel with authorized camera permits in accordance with installation security requirements; no photo documentation was performed by the Tetra Tech DGM field team. As of the date of this memorandum, the photos have not yet been released for inclusion in reports.

Documentation of the new DGM sensor serial numbers and components is provided in the geophysical team digital daily logbooks provided with raw data packages and the updated quality receiving inspection report (QRIR) completed at the time of equipment inspection. The applicable QRIR was provided to the project team in the weekly DGM QC report for the week ending November 03, 2023.

3.1 SENSOR FUNCTION CHECKS

Table 1 summarizes the EM61-MK2HP static response test measurements from October 30, 2023, for the G6 DGM sensor. The measurements were recorded with a small Schedule 40 industry standard object (ISO) positioned 51 centimeters from the sensor. The expected responses are tabulated in Appendix B; these tabulated responses comprise the same values as Table D-4 in the final IVS technical memorandum.

2022 EM61-MK2HP (mV) G6 EM61-MK2HP (mV) Percent difference Offset (cm) Ch1 Ch2 Ch3 Ch4 Ch1 Ch₂ Ch3 Ch4 Ch1 Ch2 Ch3 Ch4 51 112 62 39.2 22.8 110.8 65.5 39.1 26.4 5.7 0.2 15.6 1.1

Table 1. EM61-MK2HP System G6 Accuracy Test Results.

Table 2 presents the static measurements recorded with a small Schedule 40 ISO at 2cm from the G6 EM61-MK2HP system on October 30, 2023. These tests were conducted using the same approach presented in the final IVS technical memorandum.

Table 2. EM61-MK2HP System G6 Baseline Responses (10/30/2023) for Ongoing Sensor Function Tests.

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch1: 3776.18	
Ch1: 3744.16	
Ch1: 3779.09	3766.19
Ch1: 3757.85	
Ch1: 3773.68	
Ch2: 2076.87	
Ch2: 2054.06	2060 67
Ch2: 2073.70	2069.67
Ch2: 2066.18	

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch2: 2077.56	
Ch3: 1178.81	
Ch3: 1161.51	
Ch3: 1185.64	1179.38
Ch3: 1188.21	
Ch3: 1182.72	
Ch4: 764.26	
Ch4: 752.00	
Ch4: 766.04	761.79
Ch4: 767.01	
Ch4: 759.65	
mV = milliVolts	

3.2 GEODETIC SYSTEM FUNCTION TEST

No new site controls were established at the IVS prior to the 2023 field operations. Existing staging area site controls previously reported include those in Table 3.

Table 3. Existing Project Site Controls.

Point ID	Easting (U.S. Survey Feet)	Northing (U.S. Survey Feet)	Elevation (U.S. Survey Feet)
CP1			
CP2			
CP23			

As part of the system validation and in accordance with Tetra Tech's DGM SOPs, a geodetic function check was performed with the robotic total station (RTS) planned for use in conjunction with the EM61-MK2HP. The result of these checks with the G6 system is presented in Table 4.

Table 4. Geodetic Function Check Results.

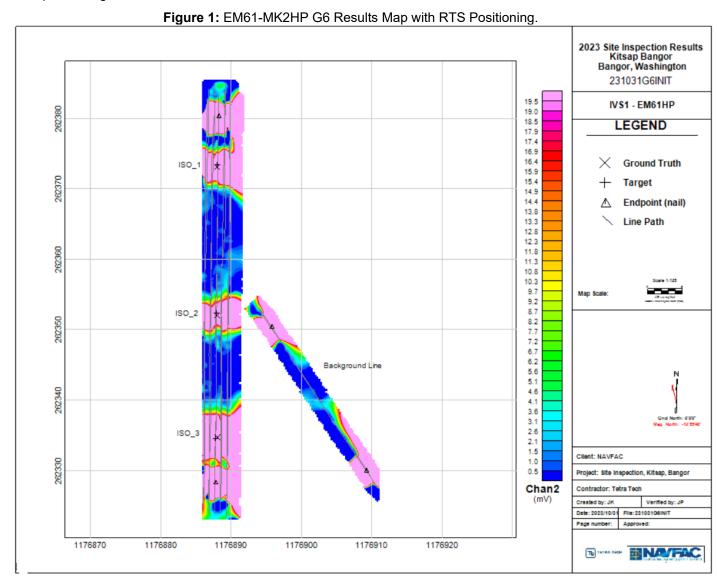
Date	System Type	Point ID	Measured Easting (U.S. Survey Feet)	Measured Northing (U.S. Survey Feet)	Radial Offset (Inches)
10/31/2023	RTS	CP23			

3.3 POST-SEEDED IVS SURVEYS

Because the same IVS location previously used and documented in prior technical memoranda submittals was used, no steps were needed to first assess the suitability of an IVS location. Therefore, no pre-seeded DGM survey was completed at the IVS location.

A dynamic survey of existing IVS #1 was completed on October 31, 2023, with the G6 EM61-MK2HP system. The EM61-MK2HP data collection and processing were completed in accordance with the relevant SOPs listed in Section 1.0. The post-seeded results for the G6 system are presented in Figure 1.

Processed IVS data were transmitted to the Navy EODTECHDIV Quality Assurance (QA) Geophysicist via Tetra Tech's secure SharePoint site. The electronic deliverables include an updated master project database in Microsoft Access format. This project database includes running QC summaries for field QC checks presented in this memorandum, ongoing QC checks throughout the production survey, and performance metrics assessed during data processing.



3.4 TARGET PICKING

The target picking threshold used for the EM61-MK2HP G6 IVS results was 5mV on Channel 2, consistent with the threshold used during previous DGM surveys at the project site. The standard deviation in the IVS noise strip was 0.84mV for the G6 system.

Table 5 presents the derived seed targets from the survey of IVS #1 using the G6 system. Data collected with the G6 EM61-MK2HP along individual transects will undergo target picking from the recorded profiles along each transect, so Tetra Tech evaluated picking targets from profiles along the seeded IVS survey line for the G6 system. Tetra Tech will continue to monitor the validity of the established target picking threshold throughout the production survey.

Table 5. IVS Seed Targets Relative to Ground Truth.

DGM System	Picking Method	Ground Truth Easting	Ground Truth Northing	Seed ID	Target Easting	Target Northing	Radial Offset (inches)
G6	Profile			ISO_1			3.9
G6	Profile			ISO_2			3.7
G6	Profile			ISO_3			3.5

4.0 QUALITY CONTROL

The IVS data collection met the requirement QC performance metrics established in MEC QAPP Worksheet #22. Table 6 summarizes the DGM system performance related to applicable measurement quality objectives (MQOs) in the QAPP. This table also cites the table, figure, or appendix in which supporting detail is provided.

Table 6. Performance Metrics for G6 EM61-MK2HP System Validation.

QAPP Table	MQO	Acceptance Criteria	Result	Verification
22-1	#1-4 Assemble positioning system (RTS)	As specified in the instrument operation manual	PASS	Daily field logs provided with data package submittals; Appendix A
22-1	#1-5 Initial Geodetic Function Test (RTS)	Measured coordinates at known location is ±4 inches from ground truth	0.48 inches; PASS	Table 4; Master project database
22-3	#3-1 Verify correct assembly (EM61-MK2 HP)	As specified in the instrument operation manual	PASS	Daily field logs provided with data package submittals; Appendix A
22-3	#3-2 Initial Instrument Function Test (EM61-MK2 HP)	Response (mean static spike minus mean static background) within 20% of predicted response (after predicted responses are scaled appropriately for HP sensor)	0.2% – 15.6%; PASS	Table 1; Data Package Submittals
22-3	#3-6 Initial dynamic positioning accuracy (IVS)	Derived positions of IVS targets are ±10in of the ground truth locations	3.5 – 3.7 inches; PASS	Table 5; Master project database
22-3	#3-8 In-line measurement spacing	98% ≤ 0.75ft between successive measurements; 100% ≤3.3ft. Gaps are filled or adequately explained (e.g., unsafe terrain, obstructions)	100% ≤ 0.75ft; PASS	Master project database

QAPP Table	MQO	Acceptance Criteria	Result	Verification
22-3	#3-14 Battery voltage (EM61-MK2 HP)	Voltage must be ≥11.0 V	All >11.0V; PASS	Daily field logs provided with data package submittals; Appendix A
V = volts				

5.0 CONCLUSIONS

The G6 EM61-MK2HP system planned for use in support of the SI was successfully validated at the IVS for use with RTS positioning. No other positioning methods are planned for use with the DGM survey.

The results of the IVS validation demonstrate the DGM system has met the requisite MQOs and is capable of collecting data in support of the DGM objectives and overall SI objectives. The target picking threshold for the EM61-MK2HP data remains at 5mV on Channel 2.

DGM surveys and data processing have been completed in accordance with the requirements outlined in the project-specific MEC QAPP and applicable SOPs.

6.0 REFERENCES

- Tetra Tech, Inc., 2022. FINAL Instrument Verification Strip Technical Memorandum, Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, WA. September.
- Tetra Tech, Inc., 2021. FINAL Munitions Response Quality Assurance Project Plan for Munitions and Explosives of Concern Site Inspection at Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, Silverdale, Washington. Revision 0. June.

APPENDIX A – APPLICABLE SOP CHECKLISTS

Geo1

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly

Field Checklist for EM61 HP Assembly		
Project	Kitsap Bangor	
Project Geo	Matt Barner	
Field Personnel	Brett Yarborough, Zach Weston	
Positioning Sensor Type	Leica RTK GPS	
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes	
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No	
Item 3: Are you using both a top and bottom coil?	No	
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes	
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.41	
Z-Vertical Offset (up is positive):	0.98	
Y-Offset in direction of travel (forward is positive)	0	
X-Offset perpendicular to direction of travel (right is positive)	0	
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release	
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes	
Item 8: What data acquisition software are you using?	EM61-MK2	
Item 9: Is the sampling rate set to 10Hz or higher?	Yes	

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.015
Supervisor	Brett Yarborough
Supervisor Signature	BALL
Date	2023-10-31

QRIR	
Date	2023-11-01 09:19:45
Project	Kitsap Bangor
Inspector	Brett Yarborough

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Inspector Signature	TAMMAN AND AND AND AND AND AND AND AND AND A

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-01 09:20:39
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61 HP

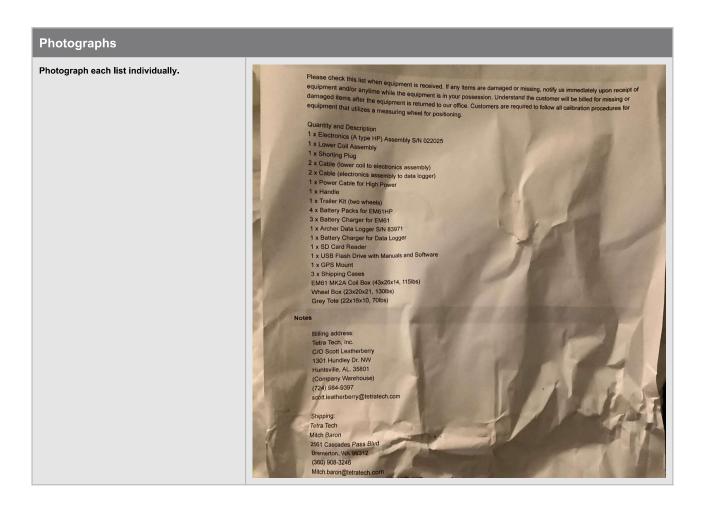
Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-01 09:24:23
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Model	TS16
Equipment Source	Tetra Tech Warehouse



Personnel Signatures	
Date/Time	2023-10-31 18:13:09
SOP	4
Team Member	Brett Yarborough

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Geo1	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
Geo1 Signature	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-10-31 18:13:25
SOP	4
Team Member	Zac Weston
Signature	Zu Juni

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

DGM Function Test	
Date/Time	2023-10-30 17:14:00
Operator	Brett Yarborough
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.3
SFT File Name	231030g6initialss
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	0
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3772
Chan 2	2073
Chan 3	1172
Chan 4	763
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-9
Chan 2	-2
Chan 3	-4
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Checklist for EM61 HP Assembly

Record: 12	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist submitted on 10/31/2023 and uploaded to the SP Site. No assembly photos have been approved as of the date of this checklist.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is designated as an SME for this equipment (letter on the MMRP SP Site)
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	Initial SS accuracy test passes compared to existing HP response curve. No data spikes or identified failures
QC Geophysicist Signature	Jessue L Cowers
Date	2023-11-08

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey	
Project	Kitsap Bangor
Project Geo	Jessie Powers
Field Personnel	Brett Yarborough
PLS Subcontractor	AES Consultants Inc.
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Item 3: Have you been trained on anomaly avoidance procedures?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Will you be establishing control at the site?	No
Item 6: Civil Survey Tasks to be performed:	Other
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes
Supervisor	Brett Yarborough

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Geo1	Contract No. N62470-1	.6-D-9008 Naval Base Kitsap Bangor
Supervisor Signat	ture	BAJA
Date		2023-10-31

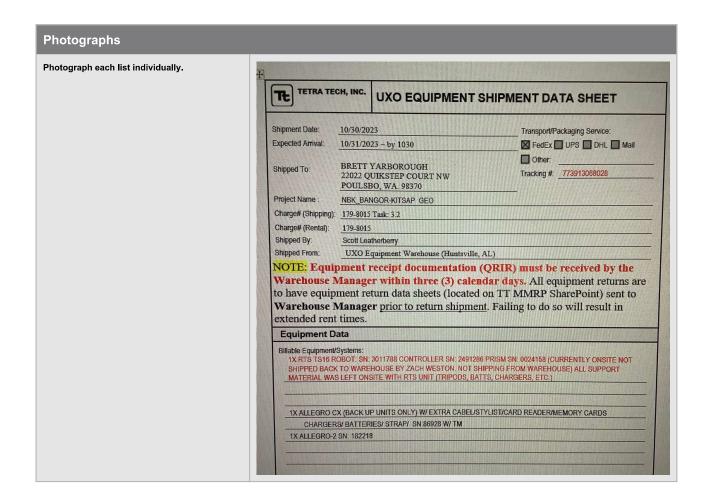
QRIR	
Date	2023-10-31 11:15:00
Project	Kitsap Bangor
Inspector	Brett Yarborough
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Inspector Signature	BALL

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Geo1

	Contra	ict No.	N62470-1	L6-D-9008
--	--------	---------	----------	-----------

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-11-08 11:15:53
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse



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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-10-31 11:11:00
SOP	11
Team Member	Brett Yarborough
Signature	BAJAN

Geodetic Functionality	
Date/Time	2023-10-31 11:23:00
Operator	Brett Yarborough
Control Point	Cp23
Control Point Easting	
Control Point Northing	
Checkshot Easting	
Checkshot Northing	
Offset	0.040261644383552

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checkshot Filename	231031g6cs1
Sensor Type	RTS

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QC Geo Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 342	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications/SME designation letter for Geo1 operators on MMRP SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 10/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

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QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
100 to 10		

QC Geophysicist Signature	Jesse L. Powers
Date	2023-10-31

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TETRA TECH

Geo1

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS		
Project	Kitsap Bangor	
Project Geo	Matt Barner	
Field Personnel	Brett Yarborough, Zach Weston	
IVS ID	IVS1	
Data Type	Dynamic	
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes	
Item 2: Do you need to perform any DOC's at this time?	No	
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes	
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes	
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes	
Item 4: Perform a SFT	DGM	
Dynamic IVS File Name:	231031g6initivs	
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes	
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A	
Item 7b: Were background validation measurements collected over the blank space?	N/A	
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes	
Supervisor	Brett Yarborough	

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Goot Contract No. N62470-16-D-9008 Naval Base Kitsan Bango			
	Geo1	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangoi

Supervisor Signature	TAMMAN AND SOLVEN SOLVE
Date	2023-10-31

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:54:17
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61-HP
Comments	Console box SN 022025

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:55:38
Is this an External instrument?	No
Barcode	593963

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-10-31 16:56:35
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Personnel Signatures	
Date/Time	2023-10-31 16:57:30
SOP	2
Team Member	Brett Yarborough
Signature	Bet III

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TETRA TECH



Personnel Signatures	
Date/Time	2023-10-31 16:57:48
SOP	2
Team Member	Zac Weston
Signature	yng m

DGM SFT		
Date/Time	2023-10-31 17:01:56	
Operator	Zach Weston	
Test Item ID	Small ISO 40	
Location	IVS-01	
Moisture observation during SFT	Soil/vegetation is dry	
Potential Sources of Electromagnetic Interference during SFT	None	

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Battery Level	12.3
SFT File Name	231031G6ssam
Did the operator verify the filename listed matches the data collector?	Yes

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	0
Chan 3	0
Chan 4	o

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3808
Chan 2	2050
Chan 3	1164
Chan 4	760
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-2
Chan 2	0
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Instrument Verification at IVS

Record: 15	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field Checklist was completed on 10/31/2023 and uploaded to the project SP site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	Yes
Item 2 Comments	There are no DOCs for this project. Zach Weston has a valid operator certification form for the EM61-HP and RTS on the MMRP SP Site; Brett Yarborough is a designated SME for this equipment (letter on MMRP SP Site)
Item 3: Were all required data files uploaded to the project files?	Yes
Item 3 Comments	IVS filename: 231031g8initivs
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.48inches of control point CP23 ground truth
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	Ongoing SS test was within 20% of established initial baseline average values
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sampe Separation passed. Target Locations passed: IVS01 = 0.33ft, IVS02 = 0.30ft, IVS03 = 0.29ft
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes

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QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes
Item 8 Comments	
QC Geophysicist Signature	Jessie L Powers
Date	2023-11-08

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 21	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Jen Kostera
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-Spline, Smoothness = 0.8, Tension = 0.8
Item 7: Enter latency correction in seconds:	-0.03
Item 8: Enter Gridding parameters:	Minimum Curvature, Ch2_lev, Grid Cell Size = 0.25, Blanking Distance - 2
Item 9: Enter the calculated standard deviation of the background response:	0.84

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Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Troject oco contract norma.	The 10 D Dood Harder Date Introduction Duringer
The minimum recommended target selection threshold is: (auto-filled)	4.2
Item 10: Target Selection Method:	Amplitude
Additional Notes or Comments	Target picking channel = Ch2_lev
Project Geophysicist Signature	112
Date	2023-11-07
QC Geophysicist Signature	Jusse L. Cowers
Date	2023-11-07

Personnel Signatures	
Date/Time	2023-11-07 11:24:59
SOP	6
Team Member	Jen Kostera
Signature	2hAKost

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Project deo Contract No. No.	Navat base Nitsap Ballgol
Item 11: Dynamic IVS Target Information	
Date/Time	2023-11-07 11:34:56
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	AM
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.30
Detection Sensor	em61_hp
Expected Response	31
Observed Response	40.90678422

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 11: Dynamic IVS Target Information	
Date/Time	2023-11-07 11:37:00
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	АМ
Location within IVS	/SO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.29
Detection Sensor	em61_hp
Expected Response	232
Observed Response	244.9636943

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 11:	
Dynamic IVS Target Information	
Date/Time	2023-11-07 11:38:48
Team ID	Geo1
Data Collection Date	2023-10-31
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.33
Detection Sensor	em61_hp
Expected Response	165
Observed Response	80.94878883

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APPENDIX B - EM61-MK2HP RESPONSE MEASUREMENTS

Appendix B. EM61-MK2HP Response Measurements Compared to Standard EM61-MK2 Responses.

offset	Std EM61	L-MK2			Multipl	ier			EM61-I	MK2HP		
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4
30	112.3	62.3	28.1	9.7	5	5	7	12	561.5	311.5	196.7	116.4
31	103.7	57.5	25.9	8.9	5	5	7	12	518.5	287.5	181.3	106.8
32	95.7	53.1	23.9	8.2	5	5	7	12	478.5	265.5	167.3	98.4
33	88.4	49	22.1	7.6	5	5	7	12	442	245	154.7	91.2
34	81.6	45.3	20.4	7	5	5	7	12	408	226.5	142.8	84
35	75.4	41.8	18.9	6.5	5	5	7	12	377	209	132.3	78
36	69.7	38.7	17.4	6	5	5	7	12	348.5	193.5	121.8	72
37	64.4	35.7	16.1	5.5	5	5	7	12	322	178.5	112.7	66
38	59.6	33	14.9	5.1	5	5	7	12	298	165	104.3	61.2
39	55.1	30.6	13.8	4.7	5	5	7	12	275.5	153	96.6	56.4
40	51	28.3	12.7	4.4	5	5	7	12	255	141.5	88.9	52.8
41	47.2	26.2	11.8	4.1	5	5	7	12	236	131	82.6	49.2
42	43.7	24.3	10.9	3.8	5	5	7	12	218.5	121.5	76.3	45.6
43	40.5	22.5	10.1	3.5	5	5	7	12	202.5	112.5	70.7	42
44	37.6	20.8	9.4	3.2	5	5	7	12	188	104	65.8	38.4
45	34.8	19.3	8.7	3	5	5	7	12	174	96.5	60.9	36
46	32.3	17.9	8.1	2.8	5	5	7	12	161.5	89.5	56.7	33.6
47	30	16.7	7.5	2.6	5	5	7	12	150	83.5	52.5	31.2
48	27.9	15.5	7	2.4	5	5	7	12	139.5	77.5	49	28.8
49	25.9	14.4	6.5	2.2	5	5	7	12	129.5	72	45.5	26.4
50	24.1	13.4	6	2.1	5	5	7	12	120.5	67	42	25.2
51	22.4	12.4	5.6	1.9	5	5	7	12	112	62	39.2	22.8
52	20.9	11.6	5.2	1.8	5	5	7	12	104.5	58	36.4	21.6
53	19.4	10.8	4.9	1.7	5	5	7	12	97.0	54.0	34.3	20.4
54	18.1	10.0	4.5	1.6	5	5	7	12	90.5	50.0	31.5	19.2
55	16.9	9.4	4.2	1.4	5	5	7	12	84.5	47.0	29.4	16.8
56	15.7	8.7	3.9	1.4	5	5	7	12	78.5	43.5	27.3	16.8
57	14.7	8.1	3.7	1.3	5	5	7	12	73.5	40.5	25.9	15.6
58	13.7	7.6	3.4	1.2	5	5	7	12	68.5	38.0	23.8	14.4
59	12.8	7.1	3.2	1.1	5	5	7	12	64.0	35.5	22.4	13.2
60	12.0	6.6	3.0	1.0	5	5	7	12	60.0	33.0	21.0	12.0

FINAL

Addendum 04: Instrument Verification Strip Technical Memorandum

Site Inspection Multiple Munitions Response Program Sites Naval Base Kitsap Bangor, WA

Contract Number: N6247016D9008

Task Order Number: N4425519F4112

Document Control Number: NBK-179-8015-DOC-009

February 14, 2024

PRESENTED TO

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04/01/2024

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04/01/2024

QC Geophysicist

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LIST OF APPENDICES

Appendix A - Applicable SOP Checklists

Appendix B – EM61-MK2HP Response Measurements

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
DGM	Digital Geophysical Mapping
HP	High Power
ISO	Industry Standard Object
IVS	Instrument Verification Strip
MEC	Munitions and Explosives of Concern
MRP	Munitions Response Program
MQO	Measurement Quality Objective
mV	Millivolt
NAD83	North American Datum 1983
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QRIR	Quality Receiving Inspection Reports
RTS	Robotic Total Station
SI	Site Inspection
SOP	Standard Operating Procedure
U.S.	United States
V	volt

1.0 INTRODUCTION

This addendum presents the results of digital geophysical mapping (DGM) system validation at the Instrument Verification Strip (IVS) established at Naval Base Kitsap Bangor in support of a Site Inspection (SI) of multiple installation munitions response program (MRP) sites. This document is submitted as Addendum No. 04 to the *Final Instrument Verification Strip Technical Memorandum, Site Inspection, Naval Base Kitsap Bangor, WA*, dated September 14, 2022 (hereafter referred to as the "final IVS technical memorandum").

The subject of this addendum is the validation of person-portable Geonics, Ltd. EM61-MK2 High Power (EM61-MK2HP) system to be used for DGM, upon re-mobilization to the project site in January 2024. A system ID "G7" was assigned for the EM61-MK2HP sensor mobilized for this phase of work. The results of the G7 sensor are presented in this addendum.

Standard operating procedures (SOPs) applicable to this addendum, and which are included with the Munitions and Explosives of Concern (MEC) Quality Assurance Project Plan (QAPP), include the following: Initial IVS Survey (DGM SOP-2); EM61-MK2HP Assembly (DGM SOP-4); EM61-MK2HP Data Processing (DGM SOP-6); and Civil Survey (DGM SOP-7). Completed field and quality control (QC) checklists associated with these SOPs relevant to system validation at the IVS are included as Appendix A to this memorandum.

2.0 IVS LOCATION AND AS-BUILT DETAILS

Validation of the G7 system was performed at IVS #1, located at the Tetra Tech field operations staging area. The IVS as-built construction details remain unchanged from previous IVS technical memoranda. Prior to beginning work, the Tetra Tech field team verified the IVS remained intact and that the previously presented construction details are still valid.

Coordinates presented in this memorandum are Washington North State Plane, North American Datum 1983 (NAD83), and units of the United States (U.S.) Survey Feet. Site controls at the IVS area from the final IVS technical memorandum remain unchanged.

3.0 DGM SYSTEM VALIDATION RESULTS

The G7 EM61-MK2HP sensor was assembled by the Tetra Tech field team on January 20, 2024, in accordance with the relevant SOPs listed in Section 1.0. No photo documentation of the assembled system was performed by the Tetra Tech DGM field team.

Documentation of the new DGM sensor serial numbers and components is provided in the geophysical team digital daily logbooks provided with raw data packages and the updated quality receiving inspection report (QRIR) completed at the time of equipment inspection. The applicable QRIR was provided to the project team in the weekly DGM QC report for the week ending January 26, 2024.

3.1 SENSOR FUNCTION CHECKS

Table 1 summarizes the EM61-MK2HP static response test measurements from January 20, 2024, for the G7 DGM sensor. The measurements were recorded with a small Schedule 40 industry standard object (ISO) positioned 51 centimeters from the sensor. The expected responses are tabulated in Appendix B; these tabulated responses comprise the same values as Table D-4 in the final IVS technical memorandum.

2022 EM61-MK2HP (mV) G6 EM61-MK2HP (mV) Percent difference Offset (cm) Ch1 Ch2 Ch3 Ch4 Ch1 Ch2 Ch3 Ch4 Ch1 Ch2 Ch3 Ch4 112 62 39.2 22.8 51 108.5 64.5 45.7 26.9 3 4 17 18 mV = milliVolts

Table 1. EM61-MK2HP System G7 Accuracy Test Results.

Table 2 presents the static measurements recorded with a small Schedule 40 ISO at 2 centimeters from the G7 EM61-MK2HP system on January 20, 2024. These tests were conducted using the same approach presented in the final IVS technical memorandum.

Table 2. EM61-MK2HP System G7 Baseline Responses (01/20/2024) for Ongoing Sensor Function Tests.

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch1: 3924.18	
Ch1: 3920.92	
Ch1: 3878.87	3900.73
Ch1: 3884.40	
Ch1: 3895.28	
Ch2: 2149.45	
Ch2: 2159.04	
Ch2: 2116.08	2140.55
Ch2: 2139.67	
Ch2: 2138.53	

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch3: 1228.29	
Ch3: 1227.38	
Ch3: 1206.66	1218.71
Ch3: 1216.68	
Ch3: 1214.55	
Ch4: 794.67	
Ch4: 790.31	
Ch4: 782.38	785.91
Ch4: 781.23	
Ch4: 780.94	
mV = milliVolts	1

3.2 GEODETIC SYSTEM FUNCTION TEST

No new site controls were established at the IVS prior to the 2024 field operations. Existing staging area site controls previously reported include those in Table 3.

Table 3. Existing Project Site Controls.

Point ID	Easting (U.S. Survey Feet)	Northing (U.S. Survey Feet)	Elevation (U.S. Survey Feet)
CP1			
CP2			
CP23			

As part of the system validation and in accordance with Tetra Tech's DGM SOPs, a geodetic function check was performed with the robotic total station (RTS) planned for use in conjunction with the EM61-MK2HP. The result of these checks with the G7 system is presented in Table 4.

Table 4. Geodetic Function Check Results.

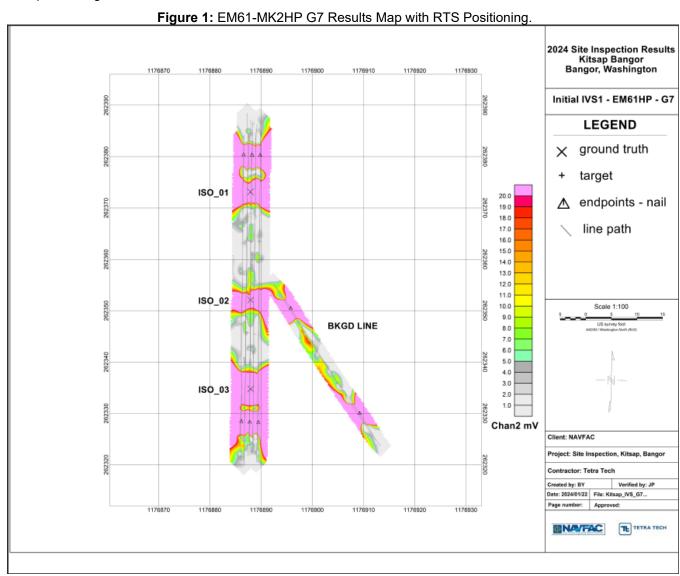
Date	System Type	Point ID	Measured Easting (U.S. Survey Feet)	Measured Northing (U.S. Survey Feet)	Radial Offset (Inches)
01/20/2024	RTS	CP23			0.12

3.3 POST-SEEDED IVS SURVEYS

Because the same IVS location previously used and documented in prior technical memoranda submittals was used, no steps were needed to first assess the suitability of an IVS location. Therefore, no pre-seeded DGM survey was completed at the IVS location.

A dynamic survey of existing IVS #1 was completed on January 22, 2024, with the G7 EM61-MK2HP system. The EM61-MK2HP data collection and processing were completed in accordance with the relevant SOPs listed in Section 1.0. The post-seeded results for the G7 system are presented in Figure 1.

Processed IVS data were transmitted to the Navy EODTECHDIV Quality Assurance (QA) Geophysicist via Tetra Tech's secure SharePoint site. The electronic deliverables include an updated master project database in Microsoft Access format. This project database includes running QC summaries for field QC checks presented in this memorandum, ongoing QC checks throughout the production survey, and performance metrics assessed during data processing.



3.4 TARGET PICKING

The target picking threshold used for the EM61-MK2HP G7 IVS results was 5mV on Channel 2, consistent with the threshold used during previous DGM surveys at the project site. The standard deviation in the IVS noise strip was 1.27mV for the G7 system.

Table 5 presents the derived seed targets from the survey of IVS #1 using the G7 system. Data collected with the G7 EM61-MK2HP along individual transects will undergo target picking from the recorded profiles along each transect, so Tetra Tech evaluated picking targets from profiles along the seeded IVS survey line for the G7 system. Tetra Tech will continue to monitor the validity of the established target picking threshold throughout the production survey.

 Table 5. IVS Seed Targets Relative to Ground Truth.

DGM System	Picking Method	Ground Truth Easting	Ground Truth Northing	Seed ID	Target Easting	Target Northing	Radial Offset (inches)
G7	Profile			ISO_1			2.16
G7	Profile			ISO_2			1.22
G7	Profile			ISO_3			3.99

4.0 QUALITY CONTROL

The IVS data collection met the requirement QC performance metrics established in MEC QAPP Worksheet #22. Table 6 summarizes the DGM system performance related to applicable measurement quality objectives (MQOs) in the QAPP. This table also cites the table, figure, or appendix in which supporting detail is provided.

Table 6. Performance Metrics for G7 EM61-MK2HP System Validation.

QAPP Table	MQO	Acceptance Criteria	Result	Verification
22-1	#1-4 Assemble positioning system (RTS)	As specified in the instrument operation manual	PASS	Daily field logs provided with data package submittals; Appendix A
22-1	#1-5 Initial Geodetic Function Test (RTS)	Measured coordinates at known location is ±4 inches from ground truth	0.12 inches; PASS	Table 4; Master project database
22-3	#3-1 Verify correct assembly (EM61-MK2 HP)	As specified in the instrument operation manual	PASS	Daily field logs provided with data package submittals; Appendix A
22-3	#3-2 Initial Instrument Function Test (EM61-MK2 HP)	Response (mean static spike minus mean static background) within 20% of predicted response (after predicted responses are scaled appropriately for HP sensor)	3% – 18%; PASS	Table 1; Data Package Submittals
22-3	#3-6 Initial dynamic positioning accuracy (IVS)	Derived positions of IVS targets are ±10in of the ground truth locations	1.22 - 3.99 inches; PASS	Table 5; Master project database
22-3	#3-8 In-line measurement spacing	98% ≤ 0.75ft between successive measurements; 100% ≤3.3ft. Gaps are filled or adequately explained (e.g., unsafe terrain, obstructions)	100% ≤ 0.75ft; PASS	Master project database

QAPP Table	MQO	Acceptance Criteria	Result	Verification
22-3	#3-14 Battery voltage (EM61-MK2 HP)	Voltage must be ≥11.0 V	All >11.0V; PASS	Daily field logs provided with data package submittals; Appendix A
V = volts				

5.0 CONCLUSIONS

The G7 EM61-MK2HP system planned for use in support of the SI was successfully validated at the IVS for use with RTS positioning. No other positioning methods are planned for use with the DGM survey.

The results of the IVS validation demonstrate the DGM system has met the requisite MQOs and is capable of collecting data in support of the DGM objectives and overall SI objectives. The target picking threshold for the EM61-MK2HP data remains at 5mV on Channel 2.

DGM surveys and data processing have been completed in accordance with the requirements outlined in the project-specific MEC QAPP and applicable SOPs.

6.0 REFERENCES

- Tetra Tech, Inc., 2022. FINAL Instrument Verification Strip Technical Memorandum, Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, WA. September.
- Tetra Tech, Inc., 2021. FINAL Munitions Response Quality Assurance Project Plan for Munitions and Explosives of Concern Site Inspection at Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, Silverdale, Washington. Revision 0. June.

APPENDIX A – APPLICABLE SOP CHECKLISTS

APPENDIX B - EM61-MK2HP RESPONSE MEASUREMENTS



APPENDIX F -	- MASTER PROJE	ECT DATABASE (EL	LECTRONIC SUBMITTAL)	

Final Geophysical Mapping Survey Report, Site UXO 3

Naval Base Kitsap Bangor, WA



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report, Site UXO 3
APPENDIX G – LAND SURVEY REPOR	Т









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Digital Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16

Basewide Site Inspection Addendum Multiple Munitions Response Program Sites Naval Base Kitsap Bangor, WA

Contract Number: N6247016D9008 Task Order Number: N4425519F4112

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition			
%	percent			
AES	AES Consultants, Inc			
APP	Accident Prevention Plan			
cm	Centimeter			
CA	Corrective Action			
CORS	Continuously Operating Reference Station			
CSM	Conceptual Site Model			
DGM	Digital Geophysical Mapping			
DFW	Definable Feature of Work			
DUA	Data Usability Assessment			
FCR	Field Change Request			
ft	feet			
GIS	Geographic Information System			
GSV	Geophysical System Verification			
GPR	Ground Penetrating Radar			
GPS	Global Positioning System			
HAZWOPER	Hazardous Waste Operations and Emergency Response			
HDOP	Horizontal Dilution of Precision			
in	Inch			
IAW	In Accordance With			
ISO	Industry Standard Object			
IVS	Instrument Verification Strip			
MDAS	Material Documented as Safe			
MEC	Munitions and Explosives of Concern			
MHz	Megahertz			
MPC	Measurement Performance Criterion			
MPPEH	Material Potentially Presenting an Explosive Hazard			
MQO	Measurement Quality Objective			
MRP	Munitions Response Program			
mV	Millivolt			
NAD83	North American Datum 1983			

Acronyms/Abbreviations	Definition
NBK	Naval Base Kitsap
NCR	Nonconformance Reports
OSHA	Occupational Safety and Health Administration
PLS	Professional Land Surveyor
ppm	Part Per Million
QA	Quality Assurance
QC	Quality Control
QAPP	Quality Assurance Project Plan
QRIR	Quality Receiving Inspection Report
RCA	Root Cause Analysis
RMS	Root Mean Square
RTK	Real-Time Kinematic
RTS	Robotic Total Station
SI	Site Inspection
SOP	Standard Operating Procedure
SRA	Saturated Response Area
SSHP	Site Safety and Health Plan
U.S.	United States
UXO	Unexploded Ordnance
UXOQCS	Unexploded Ordnance Quality Control Specialist
V	Volts
WA	Washington

1.0 INTRODUCTION

This digital geophysical mapping (DGM) survey report addendum has been prepared under the United States (U.S.) Navy contract N6247016D9008, Contract Task Order N4425519F4112, in support of the site inspection (SI) at multiple basewide munitions response program (MRP) sites at Naval Base Kitsap Bangor (NBK) in Silverdale, Washington (WA).

This report details work completed as part of definable features of work (DFWs) 1, 3, 5, 6, 8, and 10 in the Final Munitions Response Quality Assurance Project Plan for Munitions and Explosives of Concern (MEC QAPP) dated June 2021. The geophysical surveys were completed by Tetra Tech, Inc. in accordance with (IAW) the MEC QAPP, Tetra Tech's quality system, and with applicable Standard Operating Procedures (SOPs). This report also includes a data usability assessment (DUA) following the steps in MEC QAPP Worksheet #37.

Tetra Tech completed terrestrial DGM surveys at addendum Sites Unexploded Ordnance (UXO) 08, UXO 10, UXO 15, and UXO 16, in support of the SI. The DGM surveys were completed using the Geonics, Ltd. EM61-MK2 high-power sensor (EM61-MK2 HP). The DGM survey objective was to assess the presence of metal in the subsurface, which may be associated with munitions associated with the historic military use of the sites. The overall SI objective is to assess the absence or presence of munitions and explosives of concern/material potentially presenting an explosive hazard (MEC/MPPEH) at these sites. Historical documents indicate the MRP sites may contain MEC on the surface and/or in the subsurface, which poses an unacceptable risk to current and future site receptors.

Field change requests (FCRs) submitted during the execution of the SI are provided with the SI and addendum reports and summarized therein. Ongoing geophysical surveying was subsequently conducted IAW previously approved FCRs. For this work, FCR-007 was initiated to correct the boundary for MRP Site UXO 15 in the master GIS prior to conducting fieldwork at the site. FCR-008 was initiated to include the DGM survey at the four subject MRP sites. The addendum sites were originally deferred for field work because additional coordination efforts were required. However, a second phase of SI fieldwork was conducted in 2023 and the project team decided to collect DGM data at these sites using the EM61-MK2 HP. Geophysical technology (e.g., TEM-8g and ground penetrating radar [GPR]) used during the 2022 SI field work were excluded by FCR-008. Therefore, this report does not address these surveys.

2.0 SUMMARY OF DEFINABLE FEATURES OF WORK

The DFWs applicable to this report are summarized in Sections 2.1 through 2.6. These sections address the geophysical components of this investigation. Tetra Tech implemented the three phases of the control process during each relevant DFW. The Tetra Tech quality control (QC) Geophysicist led virtual preparatory and initial inspections prior to the start of the work tasks and immediately after the field tasks commenced. Ongoing quality inspections were conducted throughout the execution of the DFWs and documented via weekly DGM QC reports IAW the MEC QAPP.

Daily DGM field reports and weekly QC reports are in Appendix A and B of this report, respectively. This report does not address TEM-8g and GPR in the following DFW discussions because these surveys were not included as part of FCR-008.

2.1 MOBILIZATION AND SITE PREPARATION (DFW 1)

The project objectives for DFW 1 were to mobilize personnel and equipment to the project site in a phased manner corresponding to project tasks. The Tetra Tech UXO site management team mobilized to NBK prior to the start of geophysical operations to prepare the site (e.g., surface sweeps, vegetation reduction, etc.). These site preparation activities are discussed in the SI addendum report, along with relevant munitions findings and site observations.

The Tetra Tech UXO site management team conducted site-specific training for geophysical field personnel upon their arrival to the site and prior to the commencement of fieldwork IAW the MEC QAPP and with the accident prevention plan/site safety and health plan (APP/SSHP). All geophysical field personnel were confirmed to have completed the U.S. Department of Labor Occupational Health and Safety Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) 40-hour training course, and current 8-hour refreshers. Additionally, geophysical personnel obtained the required base access passes IAW NBK security protocols.

One Tetra Tech geophysical team mobilized to NBK on July 17, 2023. Initial DGM equipment receipt inspections, inventory, assembly, and function testing were performed on site the same day. SOPs on specific tasks were provided to field personnel for review prior to the start of fieldwork. After the team arrived on base at NBK, additional training or refreshers were provided by the Tetra Tech Site Geophysicist or their designee. Appendix C contains all field SOP checklists completed throughout this effort. All QC SOP checklists and relevant quality receiving inspection reports (QRIRs) were submitted as part of the weekly QC reports (Appendix B).

As part of DFW 1, a Microsoft Access database was created for project data compilation, storage, and management. The database includes relevant DGM data tracked throughout the project, including key information such as production details, and the running QC summaries. This database was updated regularly throughout the project and provided with each data package submittal to the Navy. The final master DGM project database is provided as an electronic submittal to this report (Appendix D).

AES Consultants, Inc. (AES), a Washington Licensed Professional Land Surveyor (PLS), established temporary control points at the MRP sites IAW DGM SOP 7. Temporary control points were tied to a Continuously Operating Reference Station (CORS) network and were reported as Washington North State Plane, North American Datum 1983 (NAD83), in units of U.S. Survey Feet (ft). Additional temporary control points were placed by AES on June 27, 2023, and on July 25, 2023, to support geophysical data collection. The surveyor report is provided in Appendix E (note: two reports are provided in this appendix because neither version of the subcontractor report

wholly contains all measurements and all associated plates for each site; the two reports together present all pertinent information).

Other temporary control points used by Tetra Tech during DGM operations were established at individual MRP sites to facilitate the accurate positioning of DGM data. The independent survey control was used as the starting point for all subsequent temporary controls set by Tetra Tech IAW DGM SOP 7.

2.2 QC SEEDING (DFW 3)

The DGM project objectives for DFW 3 were to establish a blind seeding program IAW the geophysical system verification (GSV) process. Blind seeds consisting of small, schedule 40 industry standard object (ISOs) were emplaced IAW DGM SOP 03 at depths and orientations specified by the QC Geophysicist. Seeds were distributed such that the DGM field team would encounter at least one seed per day of data collection in the full-coverage area of site UXO 08.

Blind seeds were not placed along DGM transects IAW the MEC QAPP; therefore, no seeding was performed at Sites UXO 10, UXO 15, and UXO 16, which were entirely comprised of transect surveys. At UXO 08, the full coverage area was surveyed after completion of the transect surveys because the results of the transect survey determined where full coverage surveying would be performed. For this full coverage area, seed identification, ISO type, depth, and orientation were photo documented, and seed locations were recorded using the Leica TS16 Robotic Total Station (RTS) prior to backfilling the holes and covering the seeds.

Blind seeding was performed following site preparation activities in the full coverage area at site UXO 08 and prior to the start of the DGM survey. Based on the direction provided by the QC geophysicist, blind seeding was completed by the UXO Quality Control Specialist (UXOQCS) on September 13, 2023. The UXOQCS utilized a Vallon VMH3 analog geophysical instrument to support the identification of candidate seed locations. All mapped QC seeds were successfully detected and targeted from the UXO 08 gridded DGM data within tolerance.

The QC seed registry was firewalled during the project IAW the MEC QAPP firewalling requirements. The seed registry is included as part of the master project database in Appendix D. The seed details are no longer firewalled because no intrusive investigation of DGM targets was scoped as part of the SI.

2.3 INSTRUMENT VERIFICATION STRIP ESTABLISHMENT (DFW 5)

The project objectives for DFW 5 were to verify the correct assembly and operation of geophysical systems to be used for the detection survey. The instrument assembly and initial IVS surveys at the existing IVS 01 location for the EM61-MK2 HP systems are detailed in the IVS Technical Memorandum Addendum 02 (Appendix F). Each DGM system brought to the site for data collection underwent initial validation at the IVS IAW DGM SOP 02.

The IVS Technical Memorandum Addendum 02 also presents the basis for the target picking thresholds used for the DGM surveys. The threshold for EM61-MK2 HP surveys remained 5 millivolts (mV) on Channel 2, which is consistent with previous EM61-MK2 HP surveys performed at other MRP sites as part of this SI.

2.4 EM61-MK2 DGM FIELD SURVEYS (DFW 6)

The project objective of DFW 6 was to conduct DGM surveys using the EM61-MK2 HP at sites UXO 08, UXO 10, UXO 15, and UXO 16. The DGM surveys were completed between July 17, 2023, and September 21, 2023, after completion of site preparation activities and QC seeding (where applicable).

2.4.1 EM61-MK2 Surveys

Table 1 summarizes the DGM survey coverage at Sites UXO 08, UXO 10, UXO 15, and UXO 16. The EM61-MK2 HP system was configured for person portable mode with the sensor attached to the manufacturer's wheels. Positions were recorded using a Leica RTS system. Geophysical and positional data were simultaneously streamed to hand-held tablet computers and recorded to a raw data file. Data at all four sites were collected IAW DGM SOP 4. Relevant site features recorded in the field were also incorporated into the project GIS.

Site	Planned Coverage (acres)	Actual Transect Coverage (acres)	Transects (ft)	Actual Full Coverage (acres)	Comments
UXO 08	0.7	0.212	2,819	0.494	N/A
UXO 10	1.1	1.07	15,319	N/A	N/A
UXO 15	0.8	0.95	13,111	N/A	N/A
UXO 16	1.1	0.84	11,187	N/A	Northwest section of the site was unable to be collected due to steep slopes and obstructions.
Totals	3.2	3.072	42,436	0.494	N/A

Table 1. EM61-MK2 HP Data Collection Summary

Transect data were collected at MRP sites UXO 08, UXO 10, UXO 15, and UXO 16. Transect surveys included a single pass of the EM61-MK2 HP sensor along each cleared transect corridor. Deviations in the collected transect line path from planned transect alignments were primarily caused by trees, impassable terrain, or due to the presence of other obstructions (e.g. surface debris). Plastic pin flags were emplaced by operators along the centerline and endpoints of each transect using a RTS to help maintain the proposed survey line spacing.

A full coverage survey was performed in a portion of MRP site UXO 08 identified from the transect data. Further consideration was given to the survey area's proximity to known utilities and fences. The project team agreed to the full coverage area placement in a location, which would minimize impacts from known site infrastructure. The full coverage EM61-MK2 survey was collected at a line spacing of 1.5 ft. Flags and marking paint were used to maintain line spacing and to minimize cross-track data gaps.

2.4.2 Digital Geophysical Mapping Field Quality Control

QC measures in the field during the DGM surveys included geodetic function checks for the RTS positioning system, DGM sensor function tests, and twice-daily data collection at the IVS IAW the MEC QAPP. The positioning system checks included recording measurements at temporary control points with known measurements to verify the positioning system was set up properly for use in the field. Sensor function tests confirmed the DGM system sensor was functioning as intended. The IVS surveys were completed to verify each DGM system was properly detecting the seeds in the IVS and that the positioning system was accurately identifying target positions for the IVS seeds.

Throughout the DGM surveys, the DGM field team uploaded raw data daily to a secure Tetra Tech SharePoint site for retrieval by data processing personnel. The Site Geophysicist was responsible for verifying records were complete and that supporting information, such as field logs and stand-alone positioning data (e.g., geodetic QC

test measurements) were provided for evaluation. Field logs were captured using physical logbooks in conjunction with Tetra Forms, the company's electronic data capture tool. Secure portions of the installation disallowed the use of the tablet for recording electronic field logs.

The daily logbooks were supplied as part of the raw and processed data packages. Field SOP checklists were also completed in Tetra Forms and submitted with the logbook entries. These SOP checklists are also provided as Appendix C to this report.

2.4.3 DGM Nonconformances

Nonconformance Reports (NCRs) were initiated by the QC Geophysicist for any DGM related measurement quality objective (MQO) failures. NCRs 006 – 008 and accompanying root cause analyses (RCAs) were approved by the Navy QA Geophysicist and are provided as Appendix G of this report.

NCR 006 addresses a MQO failure on July 18, 2023, caused by EM61-MK2 HP instrument function test response value having a value <20 percent (%) of the predicted response. Additional static testing prior to production surveys successfully validated the sensor.

NCR 007 addresses the failure to collect morning QC tests on August 2, 2023, without positional data from the RTS positioning system. All other data collected on that day passed QC metrics. Retraining of field personnel associated with the corrective action (CA) was completed on August 14, 2023.

NCR 008 addresses the failure from an instrument function test on September 13, 2023, which did not contain static spike data in the data file. As a result, the responses from the reference item could not be compared to the initial response values due to incorrect file saving procedures. All other data collected on that day passed QC metrics, and a prompt was added to the Tetra Forms data collection form on September 15, 2023, requiring the operator to confirm file names as part of the CA.

2.5 DGM PROCESSING AND QC (DFW 8)

The project objective for DFW 8 was to process DGM data, select targets from DGM data, and update the project GIS and access database. DGM data were processed, and target picking was performed IAW DGM SOP 5. Completed DGM data processing SOP checklists are in Appendix C and QC SOP checklists for dynamic data submittals are appended to the weekly DGM QCRs (Appendix B).

IAW the Final IVS Technical Memorandum Addendum 02 (Appendix F), targets were selected at or above a threshold of 5 mV in Channel 2 for EM61-MK2 HP data. Production and daily static test data were monitored to confirm the threshold was sufficiently above local background and noise levels. Target selection lists, processed files, and geophysical maps were created for each MRP site.

Discrete targets were selected using two different peak-picking algorithms in the UXO Land module within Geosoft Oasis Montaj, depending on survey type (i.e., transect or full coverage). Initial target selections along transect paths were auto-selected using a peak-picking algorithm based on the Channel 2 profile data. In full-coverage survey areas, targets were auto-selected from gridded data using the Blakely picking method in Geosoft. After initial target selection, data corresponding to the target selected by the above-mentioned picking method were evaluated to confirm the validity and positioning of each target. Targets found to be invalid or incorrectly located were removed or adjusted. Additionally, peaks that were not selected by the UXO Land module, yet deemed valid, were manually selected as targets. All targeted anomalies occurring at or above the targeting threshold were assigned a unique identification number corresponding to the MRP survey site and the target location (e.g., UXO 08_f0001). Relevant comments regarding derived target locations (i.e., suspected noise, expanded anomaly footprint, potential cultural source, etc.) were provided as part of delivered target lists.

The criteria for selecting and locating targeted anomalies included the following:

- Maximum amplitude of the response with respect to local background conditions, 5x standard deviation;
- Decay of peak response across all channels;
- · Lateral extent (width) of the response; and
- Location of the response with respect to the edge of the survey area, inaccessible areas, land features, or cultural features within or adjacent to the survey area.

In some cases, the density of subsurface metal is so high that the selection of individual targets was not possible. These areas identified as Saturated Response Areas (SRAs) are bound by polygons in the processed DGM results. Table 2 summarizes the number of targets, SRAs, and total SRA acreage for the EM61-MK2 HP data at each MRP site.

Site	EM61-MK2 HP Targets	Number of SRAs	SRAs (acres)
UXO 08	124	5	0.67
UXO 10 ¹	N/A	N/A	N/A
UXO 15	656	8	1.97
UXO 16	907	8	1.19

Table 2. Target Totals for EM61-MK2 HP

2.5.1 DGM Data Deliverables

Following QC review of the DGM data deliverables, the data processing personnel provided DGM results to the Tetra Tech GIS Manager as electronic, georeferenced data layers for inclusion in the master project GIS. This process allowed the DGM data to be overlain on existing aerial imagery and to be combined with other project data (e.g., surface clearance findings) to provide a comprehensive depiction of the SI data. Working versions of these maps served as the basis for regular in-progress reviews with the project team, and to inform decisions on next steps throughout the SI. The maps presenting the DGM results are in Appendix H.

DGM data deliverables were provided on a regular basis to Navy EODTECHDIV for quality assurance (QA) inspection. A separate secure folder was created on the project SharePoint site for the Navy to retrieve the processed data packages after internal review by Tetra Tech's QC Geophysicist. The master access database served as the primary repository for running QC summaries and tracking, with the exception of firewalled blind seed details during project execution. The Navy QA Geophysicist was provided separate access to a firewalled location on the SharePoint site for access to blind seed updates posted by the QC Geophysicist. Project team production personnel did not have access to this firewalled blind seed location data until QA acceptance of all survey data.

Data provided in each QA submittal throughout the DGM survey execution included the following:

- Raw DGM data files and field logs
- Processed geophysical data files (production, QC tests, and IVS files)
- Geosoft databases (data and target databases)

¹No discrete targeting or delineation of SRAs performed based on project team concurrence, as documented in weekly DGM QCR #30

- Relevant QC plots for MQO conformance
- · Target lists in CSV format
- Polygon files for SRAs
- · Updated version of the master project Access database

2.5.2 Discussion of DGM Results

The DGM survey maps in Appendix H present the EM61-MK2 HP response results, discrete target locations, locations of encountered MEC and Material Documented as Safe (MDAS) on the surface, and the delineated SRAs. The target counts and SRA acreages are summarized in Table 2. The results at each site demonstrate varying degrees of impact from subsurface metallic objects.

Because no intrusive investigation of DGM targets is scoped for the SI, there is no information available on the vertical extent of the discrete anomaly sources or the nature of these sources. Based on the surface clearance findings, where MEC/MPPEH was encountered on the ground surface, there may also be MEC/MPPEH present within the subsurface, either as discrete objects or co-mingled with other debris. Without intrusive investigation of targets, the nature of the anomaly sources remains unknown.

Site UXO 08 depicts SRAs coincident with fence lines, a culvert, and parking lots visible at the surface. In the full coverage data, there is one SRA delineated that is not associated with any known surface features or underground utilities. No MEC or MPPEH was identified during surface sweep operations.

Site UXO 10 data exhibit the presence of widespread metallic debris across the majority of the site, limiting the ability to select discrete targets. It is not known whether the saturated DGM responses are associated with metallic surface debris smaller than the surface removal requirement, subsurface anomalies or both. Twelve MDAS objects were recovered from five locations at the site during surface clearance, three of which were discovered in the vicinity of the former disposal area.

Site UXO 15 depicts SRAs coincident with fence lines, roadways and parking areas visible at the surface. The aboveground power lines paralleling the road coincide with an SRA due to noise impacting the data from the power lines. One MDAS object was identified during surface clearance in the southeastern portion of the site. The MDAS item location falls within a delineated SRA in the DGM data.

Site UXO 16 depicts several SRAs that partially overlap the suspected former burn site area but continue further north and west of the burn site area. SRAs not associated with the suspected burn site coincide with fence lines and roadways visible at the surface. The inaccessible areas identified prior to the SI were confirmed to be unsuitable for the EM61-HP system in wheel mode due to steep slopes, ravines, and mounds. One MEC item was identified during surface clearance immediately adjacent to the road on the eastern edge of the site.

2.6 DEMOBILIZATION (DFW 10)

The DGM project objective of DFW 10 was to demobilize field crews and equipment, and to restore the field areas to pre-survey conditions. Upon completion of field work, pin flags, wooden stakes and metal nails installed by Tetra Tech as temporary control points were removed from survey areas. Emplaced QC seeds were removed from Site UXO 08. The temporary control points emplaced by the land surveyor at each MRP site location, and the IVS 1 seeds were not removed at this time.

DGM field teams demobilized on September 21, 2023, after the completion of planned field activities.

3.0 DATA USABILITY ASSESSMENT

The following sections present the DUA using the four steps described in MEC QAPP Worksheet #37.

3.1 STEP 1: REVIEW PROJECT OBJECTIVES AND SAMPLING DESIGN

The problem statement for the SI at NBK Bangor states, "The presence of MPPEH/MEC on the surface or in the subsurface would potentially pose an unacceptable explosive hazard to the public, site workers, NBK Bangor personnel, and others with access to a site. Potentially incomplete exposure pathways exist for human receptors to be exposed to MPPEH/MEC under current and potential future land uses" (MEC QAPP Worksheet #11 June 2021). Furthermore, the stated objective of the SI is to "assess and verify the absence or presence of MPPEH and support the subsequent path forward..." The problem statement and project objectives for the SI remain unchanged.

The DGM survey approach (i.e., sampling design) for this SI also remained unchanged. Access limitations caused by terrain, trees, or steep slopes, which may have resulted in deviations from planned survey transect alignments or reduced coverage in portions of the site, are not considered sampling design changes as part of this DUA step.

3.2 STEP 2: REVIEW DATA VERIFICATION/VALIDATION OUTPUTS AND EVALUATE CONFORMANCE TO MEASUREMENT PERFORMANCE **CRITERIA**

Data verification and validation outputs are evaluated as follows.

- Review available QC outputs, including daily QC reports and NCRs, with associated RCA/CAs
- Evaluate conformance to measurement performance criteria (MPC) documented on MEC QAPP Worksheet #12
- Evaluate conformance to MQOs documented on MEC QAPP Worksheet #22

3.2.1 QC Outputs

Table 3 summarizes relevant verification, validation, and usability outputs applicable to the DGM surveys in MEC QAPP Worksheets #35.

Table 3. Summary of Verification and Validation Outputs

Output	Output Description				
SOP Checklists	Field checklists were completed for applicable SOPs. QC SOP checklists are included in weekly QC reports.	Appendix B; Appendix C			
FCRs	FCR-007 was initiated to correct the site boundary in the master GIS for Site UXO 15 prior to the start of DGM surveying. FCR 008 was initiated to conduct DGM surveys (EM61-MK2 HP) at MRP Sites UXO 8, UXO 10,	SI Addendum Report			

Output	Output Description			
	UXO 15, and UXO 16. This FCR did not include completing TEM-8g or GPR surveys at these sites.			
PLS Report	Site control monuments were placed at each MRP site by a WA-licensed PLS.	Appendix E		
Weekly QC Reports	QC Reports were completed daily to document all relevant QC activities.	Appendix B		
Blind Seed Register	QC seeds were reviewed to confirm data met associated MPCs and MQOs.	Appendix D		
Raw and Processed Data DGM data packages	Raw and processed data were delivered to the Navy via secure project SharePoint site.	Electronic Data Deliverables Provided During Project Execution		
Three Phase of Control Documentation	Preparatory, Initial, and Follow-up Inspections were performed for DFWs 3 and 5-8. Follow-up Inspections are included in weekly geophysical QC reports.	Appendix B		
	NCR 006 – July 18, 2023, initial EM61-HP instrument function test response is <20% of the predicted response			
NCR with RCA/CA	NCR 007 - No positioning data were collected during August 2, 2023, AM IVS test.	Appendix G		
	NCR 008 - No data were collected with the static spike item during September 15, 2023, AM instrument function test.			
Master Project Access Database	QC metrics were tracked in the project access database and included with data deliverables.	Appendix D		

3.2.2 Measurement Performance Criteria and Measurement Quality Objectives Conformance

Tables 4 and 5 present the MPC and MQO results that demonstrate the usability of DGM data collected during the 2023 SI investigation to support the project DQOs described in Worksheet #11. Note that MQOs associated with DFW 5 are discussed in the Final IVS Technical Memorandum Addendum 02 (Appendix F). All relevant documentation related to NCRs are included in Appendix C. In all cases, documented nonconformances have been addressed with a RCA, and an appropriate CA has been implemented.

Table 4. Conformance to Project MPCs

Measurement	Data Quality Indicator	Specification	Result
Accessibility	Completeness	Access to the site will be pre-arranged to ensure field personnel have authorization to access survey areas. Individual sites are physically accessible to facilitate data collection	Access to site was coordinated between the Tetra Tech UXO site management team, DGM field teams, and the installation to facilitate access to the survey areas.
Planned Survey Coverage (Transects)	Representativeness/ Completeness	For individual sites where transect approach to data collection will be used, the spacing will be sufficient to delineate the lateral extent (i.e. footprint) of suspected disposal or dunnage areas.	Geophysical surveys were completed within the footprint of sites having undergone vegetation reduction and surface clearance DGM results support achievement of the project objectives in supporting the decision-making process for next steps at each MRP site
Planned Survey Coverage (Full- Coverage - DGM)	Representativeness/ Completeness	For individual sites with full-survey coverage approach, data collection will provide 100% DGM coverage of the planned survey area.	100% coverage of the accessible portions of the survey area at Site UXO 08 was achieved. Data gaps were documented by the field team to include inaccessible conditions (Appendix D; Appendix H)
Detection Threshold (DGM Surveys)	Sensitivity	HP EM61-MK2 surveys will be 5x root mean square noise levels (or standard deviation).	The detection threshold is ≥5x standard deviation, as detailed in the Final IVS Technical Memorandum Addendum 02 (Appendix F)
Positioning Requirements (Transects)	Accuracy	Actual transect center line positions within ± 25 ft of planned alignment.	All transect center line positions were within ±25 ft of planned alignment (Appendix H).
Positioning Requirements (Full Coverage)	Accuracy	Where grids are to be staked on site, record grid corner positions within ± 15-centimeter (cm) of planned locations in order to facilitate accurate data	Use of survey-grade positioning systems (e.g., RTS) in support of DGM operations were function checked at every setup. Temporary control points were set by Tetra Tech field personnel, as needed, to facilitate accurate positioning. At Site UXO

Measurement	Data Quality Indicator	Specification	Result
		positioning and target reacquisition within grids.	08, grids were cited by Tetra Tech using RTS.
Survey Coverage (Transects)	Accuracy / Completeness	100% of planned transects are surveyed	100% of accessible transect areas were collected and positional data recorded. Exceptions due to inaccessible conditions are noted in Appendix H.
Survey Coverage (Full- Coverage - DGM)	Accuracy / Completeness	100% of specified acreage is surveyed at the achieved lane spacing.	100% of accessible portions of the MRP sites was surveyed IAW the survey design. Exceptions due to inaccessible conditions are noted in Appendix H.
Subsurface QC Seeding	Accuracy / Completeness	100% detection of blind subsurface QC seeds; QC seeds placed in full coverage areas at a rate to facilitate one seed encountered per DGM team/field day.	All mapped QC seeds were successfully detected and targeted from the gridded DGM data at Site UXO 08. No other sites had QC seeds. Seed performance results are presented in the Blind Seed Registry (Appendix D).

N6247016D9008

Table 5. Conformance to Project MQOs

Measurement Quality Objective	MQO#	Acceptance Criteria	Results	
Geodetic function check	1-6	Measured coordinates at known location are within ± 4 inches of	Average: 0.06 inch (Appendix D)	
		ground truth	Max: 0.27 inch (Appendix D)	
Ongoing Instrument Function Test (EM61-	3-4	Response (mean static spike minus mean static background within 20%	Average: 2.62% (Appendix D)	
MK2 HP)		of predicted response for all channels)	Max: 12.18% (Appendix D)	
Ongoing dynamic positioning precision	3-7	Derived positions of IVS targets ± 10 inches of the running average	, , , ,	
(IVS)		positions	Max: 8.9 inch (Appendix D)	
In-line measurement spacing	3-8	98% ≤ 0.75ft between successive measurements; 100% ≤ 3.3-ft gaps are filled or adequately explained (e.g., unsafe terrain or obstructions)	Pass; 98% of along line spacing was achieved at ≤ 0.75 ft for the EM61-MK2 HP systems. 100% of gaps ≤ 3.3 ft were filled (Appendix D).	
Full Coverage (EM61-MK2 HP)	3-10	≥ 90% at project design spacing; 98% ≤ 3.3 ft spacing. Exceptions include gaps explained by field team (e.g., unsafe terrain, obstructions)	Pass; full coverage for EM61-MK2 HP systems was achieved and ≥ 90% at project design spacing; 98% ≤ 3.3 ft spacing. Gaps were explained and documented due to unsafe terrain, obstructions, etc. (Appendix D).	
Battery Voltage (EM61- MK2 HP)	3-14	Battery Voltage must be ≥ 11 volts (V)	Pass; battery voltage was above 11 V, battery was changed if voltage fell below 11 V (Appendix B)	
Dynamic DGM Survey Performance	3-17	Blind seeds detected and derived target location within ± 2.5 ft of ground truth for data collected with RTS	Average: 1.32 ft (Appendix D) Max: 1.74 ft (Appendix D)	

3.3 STEP 3 – DOCUMENT DATA USABILITY, UPDATE THE CSM, AND DRAW CONCLUSIONS

This section reviews the data usability inputs using the following steps:

- Evaluate data completeness.
- Summarize the impacts of non-conformances on data usability.
- Summarize updates to the current conceptual site model (CSM).
- Summarize data usability conclusions.

3.3.1 Data Completeness and Impacts on Data Usability

The verification and validation outputs included in this DUA confirm the data quality and quantity are sufficient to support the overall project objectives of the SI. The NCR/RCA process was followed for QC variances associated with the dynamic surveys and processing, and CAs were developed in coordination with the project team to ensure the usability of the data was not adversely impacted.

3.3.2 Update to Conceptual Site Models

Updates to the CSMs based on the DGM survey results are limited to site-specific conditions relevant to impacts on data collection. Additional updates to the overall CSM for the MRP sites are addressed in the SI addendum report.

- Site UXO 08: No change to the current CSM.
- Site UXO 10: Indication of high response areas in the DGM data extends to the current site boundary.
- Site UXO 15: Road, underground cables, and infrastructure on the site; impacts DGM data include additional noise, which may increase the number of false positives in the target list based on the established target picking threshold.
- Site UXO 16: Delineated SRAs indicate a high response area in the DGM data extending to the current site boundary.

3.3.3 Conclusions

The DGM data collected as part the SI addendum can be used as intended to achieve the project objectives. Updates to the technical approach were considered in cooperation with the project team, and do not adversely impact data usability. The data provided by the geophysical surveys are sufficient to inform decisions regarding the potential absence or presence of munitions-related items at the MRP sites, but without intrusive resolution of anomalies, the nature of the anomalies is unknown.

3.4 STEP 4 – DOCUMENT LESSONS LEARNED AND MAKE RECOMMENDATIONS

Lessons learned from the DGM include the following:

If performing work in restricted areas requiring pre-approval of survey equipment, all backup system
components should be submitted as part of the initial equipment permit to avoid delays later in the
project.

 Prior to mobilization, equipment should be inspected and verified to not have the capability to take photographs if plans require the equipment to be used in restricted areas.

Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16

APPENDIX A – DAILY REPORTS





	<u>, </u>								
	PRODUCTION SECTION Report No. 90								
Contract No. Title & Lo			Title & Loca	ation: Date:		Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI	; Silverdale, WA	07/17/20	023		
Col	ntractor:			Site Superintendent:					
Tet	ra Tech, Inc.			Forrest Malone; SU	KOS				
AM	Weather:			PM Weather:					
60F	F. Cloudy. Winds S 4 MPH.			75F. Sunny. Wind	s S 6 MPH.				
Des	scription of Work Activities for the Day		<u> </u>						
	ne team arrived on-site and completed the bad k site trailer.	lging	process for	base access. Eq	uipment has been recei	ved at the	Jackson		
#	Employer or Employee		Number	7	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
	Total:						30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes:	Total work hours site this date:		30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		5,543		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •					
Was hazardous material/waste released to the environment? Yes: Cumulative work hours (If yes, attach description of incident and proposed action.) No: Cumulative work hours since start of work:									
List	List safety actions taken today/safety inspections conducted:								
Dai	Daily Safety Inspection. Daily Safety Brief - Proper Lifting								
Rei	Remarks:								
Pro	Procured Chevy 1500 Truck from Herc rentals in Fife, WA.								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/17/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.18 09:42:27 -05'00'



	EQUIPMENT SECTION								
Cor	ntract No.		Title & Loca	ition:			Date:	,	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	07/17/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023			

Contractor Production Lead	Date
Brett Yarborough	07/17/2023



	MATERIAL S SECTION							Report No. 90	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/17/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Han	QTY Short d from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/17/2023



PRODUCTION SECT			ON			No.			
Contract No. Title & L			ocation: Da						
N6:	247016D9008	Naval Bas	e Kitsap Bangor SI	; Silverdale, WA	07/18/20	023			
Со	ntractor:		Site Superintende	nt:					
Tet	tra Tech, Inc.		Forrest Malone; SU	XOS					
ΑM	l Weather:		PM Weather:						
53F	F. Cloudy. Winds SW 2 MPH.		79F. Sunny. Wind	s SSW 7 MPH.					
De	scription of Work Activities for the Day								
-Re -As -Pr	-Transport equipment from Jackson Park to NBK Laydown Area -Received Conex at NBK Laydown Area -Assembly and performance of EM61HP initial static spike tests -Procure supplies at hardware store and inquire at local pc and phone repair shop on the possibility of Leica CS20 camera removal								
#	Employer or Employee	Number	7	rade or Position		Hours			
1	Zach Weston	1	UXO Tech II			10			
2	Jacob Jankowski	1	UXO Tech II			10			
3	Jason Null	1	UXO Tech II			10			
			·		Total:	30			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)		Yes: ⊙ No: ○	Total work hours of site this date:	on	30			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)		Yes: ○ No: ●	ours ort:	5,573				
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe								
	s hazardous material/waste released to the enves, attach description of incident and proposed		Yes: ○ No: ●	Cumulative work ho since start of wor		5,603			
Lis	t safety actions taken today/safety inspections	conducted:			,				
Da	Daily Safety Inspection. Daily Safety Brief - Proper Lifting								
Re	marks:								
N/A									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/18/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.19 10:24:20 -05'00'



	EQUIPMENT SECTION							
Cor	ntract No.		Title & Loca	ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	07/18/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	07/18/2023



	MATERIALS SECTION I□							Report No. 91	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/18/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		TY Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/18/2023



	,								
	PRODUCTION SECTION Report N 92						No.		
Со	ntract No.		Title & Loc	ation:		Date:			
N6:	247016D9008		Naval Bas	e Kitsap Bangor	SI; Silverdale, WA	07/19/20	023		
Со	ntractor:			Site Superintend	dent:				
Tetra Tech, Inc. Forrest Malone; SUXOS									
AM	Weather:			PM Weather:					
58F	F. Sunny. Winds W 2 MPH.			87F. Sunny. Wir	nds SSW 7 MPH.				
De	scription of Work Activities for the Day								
-Ta -Te -Te	-Preparatory Inspection Call -Take measurements for QRIR and complete paperwork and from previous days assembly and testing checklists -Team discovered issue with survey staff spirit level and informed warehouse to send replacement -Team went to local hardware store to attempt to procure replacement screw for spirit level to expedite process of returning survey staff to full functionality.								
#	Employer or Employee		Number		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			8		
2	Jacob Jankowski	1		UXO Tech II			8		
3	Jason Null	1		UXO Tech II			8		
						Total:	24		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	24		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: From previous report:			5,603		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the en- es, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	5,627		
Lis	t safety actions taken today/safety inspections	con	ducted:						
Da	Daily Safety Inspection. Daily Safety Brief - Stay Cool, Sunscreen								
Re	marks:								
-Re	n For Following Day con any UXO sites that that team is able to access er replacement and calibration of spirit level tean					urvey staf	f		



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/19/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.20 10:00:16 -05'00'



EQUIDMENT SECTION								Report No.	
Cor	Contract No. Title & Location:							Date:	
N62	247016D9008	Naval Base	Kitsap Bangor SI;	07/19/2023					
#	Equipment (Type, Model No, Serial No.)	Vendor		PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Ju l 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech Warehouse			0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	07/19/2023



MATERIALS SECTION									Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/19/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT\ On-Ha		QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	07/19/2023



	PROPUG	TI	NI 050710	A.,		Report I	No.		
	PRODUCTION SECTION 93								
Contract No. Title & Loc				cation:	Date:				
N6	247016D9008		Naval Bas	e Kitsap Bangor	SI; Silverdale, WA	07/20/20	ງ23		
Co	ntractor:		<u> </u>	Site Superintend	dent:				
Те	tra Tech, Inc.			Forrest Malone; S	SUXOS				
ΑN	/I Weather:			PM Weather:					
60	F. Sunny. Winds N 3 MPH.			84F. Sunny. Wii	nds N 3 MPH.				
De	scription of Work Activities for the Day								
-Di	-Recon UXO 8, UXO 10, UXO 15, and UXO 16 -Due to shipping delay of replacement survey staff spirit level team used alternate means of leveling staff for RTS setup -Initial dynamic IVS was performed								
#	Employer or Employee		Number		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
				·		Total:	30		
	Was a job safety meeting held this date? Yes: Total work hours on 30								
(п у	res, attach a copy of meeting minutes.)			No: O	site this date:				
	Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.) Yes: C No: • Cumulative work hours from previous report:					5,627			
Was trenching/scaffolding/HV electrical/high work done this date? Yes: (If yes, attach statement or checklist showing inspection performed.) No: •									
	s hazardous material/waste released to the envices, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	5,657		
List safety actions taken today/safety inspections conducted:									
Daily Safety Inspection. Daily Safety Brief - Stay Cool, Hydration									
Remarks:									
Re l-In:	n For Following Day eplace and calibrate survey staff spirit level with pa stallation of Allegro CX handhel mount on EM61M arking transects in UXO 15 NON-SWFPAC side and	1KII I	HP						



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/20/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.24 08:20:21 -05'00'



	EQUIPMENT SECTION R 93							
Cor	Contract No.			ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	07/20/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	07/20/2023



		MATERIAL	S SECTION				R 9:	eport N 3	No.
	ntract No. 247016D9008		Title & Locat Naval Base		ngor SI; Silve	rdale, WA		ate: 7/20/20)23
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	Q1 On-H		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/20/2023



	PRODUC	CTION	SECTION	N		Report N	No.	
Cor	ntract No.	ation:		Date:				
N62	247016D9008		aval Base	e Kitsap Bangor SI; Silverdale, WA)23	
Cor	ntractor:			Site Superintender	nt:			
Tet	ra Tech, Inc.			Forrest Malone; SUX	OS			
AM	Weather:			PM Weather:				
60F	F. Sunny. Winds W 3 MPH.			84F. Sunny. Winds	s N 3 MPH.			
Des	scription of Work Activities for the Day							
-Ins	Tasks completed: -Installation of Allegro CX handheld mount on EM61MKII HP -Replacement of Survey Staff Spirit Level -Removal of Leica CS20 camera Sensor -Testing functionality of Leica RTS							
#	Employer or Employee	N	umber	Т	rade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			10	
		•				Total:	30	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	30	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		5,657	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,687	
List	t safety actions taken today/safety inspections	condu	icted:			'		
Dai	aily Safety Inspection. Daily Safety Brief - Stay Cool, Sunscreen							
Rei	marks:							
	n For Following Day arking transects in UXO 15 NON-SWFPAC side and	l collec	tion of tra	nsects				



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

07/21/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.24 08:23:40 -05'00'



	EQUIPMENT SECTION Regular							
Cor	ntract No.		Title & Loca	tion:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	07/21/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Ju l 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	07/21/2023



		MATERIAL	S SECTION				Ir	Report N 94	No.
	ntract No. 247016D9008		Title & Locat Naval Base		ngor SI; Silve	rdale, WA		Date: 07/21/20)23
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	_	QTY -Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/21/2023



)		• • • • • • • • • • • • • • • • • • • •				
	PRODUC	יחודי	N SECTION			Report N	No.
Contract No. PRODUCTION SECTION Title & Loc			V		95		
Col	ntract No.		Title & Loca	ation:		Date:	
N62	247016D9008		Naval Base	e Kitsap Bangor S	SI; Silverdale, WA	07/24/20)23
Ö	ntractor:			Site Superintend	ent:		
Tet	ra Tech, Inc.			Forrest Malone; SI	JXOS		
AM Weather: PM Weather:							
55F. Cloudy. Winds N 6 MPH. Description of Work Activities for the Day							
Des	scription of Work Activities for the Day						
-Ad	sks completed: Iditional Control shot in by AES and control poi KO15 Transects T09, T10, T11, T12, T13, T14,			T18, T19, and T	20 25% collected, 25% c	complete	
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			10
						Total:	30
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes:	Total work hours site this date:		30
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		5,687
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h		5,717
List	t safety actions taken today/safety inspections	conc	ducted:		•		
Dai	ily Safety Inspection. Daily Safety Brief - Stay (Cool,	Sunscreen	1			
Rei	marks:						
	n For Following Day:						
-Co	ntinue collection of UXO15 transects						



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/24/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.25 06:30:36 -07'00'



	EQUIPMENT SECTION R. 95							
Cor	Contract No.			ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	07/24/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	07/24/2023



	MATERIALS SECTION							Report No. 95	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 07/24/2	Date: 07/24/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/24/2023



	,							
	PRODUC	TIO	NI SECTION			Report N	No.	
PRODUCTION SECTIO						96	3	
Coi	ntract No.		Title & Loca	cation: Date:				
N62	247016D9008		Naval Base	Kitsap Bangor S	I; Silverdale, WA	07/25/20)23	
Col	ntractor:			Site Superintende	ent:			
Tet	ra Tech, Inc.			Forrest Malone; SU	XOS			
AM	Weather:			PM Weather:				
56F. Cloudy. Rain. Winds N 3 MPH. 73F. Cloudy. Winds S 6 MPH.								
Des	scription of Work Activities for the Day		•					
-U>	Tasks completed: -UXO15 Transects initial collection of T09; 100% complete -UXO15 Transects initial collection of T10 and T11 25% collected on 07/25/2023; Total 50% complete.							
#	Employer or Employee		Number	-	Trade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			0	
						Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: C Cumulative work hours No: From previous report:			5,717	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●				
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	5,737	
List	t safety actions taken today/safety inspections	con	ducted:					
Dai	ily Safety Inspection. Daily Safety Brief - Slips,	Trip	os, Falls. Pro	per Lifting				
Rei	marks:							
	n For Following Day: ntinue collection of UXO15 transects							



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/25/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.27 08:56:08 -07'00'



	EQUIPMENT SECTION								
Cor	ntract No.	Title & Loca	ition:			Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	07/25/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		-	

Contractor Production Lead	Date
Brett Yarborough	07/25/2023



	MATERIALS SECTION							Report No. 96	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 07/25/2	Date: 07/25/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/25/2023



$\overline{}$	<u> </u>							
	PRODUCTION SECTION Report No 97						No.	
Contract No. Title & Loc			Title & Loc	cation: Date:				
N6:	247016D9008		Naval Base	e Kitsap Bangor S	I; Silverdale, WA	07/26/20)23	
Со	ntractor:			Site Superintende	ent:	•		
Tetra Tech, Inc. Forrest Malone; SUXOS								
AM Weather: PM Weather:								
57F	F. Cloudy. Winds SW 2 MPH.			74F. Cloudy. Wind	ds S 8 MPH.			
De	Description of Work Activities for the Day							
-U>	Tasks completed: -UXO15 Transects initial collection of T12 75% completed on 07/26/2023; Total 100% completeUXO15 Transects initial collection of T10 and T11 50% completed of 07/26/2023; Total 100% complete.							
#	Employer or Employee		Number	-	Trade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			0	
						Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: From previous report:			5,737	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,757	
Lis	t safety actions taken today/safety inspections	con	ducted:					
Da	Daily Safety Inspection. Daily Safety Brief - Feet Protection, Bear Safety							
Re	marks:							
	n For Following Day: ontinue collection of UXO15 transects							



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/26/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.27 09:01:45 -07'00'



	EQUIPMENT SECTION								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	07/26/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	07/26/2023



	MATERIAL S SECTION							Report No. 97	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/26/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Har	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/26/2023



							Report I	Mo
	PRODUC	CTIC	ON SECTIO	N			98	10.
Contract No. Title & Lo				cation:	Date:			
	247016D9008				angor S	l; Silverdale, WA	023	
Co	ntractor:			Site Supe	rintende	ent:	-	
Те	tra Tech, Inc.			Forrest Ma				
AM Weather: PM Weather:								
56F. Cloudy. Winds N 2 MPH.								
De	scription of Work Activities for the Day							
11	sks completed: KO15 Transects initial collection of T13 and T1	4 7	5% complet	ed of 07/26	8/2023; [·]	Total 100% complete.		
#	Employer or Employee		Number		-	Trade or Position		Hours
1	Zach Weston	1		UXO Te	ch II			10
2	Jacob Jankowski	1		UXO Tech II				10
3	Jason Null	1		UXO Te	ch II			10
							Total:	30
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: (Total work hours site this date:	on	30
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: • from previous report:				5,757
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enes, attach description of incident and proposed			Yes: (Cumulative work h since start of wo		5,787
Lis	t safety actions taken today/safety inspections	cor	nducted:					
Da	ily Safety Inspection. Daily Safety Brief - Safet	y M i	indset, Situa	ational Awa	reness			
Re	marks:							
Pla	son Null's training on all geophysical equipment i n For Following Day: ontinue collection of UXO15 transects	n th	e field has b	een comple	ted.			



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/27/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.07.28 06:30:48 -07'00'



	EQUIPMENT SECTION								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	07/27/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	07/27/2023



	MATERIAL S SECTION							Report No. 98	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/27/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/27/2023



	J									
	PRODUC	TION CE	ECTION	1		Report N	No.			
PRODUCTION SECTION						99	99			
Contract No. Title & Loc				ation:	Date:					
N6:	247016D9008	Nav	al Base	Kitsap Bangor S	I; Silverdale, WA	07/31/20)23			
Co	ntractor:			Site Superintende	ent:					
Tet	ra Tech, Inc.		[F	Forrest Malone; SU	IXOS					
AM	Weather:			PM Weather:						
52F	F. Cloudy. Winds N 2 MPH.			78F. Sunny. Wind	ds SW 7 MPH.					
De	scription of Work Activities for the Day									
	Tasks completed: -UXO15 Transects initial collection of T15 and T16 75% completed of 07/26/2023; Total 100% complete.									
#	Employer or Employee	Num	nber		Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			10			
						Total:	30			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	30			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●						
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,817			
List	t safety actions taken today/safety inspections	conducte	ed:							
Dai	ily Safety Inspection. Daily Safety Brief - Emer	gency Ac	ction Pla	an						
Re	marks:									
	n For Following Day:									
-Co	ntinue collection of UXO15 transects									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	07/31/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.01 12:18:38 -05'00'



	EQUIPMENT SECTION 9								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	07/31/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	07/31/2023



	MATERIAL S. SECTION							Report No. 99	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 07/31/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY n-Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	07/31/2023



	J									
	PRODUC	TION	LECTION			Report N	No.			
PRODUCTION SECTION Contract No. Title & Loca					100					
Col	ntract No.		Title & Loca	ation:		Date:				
N62	247016D9008	[Naval Base	Kitsap Bangor S	; Silverdale, WA	08/01/20	023			
Contractor: Tetra Tech, Inc. Site Superintendent: Forrest Malone; SUXOS										
AM	Weather:			PM Weather:						
55F	F. Cloudy. Winds NW 1 MPH.			81F. Sunny. Wind	s S 8 MPH.					
Des	scription of Work Activities for the Day		<u> </u>							
	Tasks completed: -UXO15 Transects initial collection of T17 and T18 75% completed of 07/26/2023; Total 100% complete.									
#	Employer or Employee	١	Number	-	Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			10			
						Total:	30			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		30			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●						
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,847			
List	t safety actions taken today/safety inspections	cond	ucted:							
Dai	ily Safety Inspection. Daily Safety Brief - Safety	y Min	dset, Situat	tional Awareness						
Rei	marks:									
Plar	n For Following Day:									
	ntinue collection of UXO15 transects									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/01/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.03 10:36:29 -05'00'



		EOLIIDMEN	IT SECTION				Report No.	
	EQUIPMENT SECTION 100							
Cor	ntract No.		Title & Loca	ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/01/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/01/2023



	MATERIAL S SECTION							Report No. 100	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/01/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Ha	nd	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/01/2023



	J									
	PRODUC	`TIO	N SECTION	J		Report N	Vo.			
PRODUCTION SECTION Contract No. Title & Loca			'		100					
Co	ntract No.	[Title & Loca	ation:		Date:				
N6:	247016D9008		Naval Base	e Kitsap Bangor S	I; Silverdale, WA	08/02/20)23			
Co	ntractor:			Site Superintende	ent:					
Tetra Tech, Inc. Forrest Malone; SUXOS										
AM	l Weather:			PM Weather:						
57F	F. Cloudy. Winds N 1 MPH.			83F. Sunny. Wind	ds S 8 MPH.					
De	scription of Work Activities for the Day		· · ·							
	Tasks completed: -UXO15 Transects initial collection of T19 and T20 75% completed of 07/26/2023; Total 100% complete.									
#	Employer or Employee		Number		Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			10			
				·		Total:	30			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:		30			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●						
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp									
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,877			
List	t safety actions taken today/safety inspections	con	ducted:		•					
Dai	ily Safety Inspection. Daily Safety Brief - Fatigu	ue M	lanagement							
Re	marks:									
Pla	n For Following Day:									
	ntinue collection of UXO15 transects									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/02/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.03 10:38:38 -05'00'



		EQUIPMEN	IT SECTION				Report No.	
Cor	ntract No.	Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/02/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/02/2023



MATERIAI S SECTION								Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/02/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Ha		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/02/2023



\equiv	,						
PRODUCTION SECTION Report N 102						No.	
Contract No. Title & Loc			Title & Loca	cation: Date:		Date:	
N6	l6247016D9008 Naval Base Kitsap Bangor SI; Silverdale, WA 08/03/2			08/03/20)23		
Co	Contractor: Site Superintendent:						
Tet	Tetra Tech, Inc. Forrest Malone; SUXOS						
AM Weather: PM Weather:							
58F	F. Cloudy. Winds NW 2 MPH.			82F. Sunny. Winds	s S 7 MPH.		
De	scription of Work Activities for the Day						
Tasks completed: -UXO15 Transects initial collection of T06, T07, and T08; 50% completedUXO15 Transects initial collection of T21; 100% completed.							
#	Employer or Employee		Number	Т	rade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			10
						Total:	30
Was a job safety meeting held this date? (If yes, attach a copy of meeting minutes.) Yes: No: Site this date:						30	
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: O			5,877
Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●							
Was hazardous material/waste released to the environment? Yes: Cumulative work hours (If yes, attach description of incident and proposed action.) No: • Since start of work:							5,907
List safety actions taken today/safety inspections conducted:							
Daily Safety Inspection. Daily Safety Brief - Safety Mindset, Situational Awareness							
Re	Remarks:						
Plan For Following Day:							
- Co	-Continue collection of UXO15 transects						



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/03/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.04 09:46:50 -05'00'



	EQUIPMENT SECTION										
Cor											
	247016D9008			Kitsap Bangor SI;	Silverda	e, WA	Date: 08/03/2023				
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours			
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9			
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9			
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022				
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022				
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022				
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022				
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022				
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022				
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023					
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023					
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023					
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023					

Contractor Production Lead	Date
Brett Yarborough	08/03/2023



MATERIALS SECTION								Report No.	
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/03/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Ha		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/03/2023



	PRODUCTION SECTION Report N 103								
Coi	Contract No. Title & Location: Date:								
	247016D9008			e Kitsap Bangor SI;	Silverdale, WA	08/07/20	023		
Coi	ntractor:			Site Superintender	nt:				
Tet	ra Tech, Inc.			Forrest Malone; SUX					
AM	Weather:			PM Weather:					
62F	F. Cloudy. Winds SW 2 MPH.			77F. Cloudy. Wind	s SW 4 MPH.				
Des	scription of Work Activities for the Day								
-U>	Tasks completed: -UXO15 Transects initial collection of T06, T07, and T08; 100% completedUXO08 Transects initial collection of T06 and T07; 100% completed.								
#	Employer or Employee	Numbe	r	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II		10			
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:	on	30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		5,907		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe								
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,937		
List	t safety actions taken today/safety inspections	conducted:							
Dai	ily Safety Inspection. Daily Safety Brief - Overh	lead hazard	ls, F	alling Objects					
Rei	marks:								
Pla	uipment access passes have been granted. n For Following Day: ntinue collection of UXO08 transects								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/07/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.08 09:01:34 -05'00'



	EQUIPMENT SECTION									
Cor	Contract No. Title & Location:									
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/07/2023			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023				
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023				
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023				
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023				

Contractor Production Lead	Date
Brett Yarborough	08/07/2023



	Repo 103	Report No.						
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/07/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO
1				0				

Contractor Production Lead	Date
Brett Yarborough	08/07/2023



	,									
	PRODUC	TIC	N SECTIO	N		Report N	No.			
	104									
	ntract No.	_	Title & Loc		Date:					
N6:	247016D9008		Naval Base	e Kitsap Bangor	SI; Silverdale, WA	08/08/20	ງ23			
	ntractor:			Site Superinten						
Tet	ra Tech, Inc.			Forrest Malone;	SUXOS					
	Weather:			PM Weather:						
59F	F. Cloudy. Winds NW 2 MPH.			79F. Cloudy. W	/inds SW 5 MPH.					
De	scription of Work Activities for the Day									
	Tasks completed: -UXO08 Transects initial collection of T01, T02, T03, and T05; 100% completed.									
#	Employer or Employee		Number		Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			3			
						Total:	23			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:	on	23			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: •	Cumulative work he from previous rep		5,937			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp									
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work he since start of wor		5,960			
Lis	t safety actions taken today/safety inspections	con	ducted:		·					
Da	ily Safety Inspection. Daily Safety Brief - Ticks	and	l Wasps							
Re	marks:									
Pla	on Null was off-site for Work Care Physical appoin n For Following Day:	tme	ent.							



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/08/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.09 09:47:46 -05'00'



	EQUIPMENT SECTION								
Cor	ntract No.		Date:						
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/08/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/08/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/08/2023



_	,							
	PRODUCTION SECTION Report No.							
	PRODUC	, 110	N SECTION	105				
Со	ntract No.	[Title & Loca	cation: Date:				
N6:	247016D9008		Naval Base	e Kitsap Bangor SI;	Silverdale, WA	08/09/20	023	
င်	ntractor:			Site Superintender	nt:			
Tet	ra Tech, Inc.			Forrest Malone; SUX	OS			
AM	Weather:			PM Weather:				
60F	F. Cloudy. Light Rain. Winds N 3 MPH.		[76F. Cloudy. Wind	s S 5 MPH.			
De	scription of Work Activities for the Day		·					
-U>	sks completed: <o16 and="" collection="" initial="" of="" t17="" t1<br="" transects=""><o16 50%="" c<="" collection="" initial="" of="" t16;="" td="" transects=""><td></td><td></td><td>eted.</td><td></td><td></td><td></td></o16></o16>			eted.				
#	Employer or Employee		Number	Т	rade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			10	
						Total:	30	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: • No: •	Total work hours site this date:		30	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: C Cumulative work hours No: • from previous report:			5,960	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •				
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		5,990	
Lis	List safety actions taken today/safety inspections conducted:							
Da	ily Safety Inspection. Daily Safety Brief - Covid	l 19						
Re	marks:							
	n For Following Day: egin collection of UXO 10 Transects.							



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

08/09/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.10 11:36:56 -05'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/09/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/09/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/09/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/09/2023



\vdash							
	PRODUC	TIC	ON SECTIO	N		Report I	No.
Cc	ontract No.		Title & Loc	cation: Date:			
	3247016D9008			e Kitsap Bangor S	I: Silverdale. WA	08/10/20	 023
_	ontractor:			Site Superintende		[55: 15:2	
	tra Tech, Inc.			Forrest Malone; SU			
_	// Weather:			PM Weather:			
	F. Cloudy. Light Rain. Winds NW 1 MPH.			74F. Cloudy. Win	ds S 4 MPH.		
_	escription of Work Activities for the Day			<u></u>			
	sks completed: XO10 Transects initial collection of T1, T2, T3,	T4,	and T5; 50 ⁹	% completed.			
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			10
						Total:	30
\\/a	s a job safety meeting held this date?			Yes: •	Total work hours	on	
	res, attach a copy of meeting minutes.)			No:	site this date:		30
	re there any lost time accidents this date? res, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		5,990
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the envious hazardous hazar			Yes: ○ No: ●	Cumulative work h		6,020
Lis	st safety actions taken today/safety inspections	cor	nducted:		1		
Da	aily Safety Inspection. Daily Safety Brief - Bees	and	l Wasps				
Re	emarks:						
No	work on Friday, 8/11/2023.						
	nn For Following Day: egin collection of UXO 16 Transects.						



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

08/10/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.11 09:32:55 -05'00'



	EQUIPMENT SECTION								
0	THE OLD TO								
	ntract No.		Title & Loca		0	1.00	Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/10/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/10/2023



	MATERIALS SECTION							Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/10/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/10/2023



_	,						
	PPODUC	חדי	N SECTION			Report I	No.
PRODUCTION SECTIO						107	
Со	ntract No.		Title & Loca	cation: Date:			
N6:	247016D9008		Naval Base	Kitsap Bangor SI;	Silverdale, WA	08/14/20	023
င်	ntractor:			Site Superintender	nt:		
Tet	ra Tech, Inc.		[F	orrest Malone; SUX	COS		
AM	Weather:		F	PM Weather:			
65F	F. Sunny. Winds SSW 6 MPH.			91F. Cloudy. Wind	s S 9 MPH.		
De	scription of Work Activities for the Day		•				
	sks completed: <o16 collection="" initial="" of="" t14,="" t15,="" t<="" td="" transects=""><td></td><td>and T12; 50°</td><td>% completed.</td><td></td><td></td><td></td></o16>		and T12; 50°	% completed.			
#	Employer or Employee		Number	Т	rade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			10
						Total:	30
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		30
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●			
	Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●						
Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) No: Cumulative work hours since start of work:							6,050
List safety actions taken today/safety inspections conducted:							
Da	ily Safety Inspection. Daily Safety Brief - Heat I	Rela	ited Injuries				
Re	marks:	_					
	n For Following Day: egin collection of UXO 10 Transects.						



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/14/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.14 20:16:58 -05'00'



	EQUIPMENT SECTION								
Cor	Contract No. Title & Location:								
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/14/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/14/2023



	MATERIALS SECTION								
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/14/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/14/2023



_	,								
	PRODUCTION SECTION Report N								
T KODOOTION OLOTIO			N SECTION			108			
Contract No. Title & Loca			cation: Date:						
N6:	247016D9008		Naval Base	Kitsap Bangor S	; Silverdale, WA	08/15/20	023		
Co	ntractor:			Site Superintende	nt:				
Tet	ra Tech, Inc.			Forrest Malone; SU	XOS				
AM	Weather:			PM Weather:					
64F	F. Sunny. Winds S 3 MPH.			92F. Sunny. Wind	s S 6 MPH.				
De	scription of Work Activities for the Day		•						
-U>	Tasks completed: -UXO10 Transects initial collection of T1, T2, T3, T4 and T5 50% completed; Total 100% completedUXO10 Transects initial collection of T6 and T7 100% completed; Total 100% completed.								
#	Employer or Employee		Number	-	Frade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: From previous report:			6,020		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●					
Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) Yes: No: **Oumulative work hours since start of work:**							6,050		
List safety actions taken today/safety inspections conducted:									
Dai	lly Safety Inspection. Daily Safety Brief - Heat	Stres	ss						
Re	marks:								
	n For Following Day:								
- Be	egin collection of UXO 10 Transects.								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/15/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.16 19:18:38 -05'00'



	EQUIPMENT SECTION									
Cor	ntract No.		Title & Loca	tion:			Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/15/2023			
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours		
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9		
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9		
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022			
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022			
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022			
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022			
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022			
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022			
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023				
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023				
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023				
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023				

Contractor Production Lead	Date
Brett Yarborough	08/15/2023



		MATERIAL				Report 108	No.	
	ntract No. 247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA			
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO
1				0				

Contractor Production Lead	Date
Brett Yarborough	08/15/2023



_	,								
	PRODUC	TIC	ON SECTION	ı		Report I	No.		
11			Title & Loca	ation:	Date:				
N6247016D9008 Naval Bas				Kitsap Bangor S	I; Silverdale, WA	08/16/20	ງ23		
Contractor: Site Superintendent:									
Tetra Tech, Inc. Forrest Malone; SUXOS									
AM	Weather:			PM Weather:					
65F. Sunny. Winds S 3 MPH.									
De	scription of Work Activities for the Day								
Tasks completed: -UXO10 Transects initial collection of T8, T9, T10, and T11 100% completed; Total 100% completed.									
#	Employer or Employee		Number		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	I	30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep	I	6,020		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,050		
List	t safety actions taken today/safety inspections	cor	iducted:						
Dai	ily Safety Inspection. Daily Safety Brief - Hydra	atior	1						
Re	marks:								
1	n For Following Day: egin collection of UXO 10 Transects.								



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

08/16/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.17 19:26:16 -05'00'



	EQUIPMENT SECTION R 10								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/16/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/16/2023



	MATERIALS SECTION								
	ntract No. 247016D9008				Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/16/2023



	•							
	PRODUC	CTIC	N SECTION	N		Report I	No.	
Со	ntract No.		Title & Loc	ation:	Date:			
N6:	247016D9008		Naval Base	e Kitsap Bangor SI;	Silverdale, WA	08/17/2023		
Co	Contractor: Site Superintendent:							
Tetra Tech, Inc. Forrest Malone; SUXOS								
AM Weather: PM Weather:								
63F. Sunny. Winds NE 1 MPH. 90F. Sunny. Winds N 5 MPH.								
De	scription of Work Activities for the Day							
Tasks completed: -UXO10 Transects initial collection of T12, T13, T14, T15, T16, and T17 100% collected, 100% complete								
#	Employer or Employee		Number	Т	rade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			10	
						Total:	30	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		30	
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h		6,050	
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp							
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,080	
Lis	t safety actions taken today/safety inspections	con	iducted:					
Da	ily Safety Inspection. Daily Safety Brief - Hydra	atior	1					
Re	marks:							
	n For Following Day: egin collection of UXO 10 Transects.							
I								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/17/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.21 06:28:31 -05'00'



	EQUIPMENT SECTION Re 11								
Cor	ntract No.		Title & Loca	ation:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/17/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/17/2023



	MATERIALS SECTION								
	ntract No. 247016D9008		Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 08/17/	2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/17/2023



	<u>, </u>								
PRODUCTION SECTION Report 1 111						No.			
Contract No. Title & Loc			Title & Loca	cation: Date:					
N6247016D9008 Naval Bas			Naval Base	se Kitsap Bangor SI; Silverdale, WA		023			
Cor	ntractor:			Site Superintendent:					
Tet	ra Tech, Inc.			Forrest Malone; SUXOS					
AM Weather:				PM Weather:					
59F. Sunny. Winds NW 4 MPH.				75F. Sunny. Winds SW 4 MPH.					
Des	scription of Work Activities for the Day		-						
Tasks completed: -UXO10 Transects initial collection of T18, T19, T20, and T21 100% collected, 100% complete									
#	Employer or Employee		Number	T	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II		10			
2	Jacob Jankowski	1		UXO Tech II		10			
3	Jason Null	1		UXO Tech II			10		
Total:						30			
Was a job safety meeting held this date? (If yes, attach a copy of meeting minutes.)				Yes: ⊙ No: ○	Total work hours site this date:		30		
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: ○ No: ●	Cumulative work h		6,050		
Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●									
Was hazardous material/waste released to the environment? Yes: C (If yes, attach description of incident and proposed action.) No: Cumulative work hours since start of work:							6,080		
List safety actions taken today/safety inspections conducted:									
Daily Safety Inspection. Daily Safety Brief - Safety Mindset									
Remarks:									
Plan For Following Day:									
- Begin collection of UXO 10 Transects.									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/18/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.21 06:30:50 -05'00'



	EQUIPMENT SECTION										
Cor	Contract No. Title & Location: D										
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/18/2023				
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours			
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9			
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9			
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Ju l 12, 2022	Nov 4, 2022				
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022				
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022				
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022				
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022				
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022				
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023					
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023					
11	EM61-MKII HP	KD Jones			0	Ju l 18, 2023					
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023					

Contractor Production Lead	Date
Brett Yarborough	08/18/2023



	MATERIALS SECTION									
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/18/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY n-Hand	QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	08/18/2023



	<u> </u>									
	PRODUCTION SECTION Report No. 112									
	112									
	entract No.	_			Date:					
N6	247016D9008		Naval Base	e Kitsap Bangor S	SI; Silverdale, WA	08/21/20	ງ23			
Cc	ntractor:			Site Superintend	ent:					
Те	Tetra Tech, Inc. Forrest Malone; SUXOS									
ΔN	/I Weather:			PM Weather:						
52	F. Cloudy. Winds NW 2 MPH.			75F. Sunny. Win	ds WSW 5 MPH.					
De	escription of Work Activities for the Day									
	sks completed: XO10 Transects initial collection of T22, T23, T	24,	and T25 10	0% collected, 100	0% complete					
#	Employer or Employee		Number		Trade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			10			
				•		Total:	30			
Wa	s a job safety meeting held this date?			Yes: •	Total work hours	on				
	res, attach a copy of meeting minutes.)			No: O	site this date:	30				
	re there any lost time accidents this date? res, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h	I	6,080			
	s trenching/scaffolding/HV electrical/high work res, attach statement or checklist showing insp						l			
	s hazardous material/waste released to the envious, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,110			
Lis	st safety actions taken today/safety inspections	cor	nducted:							
Da	ily Safety Inspection. Daily Safety Brief - Air Qા	ualit	ty							
Re	emarks:									
rui Pla	l61 showed fluctuations in millivolt (mV) readings in but data is expected to fail due to still reading ind in For Following Day: ontinue troubleshooting EM61			high battery read	ings after the first 4 transec	ts today. F	² M IVS was			



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/21/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.23 08:59:34 -05'00'



	EQUIPMENT SECTION										
Cor	Contract No. Title & Location:										
	247016D9008			Kitsap Bangor SI;	Silverda	le, WA	08/21/2023				
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours			
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9			
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9			
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022				
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022				
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022				
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022				
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022				
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022				
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023					
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023					
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023					
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023					

Contractor Production Lead	Date
Brett Yarborough	08/21/2023



MATERIALS SECTION									Report No.	
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/21/2023			
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		TY Hand	QTY Short from PO	
1				0						

Contractor Production Lead	Date
Brett Yarborough	08/21/2023



_	J								
	PRODUCTION SECTION Report No.								
				113					
Contract No. Title & Loca				cation: Date:					
N6:	247016D9008		Naval Base	e Kitsap Bangor SI;	Silverdale, WA	08/22/20	ງ23		
	ntractor:			Site Superintender					
Tet	tra Tech, Inc.			Forrest Malone; SUX	OS				
AM	l Weather:			PM Weather:					
52F	F. Cloudy. Winds N 3 MPH.			73F. Sunny. Winds	NW 7 MPH.				
De	scription of Work Activities for the Day								
-Re	Tasks completed: -Replacement EM61MKII HP Console received, installed, and testedInitial function checks and IVS were performed.								
#	Employer or Employee		Number	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II	h II		8		
2	Jacob Jankowski	1		UXO Tech II			8		
3	Jason Null	1		UXO Tech II			8		
						Total:	24		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes:	Total work hours site this date:	I	24		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep	I	6,110		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						l		
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,134		
Lis	t safety actions taken today/safety inspections	con	ducted:						
Da	ily Safety Inspection. Daily Safety Brief - Air Qu		у						
Re	marks:								
Pla	Pue to the electronics console box, the system was revalidated and designated as G5. Plan For Following Day: Continue collecting EM61-MKII HP UXO 10 Transects								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/22/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.23 09:07:11 -05'00'



		IT SECTION			Report No.			
		·			113			
Cor	ntract No.		Title & Loca	tion:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/22/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/22/2023



	MATERIALS SECTION R								No.
	ntract No. 247016D9008		Title & Locat Naval Base		ngor SI; Silve	Date: 08/22/2023			023
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	Q On-l	TY Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/22/2023



	,									
	PRODUC	TIC	N SECTION			Report I	No.			
	PRODUC	,110	IN SECTION			114				
C	ntract No.		Title & Loca	cation: Date:						
N6:	247016D9008		Naval Base	Kitsap Bangor SI;	Silverdale, WA	08/23/20	023			
Col	ntractor:			Site Superintender	nt:					
Tetra Tech, Inc. Forrest Malone; SUXOS										
AM	Weather:			PM Weather:						
57F	F. Cloudy. Winds N 2 MPH.		_7	73F. Sunny. Winds	S 6 MPH.					
De	scription of Work Activities for the Day									
	Tasks completed: -UXO16 Transects initial collection of T19, and T20 100% collected, 100% complete									
#	Employer or Employee		Number	Т	rade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			10			
	Total:					30				
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: • No: ○	Total work hours site this date:		30			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	nours port:	6,134				
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ I.) No: •						
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,164			
List	t safety actions taken today/safety inspections	con	ducted:							
Dai	ily Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Falls							
Re	marks:									
	n For Following Day: ark and prep transects in UXO10									



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

08/23/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.28 10:05:57 -05'00'



	EQUIPMENT SECTION Re							
Cor	Contract No.			ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/23/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/23/2023



	MATERIALS SECTION R								No.
	ntract No. 247016D9008		Title & Locat Naval Base		Date: 08/23/2023)23	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		TY Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/23/2023



	PRODUC	CTIC	ON SECTIO	N		eport N	<u>lo.</u>
	11.050)		11:	5	
	ntract No.		Title & Loc		ate:		
N6	247016D9008		Naval Bas	e Kitsap Bango	or SI; Silverdale, WA	/24/20	123
Cc	ntractor:			Site Superinte	endent:		
Те	Tetra Tech, Inc. Forrest Malone; SUXOS						
ΔN	1 Weather:			PM Weather:			
54	F. Cloudy. Winds S 4 MPH.			76F. Sunny. V	Vinds S 9 MPH.		
De	scription of Work Activities for the Day						
11	sks completed: arked 18 transects in uxo10, all remaining UX0	O10	transects fl	agged			
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			0
					T	Total:	20
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours on site this date:		20
	re there any lost time accidents this date? res, attach a copy of completed OSHA report.)			Yes: ○ No: •	Cumulative work hours from previous report:	- 11	6,164
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the en res, attach description of incident and propose			Yes: ○ No: ●	Cumulative work hours since start of work:	s	6,184
Lis	t safety actions taken today/safety inspections	cor	iducted:				
Da	ily Safety Inspection. Daily Safety Brief - Prop	er P	PE				
Re	marks:						
	n For Following Day:						
11	ark and prep transects in UXO16						
- Cc	ollect UXO10 transects if updated equipment pass	s is a	vailable				



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/24/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.28 10:16:57 -05'00'



		IT SECTION		Report No.					
	1. The second se								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/24/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/24/2023



	MATERIALS SECTION							Report No. 115	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/24/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/24/2023



	J								
	PRODUC	TIC	NI SECTION			Report N	No.		
Contract No.						116			
Contract No. Title & Location: Date: Ne247016D9008 Date: Dat									
N6:	247016D9008	9008 Naval Base Kitsap Bangor SI; Silverdale, WA 08/28/202)23			
Contractor: Site Superintendent:									
Tet	tra Tech, Inc.			Forrest Malone; SU	XOS				
AM	l Weather:			PM Weather:					
59F	F. Cloudy. Winds N 3 MPH.			71F. Cloudy. Wind	ds N 5 MPH.				
De	scription of Work Activities for the Day								
-ad	Tasks completed: -additional tests of EM61 -Marked southern portion of transects 1-15 in uxo16								
#	Employer or Employee		Number	-	Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			0		
						Total:	20		
					1				
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:	on	20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	ours ort:	6,184			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,204		
List	t safety actions taken today/safety inspections	con	ducted:						
Dai	ily Safety Inspection. Daily Safety Brief - Comn	nuni	ication						
Re	marks:								
-Co	n For Following Day: ontinue marking and prepping transects in UXO16 uipment pass was approved and will be available		pickup on We	ednesday					



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/28/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.29 09:27:44 -05'00'



		Report No.						
	EQUIPMENT SECTION 110							
Cor	ntract No.		Title & Loca	ition:			Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/28/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/28/2023



MATERIALS SECTION							Report No. 116		
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/28/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	_	QTY -Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/28/2023



$\overline{}$	<u> </u>								
	PRODUCTION SECTION Report No. 117								
Со	ntract No.		Title & Loca	ation:		Date:			
N6	247016D9008	Naval Base Kitsap Bangor SI; Silverdale, WA				023			
Contractor: Site Superintendent:									
Tet	tra Tech, Inc.			Forrest Malone; SU	KOS				
AM	l Weather:			PM Weather:					
59F	F. Cloudy. Drizzle. Winds W 2 MPH.			59F. Cloudy. Wind	ls W 2 MPH.				
De	scription of Work Activities for the Day								
-Du	Tasks completed: -Due to OSG escort ID issues no NBK escort was available for entry into SWFPAC for the DGM team, day was ended @10:30am.								
#	Employer or Employee		Number		rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			3.5		
2	Jacob Jankowski	1		UXO Tech II			3.5		
3	Jason Null	1		UXO Tech II			3.5		
						Total:	10.5		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:		10.5		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ Cumulative work hours No: ● from previous report:			6,204		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,214.5		
Lis	t safety actions taken today/safety inspections	con	ducted:						
Da	ily Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Falls						
Re	marks:								
	n For Following Day: ck up updated Equipment passes and continue co	llect	ion of UXO10	O transects					



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/29/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.30 11:22:24 -05'00'



	EQUIPMENT SECTION R 1								
Cor	ntract No.	Title & Loca	ition:			Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/29/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	08/29/2023



	MATERIAL S SECTION							Report No. 117	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 08/29	Date: 08/29/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/29/2023



)	• . • .							
	PRODUC	TION SE	CTIO	M		Report I	No.		
PRODUCTION SECTION Contract No. Title & Location:						118			
Ö	ntract No.	Title	& Loc	ation:		Date:			
N62	247016D9008	Nava	al Base	e Kitsap Bangor S	I; Silverdale, WA	08/30/20	023		
	ntractor:			Site Superintende					
Tet	ra Tech, Inc.			Forrest Malone; SU	JXOS				
AM Weather: PM Weather: 725 Cloudy Mindo NE 2 MPH									
72F. Cloudy. Winds NE 2 MPH. 72F. Sunny. Winds SW 4 MPH.									
Des	scription of Work Activities for the Day								
-Ac	Tasks completed: -Acquired updated equipment pass -UXO10 Transects T26, T27, T28, T29, T30, T31, T32, T33, T34, and T35 100% collected, 100% complete.								
#	Employer or Employee	Num	ber		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	I	30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: C Cumulative work hours No: • from previous report:			6,214.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe								
	s hazardous material/waste released to the enves, attach description of incident and proposed		?	Yes: ○ No: •	Cumulative work h since start of wo	I	6,244.5		
List	t safety actions taken today/safety inspections	conducte	d:		•				
Dai	ily Safety Inspection. Daily Safety Brief - Hydra	ition							
Rei	marks:								
	n For Following Day: ntinue collection of UXO10 transects								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/30/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.08.31 12:12:26 -05'00'



	EQUIPMENT SECTION							
0	-44 NI-		T:41- 0 1	4:			118	
	ntract No.		Title & Loca		0:1	10.00	Date:	
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	08/30/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	lls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/30/2023



	MATERIAL S SECTION							Report No. 118	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 08/30/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/30/2023



IE		0.0	, , , , ,	(00011					
	PRODUC	TION 6	ECTION			Report N	No.		
	PRODUCTION SECTION 119 Contract No. Title & Location: Date:								
Co	ntract No.	Titl	e & Loca	tion:		Date:			
N6:	247016D9008	Na	val Base	Kitsap Bangor S	I; Silverdale, WA	08/31/20	023		
Contractor: Site Superintendent:					ent:				
Tet	ra Tech, Inc.		_F	orrest Malone; SU	XOS				
AM	Weather:			PM Weather:					
58F	F. Cloudy. Rain. Winds S 2 MPH.		[7	71F. Cloudy. Driz	zle. Winds S 5 MPH.				
Description of Work Activities for the Day									
-U>	Tasks completed: -UXO10 Transects T36, T37, T38, T39, T40, T41, T42, T43, T44, and T45 100% collected, 100% complete -UXO10 initial collection complete								
#	Employer or Employee	Nur	mber		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			10		
						Total:	30		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		30		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: C Cumulative work hours No: • from previous report:			6,244.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ I.) No: ●					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,274.5		
List	t safety actions taken today/safety inspections	conduc	ted:						
Dai	ily Safety Inspection. Daily Safety Brief - Slips,	Trips, a	ind Falls						
Re	marks:								
	n For Following Day: ntinue collection of UXO16 transects								
1									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	08/31/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.05 09:37:04 -05'00'



		EQUIPMEN	IT SECTION				Report No.	
Cor	ntract No.	Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	08/31/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	08/31/2023



MATERIAI S SECTION								Report No.	
	ntract No. 247016D9008					Date: 08/31	/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	08/31/2023



_	<u> </u>								
PRODUCTION SECTION Report No									
					119				
Contract No.									
	247016D9008		Inavai Bas			09/05/20	J23		
	Contractor: Site Superintendent:								
	Tetra Tech, Inc. Forrest Malone; SUXOS								
	/ Weather:			PM Weather:	ado C 2 MDU				
_	F. Sunny. Cloudy. Winds N 2 MPH.			70F. Cloudy. Wir	IUS S S IVIPH.				
De	scription of Work Activities for the Day								
Tasks completed: -UXO16 Transects T8, T9, T10, T11, T12, T13, T14, and T15, 25% collected on 09/05/2023UXO 16 Transects T8, T9, T10,and T11, total 25% complete as of 09/05/2023UXO 16 Transects T12, T13, T14, and T15, total 75% complete as of 09/05/2023.									
#	Employer or Employee		Number		Trade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			0		
				·		Total:	20		
	Was a job safety meeting held this date? (If yes, attach a copy of meeting minutes.) Yes: No: No: Site this date:					20			
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: ○ No: ●	Cumulative work h	6,274.5			
	Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●								
Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) Yes: ○ No: ● Cumulative work hours since start of work:						6,294.5			
List safety actions taken today/safety inspections conducted:									
Daily Safety Inspection. Daily Safety Brief - Safety Mindset, Situational Awareness									
Re	Remarks:								
Jas	on Null has demobilized from site.								
	Plan For Following Day: -Continue collection of UXO16 transects								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/05/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.06 11:19:39 -05'00'



	EQUIPMENT SECTION										
Cor	Contract No. Title & Location:										
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	09/05/2023				
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours			
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9			
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9			
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022				
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022				
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022				
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022				
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022				
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022				
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023					
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023					
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023					
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023					

Contractor Production Lead	Date
Brett Yarborough	09/05/2023



	MATERIALS SECTION								
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/05/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/05/2023



_	<u> </u>									
	PRODUCTION SECTION Report No.									
PRODUCTION SECTION						121				
Со	ntract No.		Title & Loca	cation: Date:						
N6:	247016D9008		Naval Base	Kitsap Bangor SI;	Silverdale, WA	09/06/20	023			
Co	ntractor:			Site Superintender	it:					
Tet	tra Tech, Inc.		[Forrest Malone; SUX	OS					
AM	l Weather:			PM Weather:						
52F	F. Sunny. Cloudy. Winds N 2 MPH.		[74F. Cloudy. Wind	s S 3 MPH.					
De	scription of Work Activities for the Day									
-U>	sks completed: KO16 Transects T1, T2, and T3, 100% collecte KO16 Transects T4, T5, T6, and T7, 75% collecte									
#	Employer or Employee		Number	Т	rade or Position		Hours			
1	Zach Weston	1		UXO Tech II			10			
2	Jacob Jankowski	1		UXO Tech II			10			
3	Jason Null	1		UXO Tech II			0			
						Total:	20			
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20			
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep		6,294.5			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: •						
Was hazardous material/waste released to the environment? Yes: ☐ Cumulative work hours (If yes, attach description of incident and proposed action.) No: ● Cumulative work hours since start of work:										
Lis	t safety actions taken today/safety inspections	con	ducted:							
Da	ily Safety Inspection. Daily Safety Brief - ANSI	Safe	ety Vest Cla	ssifications						
Re	marks:									
	n For Following Day: ontinue collection of UXO16 transects									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/06/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.07 05:06:37 -05'00'



	EQUIPMENT SECTION											
Cor	Contract No. Title & Location:											
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	09/06/2023					
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours				
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9				
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9				
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022					
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022					
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022					
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022					
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022					
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022					
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023						
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023						
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023						
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023						

Contractor Production Lead	Date
Brett Yarborough	09/06/2023



	Rep 121	Report No.						
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/06/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Har	QTY Short from PO
1				0				

Contractor Production Lead	Date
Brett Yarborough	09/06/2023



	<u> </u>									
	PRODUCTION SECTION Report No.									
	122									
Contract No. Title & Loc				cation: Date:						
N62	247016D9008		Naval Base	e Kitsap Ban	igor SI; S	Silverdale, WA	09/07/20	ງ23		
Col	ntractor:			Site Superir	ntendent					
Tet	ra Tech, Inc.			Forrest Malo	ne; SUXC	oS				
AM	Weather:			PM Weathe						
55F	F. Sunny. Cloudy. Winds N 1 MPH.			70F. Cloudy	/. Winds	SW 3 MPH.				
Des	scription of Work Activities for the Day									
Tasks completed: -UXO16 Transects T4, T5, and T6, and T7, 25% collected, 100% complete -UXO16 Transects T8, T9, and T10, 25% collected, 50% complete										
#	Employer or Employee		Number		Tra	de or Position		Hours		
1	Zach Weston	1		UXO Tech	ı II			10		
2	Jacob Jankowski	1		UXO Tech	ı II			10		
3	Jason Null	1		UXO Tech	ı II			0		
							Total:	20		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○		Total work hours site this date:	on	20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: C No: •	I .	Cumulative work h from previous rep		6,314.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe				I					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	I	Cumulative work h since start of wo		6,334.5		
List	t safety actions taken today/safety inspections	con	ducted:		•					
Dai	ily Safety Inspection. Daily Safety Brief - Hydra	ation								
Rei	marks:									
Plan	n For Following Day:									
	ntinue collection of UXO16 transects									



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/07/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.11 09:02:37 -05'00'



	EQUIPMENT SECTION										
Cor	Contract No. Title & Location:										
	247016D9008			Kitsap Bangor SI;	Silverda	le, WA	09/07/2023				
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours			
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9			
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9			
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022				
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022				
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022				
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022				
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022				
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022				
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023					
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023					
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023					
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023					

Contractor Production Lead	Date
Brett Yarborough	09/07/2023



	MATERIALS SECTION								
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/07/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT` On-Ha		QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/07/2023



PRODUCTION SECTION Report N 123									
Cor	Contract No. Title & Location: Date:								
N62	247016D9008		Naval Base	e Kitsap Bangor SI	; Silverdale, WA	09/08/20	023		
Cor	ntractor:			Site Superintende	nt:				
Tet	ra Tech, Inc.			Forrest Malone; SU	XOS				
AM	Weather:			PM Weather:					
51F	F. Sunny. Cloudy. Winds W 1 MPH.			74F. Cloudy. Wind	ds S 6 MPH.				
Des	scription of Work Activities for the Day								
Tasks completed: -UXO16 Transects T8 and T11 50% collected, 100% complete -UXO16 Transects T9 and T10, 25% collected, 75% complete -Remainder of UXO16 Transects T9, T10, T11, T12, T13, T14, T15, and T16 flagged out for Monday.									
#	Employer or Employee		Number	7	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			0		
						Total:	20		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep	I	6,334.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●					
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,354.5		
List	List safety actions taken today/safety inspections conducted:								
Dai	Daily Safety Inspection. Daily Safety Brief - Driving in Foggy conditions								
Rei	marks:								
	n For Following Day: ntinue collection of UXO16 transects								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/08/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.11 09:05:25 -05'00'



	EQUIPMENT SECTION											
Cor	Contract No. Title & Location:											
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	09/08/2023					
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours				
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9				
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9				
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022					
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022					
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022					
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022					
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022					
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022					
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023						
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023						
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023						
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023						

Contractor Production Lead	Date
Brett Yarborough	09/08/2023



	MATERIALS SECTION								
	ntract No. 247016D9008	Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/08/2023		
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H	-	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/08/2023



	<u>, </u>						
	PRODUC	TIO	N SECTION	ı		Report I	No.
Contract No. Title & Loc				cation: Date:			
N62	247016D9008		Naval Base	Kitsap Bangor S	I; Silverdale, WA	09/11/20	023
Cor	ntractor:			Site Superintende	ent:		
Tet	ra Tech, Inc.			Forrest Malone; SU	IXOS		
AM	Weather:			PM Weather:			
58F	F. Cloudy. Winds E 1 MPH.			70F. Cloudy. Win	ds SW 5 MPH.		
Des	scription of Work Activities for the Day						
Tasks completed: -UXO16 Transects T9, T10, T11, T12, T13, T14, T15, and T16, 25% collected, 100% complete -UXO16 Initial Collection Complete - UXO15 Transects T1, T2, T3, T4, and T5 marked out							
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			0
				•		Total:	20
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	on	20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	Cumulative work h from previous rep	I	6,354.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●			
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,374.5
List	t safety actions taken today/safety inspections	con	ducted:				
Dai	ily Safety Inspection. Daily Safety Brief - Extrer	me \	<i>N</i> eather				
Rei	marks:						
	n For Following Day: ntinue collection of UXO15 transects						



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/11/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.12 09:52:21 -05'00'



	EQUIPMENT SECTION R								
Cor	ntract No.	Title & Loca	ition:			Date:			
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	09/11/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Ju l 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	09/11/2023



		MATERIAL	S SECTION				Repor 124	t No.	
	ntract No. 247016D9008		Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 09/11/	Date: 09/11/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/11/2023



	J								
	PRODUC	TIC	N SECTIO	NI .		Report I	No.		
	PRODUC	,110	N SECTIOI	125					
Со	ntract No.	\Box	Title & Loc	ation:		Date:			
N6:	247016D9008		Naval Base	e Kitsap Bangor SI	; Silverdale, WA	09/12/20	023		
Co	ntractor:	_		Site Superintende	nt:				
Tetra Tech, Inc. Forrest Malone; SUXOS									
AM	l Weather:			PM Weather:					
53F	F. Cloudy. Winds N 3 MPH.			69F. Cloudy. Rain	. Winds E 2 MPH.				
De	scription of Work Activities for the Day								
Tasks completed: -UXO15 Transects T1, T2, T3, T4, and T5, 100% collected, 100% complete -UXO15 Initial Collection Complete									
#	Employer or Employee		Number	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			0		
						Total:	20		
					1				
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ Cumulative work hours No: ● from previous report:			6,374.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,394.5		
Lis	t safety actions taken today/safety inspections	con	ducted:						
Da	ily Safety Inspection. Daily Safety Brief - Prope		fting						
Re	marks:								
-Ma	n For Following Day: ark out UXO8 mini grid and by for gap fill								



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/12/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.13 09:43:44 -05'00'



		EQUIPMEN				Report No.			
	EQUITMENT SECTION								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	09/12/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	09/12/2023



		MATERIAL	S SECTION					Report I	No.
	ntract No. 247016D9008		Title & Locat		ngor SI; Silve	rdale, WA		023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY n-Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/12/2023



	J								
	PRODUC	TIO.	N SECTION			Report I	No.		
	PRODUC	, I IOI	N SECTION	126			3		
Contract No. Title & Location				ation: Date:					
N6:	247016D9008		Naval Base	e Kitsap Bangor SI;	Silverdale, WA	09/13/20	ງ23		
Co	ntractor:			Site Superintender	nt:				
Tetra Tech, Inc. Forrest Malone; SUXOS									
AM	Weather:			PM Weather:					
53F	F. Cloudy. Winds SE 1 MPH.			64F. Sunny. Winds	S S 6 MPH.				
De	scription of Work Activities for the Day								
Tasks completed: -Marked out UXO8 full coverage mini grid -Began collection of UXO8 full coverage mini grid, 20% collected, 20% complete									
#	Employer or Employee		Number	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II			10		
2	Jacob Jankowski	1		UXO Tech II			10		
3	Jason Null	1		UXO Tech II			0		
						Total:	20		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:	I	20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ Cumulative work hours No: ● from previous report:			6,394.5		
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing inspe			Yes: ○ d.) No: ●			l		
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo	I	6,414.5		
Lis	t safety actions taken today/safety inspections	cond	ducted:						
Da	ily Safety Inspection. Daily Safety Brief - Slips,	Trip	s, and Falls						
Re	marks:								
	n For Following Day: ntinue collection of UXO8 full coverage mini grid	İ							



Quality Control

Anthony Aguirre

Contractor Production Lead

Title/Company

Date

Brett Yarborough

Site Geophysicist/Tetra Tech Inc

09/13/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.15 12:25:54 -05'00'



	EQUIPMENT SECTION Re							
Cor	ntract No.		Title & Loca	ution:			Date:	
	247016D9008			Kitsap Bangor SI;	Silverda	le, WA	09/13/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	09/13/2023



MATERIALS SECTION								Report No. 126	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/13/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QT On-H	-	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/13/2023



	,		. •			•	
	PRODUC	ידור	N SECTIO	AI		Report I	No.
	PRODUC	, 110	N SECTIOI	\		127	
Co	ntract No.		Title & Loc	ation:		Date:	
N6:	N6247016D9008 Naval Base Kitsap Bangor SI; Silverdale, WA				023		
Co	ntractor:			Site Superintend	lent:	•	
Tet	ra Tech, Inc.			Forrest Malone; S	UXOS		
AM	Weather:			PM Weather:			
52F	F. Sunny. Winds S 2 MPH.			67F. Sunny. Wir	nds SW 6 MPH.		
De	scription of Work Activities for the Day		1				
	sks completed: ompleted collection of UXO8 full coverage mini -All initial collection complete	grid	d, 80% colle	cted, 100% com	olete		
#	Employer or Employee		Number		Trade or Position		Hours
1	Zach Weston	1		UXO Tech II			10
2	Jacob Jankowski	1		UXO Tech II			10
3	Jason Null	1		UXO Tech II			0
						Total:	20
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: Cumulative work hours No: ● Cumulative work hours from previous report:			6,414.5
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp						
	s hazardous material/waste released to the entering attach description of incident and proposed			Yes: ○ No: •	Cumulative work h		6,434.5
List	safety actions taken today/safety inspections	con	ducted:		•		
Dai	ly Safety Inspection. Daily Safety Brief - Slips,	Trip	os, and Falls	3			
Re	marks:						
	n For Following Day:						
-Av	vait confirmation of coverage for UXO8 mini grid	from	n data proces	sors			
 -Cle	-gap-fill if necessary ean equipment						
	-RTS equipment will be cleaned and remain in	n Co	nex for assist	ance with GPR co	llection		



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/14/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.15 12:32:03 -05'00'



	EQUIPMENT SECTION 12							
Cor	ntract No.	Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	09/14/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Ju l 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	09/14/2023



	MATERIALS SECTION							Report No. 127	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA					Date: 09/14/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received		QTY -Hand	QTY Short from PO
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/14/2023



	,								
	PRODUCTION SECTION Report No. 128 Contract No. Title & Location: Date:						No.		
Co	ntract No.		Title & Loc	ation:		Date:			
N6:	247016D9008		Naval Bas	e Kitsap Bangor SI	Silverdale, WA	09/15/20)23		
Col	ntractor:			Site Superintende	nt:				
Tet	ra Tech, Inc.			Forrest Malone; SU)	(OS				
AM	Weather:			PM Weather:					
52F	F. Sunny. Winds S 1 MPH.			82F. Sunny. Wind:	s SW 6 MPH.				
De	scription of Work Activities for the Day								
-Cl	Tasks completed: -Cleaned, packaged, and shipped equipment to warehouse and KD Jones -RTS equipment cleaned and stored in Conex for later collection activitiesRental truck cleaned and returned Herc in Fife -Kia cleaned and prepared for return to Avis following day								
#	Employer or Employee		Number	Т	rade or Position		Hours		
1	Zach Weston	1		UXO Tech II	KO Tech II				
2	Jacob Jankowski	1		UXO Tech II	10				
3	Jason Null	1		UXO Tech II			0		
				•		Total:	20		
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ⊙ No: ○	Total work hours site this date:		20		
	re there any lost time accidents this date? es, attach a copy of completed OSHA report.)			Yes: ○ No: ●	ours oort:	6,434.5			
	s trenching/scaffolding/HV electrical/high work es, attach statement or checklist showing insp								
	s hazardous material/waste released to the enves, attach description of incident and proposed			Yes: ○ No: ●	Cumulative work h since start of wo		6,454.5		
Lis	t safety actions taken today/safety inspections	con	ducted:						
Dai	ily Safety Inspection. Daily Safety Brief - Prope	er Li	fting						
Re	marks:								
	n For Following Day: nporary control points will be removed from uxo8	3, ux	o10, uxo15,	and uxo16 for site re	storation				



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/15/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.19 10:27:02 -05'00'



	EQUIPMENT SECTION Re								
Cor	ntract No.		Title & Loca	ition:			Date:		
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	le, WA	09/15/2023		
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours	
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9	
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9	
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022		
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022		
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022		
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022		
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022		
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022		
9	Chevy 1500 Truck: License Plate- C41387X	Herc Renta	als		0	Jul 17, 2023			
10	Kia Soul: License Plate-CGU4435	Avis Renta	ls		0	Jul 16, 2023			
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023			
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023			

Contractor Production Lead	Date
Brett Yarborough	09/15/2023



MATERIAI S SECTION							Report 128	Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 09/15/	Date: 09/15/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/15/2023



$\overline{}$	<u>, </u>							
	PRODUCTION SECTION Report N 128							
Contract No. Title & Lo			Title & Loc	cation: Dat				
N62	N6247016D9008 Naval Base Kitsap Bangor SI; Silverdale, WA			09/15/20)23			
Cor	ntractor:	Site Superintendent:						
Tetra Tech, Inc. Forrest Malone; SUXOS								
AM Weather: PM Weather:								
52F	F. Sunny. Winds S 1 MPH.			82F. Sunny. Winds	SW 6 MPH.			
Des	scription of Work Activities for the Day							
-Cle	Tasks completed: -Cleaned, packaged, and shipped equipment to warehouse and KD Jones -RTS equipment cleaned and stored in Conex for later collection activitiesRental truck cleaned and returned Herc in Fife -Kia cleaned and prepared for return to Avis following day							
#	Employer or Employee		Number	Т	rade or Position		Hours	
1	Zach Weston	1		UXO Tech II			10	
2	Jacob Jankowski	1		UXO Tech II			10	
3	Jason Null	1		UXO Tech II			0	
						Total:	20	
	s a job safety meeting held this date? es, attach a copy of meeting minutes.)			Yes: ● No: ○	Total work hours site this date:		20	
Were there any lost time accidents this date? (If yes, attach a copy of completed OSHA report.)				Yes: ○ Cumulative work hours No: ● from previous report:		I	6,434.5	
	Was trenching/scaffolding/HV electrical/high work done this date? Yes: ○ (If yes, attach statement or checklist showing inspection performed.) No: ●							
Was hazardous material/waste released to the environment? (If yes, attach description of incident and proposed action.) Yes: C No: Cumulative work hours since start of work:					6,454.5			
List safety actions taken today/safety inspections conducted:								
Daily Safety Inspection. Daily Safety Brief - Proper Lifting								
Remarks:								
	Plan For Following Day: Temporary control points will be removed from uxo8, uxo10, uxo15, and uxo16 for site restoration							



Quality Control

Anthony Aguirre		
Contractor Production Lead	Title/Company	Date
Brett Yarborough	Site Geophysicist/Tetra Tech Inc	09/15/2023

Signature

Brett Yarborough Digitally signed by Brett Yarborough Date: 2023.09.19 10:27:02 -05'00'



CONTRACTOR PRODUCTION REPORT

	EQUIPMENT SECTION							
Cor	Contract No. Title & Location:							
N62	247016D9008		Naval Base	Kitsap Bangor SI;	Silverda	e, WA	09/15/2023	
#	Equipment (Type, Model No, Serial No.)	Ve	ndor	PO/MOA#	Status	Rental Start Date	Rental End Date	Daily Hours
1	Dodge RAM: License Plate- C80624U	Enterprise			OR	Jul 11, 2022	Nov 18, 2022	9
2	Chevy Traverse: License Plate- 014NLG	Enterprise			OR	Jul 10, 2022	Nov 18, 2022	9
3	TEM-8g EM Survey Equipment	Tetra Tech Warehouse			OR	Jul 12, 2022	Nov 4, 2022	
4	EM61-MKII HP: SN 2221	Geonics		9064	OR	Jul 12, 2022	Nov 17, 2022	
5	EM61-MKII HP: SN 1920	Geonics		9061	OR	Jul 12, 2022	Sep 12, 2022	
6	Ford F150: License Plate- 7T9LDY	Enterprise			OR	Jul 12, 2022	Nov 5, 2022	
7	EM61-MKII HP:SN 0327	KD Jones		N/A	OR	Aug 26, 2022	Nov 2, 2022	
8	GSSI SIR 4000 GPR	Exploration			OR	Oct 21, 2022	Nov 17, 2022	
9	Chevy 1500 Truck: License Plate- C41387X	Herc Rentals			0	Jul 17, 2023		
10	Kia Soul: License Plate-CGU4435	Avis Rentals			0	Jul 16, 2023		
11	EM61-MKII HP	KD Jones			0	Jul 18, 2023		
12	Lieca RTS-TS16	Tetra Tech	Warehouse		0	Jul 18, 2023		

Contractor Production Lead	Date
Brett Yarborough	09/15/2023

QP-01 Rev. 4, Rev Date 03/31/2022



CONTRACTOR PRODUCTION REPORT

	MATERIALS SECTION							Report No.	
Contract No. N6247016D9008			Title & Location: Naval Base Kitsap Bangor SI; Silverdale, WA				Date: 09/15/	Date: 09/15/2023	
#	Materials Received	Vendor	PO#	Status	PO QTY	QTY Received	QTY On-Hand	QTY Short from PO	
1				0					

Contractor Production Lead	Date
Brett Yarborough	09/15/2023

QP-01 Rev. 4, Rev Date 03/31/2022

Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16
APPENDIX B – WEEKLY QC REPORTS	





Weekly Quality Control Report

WQCR INFORMATION							
From: 07/17/202	From: 07/17/2023 To: 07/21/2023			022			
Client:	Client: NAVFAC NW Project: 179-8015			015			
Contract Name:	Naval Base Kitsa	p Bangor	Location:	Silver	dale, WA		
Contract #:	N6247016D90)8	Task Order #:	N442	5519F4112		
Project Descript	ion:						
Silverdale, WA. T	Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.						
See Contractor Pro	duction Report for i	nformation on work performed, safety, v	weather, and subcont	tractor ho	ours.		
SUMMARY OF Q	UALITY CONTR	OL ACTIVITIES PERFORMED:					
Preparatory Insp	ection (DFW):	DFW 5; DFW 6			Activity/Task #: IVS Establishment; DGM Field Surveys		
Initial Inspection	(DFW):	None			Activity/Task #: N/A		
Follow-Up Inspe	ction (DFW):	None			Activity/Task #: N/A		
Rework Status:	1	None			Activity/Task #: N/A		
(Enter a summary	of weekly quality	activities for the site activities perf	formed.)				
		RTS Positioning systems and El estems were assembled and tes			ceived and inspected as part of QRIR 07. and 07.		
Tests Performed	d and Results:						
 - Assembled RTS Positioning Systems IAW MQO # 1-4 (Passed). - Performed Initial Geodetic Function Checks IAW MQO # 1-5 (Passed). - Assembled EM61-HP IAW MQO # 3-1 (Passed). - Performed Ongoing Sensor Function Tests for EM61-HP IAW MQO # 3-4 (Passed). 							
Materials and E	Materials and Equipment Received and Results of Inspection:						
- All materials received and inspected by Tetra Tech Field Personnel. Refer to completed QRIR 07 for equipment specifics.							
Deficiencies/Non-conformances & Status (include a tracking # if assigned):							
None							

QP-01 Rev. 3, Rev Date 04/12/2022



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Jul 21, 2023

Field Change Requests Initiated or Status: FCR-007 initiated on 07/05/2023 to correct fence locations in UXO 15 and UXO 16 relative to QAPP figures 10-19, 10-20, 17-16 and 17-17. Finalized on 07/06/2023 - refer to FCR-007 for additional details. JOB SAFETY: (LIST OBSERVATIONS) - Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log. COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION - Weekly Field Work Status call on 07/20/2023 with project team. Refer to project files for approved meeting minutes. **PROJECT PHOTOS**



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Jul 21, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.

NAME: Jessie Powers

TITLE/COMPANY: QC Geophysicist

SIGNATURE: Jessie Powers

Digitally signed by Jessie Powers
Date: 2023.08.02 18:43:34 -04'00'

Page 3 of 3 QP-01 Rev. 3, Rev Date 04/12/2022



Con	tract Name: Naval Base Kitsap Bangor						
Con	ntract #: N6247016D9008	Date:	07/19/202	3			
Tas	k Order #: N4425519F4112	Reference: QAPP, SOPs					
DFV	N/Activity #: DFW#5 - IVS Establishm	ent; DFW #6 - DGM Field Surveys		Client Notifi	ed Yes	○ No	○N/A
I. P	I. Personnel Present:						
#	Name	Name Position			Sovernment	Agency	
1	Jessie Powers	QC Geo	Tetra T	ech			
2	Matthew Barner	Project Geo	Tetra T	tra Tech			
3	Eugene Mikell	QCM	Tetra T	etra Tech			
4	Brett Yarborough	Site Geo	Tetra T	Tetra Tech			
5	Anthony Aguirre	UXOQCS	Tetra Tech				
6	Melissa King	QA Geo	USN				
7	Mitch Baron	PM	Tetra Tech				
8	Jacob Jankowski	Field Geo	Tetra Tech				
9	Zachary Weston	Field Geo	Tetra T	Tetra Tech			

QP-01 Rev. 5, Rev Date 04/18/2022



Contract #: N6247016D9008 Date: Jul 19, 2023

II. Deliverables or Submittals	
1.a. Review Deliverable/Submittal Register (if used). Have all applicable deliverables/submittals been approved?	
1.b. Are the work plan and SOPs available on site?	
If No, what items have not been submitted and why?	
a	
b.	
c.	
2. Are all resources (personnel, materials and equipment) on hand to perform the work?	
If No, what items are missing?	
a.	
b.	
c.	
Check approved resources against delivered resources. (This should be done as they arrive.)	
Comments:	
All delivered resources will be documented on QRIR 07	
III. Equipment Checkouts	
Has all equipment in function checked?	
1. Have all coordinates systems been verified against the plans?	
○Yes ○ No ● N/A	
1. Are coordinates systems / measurements / units of measure consistent with the plans?	
If No, what action is taken?	
Comments:	
IV. Material Storage	
IV. Material Otorage	
Are materials stored properly?	
-	
1. Are materials stored properly? Yes No N/A If No, what action is taken?	
1. Are materials stored properly? • Yes • No • N/A	



Contract #: N6247016D9008 Date: Jul 19, 2023

1 Toparatory moposition emocities bate, sur 19, 2023
V. Specifications/Reference
Review each paragraph of Specification/Reference
 * Assemble and test all positioning system (RTS) and DGM sensor (EM61-MK2 HP) * Collect an Initial IVS with the EM61 and RTS system; perform any necessary operator certifications. * Collect ongoing IVS and Instrument Function Tests for the EM61 and RTS being used in production mapping * Collect transect and full-coverage surveys for sites with planned geophysical coverage
2. Discuss procedure for accomplishing the work.
Field Geophysicists will assemble and test all geophysical and positional equipment IAW DGM SOPs 04 and 07. An initial IVS survey will be collected IAW DGM SOP 02 prior to production data collection. Following validation, data will be collected using the EM61-MK2 HP IAW DGM SOP 05.
3. Clarify any differences.
VI. Preliminary Work and Permits
Ensure preliminary work is correct and permits or licenses are on file.
○ Yes
If No, what action is taken?
Permit will be submitted for equipment that maintain capability for photographs, if applicable.
2. Are utility markouts established?
○Yes
VII. Testing (material or equipment, prior to use or operation)
Identify test to be performed, frequency, and by whom.
 Initial Geodetic Check Shot - once following assembly - Field Geo Ongoing Geodetic Check Shot - each time system is moved (RTS) - Field Geo
- Initial Instrument Function Test - once following assembly - Field Geo
- Ongoing Instrument Function Test - AM/PM and battery change (EM61) - Field Geo
 Initial IVS - once during initial sensor validation - Field Geo Ongoing IVS - AM/PM for each day sensor is used for production collection - Field Geo
2. Where required?
- Initial Geodetic Check Shot - At an established control point
- Ongoing Geodetic Check Shot - At an established control point
 Initial Instrument Function Test - In the field Ongoing Instrument Function Test - In the field
- Initial IVS - Established IVS location
- Ongoing IVS - Established IVS location
3. Review testing plan. If there is offsite testing required, identify it below.
N/A
4 Has test facility been approved?

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N/A



Contract #: N6247016D9008 Date: Jul 19, 2023

VIII. Training					
Was site-specific training conducted and documented?	Yes		○ No		
2. Was an AGC demonstration of capability (DOC) performed?	○ Yes		○ No	● N/A	
3. Was the DOC documented and filed in the project records?	○ Yes		○No	⊙ N/A	
IX. Safety					
Review applicable portion of the Task Order Site Health and Safety Plan.					
2. Activity hazard analysis updated and approved?	Yes	○ No			
3. APP signature page and AHAs signed?	Yes	○ No			
4. Emergency contact personnel identified and contact list posted?	○ Yes	No			
5. Emergency contact list current?	Yes	○ No			
6. Emergency action drill conducted and documented?	Yes	○No			
7. Do all personal performing this DFW have current medical clearance and certifications (e.g., EOD/UXO, HAZWOPER, 8hr Refresher, OSHA Supervisor)?	○Yes	No			
X. Attach any DFW-specific checklist to the report, if used.					
Comments:					
XI. Summary of Action Items or Punch List:					
Action Items:					
* Perform DGM/RTS certifications for Jason Null and post to Project SP site/MM * Complete QRIR-007	IRP SP sit	e			
* Permit (camera pass) for the RTS, if applicable; disabling camera if possible					
* Need personnel certifications for Jason Null	* Emergency Contact List/Hospital Route folder for site trucks * Need personnel certifications for Jason Null				
* Will require an updated excavation permit for UXO-08 once the full-coverage a * Verify if field laptop can be used as intended	rea is ide	ntified			
XII. Risks					
1. Have risks (Safety, Scope, Schedule, Budget, Level of Quality) been reviewed and updated based on current site conditions for this DFW?	Yes	○ No			
XIII. Client comments during meeting:					
Comments:					



Contract #: N6247016D9008 Date: Jul 19, 2023

Date: 07/19/2023

Matthew Barner Spirit Author Barner Spirit S

Site Superintendent or Equivalent

Date: 07/19/2023

Jessie Powers Digitally signed by Jessie Powers Date: 2023.07.26 08:09:45 -04'00'

Project Quality Manager

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Page 5 of 5 Tetra Tech Proprietary Information PRINTED COPIES ARE UNCONTROLLED. CONTROLLED COPIES ARE AVAILABLE ON THE INTRANET





Abbreviated QRIR

Contract No. N62470-16-D-9008

Abbreviated QRIR	Abbreviated QRIR				
Date	2023-07-18 21:10:43				
Project	Kitsap Bangor				
Inspector	Zach Weston				
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes				
Additional Comments	Battery casing has small crack by clasp mount Prism tripod loose worn				
Inspector Signature	Zery Zm				

Scan all equipment barcodes and enter any external equipment.					
Date/Time 2023-07-18 21:10:56					
Is this an External instrument?	No				
Barcode	593963				
Serial Number	2491286				

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Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:11:31
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61HP
Barcode	
Comments	EM61HP from KD Jones SN 032109

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:26
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Page 2/3 B-10



Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:54
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville Warehouse

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Geo1

Contract No. N62470-16-D-9008

Abbreviated QRIR

Abbreviated QRIR	
Date	2023-07-19 12:37:32
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	No photo allowed on current device
Inspector Signature	VB Tro

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:03
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788

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Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:36
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:41:38
Is this an External instrument?	No
Barcode	570273
Serial Number	24158
Model	GRZ122
Equipment Source	Tetra Tech Warehouse

Page 2/2 B-13

Geo1

Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Jacob Jankowski, Zach Weston
PLS Subcontractor	AES Consultants INC.
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Item 3: Have you been trained on anomaly avoidance procedures?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Will you be establishing control at the site?	No
Item 6: Civil Survey Tasks to be performed:	Other
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

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Geo1	Contract No. N62470-16-D-9008
------	-------------------------------

Naval Base Kitsap Bangor

Supervisor Signature	Zy Mu
Date	2023-07-18

QRIR	
Date	2023-07-19 12:37:32
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	No photo allowed on current device
Inspector Signature	Wy Tro

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Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:03
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:36
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:41:38
Is this an External instrument?	No
Barcode	570273
Serial Number	24158



Model	GRZ122
Equipment Source	Tetra Tech Warehouse

Personnel Signatures	
Date/Time	2023-07-19 13:04:39
SOP	11
Team Member	Zac Weston
Signature	BB Man

Personnel Signatures	
Date/Time	2023-07-19 13:04:56
SOP	11
Team Member	Jacob Jankowski

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Signature	
I full	//

Geodetic Functionality	
Date/Time	2023-07-18 13:33:00
Operator	Jacob Jankowski
Control Point	CP23
Control Point Easting	
Control Point Northing	
Checkshot Easting	
Checkshot Northing	
Offset	0.2187989945088
Checkshot Filename	230718G1CS1
Sensor Type	RTS

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Field Checklist for EM61 HP Assembly

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
Positioning Sensor Type	Leica RTK GPS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.41275
Z-Vertical Offset (up is positive):	1.016
Y-Offset in direction of travel (forward is positive)	0.2921
X-Offset perpendicular to direction of travel (right is positive)	0.4826
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes



Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.00159
Supervisor	Zach Weston
Supervisor Signature	Zng 2nd
Date	2023-07-18

QRIR	
Date	2023-07-18 21:10:43
Project	Kitsap Bangor
Inspector	Zach Weston



Naval Base Kitsap Bangor

Conduct No. No2-10	20 D 3000 Market Dase Micsap Dangor
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Battery casing has small crack by clasp mount Prism tripod loose worn
Inspector Signature	Zing Zina

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:10:56
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:11:31
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61HP
Barcode	
Comments	EM61HP from KD Jones SN 032109

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:26
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:54
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX



Equipment Source	Huntsville Warehouse

Personnel Signatures	
Date/Time	2023-07-18 21:19:00
SOP	4
Team Member	Zac Weston
Signature	Both Into

Personnel Signatures	
Date/Time	2023-07-19 12:35:48
SOP	4
Team Member	Jacob Jankowski

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Signature



DGM Function Test	
Date/Time	2023-07-18 21:22:51
Operator	Jacob Jankowski
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	11.85
SFT File Name	230718g1ssint1a

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Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1555
Chan 3	896
Chan 4	576
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	1



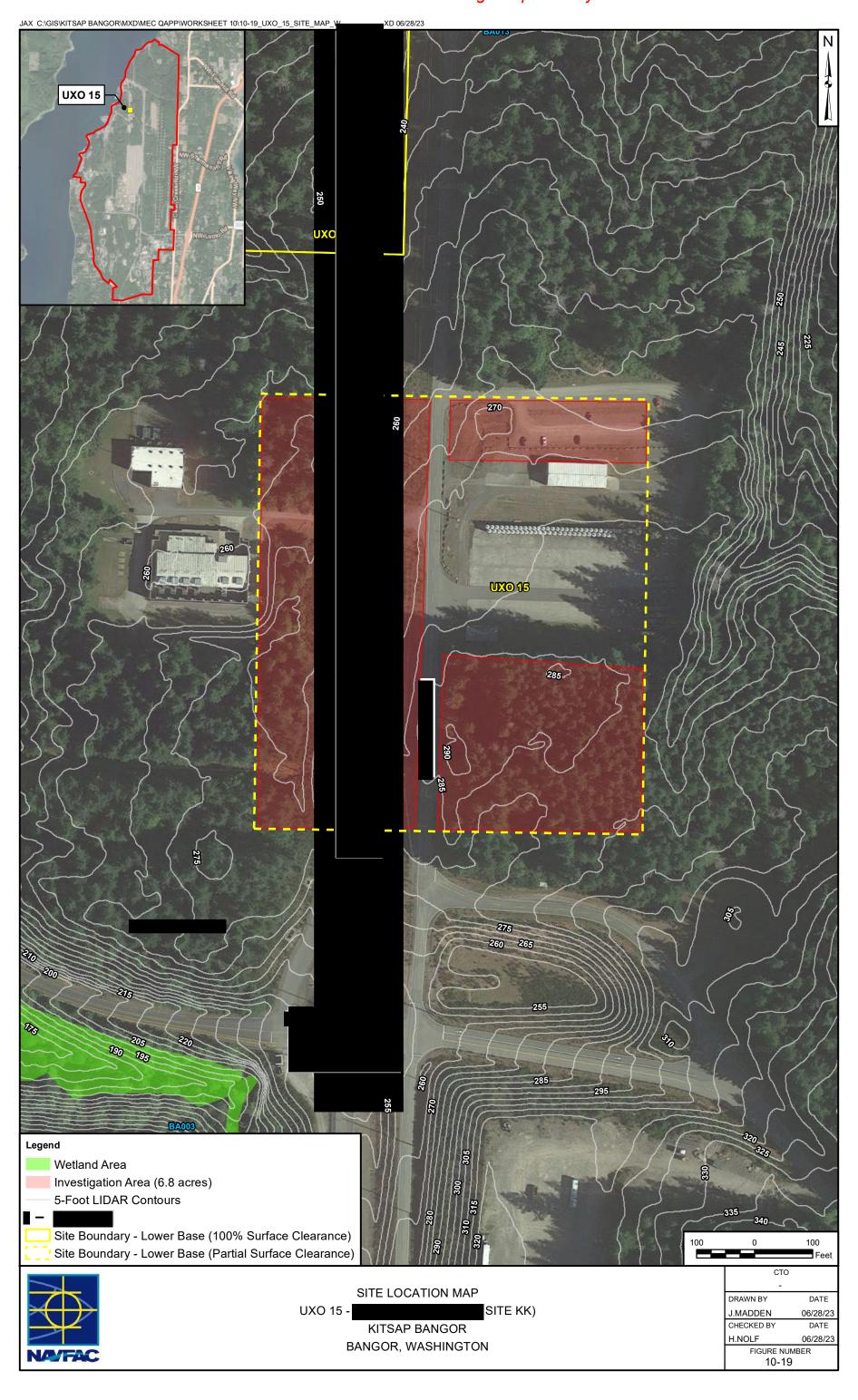
Chan 2	4
Chan 3	o
Chan 4	-2
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

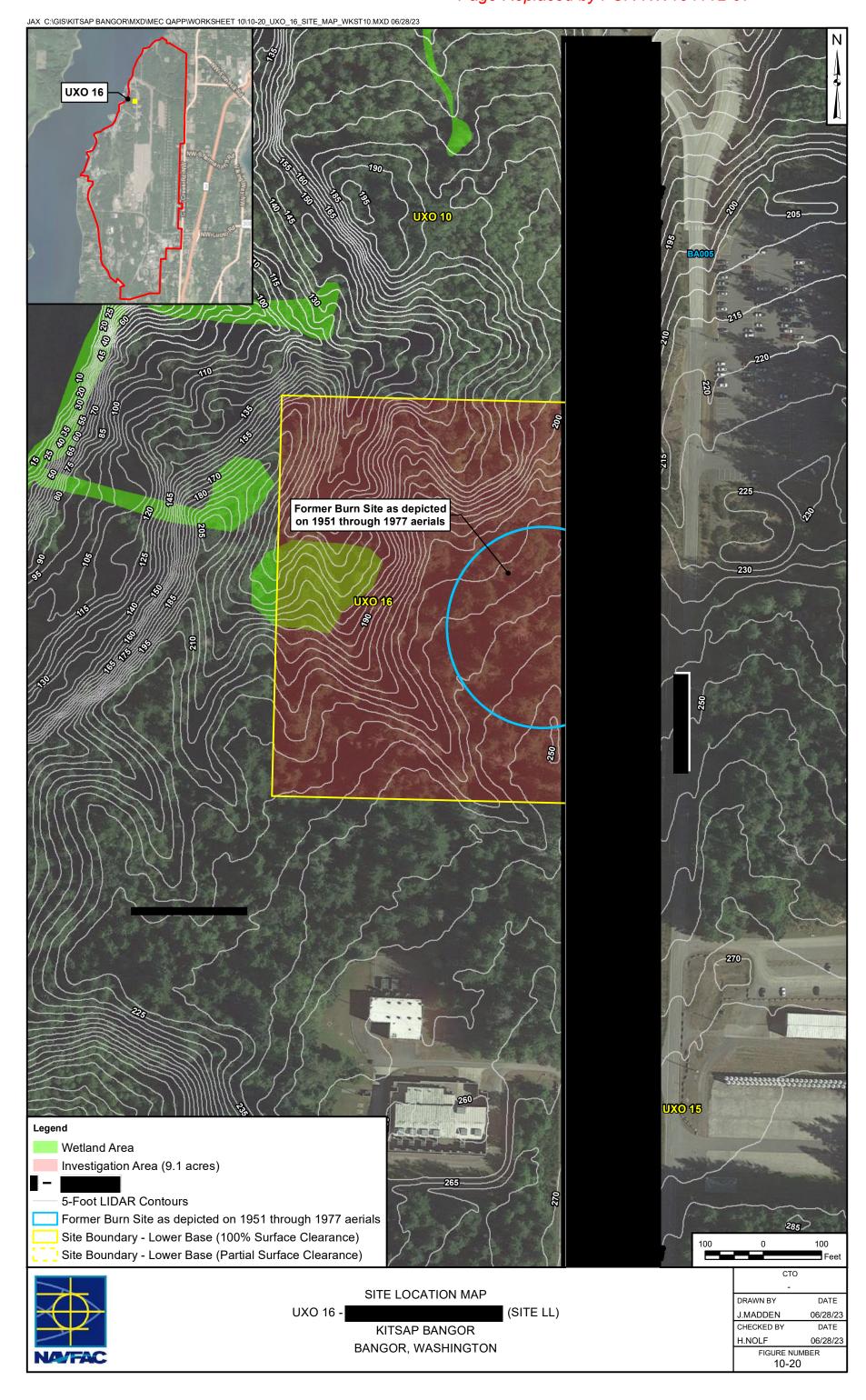
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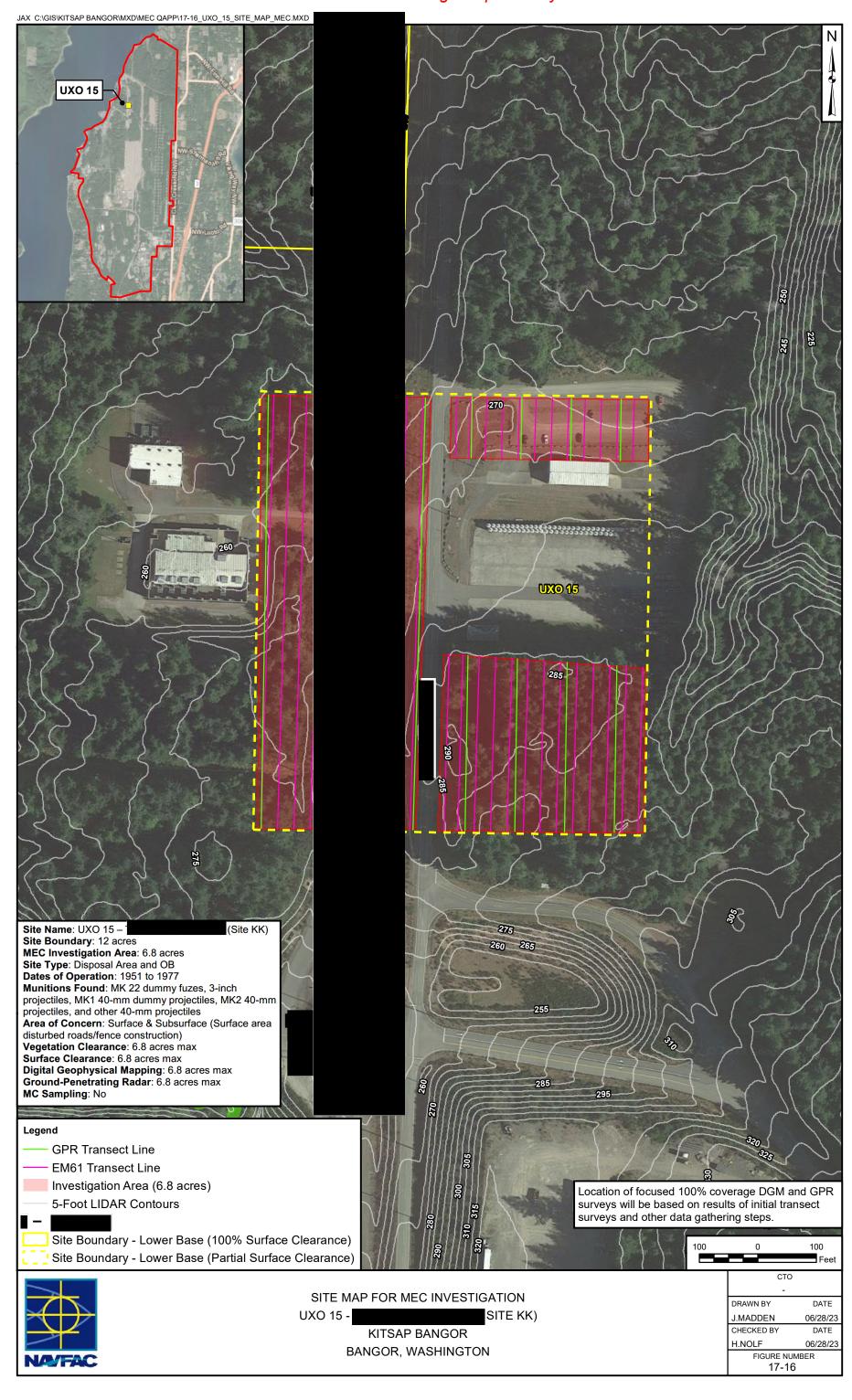
CLEAN CONTRACT NUMBER N6247016D9008

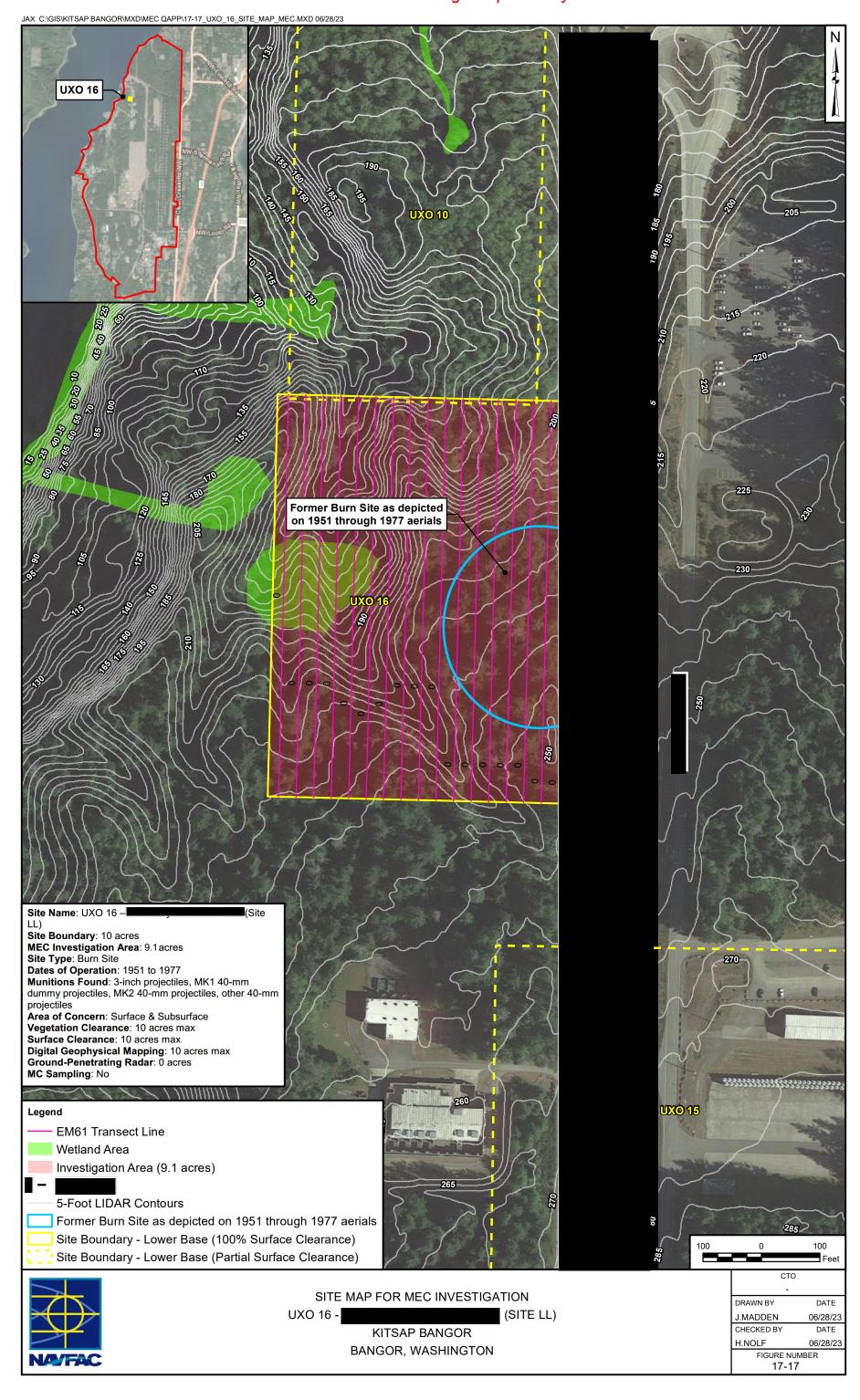
FIELD CHANGE REQUEST (FCR)				
TASK ORDER # N4425519F4112	FCR#	FCR-NW194112-07 DATE 7/5/202	3	
LOCATION: Naval Base Kitsap Bangor, Silverdale	VΑ	NTR/RPM		
1. Document to be changed. Identify revision, date, section, drawing, etc.				
Final MEC QAPP - Munitions Response Quality Assuat Naval Base Kitsap Bangor dated June 2021. Figures 10-19, 10-20, 17-16, and 17-17.	rance Pro	oject Plan for Munitions and Explosives of Concern Site I	nspection	
2. Description of existing requirement and proposed of	hange (At	ttach sheet if necessary)		
This FCR addresses correction to the investigation area at sites UXO 15 and UXO 16. Project investigation areas and boundaries are defined by the corresponding global positioning system (GPS) coordinates associated with the project figures in the MEC QAPP. At site UXO 15 the area inside the (two layer high security) fence is excluded from investigation. However the location of the fence shown on the figures (10-19 and 17-16) is incorrect. Actual fence location is approximately 50 ft west. Land surveyors have recorded the coordinates of the high security fence and accessible inspection areas. Figures 10-19 and 17-16 have been revised to accurately show the fence location and areas to be inspected and surveyed by EM-61 as shown by transect lines. In additon, the fence location has been added to site UXO 16 figures 10-20 and 17-17. Field personnel will inspect accessible area up to both sides of the fence (as allowed by security). Replace QAPP figures 10-19, 10-20, 17-16, and 17-17 with the attached figures.				
Tt Reason for Change (Attach sheet if necessary) Figures in the MEC QAPP were generated using Google Earth imagery with notation, such as the fence, based on visual interpretation. At the time of the figure preparation, the fence was not present in the imagery and its position was incorrectly shown.				
4. Originator: (print name and sign)		Title	Date	
Mitch Baron Mitch Baron		Project Manager	7/5/2023	
Reviewed by: (print name and sign)		Title	Date	
Norm Biner		LIVO Operations Manager	7/5/0000	
Norm Piper Site Superintendent (Print name and sign)	Date	UXO Operations Manager Task Order Manager (Print name and sign)	7/5/2023 Date	
Forrest Malone	7/5/23	Mitch Baron Mitch Baron	7/5/2023	
Tt Program QC Manager (Print Name and Sign)	Date	Navy Acknowledgement (Print name and sign)	Date	
Michelle Coffman Michelle Coffman	7/5/23			













Weekly Quality Control Report

WQCR INFORMATION						
From: 07/22/202	:3	To: 07/28/2023	Report #:	023		
Client:	NAVFAC NW		Project:	179-80	179-8015	
Contract Name:	Naval Base Kitsa	p Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	08	Task Order #:	N4425519F4112		
Conduct geophy Silverdale, WA. T	Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.					
See Contractor Pro	duction Report for i	nformation on work performed, safety,	weather, and subcont	tractor ho	urs.	
SUMMARY OF Q	UALITY CONTR	OL ACTIVITIES PERFORMED:				
Preparatory Insp	pection (DFW):	DFW 8			Activity/Task #:	DGM Data Processing and QC
Initial Inspection	(DFW):	DFW 5; DFW 6			Activity/Task #:	IVS Establishment; DGM Field Surveys
Follow-Up Inspe	ction (DFW): [None			Activity/Task #:	N/A
Rework Status:	[None			Activity/Task #:	N/A
(Enter a summary	of weekly quality	activities for the site activities per	formed.)			
DFW #5 (IVS Establishment): Review of Initial IVS tests for the EM61-HP sensor with RTS. QC Checklist associated with Instrument Assembly is attached to this report. IVS Technical Memorandum preparation in progress. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-15. SOP checklists associated with Dynamic Detection Surveys and Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing.						
Tests Performed and Results:						
- Performed Ongoing Geodetic Function Checks IAW MQO # 1-5 (Passed) Performed Ongoing Sensor Function Tests for EM61-HP IAW MQO # 3-4 (Passed) Processed Initial IVS Dynamic Positioning Accuracy for EM61-HP and TEM-8g sensors IAW MQO # 3-6 (Passed) Processed Ongoing IVS Dynamic Positioning Precision for EM61-HP sensor IAW MQO # 3-7 (Passed) Processed In-line measurement spacing for IVS datasets for EM61-HP sensor IAW MQO # 3-8 (Passed).						
Materials and Equipment Received and Results of Inspection:						
- Leica CS16 controller (RTS) picked up from off-site vendor following camera removal.						

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Weekly Quality Control Report

Contract #: N6247016D9008 Date: Jul 28, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None
Field Change Requests Initiated or Status:
FCR-008 initiated on 07/27/2023 to remove TEM-8g surveys and update language on GPR surveys for sites UXO-08, UXO-10, UXO-15 and UXO-16, as presented in FCR-006.
JOB SAFETY: (LIST OBSERVATIONS)
- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION
- RTS cannot be used in secure areas until equipment pass can be obtained.



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Jul 28, 2023

PROJECT PHOTOS				
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Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specificatio	is report is compl ns to the best of I	ete and c	correct, and all materials used and work performed during this reporting the second control of the control of t	ng
	1			_
NAME: Jessie Powers	TITLE/COM	PANY:	QC Geophysicist	
	SIGNATUR	Ξ:	Jessie Powers Digitally signed by Jessie Powers Date: 2023.08.04 16:02:03 -04'00'	



Initial Inspection Checklist

· ·					
Con	ntract Name: Naval Base Kitsap Bangor				
Con	ontract #: N6247016D9008			Date: 07/26/2023	
Tas	k Order #: N4425519F4112		R	Reference: QAPP, SOPs	
DFV	N/Activity #: DFW#5 - IVS Establishm	ent; DFW #6 - DGM Field Surveys	С	Client Notified	
Par	t I. Personnel Present:				
#	Name	Position	С	Company/Government Agency	
1	Jessie Powers	QC Geo	Tetra Tecl	h	
2	Eugene Mikell	QCM	Tetra Tecl	h	
3	Matt Barner	Project Geo	Tetra Tecl	ech	
4	Anthony Aguirre	UXOQCS	Tetra Tecl	Tech	
5	Simon Jobman	Database Manager	Tetra Tecl	h	
6	Melissa King	QA Geo	USN		
7 Zachary Weston		Field Geophysicist	Tetra Tecl	ech	
8 Jacob Jankowski		Field Geophysicist	Tetra Tecl	h	
9 Brett Yarborough		Site Geophysicist	Tetra Tecl	h	
10	Jason Null	Field Geophysicist	Tetra Tech		
11	Mitch Baron	PM	Tetra Tech		
12	Scot Wilson	PM	Tetra Tecl	h	
Part II. Preparatory punch list/deficiencies are resolved/corrected?					
○ Yes					
Part III. Summarize compliance with procedures (be specific) identified at preparatory inspection. Coordinate plans, specifications, and submittals.					
Comments:					
All geodetic and geophysical sensors were assembled, tested and inspected IAW DGM SOPs 04 and 07. The Initial IVS surveys were collected with the EM61-HP coupled with RTS on 07/20/2023 IAW DGM SOP 02. Transect data were collected in UXO-15 IAW DGM SOP 05 on 07/24/2023.					

QP-01 Rev. 1, Rev Date 09/01/2021



Initial Inspection Checklist

Contract #: N6247016D9008 Date: Jul 26, 2023

Part IV. Preliminary Work. Ensure preliminary work is complete and correct. If not, describe the action(s) taken. Attach DFW-specific checklist to this report, if used.

Actions:

All necessary control points have been emplaced by PLS in support of geophysical survey operations. All vegetation reduction and surface clearance operations have been completed in areas where geophysical collection has begun and is ongoing in UXO-08, UXO-10, UXO-15 and UXO-16.

TetraForms checklists for Civil Survey, IVS Instrument Verification and Dynamic Detection Survey will be completed.

Part V. Establish Levels of Workmanship

Provide performance criteria for DFW from Plans or SOP.

MQO #1-4 - Assemble Positioning Systems (RTS): System was assembled as specified in manual and DGM SOP 07 each time the system was setup for use.

MQO #1-5 - Initial Geodetic Function Checks (RTS): Measured check-shots at known control point established by the PLS were within 4 inches of ground truth following RTS assembly.

MQO #1-6 - Ongoing Geodetic Function Checks (RTS): Measured check-shots at known control points were within 4 inches of ground truth each time the systems were moved to a new location.

MQO #3-1- Assemble system (EM61-HP): Systems were assembled as specified in manuals and DGM SOP 04.

MQO #3-4 - Ongoing Instrument Function Test (EM61-HP): Static test item responses were within 20% of established initial responses MQO # 3-6 - Initial dynamic positioning accuracy (EM61-HP): Derived positions of IVS targets were within 10" of ground truth locations MQO # 3-14 - Battery Voltage (EM61-HP): Battery changed before voltage < 11.0V

Part VI. Resolve any differences

Comments:

MQO #3-2 - Initial Instrument Function Test (EM61-HP): Initial static test item responses have not yet been verified within 20% of predicted responses based on existing scaled ISO40 response curves

MQO # 3-7 - Ongoing survey positioning precision (EM61-HP): Ongoing IVS results have not been verified by data processors yet.

MQO # 3-8 - In-line measurement spacing (Ongoing IVS/Production data): Ongoing IVS results and production data have not been verified by data processors yet.

MQO # 3-10 - Full coverage (EM61-HP): Full-coverage production data have not yet been been collected.

MQO # 3-9 - Transect Coverage (EM61-HP): Production data have not yet been verified by data processors.

Review job conditions using Site Health and Safety Plan and activity hazard analysis. Comments:

None.

Part VII. Check Safety

Date: 07/26/2023

Jessie Powers Digitally signed by Jessie Powers Date: 2023.07.26 11:38:47 -04'00'

Project Quality Manager

QP-01 Rev. 1, Rev Date 09/01/2021

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS		
Project	Kitsap Bangor	
Project Geo	Matt Barner	
Field Personnel	Jacob Jankowski, Zach Weston, Jason Null	
IVS ID	IVS1	
Data Type	Dynamic	
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes	
Item 2: Do you need to perform any DOC's at this time?	No	
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes	
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes	
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes	
Item 4: Perform a SFT	DGM	
Dynamic IVS File Name:	230720g1ivsinit	
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes	
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A	
Item 7b: Were background validation measurements collected over the blank space?	N/A	
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes	
Supervisor	Zach Weston	

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Geo1 (Contract No.	N62470-16-D-9008

Naval Base Kitsap Bangor

Supervisor Signature	306 Ava.
Date	2023-07-20

Detection and Positioning Sensors used for initial IVS		
Date/Time	2023-07-20 15:12:19	
Is this an External instrument?	No	
Barcode	593963	
Serial Number	2491286	
Model	CS20 (RTS)	
Equipment Source	Tetra Tech Warehouse	

Detection and Positioning Sensors used for initial IVS		
Date/Time	2023-07-20 15:13:00	
Is this an External instrument?	No	
Barcode		



Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville warehouse

Detection and Positioning Sensors used for initial IVS		
Date/Time	2023-07-20 15:15:41	
Is this an External instrument?	Yes	
External Instrument	Other	
Enter "Other" external instrument	EM61MKII HP sn 032109	
Comments	Kd jones equipment	

Detection and Positioning Sensors used for initial IVS		
Date/Time	2023-07-20 15:16:55	
Is this an External instrument?	No	
Barcode	304684	
Serial Number	3011788	
Model	TS16	
Equipment Source	Tetra Tech Warehouse	



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-20 15:08:40
SOP	1
Team Member	Zac Weston
Signature	Joseph Mark

Personnel Signatures	
Date/Time	2023-07-20 15:08:55
SOP	2
Team Member	Jacob Jankowski
Signature	MM

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TETRA TECH



DGM SFT	
Date/Time	2023-07-20 16:22:24
Operator	Jacob Jankowski
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None

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Battery Level	11.85
SFT File Name	230720g1ssam

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	1
Chan 3	1
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1540
Chan 3	881
Chan 4	575
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes



Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-15
Chan 2	-9
Chan 3	-3
Chan 4	-1
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Operator	Jacob Jankowski, Zach Weston, Jason Null
Dynamic Detection System	EM61-HP
Positioning System	RTS
Survey Unit(s)	UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes
System current and/or battery level are within the acceptable range.	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
A passing SFT was collected.	Yes
IVS was collected IAW SOP2 prior to starting production data collection.	Yes
Confirm you are a minimum of 200ft from other systems on site.	Yes
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	Yes
Item 4: Enter the maximum acceptable line spacing for this project:	2

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Naval Base Kitsap Bangor

Unit of Measure	Feet
Item 5: Navigation Method:	Flags
Item 7: Were all obstacles circled in the data or documented on the FDS?	Yes
Item 8: Were all raw data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston
Supervisor Signature	The Am
Date	2023-07-24

Personnel Signatures	
Date/Time	2023-07-24 10:35:00
SOP	5
Team Member	Jacob Jankowski
Signature	

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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:35:00
SOP	9
Team Member	Jacob Jankowski
Signature	

Personnel Signatures	
Date/Time	2023-07-24 10:36:00
SOP	5
Team Member	Zac Weston
Signature	W Man



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:36:00
SOP	9
Team Member	Zac Weston
Signature	My m

Personnel Signatures		
Date/Time	2023-07-24 10:37:00	
SOP	5	
Team Member	Jason null	
Signature		

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:37:00
SOP	9
Team Member	Jason null
Signature	Mal

Item 6: Complete the FDS for this Survey Unit.		
Date/Time	2023-07-24 12:08:00	
Survey Unit/Grid	UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20	
Data Type	Initial Dynamic	
Status	Started & Incomplete	
Operator(s)	Jacob Jankowski, Zach Weston	
Datum	NAD83 CONUS	
Coordinate System	State Plane	
Terrain	Level	
Tree Cover	None	
Brush	None	
Weather	Sunny, Cloudy	

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Naval Base Kitsap Bangor

Battery Voltage or Transmit Current Start	12.3
Battery Voltage or Transmit Current End	11
Raw Data File Names	230724g1uxo15

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Con	tract Name: Naval Base Kitsap Bangor				
Con	tract #: N6247016D9008			Date: 07/25/2023	
Tas	k Order #: N4425519F4112			Reference: QAPP, SOPs	
DFV	V/Activity #: DFW#8 - DGM Data Prod	cessing and QC		Client Notified Yes No N/A	
I. P	I. Personnel Present:				
#	Name	Position	Company/Government Agency		
1	Jessie Powers	QC Geo	Tetra Tech		
2	Mitch Baron	РМ	Tetra Tech		
3	Brett Yarborough	Data Processor/Site Geophysicist	Tetra Tech		
4	Simon Jobman	Data Processor/Database Manager	Tetra Tech		
5	Eugene Mikell	QCM	Tetra Tech		
6	Melissa King	QA Geo	USN		
7	Anthony Aguirre	UXOQCS	Tetra Tech		



Contract #: N6247016D9008 Date: Jul 25, 2023

II. Deliverables or Submittals		
1.a. Review Deliverable/Sub	nittal Register (if used). Have all applicable deliverables/submittals been approved?	
1.b. Are the work plan and S	Ps available on site?	
If No, what items have not be	en submitted and why?	_
a		
b.		
C.		
2. Are all resources (personi	el, materials and equipment) on hand to perform the work?	
○ Yes		
If No, what items are missing		
a. GIS shapefiles for UXO Sites	08, 10, 15 and 16 are still in progress.	
b.		
c.		_
Check approved resource	against delivered resources. (This should be done as they arrive.)	_
Comments:		_
N/A - all data processing is b	ing performed in established remote office locations.	
III. Equipment Checkouts		
1. Has all equipment in func	on checked?	_
○ Yes ○ No	N/A	
1. Have all coordinates syste	ms been verified against the plans?	
○ Yes ○ No	N/A	
1. Are coordinates systems	measurements / units of measure consistent with the plans?	
	○ N/A	
If No, what action is taken?		
Comments:		_
IV. Material Storage		
Are materials stored properties.	rly?	
	○ N/A	
If No, what action is taken?		
Comments:		\neg
1		



Contract #: N6247016D9008 Date: Jul 25, 2023

V. Specifications/Reference

- 1. Review each paragraph of Specification/Reference
- * Retrieve and verify all raw data packages from the field
- * Process data and communicate with field team on need for infill surveys or additional documentation
- * Review QC test results and perform ongoing data review and interpretation
- * Target processed DGM survey data
- * Confirm blind seed detection in full-coverage surveys (QC Geo)
- * Upload processed data packages for QC Geo review and provide databases to Data Manager for incorporation into Access
- 2. Discuss procedure for accomplishing the work.

Data processors will retrieve raw data from the SP site and verify any relevant details impacting data processing with daily logbook entries. QC and production data will be processed IAW DGM SOP 05 and verified against MQOs in WS#22 Table 22-3. Any datasets requiring gap-fill will be issued to the field for collection. All complete datasets will be targeted IAW the site-specific picking threshold. All processed data will be uploaded to the SP site for QC Geo review prior to weekly QA data submittal.

3. Clarify any differences.					
This inspection	n does not cover GP	PR survey data proces	ssing.		
VI. Preliminary	Work and Permits				
1. Ensure preli	minary work is corre	ect and permits or lice	nses are on file.		
Yes	○ No	○ N/A			
If No, what acti	If No, what action is taken?				
2. Are utility ma	arkouts established	?			
○Yes	○ No	N/A			



Contract #: N6247016D9008 Date: Jul 25, 2023

VII. Testing (material or equipment, prior to use or operation)

- 1. Identify test to be performed, frequency, and by whom.
- Initial Instrument Function Test once following assembly (within 20% of predicted HP response) Data Processor
- Ongoing Instrument Function Test every day systems are used (within 20% of initial response) Data Processor
- Initial IVS positioning accuracy once during initial sensor validation (within 10" of ground truth location) Data Processor
- Ongoing IVS positioning precision- every day systems are used for production data (within 10" of running average) Data Processor
- In-line measurement spacing every completed dataset (98% ≤0.75', 100% ≤3.3') Data Processor
- Full coverage every completed grid (≥90% @ 2'; 98% ≤3.3') Data Processor
- Transect coverage every completed transect (within 25' of planned transect) Data Processor
- Valid Position Data every RTS dataset Data Processor
- Dynamic Survey Performance each day of full-coverage collection (targeted seed location ≤3.3' from ground truth) QC Geo
- 2. Where required?
- Initial Instrument Function Test Running QC summary/Access Database
- Ongoing Instrument Function Test Running QC summary/Access Database
- Initial IVS positioning accuracy Running QC summary/Access Database
- Ongoing IVS positioning precision- Running QC summary/Access Database
- In-line measurement spacing Running QC summary/Access Database
- Grid coverage Running QC summary/Access Database
- Transect coverage Running QC summary/Access Database
- Valid Position Data Geosoft Database

- Dynamic Survey Performance - Blind Seed Log			
Review testing plan. If there is offsite testing required, identify it below.			
N/A			
4. Has test facility been approved?			
N/A			
VIII. Training			
Was site-specific training conducted and documented?	○ Yes	No	
2. Was an AGC demonstration of capability (DOC) performed?	○ Yes	○ No	● N/A
3. Was the DOC documented and filed in the project records?	○ Yes	○No	● N/A



Contract #: N6247016D9008 Date: Jul 25, 2023

IX. Safety				
1. Review applica	ble portion of the Task Order Site Health and Safety Plan.			
N/A - there is no Al	HA for data processing. No personnel are on-site as part of DF	FW #8		
2. Activity hazard	analysis updated and approved?	○ Yes	No	
3. APP signature	page and AHAs signed?	○ Yes	No	
4. Emergency cor	ntact personnel identified and contact list posted?	○ Yes	No	
5. Emergency cor	ntact list current?	○ Yes	No	
6. Emergency act	ion drill conducted and documented?	○Yes	No	
	performing this DFW have current medical clearance and EOD/UXO, HAZWOPER, 8hr Refresher, OSHA Supervise		No	
	W-specific checklist to the report, if used.			
Comments:				
XI. Summary of A	ction Items or Punch List:			
Action Items:				
* Upload GIS shapefiles to SP Site * Post upcoming FCR-007				
XII. Risks				
1. Have risks (Safety, Scope, Schedule, Budget, Level of Quality) been reviewed and updated based on current site conditions for this DFW?				
XIII. Client comme	ents during meeting:			
Comments:				
	Date: 07/25/2023 Date: 07/25/2023			
	Matthew Barner Obj. (2) signed by Matthew Barner and a realt-barner grade g	Jessie Po	Wers Digitally signed by Jessie Powers Date: 2023.07.26 08:06:51 -04'00'	
Site Superintendent or Equivalent Project Quality Manager		ty Manager		



QC Checklist for EM61 HP Assembly

Record: 6	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist was filled out for data collected on 07/18/23 and uploaded to SP. No photos have been approved to date.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston and Jacob Jankowski have valid operator certification forms for the EM61 HP and RTS on the project SP site. Jason Null will receive an operator certification form at a future date before collecting data.
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 3 Comments	Yes - raw data was used to establish new attenuation curves for G4 system
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	AM SS test passes compared to initial SS test. No data spikes or data failures
QC Geophysicist Signature	gessu L'Owers
Date	2023-08-03

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Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 9	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field checklist was filled out for data collected on 07/20/23 and uploaded to SP.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston and Jacob Jankowski have valid operator certification forms for the EM61 HP and RTS on the project SP site. Jason Null will receive an operator certification form at a future date before collecting data.
Item 3: Were all required data files uploaded to the project files?	Yes
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.03 feet of control point CP3 ground truth.
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	New attenuation curves were created for G4 system to use for initial SS tests. Ongoing SS test was within 20% of established initial average values.
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sample separation passed. Target locations passed: IVS03 = 0.23ft, IVS02 = 0.21ft, IVS01 = 0.36ft.
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes
Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes

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Item 8 Comments	No photographs required since no IVS seeds were installed.
QC Geophysicist Signature	Jessu L Porvers
Date	2023-08-03

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Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 15	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Enter "Other" Datum	NAD83
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline (0.80 for both smoothness and tension) for leveling the data.
Item 7: Enter latency correction in seconds:	0.08
Item 8: Enter Gridding parameters:	0.25ft grid cell; minimum curvature, 2ft blanking distance

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Troject ded contract no. No.	Navat Base Nitsap Bangoi
Item 9: Enter the calculated standard deviation of the background response:	1.1
The minimum recommended target selection threshold is: (auto-filled)	5.5
Item 10: Target Selection Method:	Amplitude
Project Geophysicist Signature	15
Date	2023-08-03
QC Geophysicist Signature	Jessie L'Ervers
Date	2023-08-03

Personnel Signatures	
Date/Time	2023-07-21 09:07:00
SOP	4
Team Member	Brett Yarborough
Signature	

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Project Geo

Contract No. N62470-16-D-9008

Personnel Signatures	
Date/Time	2023-07-21 09:07:00
SOP	6
Team Member	Brett Yarborough
Signature	BAJA (

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:09:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line

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Feet	
1176887.95	
262373.12	
1176888.107	
262372.7969	
0.36	
em61_hp	
165	
89.06	

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:13:11
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	AM
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	1176887.88
Seed Item Northing	262352.07



Target Easting	1176888.036
Target Northing	262352.2178
Target Offset (auto-filled)	0.21
Detection Sensor	em61_hp
Expected Response	31
Observed Response	41

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:14:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.23



Detection Sensor	em61_hp
Expected Response	232
Observed Response	220.43

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 258	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230724 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 07/24/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geophysicist Signature	
	\rightarrow
	Jesse L Powers
Date	2023-07-24

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QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 261			
Project	Kitsap Bangor		
QC Geophysicist	Jessie Powers		
PLS Subcontractor	AES Consultants		
Positioning Sensor Type	Leica RTS		
Item 1: Was the Field Checklist completed?	Yes		
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230725 G1 Logbook.		
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes		
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.		
Item 3: Was the correct project coordinate system used?	Yes		
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet		
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes		
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A		
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.		
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes		
Item 5 Comments	All checkshots for Leica positioning systems on 07/25/23 were within 4 inches of ground truth (passed).		
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A		
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.		

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OC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
	Contract No. Noz-10-10-5000	Mavat Dase Mitsab Dalieui

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QC Geophysicist Signature	Jesse & Powers	
Date	2023-07-25	

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QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 264	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230726 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 07/26/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-07-26



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 267	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230727 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 07/27/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessie L	Povera
Date	2023-07-27	



	WQCR INFORMATION					
From: 07/29/202	3	To: 08/04/2023	Report #:	024		
Client:	NAVFAC NW		Project:	179-8	015	
Contract Name:	Naval Base Kits	ap Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	008	Task Order #:	N442	5519F4112	
Project Descript	ion:					
Silverdale, WA. T	he objective of	part of a Site Investigation (SI) at foot the SI is to assess and verify the about the stimular strains at each MRS.				
See Contractor Pro	duction Report for	information on work performed, safety,	weather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	None			Activity/Task #:	N/A
Initial Inspection	(DFW):	DFW 8			Activity/Task #:	DGM Data Processing and QC
Follow-Up Inspe	ction (DFW):	DFW 5; DFW 6			Activity/Task #:	IVS Establishment; DGM Field Surveys
Rework Status:	lework Status: None			Activity/Task #:	N/A	
(Enter a summary	of weekly quali	y activities for the site activities per	formed.)			
DFW #6 (DGM collection with the DFW #8 (DGM reporting for IVS	DFW #5 (IVS Establishment): IVS Technical Memorandum preparation in progress. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-15. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 08/04/23 includes EM61-HP QC data from week 07/24/23 - 07/27/23 and Initial G4 EM61-HP IVS data.					s report. ing, QC and technical
Tests Performed	d and Results:					
- Processed Init - Processed On - Processed On	 Processed Ongoing Geodetic Function Checks IAW MQO # 1-5 (Passed). Processed Initial Sensor Function Test for EM61-HP IAW MQO #3-2 (Failed) - See NCR-006. Processed Ongoing Sensor Function Tests for EM61-HP IAW MQO # 3-4 (Passed). Processed Ongoing IVS Dynamic Positioning Precision for EM61-HP sensor IAW MQO # 3-7 (Passed). Processed In-line measurement spacing for IVS datasets for EM61-HP sensor IAW MQO # 3-8 (Passed). 					
Materials and E	quipment Rece	eived and Results of Inspection:				
N/A						

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Aug 4, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

NCR-006 initiated on 08/04/23 to address initial EM61 Instrument Function test response being less than 20% of established EM61 HP response curve values, resulting in failure of MQO #3-2.

Field Change Requests Initiated or Status:

FCR-008 initiated on 07/27/2023 to remove TEM-8g surveys and update language on GPR surveys for sites UXO-08, UXO-10, UXO-15 and UXO-16, as presented in FCR-006 (finalized on 08/03/23).

JOB SAFETY: (LIST OBSERVATIONS)

- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- RTS cannot be used in secure areas until equipment pass can be obtained.
- Weekly Field Work Status call on 08/03/2023 with project team. Refer to project files for approved meeting minutes.
- Initial Inspection call for DFW #8 on 08/04/23. Refer to attached inspection checklist for relevant information.



Contract #: N6247016D9008 Date: Aug 4, 2023

PROJECT PHOTOS		
	1	
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specificatio	nis report is complete ar ons to the best of my kno	nd correct, and all materials used and work performed during this reporting owledge, except as may be noted above.
	1	
NAME: Jessie Powers	TITLE/COMPAN	Y: QC Geophysicist
	SIGNATURE:	Jessie Powers Digitally signed by Jessie Powers Date: 2023.08.08 12:16:53 -04'00'



Initial Inspection Checklist

			•		_			
Cor	ntract Name:	Naval Base Kitsap Bangor						
Cor	ntract #:	N6247016D9008			Date:	08/04/2023		
Tas	k Order #:	N4425519F4112			Reference:	QAPP, SOPs		
DF۱	N/Activity #:	DFW#8 - DGM Data Prod	cessing and QC		Client Notifie	d	○ N/A	
Par	Part I. Personnel Present:							
#		Name	Position		Company/Go	overnment Agency	,	
1	Jessie Pow	ers	QC Geo	Tetra Te	ech			
2	Mitch Baror	า	PM	Tetra Te	ech			
3	Shaun Woo	ods	UXOQCS	Tetra To	ech			
4	Anthony Ag	juirre	UXOQCS	Tetra To	ech			
5	Simon Jobr	nan	Data Processor/Database Manager	Tetra To	ech			
6	Brett Yarbo	rough	Data Processor/Site Geophysicist	Tetra T	ech			
Par	rt II. Preparat	tory punch list/deficiencies	are resolved/corrected?					
● Y	∕es ○ No	○ N/A (No punch list/	deficiencies were identified)					
		rize compliance with process, specifications, and sub	edures (be specific) identified at prepa mittals.	ratory ins	spection.			
Col	mments:							
che WS	All raw geodetic and geophysical data were retrieved and reviewed by data processors against logbook entries and field checklists. Initial IVS data for the G4 EM61-HP system were processed IAW DGM SOP 05 and verified against MQOs in WS#22 Table 22-3. Data will be posted for QA review and presented in the IVS Technical Memorandum Addendum 02 following the QC review process.							
		nary Work. Ensure prelimedific checklist to this repo	inary work is complete and correct. If ort, if used.	not, desc	cribe the action	n(s) taken.		
	tions:							
and		very folder has been confi	and verified. All data processors have irmed to be accessible. TetraForms ch					

QP-01 Rev. 1, Rev Date 09/01/2021

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Initial Inspection Checklist

Contract #: N6247016D9008 Date: Aug 4, 2023

Part V. Establish Levels of Workmanship

Provide performance criteria for DFW from Plans or SOP.

MQO #3-2 - Initial Instrument Function Test (EM61-HP): Static test item responses collected during attenuation test were within 20% of predicted responses based on HP scaled ISO40 response curve

MQO #3-4 - Ongoing Instrument Function Test (EM61-HP): Static test item responses were within 20% of established initial responses MQO # 3-6 - Initial dynamic positioning accuracy (EM61-HP): Derived positions of IVS targets were within 10" of ground truth locations. MQO #3-7 - Ongoing Detection Survey Positioning Precision (EM61-HP): Derived positions of IVS targets were within 10" of running

average positions.

MQO # 3-8 - In-line measurement spacing (EM61-HP): IVS Data met the minimum requirements for 98% of successive measurements to be within 0.75ft; 100% of successive measurements to be within 3.3ft.

Part VI. Resolve any differences

Comments:

MQO # 3-8 - In-line measurement spacing (Production data): Production data have not been delivered for QC review yet.

MQO # 3-9 - Transect Coverage (EM61-HP): Production data have not been delivered for QC review yet.

MQO # 3-10 - Full coverage (EM61-HP): Production data have not been collected in UXO-08.

MQO # 3-17 - Dynamic DGM Survey Performance: Production data have not been collected in UXO-08.

Part VII. Check Safety

Review job conditions using Site Health and Safety Plan and activity hazard analysis. Comments:

None.

Date: 08/04/2023

Jessie Powers Digitally signed by Jessie Powers Date: 2023.08.08 17:12:12 -04'00'

Project Quality Manager

QP-01 Rev. 1, Rev Date 09/01/2021

Page 2 of 2
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CLEAN CONTRACT NUMBER N6247016D9008

FIELD CHANGE REQUEST (FCR)							
TASK ORDER # N4425519F4112	FCR#	FCR-NW194112-08 DATE 7/27/202	3				
LOCATION: Naval Base Kitsap Bangor, Silverdale V	VA	NTR/RPM					
1. Document to be changed. Identify revision, date, se	ction, dra	wing, etc.					
Final MEC QAPP - Munitions Response Quality Assurance Project Plan for Munitions and Explosives of Concern Site Inspection at Naval Base Kitsap Bangor dated June 2021.							
Additionally Field Change Request FCR-NW194112-0	06.						
2. Description of existing requirement and proposed c	hange (At	tach sheet if necessary)					
MEC QAPP Worksheet 10 Section 10.3 presents four funding. These four sites include: • UXO 8 Flier/Tang Road Disposal • UXO 10 Dunnage Canyon • UXO 15 Tinian Road Dunnage • UXO 16 Boundary Road Burn Site	sites for	potential deferral to Remedial Investigation (RI) if require	ed due to				
	ding the a	egetation clearance, detector aided surface sweep, and cabove four sites. Worksheet 17 specifies surface sweep ods.					
based on project data team (PDT) review of data and PDT decision for GPR surveys at all the sites. Howev (N/A), the four sites that were anticapated to be defer investigations at the four deferred sites as defined in t	existing stream the reverse the existing stream to exist the exist	ach to Ground Penetrating Radar (GPR) surveying at the site conditions. The FCR revised Section 17 tables to refivised tables either did not include, or identified as Not Apa sufficient funding remaining, the project is proceeding we with the exception of not conducting TEM-8g surveys. It deferred sites, Tables 17-1, 17-2, and 17-3 revised by Fif the four deferred sites.	lect the plicable ith survey o				
Tt Reason for Change (Attach sheet if necessary) As stated in block 2 above, site UXO 8, UXO 10, UXC constraints and were not appropriately notated in challenges.		UXO 16 were not expected to be investigated due to fund le by FCR-NW194112-06.	ding				
		-	D (
4. Originator: (print name and sign)		Title	Date				
Mitch Baron //Wah Davor	5	Project Manager	7/27/2023				
Mitch Baron Reviewed by: (print name and sign) Jacobia Reviewed Ginii Z O	owers_	Title	Date				
Jessie Powers		QC Geophysicist	8/3/2023				
Site Superintendent (Print name and sign)	Date	Task Order Manager (Print name and sign)	Date				
Forrest Malone	8/3/23	Mitch Baron Mitch Baror	7/27/2023				
Tt Program QC Manager (Print Name and Sign)	Date		Date				
Michelle Coffman Michelle Coffman	8/3/23						

CLEAN CONTRACT NUMBER N6247016D9008

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CONTRACT NUMBER N6247016D9008 TASK ORDER N4425519F4112 FCR-08, Attachment 1

This document summarizes updates to the final MEC QAPP including FCR-NW194112-06 for the subject task order. Text sections and tables in the MEC QAPP and as revised by FCR-NW194112-06 are presented in black font, whereas the proposed updates are in red font.

Worksheet #17, Table 17-1.

This table was updated by FCR-NW194112-06 to reflect which MRP sites will have GPR surveying based on PDT meetings during the SI data reviews. Only the first and last columns of this table from the MEC QAPP are presented for brevity.

TABLE 17-1 (Revised FCR-NW194112-08): SUMMMARY OF SI DATA COLLECTION ACTIVITIES BY SITE

	Planned Geophysical Survey Coverage ¹					
SITE NAME/ LOCATION	Types	EM61-MK2 HP T/FC (acres)	TEM-8g T/FC (acres)	GPR YES OR N/A		
UXO 02 (Site CC), Keyport Annex	N/A	Not Applicable (N/A)	N/A	N/A		
UXO 03 (Site D), Lower Base	T/FC	T (5.4)	FC (0.5)	N/A		
UXO 04 (Site 9), Upper Base	T/FC	T & FC (1.1)	T & FC (0.5)	YES		
UXO 06 (Site 22), North Lower Base	NA	N/A	N/A	N/A		
UXO 07 (Site 23), North Lower Base	T/FC	T (0.1)	FC (0.8)	YES		
UXO 07B (OU1 Site A), North Lower Base	N/A	N/A	N/A	N/A		
UXO 08 Site NN),	T/FC	T & FC (0.7)	N/A	Pending Determination		
UXO 09 (Site OO), North Lower Base	NA	N/A	N/A	N/A		
UXO 10 (Site 12),	Т	T (1.1)	N/A	Pending Determination		
UXO 11 (Site 14), Lower Base	Т	T (0.3)	N/A	N/A		
UXO 11B (Site 8), Lower Base	Т	T (0.3)	N/A	N/A		
UXO 12 (Site HH), Lower Base	NA	N/A	N/A	N/A		
UXO 13 (Site 4 , Lower Base	Т	T (0.3)	N/A	N/A		
UXO 14 Site JJ),	NA	N/A	N/A	N/A		
UXO 15 (Site KK),	T/FC	T (0.8)	N/A	Pending Determination		
UXO 16 (Site LL),	T/FC	T (1.1)	N/A	N/A		
UXO 17 (Site 2), Upper Base	FC	FC (5)	FC (9.3)	YES		
UXO 17B (Site 1), Upper Base	FC	FC (13.3)	FC (13.3)	YES		
UXO 17C (Site BB), Upper Base	NA	N/A	N/A	N/A		

¹ Transect-based survey (T) or full coverage (FC) (i.e., grid-based survey across portion of footprint requiring geophysical mapping) or combination of the two (T/FC).

Worksheet #17, Table 17-2.

Table 17-2, as revised by FCR-NW-194112-06, is further revised below to put back in place sites UXO 8, UXO 10, UXO 15, and UXO 16.

TABLE 17-2 (Revised FCR-NW194112-08): DGM TRANSECT SURVEYS

OLTE MAME (LOGATION	EM61-MK2¹ Nominal TEM-8g² Nominal		Geophysical Survey Transect Coverage		
SITE NAME/ LOCATION	Transect Spacing⁴ (feet)	Transect Spacing⁴ (feet)	EM61-MK2 HP (acres)	TEM-8g (acres)	
UXO 03 Lower Base (Site D),	12	N/A	5.4	N/A	
UXO 04 Upper Base (Site 9),	10	190	1	0.1	
UXO 07 (Site 23), North Lower Base	33	N/A	0.1	N/A	
UXO 08 (Site NN),	61	N/A	0.2	N/A	
UXO 10 (Site 12),	7	N/A	1.1	N/A	
UXO 11 (Site 14), Lower Base	22	N/A	0.3	N/A	
UXO 11B (Site 8), Lower Base	22	N/A	0.3	N/A	
UXO 13 (Site 4), Lower Base	27	N/A	0.3	N/A	
UXO 15 (Site KK),	28	N/A	0.8	N/A	
UXO 16 (Site LL),	30	N/A	1.1	N/A	

Worksheet #17, Table 17-3.

Table 17-3, as revised by FCR-NW-194112-06, is further revised below to put back in place site UXO 8.

TABLE 17-3 (Revised FCR-NW194112-08): DGM FULL COVERAGE SURVEYS

SITE NAME/ LOCATION	EM61-MK2 HP (acres)	TEM-8g (acres)
UXO 03 (Site D), Lower Base	N/A	0.5
UXO 04 (Site 9), Upper Base	0.1	0.4
UXO 07 Site 23), North Lower Base	N/A	0.8
UXO 08 (Site NN),	0.5	N/A
UXO 17 (Site 2), Upper Base	5	9.3
UXO 17B (Site 1), Upper Base	13.3	13.3

Worksheet #17, Table 17-4 (new).

Table 17-4 was added by FCR-NW194112-06 to document the GPR scope to be completed at each MRP site. The table has been revised to notate GPR determination is pending.

TABLE 17-4 (Revised FCR-NW194112-08): SITES WITH GPR SURVEYING

SITE NAME/ LOCATION	GPR SCOPE	TRANSECT LENGTH (linear feet)
UXO 04 (Site 9), Upper Base	12 profiles	1,256
UXO 07 (Site 23), North Lower Base	7 profiles	354
UXO 08 (Site NN),	Pending De	etermination
UXO 10 (Site 12),	Pending Determination	
UXO 15 (Site KK),	Pending Determination	
UXO 16 (Site LL),	N/A	N/A
UXO 17 (Site 2), Upper Base	9 profiles	1,121
UXO 17B (Site 1), Upper Base	10 profiles	1,371

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 270	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230731 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 07/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



Q	C Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
Y	COCO	Contract No. NO2-10-10-D-3000	Mavat base Kitsap ballgo

QC Geophysicist Signature	Jesse L Powers
Date	2023-07-31



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 273	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220801 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 08/01/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
	and the second s	

QC Geophysicist Signature	Jessu L Cowers
Date	2023-08-01

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 276	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230802 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/02/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessie L Powers
Date	2023-08-02

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 279	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230803 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/03/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



OC Geo Co	ontract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessie L Parrers
Date	2023-08-03



WQCR INFORMATION							
From: 08/05/202	3]	To: 08/11/2023	Report #:	025		
Client:	NAVFAC NW			Project:	179-80	015	
Contract Name:	Naval Base Kits	ар В	Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	800		Task Order #:	N442	5519F4112	
Project Descript	ion:						
Silverdale, WA. T regarding potent	he objective of tial future actior	the S	of a Site Investigation (SI) at for SI is to assess and verify the abovestigations at each MRS.	sence or presence	of MPF	PEH to support the	
See Contractor Pro	duction Report for	infor	mation on work performed, safety, v	veather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL	ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	Nor	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	Nor	ne			Activity/Task #:	N/A
Follow-Up Inspe	ction (DFW):	DF\	W 5; DFW 6; DFW 8			Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC
Rework Status:		Nor	ne			Activity/Task #:	N/A
(Enter a summary	of weekly qualit	y ac	ctivities for the site activities perf	ormed.)			
DFW #5 (IVS Es	stablishment):	IVS	Technical Memorandum pre	paration in progr	ess.		
DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-15, UXO-08, UXO-16 and UXO-10. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 08/11/23 includes EM61-HP QC data from week 07/31/23 - 08/03/23.							
Tests Performed	d and Results:						
 Processed Ongoing Geodetic Function Checks IAW MQO # 1-5 (Passed). Processed Ongoing Sensor Function Tests for EM61-HP IAW MQO # 3-4 (Passed). Processed Ongoing IVS Dynamic Positioning Precision for EM61-HP sensor IAW MQO # 3-7 (Passed/Failed - See NCR-007). Processed In-line measurement spacing for IVS and transect datasets for EM61-HP sensor IAW MQO # 3-8 (Passed). 							
Materials and E	quipment Rece	eive	d and Results of Inspection:				
N/A							

QP-01 Rev. 3, Rev Date 04/12/2022

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Contract #: N6247016D9008 Date: Aug 11, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

NCR-006 initiated on 08/04/23 to address initial EM61 Instrument Function test response being less than 20% of established EM61 HP response curve values, resulting in failure of MQO #3-2. In progress.

NCR-007 initiated on 08/10/23 to address the EM61 AM IVS file from 08/02/2023 not containing any positional data, resulting in failure of MQO #3-7. In progress.

Field Change Requests Initiated or Status:		
None.		

JOB SAFETY: (LIST OBSERVATIONS)

- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- RTS equipment pass obtained system can now be used in secure areas.
- Weekly Field Work Status call on 08/09/2023 with project team. Refer to project files for approved meeting minutes.



Contract #: N6247016D9008 Date: Aug 11, 2023

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specificatio	is report is complete ns to the best of my	and co	correct, and all materials used and work performed during this reporting edge, except as may be noted above.
	1	ı	
NAME: Jessie Powers	TITLE/COMPA	ANY:	QC Geophysicist
	SIGNATURE:		Jessie Powers Digitally signed by Jessie Powers Date: 2023.08.14 16:08:22 -04'00'

QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 282	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220807 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L'Owers
Date	2023-08-07

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 285	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230808 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/08/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-08-08



QC Geo

QC Checklist for Civil Survey

Record: 288	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220902 G1 Logbook. Assembly and geodetic checkshots for Geo2 using Leica RTS verified in 220902 G2 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 and Geo2 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 09/02/2022 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.				
Down Sor VI.				
gessu L Oowers				
2023-08-09				

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 291	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230810 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/10/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	gisse L'Owers
Date	2023-08-10



WQCR INFORMATION									
From: 08/12/2023		To: 08/18/2023		Report #:	026				
Client:			Project:	179-80	179-8015				
Contract Name:	Contract Name: Naval Base Kitsap Bangor			Location:	Silverdale, WA				
Contract #:	N6247016D90	008		Task Order #:	N4425519F4112				
Project Descript	ion:								
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.									
See Contractor Pro	duction Report for	info	rmation on work performed, safety, v	weather, and subcont	ractor ho	ours.			
SUMMARY OF Q	UALITY CONTR	ROL	ACTIVITIES PERFORMED:						
Preparatory Insp	ection (DFW):	No	ne			Activity/Task #:	N/A		
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A		
Follow-Up Inspection (DFW):			DFW 5; DFW 6; DFW 8		Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC			
Rework Status:		No	ne			Activity/Task #:	N/A		
(Enter a summary	of weekly quali	ty a	ctivities for the site activities perf	ormed.)					
DFW #5 (IVS Establishment): IVS Technical Memorandum preparation in progress. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-16 and UXO-10. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 08/18/23 includes EM61-HP QC data from week 08/07/23 - 08/10/23.									
Tests Performed	d and Results:								
 Verified Ongoing Geodetic Function Checks IAW MQO # 1-5 (Passed). Verified Ongoing Sensor Function Tests for EM61-HP IAW MQO # 3-4 (Passed - Access DB). Verified Ongoing IVS Dynamic Positioning Precision for EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). Verified In-line measurement spacing for IVS and transect datasets IAW MQO # 3-8 (Passed - Access DB). Verified Transect coverage for transect datasets IAW MQO # 3-9 (Passed - Geosoft linepaths). Verified Battery Voltage for EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 									
Materials and Equipment Received and Results of Inspection:									
N/A									

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Contract #: N6247016D9008 Date: Aug 18, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

NCR-006 initiated on 08/04/23 to address initial EM61 Instrument Function test response being less than 20% of established EM61 HP response curve values, resulting in failure of MQO #3-2. Submitted for client approval 08/18/2023.

NCR-007 initiated on 08/10/23 to address the EM61 AM IVS file from 08/02/2023 not containing any positional data, resulting in failure of MQO #3-7. Submitted for client approval 08/18/2023.
Field Change Requests Initiated or Status:
None.
JOB SAFETY: (LIST OBSERVATIONS)
- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION
- Weekly Field Work Status call on 08/16/2023 with project team. Refer to project files for approved meeting minutes.



Contract #: N6247016D9008 Date: Aug 18, 2023

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specification	is report is complete ns to the best of my	and co	orrect, and all materials used and work performed during this reporting edge, except as may be noted above.
	1	ı	
NAME: Jessie Powers	TITLE/COMPA	ANY:	QC Geophysicist
	SIGNATURE:		Jessie Powers Date: 2023.08.22 15:41:01 -04'00'



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Project Kitsap Bangor Jussie Powers AES Consultants Positioning Sensor Type Leice RTS Item 1: Was the Field Checklist completed? Yes Was the Field Checklist completed? Item 1 Comments Assembly and geodetic checkshots for Geo1 using Leica RTS varified in 230814 G1 Logbook. Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 6: Item 6: Item 6: Item 1: Item 6: Item 1: Item 6: It	Record: 294	
PLS Subcontractor AES Consultants Leica RTS Item 1: Was the Field Checklist completed? Item 1 Comments Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230814 G1 Logbook. Item 2: Is there documentation to confirm that all applicable personnel have a current OOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Item 4 Comments Control established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). N/A Item 6: Item 6: Did all installed stakes and/or flags meet the	Project	Kitsap Bangor
Positioning Sensor Type	QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	PLS Subcontractor	AES Consultants
Item 1 Comments	Positioning Sensor Type	Leica RTS
Item 2: Sthere documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?		Yes
Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4: Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5: Did all installed stakes and/or flags meet the	Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230814 G1 Logbook.
Item 3: Was the correct project coordinate system used? Yes	Is there documentation to confirm that all applicable personnel have a current DOC or	Yes
Was the correct project coordinate system used?	Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Was the correct project coordinate system	Yes
Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS	Yes
Item 5: Did all geodetic functionality tests meet the project MQOs?	If we established control, was their sufficient	N/A
Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 6: Did all installed stakes and/or flags meet the	Did all geodetic functionality tests meet the	Yes
Did all installed stakes and/or flags meet the	Item 5 Comments	All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed).
	Did all installed stakes and/or flags meet the	N/A
Item 6 Comments Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	Item 6 Comments	



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-08-14



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 297	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230815 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/15/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



OC Geo Co	ontract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-08-15

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Project ### Accomments Positioning Sensor Type	Record: 300	
PLS Subcontractor AES Consultants Loica RTS Item 1: Was the Field Checklist completed? Item 1 Comments Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230816 G1 Logbook. Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or Dy reference to Existing NGS	Project	Kitsap Bangor
Leica RTS	QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed? Yes	PLS Subcontractor	AES Consultants
Item 1 Comments	Positioning Sensor Type	Leica RTS
Item 2:		Yes
Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NADB3 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MOOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). N/A Item 6: Did all installed stakes and/or flags meet the project MOOs?	Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230816 G1 Logbook.
Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	Is there documentation to confirm that all applicable personnel have a current DOC or	Yes
Item 3 Comments	Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	Was the correct project coordinate system	Yes
Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS	Yes
Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	If we established control, was their sufficient	N/A
Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the project MQOs?	Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 6: Did all installed stakes and/or flags meet the project MQOs? N/A	Did all geodetic functionality tests meet the	Yes
Did all installed stakes and/or flags meet the project MQOs?	Item 5 Comments	All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed).
	Did all installed stakes and/or flags meet the	N/A
Item 6 Comments Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	Item 6 Comments	

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessue L'Eowers
Date	2023-08-16



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Project Risage Bangor	Record: 303	
PLS Subcontractor AES Consultants Leica RTS Item 1: Was the Field Checklist completed? Yes Item 1 Comments Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230817 G1 Logbook. Yes Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3 Comments NADB3 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4: Item 4 Comments Control established control, was their sufficient data collected for an OPUS solution? Item 3: Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Project	Kitsap Bangor
Positioning Sensor Type	QC Geophysicist	Jessie Powers
Hem 1: Was the Field Checklist completed? Yes	PLS Subcontractor	AES Consultants
Item 1 Comments	Positioning Sensor Type	Leica RTS
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2: Item 2: Item 3: Was the correct project coordinate system used? Item 3: Was the correct project coordinate system used? Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).		Yes
Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NADB3 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to existing NGS benchmarks or bus networks? Item 4b: Item 4b: Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 4 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230817 G1 Logbook.
Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Yes Yes Yes Yes Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshols for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Is there documentation to confirm that all applicable personnel have a current DOC or	Yes
Was the correct project coordinate system used? NAD83 CONUS Washington North State Plane, feet Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Yes Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? N/A Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Was the correct project coordinate system	Yes
Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Yes Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS	Yes
Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	If we established control, was their sufficient	N/A
Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).	Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
	Did all geodetic functionality tests meet the	Yes
Item 6: N/A	Item 5 Comments	All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).
Did all installed stakes and/or flags meet the project MQOs?	Did all installed stakes and/or flags meet the	N/A
Item 6 Comments Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	Item 6 Comments	

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	gessu L Powers
Date	2023-08-17



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 306	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230818 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/18/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangoi
QC GEO	Contract No. N62470-16-D-3006	Mavat base Kitsap baligo

QC Geophysicist Signature	gessu I Powers
Date	2023-08-18



	WQCR INFORMATION					
From: 08/19/2023	3	To: 08/25/2023	Report #:	027	027	
Client:	NAVFAC NW		Project:	179-8015	179-8015	
Contract Name:	Naval Base Kitsap	Bangor	Location:	Silverda	Silverdale, WA	
Contract #:	N6247016D900	8	Task Order #:	N44255	N4425519F4112	
Project Descripti	on:					
Silverdale, WA. Th	Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.					
See Contractor Prod	See Contractor Production Report for information on work performed, safety, weather, and subcontractor hours.					
SUMMARY OF QU	SUMMARY OF QUALITY CONTROL ACTIVITIES PERFORMED:					
Preparatory Insp	Preparatory Inspection (DFW): None Activity/Task #: N/A			N/A		
Initial Inspection	(DFW):	one		A	ctivity/Task #:	N/A
Follow-Up Inspec	ction (DFW):	FW 5; DFW 6; DFW 8		A	ctivity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC
Rework Status:	N	None		A	\ctivity/Task #:	N/A
(Enter a summary	(Enter a summary of weekly quality activities for the site activities performed.)					

DFW #5 (IVS Establishment): G5 EM61-HP system was received and inspected as part of QRIR 08 and assembled and tested IAW DGM SOP 04. QC checklist associated with Sensor Assembly is attached to this report. IVS Technical Memorandum preparation in progress.

DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-16 and UXO-10. QC checklists associated with Civil Survey are attached to this report.

DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 08/25/23 includes G4 EM61-HP QC data from week 08/14/23 - 08/18/23 and UXO-08 transect data. QC checklist associated with Dynamic Data Submittal is attached to this report.

Tests Performed and Results:

- Verified Assembly of G5 EM61-HP sensor IAW MQO # 3-1 (Passed Geo 1 Logbook)
- Verified Ongoing RTS Geodetic Function Checks IAW MQO # 1-5 (Passed Access DB).
- Verified Ongoing Sensor Function Tests for G4 EM61-HP IAW MQO # 3-4 (Passed Access DB).
- Verified Ongoing IVS Dynamic Positioning Precision for G4 EM61-HP sensor IAW MQO # 3-7 (Passed Access DB).
- Verified In-line measurement spacing for IVS and transect datasets IAW MQO # 3-8 (Passed Access DB).
- Verified Transect coverage for transect datasets IAW MQO # 3-9 (Passed Geosoft linepaths).
- Verified Battery Voltage for G4 EM61-HP sensor IAW MQO # 3-14 (Passed Geo1 Logbooks)

OP-01 Rev. 3. Rev. Date 04/12/2022



Contract #: N6247016D9008 Date: Aug 25, 2023

Materials and Equipment Received and Results of Inspection:

- All materials received and inspected by Tetra Tech Field Personnel. Refer to completed QRIR 08 for equipment specifics.

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

NCR-006 initiated on 08/04/23 to address initial EM61 Instrument Function test response being less than 20% of established EM61 HP response curve values, resulting in failure of MQO #3-2. Submitted for client review on 08/18/2023.

NCR-007 initiated on 08/10/23 to address the EM61 AM IVS file from 08/02/2023 not containing any positional data, resulting in failure of MQO #3-7. Submitted for client review on 08/18/2023.

Field Change Requests Initiated or Status:

None.

JOB SAFETY: (LIST OBSERVATIONS)

- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- G4 EM61 system experienced an equipment hardware failure on 08/21/2023 and was removed from use. No NCR will be issued for the failing PM Sensor Function Test. Production data collected in UXO-10 on 08/21/2023 will be reviewed for usability.
- G5 EM61 system cannot be used in secure areas until equipment pass can be obtained with updated serial numbers.

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Aug 25, 2023

PROJECT PHOTOS				
Contractor's Verification: On behalf of the Contractor, I certify the period are in compliance with the contract plans and specification.	nis report is complet ons to the best of m	te and c y knowle	orrect, and all materials used and edge, except as may be noted abo	work performed during this reporting ve.
	1			
NAME: Jessie Powers	TITLE/COMP		QC Geophysicist	
	SIGNATURE:	<u> </u>	Jessie Powers	Digitally signed by Jessie Powers Date: 2023.09.05 13:15:56 -04'00'

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 309	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230821 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/21/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Owers
Date	2023-08-21



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 312	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230823 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/23/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.
	3535.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Powers
Date	2023-08-23



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 315	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230824 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/24/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N6247	0-16-D-9008	Naval E	Base Kitsap Ba	angor	
QC Geophysicist Sign	nature					
		Je	M	7 (Dowers_	

Date 2023-08-24



Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Project Production Dynamic Data Processing

Record: 3	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO8_T01, UXO8_T02, UXO8_T03, UXO8_T04, UXO8_T05, UXO8_T06, UXO8_T07
Data Collection Team ID	Geo4
Collection Dates	08/07/2023; 08/08/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
UTM Zone	10N
Item 5: Describe the method and parameters used to level the data?	B-Spline filter. 0.8 smoothness and 0.8 Tension
Item 7: Enter Gridding parameters:	.20ft grid cell; blanking distance of 2 ft
Item 8: Enter the project specific coverage MQO:	Collected transects are within 25ft of planned

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Processor Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Processor Contract No. N624	70-16-D-9008 Naval Base Kitsap Bangor
Item 8b: Was the coverage metric achieved for this grid?	Yes
Item 9: Enter the project specific in-line spacing MQO:	0.75ft and 3.3 ft
Item 9b: Was the in-line spacing metric achieved for this grid?	Yes
Item 10: Are the position and orientation data valid and reasonable?	Yes
Item 11: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 12: Target Selection Method:	Amplitude
Item 13: Enter the defined target selection threshold for this project:	5
Item 13b: What method are you using to confirm all selected targets have proper decay?	Amplitude response; removed one data point spikes
Additional Notes or Comments	UTM Zone is N/A for this project. Data delivered in WA State Plane grid.
Project Geophysicist Signature	
Date	2023-08-31
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-31



Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-08-31 10:07:08
SOP	6
Team Member	Brett Yarborough
Signature	1541/11/2019



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 6	
Project	Camp Robinson
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO8_T01, UXO8_T02, UXO8_T03, UXO8_T04, UXO8_T05, UXO8_T06, UXO8_T07
Survey Units Reviewed by QC	UXO8_T01, UXO8_T02, UXO8_T03, UXO8_T04, UXO8_T05, UXO8_T06, UXO8_T07
Data Collection Start Date	2023-08-07
Data Collection End Date	2023-08-08
Operators	Jacob Jankowski, Zach Weston, Other
Enter "Other" operator	Jason Null
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	Operator Certification forms for Weston, Jankowski and Null are posted to the MMRP SP site. Yarborough is a designated SME for EM61 collection and data processing.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	The initial Dynamic Detection Survey checklist for the G4 system was submitted on 07/24/2023 and is posted to the project SP site.
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The Survey Unit Dynamic Data Processing checklist for UXO-08 was completed and posted to the project SP site.
Item 4: Were all required files included in the deliverable folders?	Yes



QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 4 Comments	All raw, converted and processed files were included as part of the deliverable
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	The IVS and SFT tests for 08/07/23 - 08/08/23 pass project MQOs and were delivered as part of the weekly QC data packages.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transects meet the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction. One 7.5' unaccounted for gap identified but not issued for recollection, as the gap does not have an impact on derived target densities.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-25



Geo1

TETRA TECH

Abbreviated QRIR

Contract No. N62470-16-D-9008

Abbreviated QRIR	
Date	2023-08-22 16:48:13
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Received 2 console boxes from KD Jones, one was known to not work but KD Jones how no cable to check
Inspector Signature	Jan Mun

Scan all equipment barcodes and enter any external equipment.		
Date/Time	2023-08-22 16:48:25	
Is this an External instrument?	Yes	
External Instrument	Other	
Enter "Other" external instrument	EM61MKII HP Console	

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

	Comments	SN:022025	
- 1			



QC Checklist for EM61 HP Assembly

Contract No. N62470-16-D-9008

Record: 9	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist submitted on 08/22/2023 and uploaded to the SP. No assembly photos have been approved at the date of this checklist.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston, Jacob Jankowski and Jason Null have valid operator certification forms for the EM61 HP and RTS on the MMRP SP site.
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 3 Comments	
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	Initial SS test passes compared to existing HP response curves. No data spikes or identified failures
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-31

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WQCR INFORMATION						
From: 08/26/202	:3	To: 09/01/2023	Report #:	028		
Client:	NAVFAC NW		Project:	179-8015		
Contract Name:	Naval Base Kits	ap Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	008	Task Order #:	N442	5519F4112	
Project Descript	tion:		1			
Silverdale, WA. T	he objective of	part of a Site Investigation (SI) at fo the SI is to assess and verify the ab ns/investigations at each MRS.		•		
See Contractor Pro	duction Report for	information on work performed, safety,	weather, and subcon	tractor ho	ours.	
SUMMARY OF Q	UALITY CONTR	ROL ACTIVITIES PERFORMED:				
Preparatory Insp	pection (DFW):	None			Activity/Task #:	N/A
Initial Inspection	(DFW):	None			Activity/Task #:	N/A
Follow-Up Inspection (DFW): DFV		DFW 5; DFW 6; DFW 8		Activity/Task #:	IVS Establishment; DGM Field Surveys; DGM Data Processing and QC	
Rework Status: None			Activity/Task #:	N/A		
(Enter a summary	of weekly quali	ty activities for the site activities per	formed.)			
DFW #5 (IVS Establishment): G5 EM61-HP system was tested IAW DGM SOP 04. QC checklist associated with IVS Instrument Verification is attached to this report. IVS Technical Memorandum preparation in progress. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-16 and UXO-10. QC checklists associated with Civil Survey are attached to this report.						
DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. 08/21/23 PM Instrument Function Test for G4 system failed due to sensor hardware failure. No PM IVS data collected for 08/21/23 - G4 system is removed from use. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 09/01/23 includes G4 and G5 EM61-HP QC data from week 08/21/23 - 08/24/23 and G5 Initial IVS data package.						
Tests Performed	d and Results:					
 - Verified Ongoing Geodetic Function Checks IAW MQO # 1-5 (Passed). - Verified Ongoing Sensor Function Tests for G4 and G5 EM61-HP sensors IAW MQO # 3-4 (Passed/Failed - No NCR required for failed G4 test; all G5 tests pass). - Verified Ongoing IVS Dynamic Positioning Precision for G4 and G5 EM61-HP sensors IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). - Verified Battery Voltage for G4 and G5 EM61-HP sensors IAW MQO # 3-14 (Passed - Geo1 Logbooks) 						
Materials and Equipment Received and Results of Inspection:						
N/A						

QP-01 Rev. 3, Rev Date 04/12/2022

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Page 1 of 3
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Contract #: N6247016D9008 Date: Sep 1, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):

NCR-006 initiated on 08/04/23 to address initial EM61 Instrument Function test response being less than 20% of established EM61 HP response curve values, resulting in failure of MQO #3-2. Accepted on 08/31/2023.

NCR-007 initiated on 08/10/23 to address the EM61 AM IVS file from 08/02/2023 not containing any positional data, resulting in failure of MQO #3-7. Accepted on 08/28/2023.

	Field Change Requests Initiated or Status:		
	None.		
l			
ı			

JOB SAFETY: (LIST OBSERVATIONS)

- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- Equipment pass for G5 EM61 system was obtained system can now be used in secure areas on site.
- Weekly Field Work Status call on 08/30/2023 with project team. Refer to project files for approved meeting minutes.
- UXO-08 Transect review call on 08/31/2023 with project team to evaluate placement of follow-up full coverage mapping.



Contract #: N6247016D9008 Date: Sep 1, 2023

PROJECT PHOTOS				
Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.				
	I			
NAME: Jessie Powers	TITLE/COMF		QC Geophysicist	
	SIGNATURE	:	Jessie Powers Date: 2023.09.05 14:10:00 -04'00'	

QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 12	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field checklist was completed on 08/22/23 and uploaded to the project SP Site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston, Jacob Jankowski and Jason Null have valid operator certification forms for the EM61 HP and RTS on the MMRP SP site.
Item 3: Were all required data files uploaded to the project files?	Yes
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.07 feet of control point CP23 ground truth
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	Ongoing SS test was within 20% of established initial average values
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sample separation passed. Target locations passed: IVS03 = 0.11, IVS02 = 0.28, IVS01 = 0.13
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes
Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Item 8 Comments	Photos have not yet been released but are not crucial to Memo
QC Geophysicist Signature	Jesse Z Powers
Date	2023-08-31



Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 18	Record: 18		
Project	Kitsap Bangor		
Project Geo	Matt Barner		
QC Geo	Jessie Powers		
Data Processor(s)	Brett Yarborough		
IVS ID	IVS1		
Detection Sensor	EM61-HP		
Geodetic Sensor	Leica RTS		
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes		
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A		
Item 3: Was all required IVS data saved to the project files?	Yes		
Datum	NAD83 CONUS		
Coordinate System	State Plane		
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes		
Item 6: Describe the method and parameters used to level the data?	B-spline (0.8 for both smoothness and Tension) for leveling data		
Item 7: Enter latency correction in seconds:	0.18		
Item 8: Enter Gridding parameters:	.20 ft grid cell; minimum curvature; 2 ft blanking distance		
Item 9: Enter the calculated standard deviation of the background response:	1.22		

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Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Separate Interest Control Cont	
The minimum recommended target selection threshold is: (auto-filled)	6.1
Item 10: Target Selection Method:	Amplitude
Additional Notes or Comments	The target picking threshold in this form is auto-populated as 5x the noise levels input by the processor. The target picking threshold for this project remains at 5mV on Channel 2.
Project Geophysicist Signature	
Date	2023-08-31
QC Geophysicist Signature	Jessu L Powers
Date	2023-08-31

Personnel Signatures	sonnel Signatures	
Date/Time	2023-08-31 10:17:09	
SOP	4	
Team Member	Brett Yarborough	
Signature	BH Juli	

Project Geo

Contract No. N62470-16-D-9008

Personnel Signatures	
Date/Time	2023-08-31 10:17:27
SOP	6
Team Member	Brett Yarborough
Signature	BALL

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:21:32
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	AM
Location within IVS	ISO_01
Seed Type	Small ISO

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Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Troject ded contract no. No.	Havat base Kitsap bangor
Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.13
Detection Sensor	em61_hp
Expected Response	165
Observed Response	121.31

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:27:45
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet



Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

,	The second secon
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.28
Detection Sensor	em61_hp
Expected Response	31
Observed Response	59

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:31:31
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	AM
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	1176888
Seed Item Northing	262334.75
Target Easting	1176887.96



Project Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Target Northing	262334.85
Target Offset (auto-filled)	0.11
Detection Sensor	em61_hp
Expected Response	232
Observed Response	383

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Project Action Bangor Action Bango	Record: 318	
Positioning Sensor Type Leica RTS Item 1: Was the Field Checklist completed? Item 1 Comments Assembly and geodelic checkshats for Geo1 using Leica RTS ventiled in 230828 G1 Logbook. Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Yes Item 4: Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5: Did all installed stakes and/or flags meet the Item 6:	Project	Kitsap Bangor
Rem 1 Leica RTS	QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	PLS Subcontractor	AES Consultants
Item 1 Comments	Positioning Sensor Type	Leica RTS
Item 2: Sthere documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?		Yes
Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME? Item 2 Comments Positioning System Operator Certifications for Geo1 operators on Project SP Site. Item 3: Was the correct project coordinate system used? Item 3 Comments NAD83 CONUS Washington North State Plane, feet Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4: Item 4: Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/28/2023 were within 4 Inches of ground truth (passed). N/A Item 6: Did all installed stakes and/or flags meet the	Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230828 G1 Logbook.
Item 3: Was the correct project coordinate system used? Yes	Is there documentation to confirm that all applicable personnel have a current DOC or	Yes
Was the correct project coordinate system used?	Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Was the correct project coordinate system	Yes
Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks? Item 4b: If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/28/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
If we established control, was their sufficient data collected for an OPUS solution? Item 4 Comments Control established by PLS used to verify positioning system prior to emplacing temporary control. Item 5: Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/28/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS	Yes
Item 5: Did all geodetic functionality tests meet the project MQOs?	If we established control, was their sufficient	N/A
Did all geodetic functionality tests meet the project MQOs? Item 5 Comments All checkshots for Leica positioning system on 08/28/2023 were within 4 inches of ground truth (passed). Item 6: Did all installed stakes and/or flags meet the	Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 6: Did all installed stakes and/or flags meet the	Did all geodetic functionality tests meet the	Yes
Did all installed stakes and/or flags meet the	Item 5 Comments	All checkshots for Leica positioning system on 08/28/2023 were within 4 inches of ground truth (passed).
	Did all installed stakes and/or flags meet the	N/A
Item 6 Comments Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	Item 6 Comments	



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers	
Date	2023-08-28	

QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 321	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230830 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/30/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC G	ieophysicist Signature	Jesse L Powers
Date		2023-08-30



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 324	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230831 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L Parvers
Date	2023-08-31



			WQCR IN	FORMATION			
From: 09/02/202	23		To: 09/08/2023	Report #:	029		
Client:	NAVFAC NW			Project:	179-8	015	
Contract Name:	Naval Base Kits	ар	Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D9	308		Task Order #:	N442	5519F4112	
Conduct geophy Silverdale, WA. T	Project Description: Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.						
See Contractor Pro	duction Report for	info	rmation on work performed, safety,	weather, and subcont	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTI	ROL	ACTIVITIES PERFORMED:				
Preparatory Insp	pection (DFW):	No	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A
Follow-Up Inspe	ection (DFW):	DF	W 6; DFW 8			Activity/Task #:	DGM Field Surveys; DGM Data Processing and QC
Rework Status:		No	ne			Activity/Task #:	N/A
(Enter a summary	of weekly quali	ty a	ctivities for the site activities per	formed.)			
DFW #8 (DGM reporting for IVS	DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-16. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 09/08/23 includes G5 EM61-HP QC data from week 08/28/23 - 08/31/23.						
	Tests Performed and Results:						
 - Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-5 (Passed - Access DB). - Verified Ongoing Sensor Function Tests for G5 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB) - Verified Ongoing IVS Dynamic Positioning Precision for G5 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). - Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). - Verified Battery Voltage for G5 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 							
	quipment Rec	eive	ed and Results of Inspection:				
N/A							

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Contract #: N6247016D9008 Date: Sep 8, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None.
Field Change Requests Initiated or Status:
None.
JOB SAFETY: (LIST OBSERVATIONS)
- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION
- Weekly Field Work Status call on 09/06/2023 with project team. Refer to project files for approved meeting minutes.

- Preliminary delivery of UXO-10 transects to project team on 09/07/2023 to evaluate necessity of target picking and/or SRA delineation due to the overall saturated nature of the site.
- IVS Technical Memorandum Addendum 02 finalized on 09/08/2023.



Contract #: N6247016D9008 Date: Sep 8, 2023

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify th period are in compliance with the contract plans and specification	is report is comple ns to the best of m	te and c y knowle	orrect, and all materials used and work performed during this reporting edge, except as may be noted above.
	1		
NAME: Jessie Powers	TITLE/COMP		QC Geophysicist
	SIGNATURE	:	Jessie Powers Date: 2023.09.11 16:22:51 -04'00'



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 327	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230905 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/05/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L'Owers	
Date	2023-09-05	



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 330	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230906 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/06/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jessu L Porvers
Date	2023-09-06



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 333	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230907 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jusse L Porvers
Date	2023-09-07



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 336	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230908 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/08/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N6247	D-16-D-9008	Naval Base Kitsa	p Bangor	
QC Geophysicist Sign	nature				
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		Uxx	2U ~	O'oners	

Date 2023-09-08



WQCR INFORMATION							
From: 09/09/202	23	To: 09/15/2023	Report #:	030			
Client:	NAVFAC NW	Project:	179-80	179-8015			
Contract Name:	Naval Base Kits	ap Bangor	Location:	Silver	dale, WA		
Contract #:	N6247016D90	008	Task Order #:	N442	N4425519F4112		
Project Descript	tion:		•				
Silverdale, WA. T	he objective of	part of a Site Investigation (SI) at fo the SI is to assess and verify the ab ns/investigations at each MRS.					
See Contractor Pro	duction Report for	information on work performed, safety,	weather, and subcont	tractor ho	ours.		
SUMMARY OF Q	UALITY CONTI	ROL ACTIVITIES PERFORMED:					
Preparatory Insp	pection (DFW):	DFW 3			Activity/Task #:	QC Seeding	
Initial Inspection	(DFW):	None			Activity/Task #:	N/A	
Follow-Up Inspe	ollow-Up Inspection (DFW): DFW 6; DFW 8				Activity/Task #:	DGM Field Surveys; DGM Data Processing and QC	
Rework Status: None					Activity/Task #:	N/A	
(Enter a summary	of weekly quali	ty activities for the site activities per	formed.)				
DFW#3 (QC Seeding): Site preparation for subsurface seed emplacement in UXO-08 full-coverage area using RTS. DFW #6 (DGM Field Surveys): Review of temporary control points installed IAW DGM SOP 07 to support transect data collection with the EM61-HP in UXO-15. QC checklists associated with Civil Survey are attached to this report. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 09/15/23 includes G5 EM61-HP QC data from week 09/05/23 - 09/08/23.							
Tests Performed and Results:							
 Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-5 (Passed - Access DB). Verified Ongoing Sensor Function Tests for G5 EM61-HP sensor IAW MQO # 3-4 (Passed - Access DB). Verified Ongoing IVS Dynamic Positioning Precision for G5 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). Verified In-line measurement spacing for IVS dataset IAW MQO # 3-8 (Passed - Access DB). Verified Battery Voltage for G5 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 							
Materials and Equipment Received and Results of Inspection:							
N/A	N/A						

QP-01 Rev. 3, Rev Date 04/12/2022

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Contract #: N6247016D9008 Date: Sep 15, 2023

Deficiencies/Non-conformances & Status (include a tracking # if assigned):
None.
Field Change Requests Initiated or Status:
None.
IOR SAFETY: (LIST ORSEDVATIONS)

COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION

- Dig Permit for UXO-08 received on 09/11/2023 for subsurface QC Seeding of full coverage area.

- Daily tailgate safety briefings conducted by UXOSO and documented in Daily Safety Log.

- PDT concurrence for no discrete targeting or SRA delineation of UXO-10 transect data on 09/12/2023.
- Weekly Field Work Status call on 09/13/2023 with project team. Refer to project files for approved meeting minutes.
- Geophysical data review call on 09/15/2023 with project team to evaluate necessity of follow-up GPR surveys for UXO-08, UXO-10, UXO-15 and UXO-16. PDT agreed GPR surveys were not necessary at any of the four sites.



Contract #: N6247016D9008 Date: Sep 15, 2023

PROJECT PHOTOS			
Contractor's Verification: On behalf of the Contractor, I certify thi period are in compliance with the contract plans and specification	s report is completens to the best of my	e and co	correct, and all materials used and work performed during this reporting reledge, except as may be noted above.
NAME: Jessie Powers	TITLE/COMPA	ANY:	QC Geophysicist
	SIGNATURE:		Jessie Powers Digitally signed by Jessie Powers Date: 2023.09.21 08:13:25 -04'00'



QC Geo

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 339	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230912 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/12/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jissu Z Porners
Date	2023-09-12



WQCR INFORMATION								
From: 09/16/202	23		To: 09/22/2023	Report #:	031			
Client:			Project:	179-80	179-8015			
Contract Name:	Naval Base Kits	ap l	Bangor	Location:	Silver	Silverdale, WA		
Contract #:	N6247016D90	08		Task Order #:	N4425519F4112			
Project Descript	tion:							
Silverdale, WA. T	he objective of	the	t of a Site Investigation (SI) at fo SI is to assess and verify the ab nvestigations at each MRS.					
See Contractor Pro	duction Report for	info	rmation on work performed, safety, v	veather, and subcont	ractor ho	ours.		
SUMMARY OF Q	UALITY CONTR	OL	ACTIVITIES PERFORMED:					
Preparatory Insp	pection (DFW):	No	ne			Activity/Task #:	N/A	
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A	
Follow-Up Inspe	ection (DFW):	DF	W 8			Activity/Task #:	DGM Data Processing and QC	
Rework Status:		No	ne			Activity/Task #:	N/A	
(Enter a summary	(Enter a summary of weekly quality activities for the site activities performed.)							
DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for IVS and production data are ongoing. QA data package delivered for week end 09/22/23 includes G5 EM61-HP QC data from week 09/11/23 - 09/14/23, UXO-15 transect data and UXO-16 transect data. QC checklists associated with Dynamic Data Submittal are attached to this report.								
Tests Performed	d and Results:						,	
 Verified Ongoing Geodetic Function Checks for RTS IAW MQO # 1-5 (Passed - Access DB). Verified Ongoing Sensor Function Tests for G5 EM61-HP sensor IAW MQO # 3-4 (Passed/Failed - See NCR-008) Verified Ongoing IVS Dynamic Positioning Precision for G5 EM61-HP sensor IAW MQO # 3-7 (Passed - Access DB). Verified In-line measurement spacing for IVS and production datasets IAW MQO # 3-8 (Passed - Access DB). Verified Transect coverage for transect datasets IAW MQO # 3-9 (Passed - Geosoft linepaths). Verified Battery Voltage for G5 EM61-HP sensor IAW MQO # 3-14 (Passed - Geo1 Logbooks) 								
Materials and Equipment Received and Results of Inspection:								
N/A								
Deficiencies/Non-conformances & Status (include a tracking # if assigned):								
NCR-008 initiated on 09/22/2023 to address ongoing EM61 AM Instrument Function test performed on 09/13/2023 not containing any static spike response data, resulting in failure of MQO #3-4. In progress.								

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Contract #: N6247016D9008 Date: Sep 22, 2023

Field Change Requests Initiated or Status:	
None.	
JOB SAFETY: (LIST OBSERVATIONS)	
- Daily tailgate safety briefings conducted by UXOSO and docu	mented in Daily Safety Log.
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	LIENT OR REPRESENTATIVE OR OTHER INFORMATION
DOM Field to one demandable of facing site 00/04/0000 fellowing as	
- DGM Field team demobilized from site 09/21/2023 following re and UXO-16.	moval of temporary control points in UXO-08, UXO-10, UXO-15
PROJECT PHOTOS	



Contract #: N6247016D9008 Date: Sep 22, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.						
NAME:	Jessie Powers	TITLE/COMPANY:	QC Geophysicist			
		SIGNATURE:	Jessie Powers	Digitally signed by Jessie Powers Date: 2023.09.26 20:23:34 -04'00'		

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Tech Proprietary Information



QC Checklist for Dynamic Data Submittal

Record: 9					
Project	Naval Base Kitsap Bangor				
QC Geophysicist	Jessie Powers				
Survey Units included in Data Deliverable	UXO15_T01, UXO15_T02, UXO15_T03, UXO15_T04, UXO15_T05, UXO15_T06, UXO15_T07, UXO15_T08, UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20, UXO15_T21				
Survey Units Reviewed by QC	UXO15_T01, UXO15_T02, UXO15_T03, UXO15_T04, UXO15_T05, UXO15_T06, UXO15_T07, UXO15_T08, UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20, UXO15_T21				
Data Collection Start Date	2023-07-24				
Data Collection End Date	2023-09-12				
Operators	Jacob Jankowski, Zach Weston, Jason Null				
Data Processors	Brett Yarborough				
Detection Sensor	EM61-HP				
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes				
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.				
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes				
Item 2 Comments	Yes - the initial dynamic detection checklist for the G5 system was submitted and posted to the project SP site on 230906				
Item 3: Were all required Data Processing Checklists completed?	Yes				
Item 3 Comments	Yes - data processing checklist submitted for UXO-15 on 09/22/2023				
Item 4: Were all required files included in the deliverable folders?	Yes				



QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes		
Item 5 Comments	All passing IVS data and SS data associated with UXO-15 pass project MQOs and were delivered in the 230922 Running Access Database.		
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes		
Item 6 Comments	100% of transects met the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction.		
Item 7: Were chevron-shaped anomalies present in the gridded data?	No		
Item 8b: Did all blind seeds meet project MQOs?	N/A		
Item 8b Comments	No blind seeds emplaced for transect collection.		
Item 9: Does the data processor need to make any revisions?	No		
QC Geophysicist Signature	Jesse L Powers		
Date	2023-09-22		

QC Geo Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 12					
Project	Naval Base Kitsap Bangor				
QC Geophysicist	Jessie Powers				
Survey Units included in Data Deliverable	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07, UXO16_T08, UXO16_T09, UXO16_T10, UXO16_T11, UXO16_T12, UXO16_T13, UXO16_T14, UXO16_T15, UXO16_T16, UXO16_T17, UXO16_T18, UXO16_T19, UXO16_T20				
Survey Units Reviewed by QC	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07, UXO16_T08, UXO16_T09, UXO16_T10, UXO16_T11, UXO16_T12, UXO16_T13, UXO16_T14, UXO16_T15, UXO16_T16, UXO16_T17, UXO16_T18, UXO16_T19, UXO16_T20				
Data Collection Start Date	2023-08-09				
Data Collection End Date	2023-09-11				
Operators	Jacob Jankowski, Zach Weston, Jason Null				
Data Processors	Brett Yarborough				
Detection Sensor	EM61-HP				
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes				
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.				
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes				
Item 2 Comments	Yes - the initial dynamic detection checklist for the G5 system was submitted and posted to the project SP site on 230906				
Item 3: Were all required Data Processing Checklists completed?	Yes				
Item 3 Comments	Yes - data processing checklist submitted for UXO-16 on 09/22/2023				
Item 4: Were all required files included in the deliverable folders?	Yes				



QC Geo

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes		
Item 5 Comments	All passing IVS data and SS data associated with UXO-16 pass project MQOs and were delivered in the 230922 Running Access Database.		
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes		
em 6 Comments 100% of transects met the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 2 planned transect locations unless deviating around a documented obstruction.			
Item 7: Were chevron-shaped anomalies present in the gridded data?	No		
Item 8b: Did all blind seeds meet project MQOs?	N/A		
Item 8b Comments	No blind seeds emplaced for transect collection.		
Item 9: Does the data processor need to make any revisions?	No		
QC Geophysicist Signature	Jessie L. Powers		
Date	2023-09-22		



WQCR INFORMATION							
From: 09/23/202	3	\exists	To: 09/29/2023	Report #:	032		
Client:	NAVFAC NW			Project:	179-80	015	
Contract Name:	Naval Base Kits	ар Е	Bangor	Location:	Silver	dale, WA	
Contract #:	N6247016D90	308		Task Order #:	N442	5519F4112	
Project Descript	ion:						
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.							
See Contractor Pro	duction Report for	info	rmation on work performed, safety, v	veather, and subconti	ractor ho	ours.	
SUMMARY OF Q	UALITY CONTE	ROL	ACTIVITIES PERFORMED:				
Preparatory Insp	ection (DFW):	No	ne			Activity/Task #:	N/A
Initial Inspection	(DFW):	No	ne			Activity/Task #:	N/A
Follow-Up Inspe	ction (DFW):	DF	FW3; DFW 8			Activity/Task #:	QC Seeding; DGM Data Processing and QC
Rework Status: None		ne			Activity/Task #:	N/A	
(Enter a summary	of weekly quali	ty a	ctivities for the site activities perf	ormed.)			
DFW#3 (QC Seeding): Blind Seed Registry updated to include seed information for UXO-08. DFW #8 (DGM Data Processing and QC): Initial QC review of UXO-08 EM61-HP data processed IAW DGM SOP 06. Data processing, QC and technical reporting for production data are ongoing.							
Tests Performed	d and Results:						
 Verified In-line measurement spacing for UXO-08 dataset IAW MQO # 3-8 (Passed - Access DB). Verified full coverage line spacing for UXO-08 dataset IAW MQO # 3-10 (Passed - Access DB). Verified dynamic seed detection performance for UXO-08 IAW MQO #3-17 (Passed - Blind Seed Registry) 							
Materials and Equipment Received and Results of Inspection:							
N/A							
Deficiencies/Non-conformances & Status (include a tracking # if assigned):							
NCR-008 initiated on 09/22/2023 to address ongoing EM61 AM Instrument Function test performed on 09/13/2023 not containing any static spike response data, resulting in failure of MQO #3-4. In progress.							

QP-01 Rev. 3, Rev Date 04/12/2022



Contract #: N6247016D9008 Date: Sep 29, 2023

Field Change Requests Initiated or Status:					
None.					
JOB SAFETY: (LIST OBSERVATIONS)					
- All geophysical personnel and equipment are no longer on-site	э.				
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM C	LIENT OR REPRESENTATIVE OR OTHER INFORMATION				
- Weekly Field Work Status call on 09/28/2023 with project team	. Refer to project files for approved meeting minutes.				
PROJECT PHOTOS					



Contract #: N6247016D9008 Date: Sep 29, 2023

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials used and work performed during this reporting period are in compliance with the contract plans and specifications to the best of my knowledge, except as may be noted above.						
NAME:	Jessie Powers	TITLE/COMPANY:	QC Geophysicist			
		SIGNATURE:	Jessie Powers	Digitally signed by Jessie Powers Date: 2023.10.04 15:38:07 -04'00'		

QP-01 Rev. 3, Rev Date 04/12/2022

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Weekly Quality Control Report

WQCR INFORMATION						
From: 09/30/2023	To:	10/20/2023	Report #:	033		
Client: NAVFAC NW			Project:	179-8	179-8015	
Contract Name: Naval Base Kitsap Bangor		Location:	Silver	dale, WA		
Contract #: N6247016D9	08		Task Order #:	N442	N4425519F4112	
Project Description:						
Conduct geophysical surveys as part of a Site Investigation (SI) at four Munitions Response Sites (MRSs) on Naval Base Kitsap Bangor in Silverdale, WA. The objective of the SI is to assess and verify the absence or presence of MPPEH to support the decision-making process regarding potential future actions/investigations at each MRS.						
See Contractor Production Report for	informa	tion on work performed, safety,	weather, and subcon	tractor ho	ours.	
SUMMARY OF QUALITY CONTI	OL AC	TIVITIES PERFORMED:				
Preparatory Inspection (DFW):	None				Activity/Task #:	N/A
Initial Inspection (DFW):	None				Activity/Task #:	N/A
Follow-Up Inspection (DFW):	DFW3	; DFW 8			Activity/Task #:	QC Seeding; DGM Data Processing and QC
Rework Status:	None				Activity/Task #:	N/A
(Enter a summary of weekly quali	y activi	ties for the site activities per	formed.)		-	
DFW#3 (QC Seeding): Updated Blind Seed Registry delivered to QA Geophysicist on 10/09/2023. Photos associated with UXO-08 seeding effort approved on 10/16/2023. DFW #8 (DGM Data Processing and QC): EM61-HP data processed IAW DGM SOP 06. Data processing and QC of EM61-HP IVS and production data associated with sites UXO-08, UXO-10, UXO-15 and UXO-16 are complete. Technical reporting is ongoing. QC checklists associated with Dynamic Data Submittal of UXO-10 and UXO-08 full coverage dataset are attached to this report.				ing and QC of EM61-HP echnical reporting is		
Tests Performed and Results:						
None.						
Materials and Equipment Received and Results of Inspection:						
N/A						

NCR-008 initiated on 09/22/2023 to address ongoing EM61 AM Instrument Function test performed on 09/13/2023 not

containing any static spike response data, resulting in failure of MQO #3-4. Submitted for client review on 10/12/2023. Accepted

QP-01 Rev. 3, Rev Date 04/12/2022

on 10/17/2023.



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Oct 20, 2023

Field Change Requests Initiated or Status:	
None.	
JOB SAFETY: (LIST OBSERVATIONS)	
- N/A: All geophysical personnel and equipment are no longer on-site.	$\overline{}$
COMMENTS: MEETING RESULTS, DIRECTION RECEIVED FROM CLIENT OR REPRESENTATIVE OR OTHER INFORMATION	
- Weekly Field Work Status calls on 10/04/2023, 10/11/2023 and 10/18/2023 with project team. Refer to project files for	
approved meeting minutes QA acceptance of all geophysical data for site UXO-08, UXO-10, UXO-15 and UXO-16 was received on 10/18/2023.	
PROJECT PHOTOS	
	_



Weekly Quality Control Report

Contract #: N6247016D9008 Date: Oct 20, 2023

l	's Verification: On behalf of the Contractor, I certify thi in compliance with the contract plans and specification		,	
NAME:	Jessie Powers	TITLE/COMPANY:	QC Geophysicist	
		SIGNATURE:	Jessie Powers	Digitally signed by Jessie Powers Date: 2023.10.20 15:18:48 -04'00'

QP-01 Rev. 3, Rev Date 04/12/2022



QC Checklist for Dynamic Data Submittal

Contract No. N62470-16-D-9008

Record: 15	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO10_T01, UXO10_T02, UXO10_T03, UXO10_T04, UXO10_T05, UXO10_T06, UXO10_T07, UXO10_T08, UXO10_T09, UXO10_T10, UXO10_T11, UXO10_T12, UXO10_T13, UXO10_T14, UXO10_T15, UXO10_T16, UXO10_T17, UXO10_T18, UXO10_T19, UXO10_T20, UXO10_T21, UXO10_T22, UXO10_T23, UXO10_T24, UXO10_T25, UXO10_T26, UXO10_T27, UXO10_T28, UXO10_T29, UXO10_T30, UXO10_T31, UXO10_T32, UXO10_T33, UXO10_T34, UXO10_T35, UXO10_T36, UXO10_T37, UXO10_T38, UXO10_T39, UXO10_T40, UXO10_T41, UXO10_T42, UXO10_T43, UXO10_T44, UXO10_T45
Survey Units Reviewed by QC	UXO10_T01, UXO10_T02, UXO10_T03, UXO10_T04, UXO10_T05, UXO10_T06, UXO10_T07, UXO10_T08, UXO10_T09, UXO10_T10, UXO10_T11, UXO10_T12, UXO10_T13, UXO10_T14, UXO10_T15, UXO10_T16, UXO10_T17, UXO10_T18, UXO10_T19, UXO10_T20, UXO10_T21, UXO10_T22, UXO10_T23, UXO10_T24, UXO10_T25, UXO10_T26, UXO10_T27, UXO10_T28, UXO10_T29, UXO10_T30, UXO10_T31, UXO10_T32, UXO10_T33, UXO10_T34, UXO10_T35, UXO10_T36, UXO10_T37, UXO10_T38, UXO10_T39, UXO10_T40, UXO10_T41, UXO10_T42, UXO10_T43, UXO10_T44, UXO10_T45
Data Collection Start Date	2023-08-10
Data Collection End Date	2023-08-31
Operators	Brett Yarborough, Jacob Jankowski, Jason Null
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklists for the G4 and G5 systems were submitted and posted to the project SP site on 230825 and 230906.
Item 3: Were all required Data Processing Checklists completed?	Yes

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Item 3 Comments	Yes - the data processing checklist submitted for UXO-10 on 10/09/2023	
Item 4: Were all required files included in the deliverable folders?	Yes	
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes	
Item 5 Comments	All passing IVS data and SS data associated with UXO-10 pass project MQOs and were delivered in the 230922 Running Access Database. The 230821 PM SS and IVS tests could not be successfully performed due to equipment failures associated with the G4 system. Based on review of the data, there is no impact to the production data collected with the G4 system on 230821.	
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes	
Item 6 Comments	100% of transects met in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction.	
Item 7: Were chevron-shaped anomalies present in the gridded data?	No	
Item 7 Comments	Note: Gridded data were not targeted and no SRAs were delineated due to the overall saturated nature of the site.	
Item 8b: Did all blind seeds meet project MQOs?	N/A	
Item 8b Comments	No blind seeds emplaced for transect collection.	
Item 9: Does the data processor need to make any revisions?	No	
QC Geophysicist Signature	Jessie Z Powers	
Date	2023-10-09	

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QC Geo Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 18	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO_08
Survey Units Reviewed by QC	UXO_08
Data Collection Start Date	2023-09-13
Data Collection End Date	2023-09-14
Operators	Brett Yarborough, Jacob Jankowski
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklists for the G5 system was submitted and posted to the project SP site on 230906.
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	Yes - the data processing checklist submitted for UXO-10 on 10/06/2023
Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

o 20 D 3000 Italian Bust Intout Bust Intout
All passing IVS data and SS data associated with UXO-08 pass project MQOs and were delivered in the 230922 Running Access Database.
Yes
100% of full coverage data met in-line spacing MQO @ 3.3ft and @ 0.75ft. 99% coverage @ 2ft; 100% full coverage @ 3.3ft unless deviating around a documented obstruction.
No
Yes
Yes - all blinds seeds were detected and targeted within 2.5ft of ground truth (maximum: 1.7ft).
No
Jessie L Powers
2023-10-09

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Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report
	Sites UXO 8, 10, 15, and 16

APPENDIX C – SOP CHECKLISTS





Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 15	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Enter "Other" Datum	NAD83
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline (0.80 for both smoothness and tension) for leveling the data.
Item 7: Enter latency correction in seconds:	0.08
Item 8: Enter Gridding parameters:	0.25ft grid cell; minimum curvature, 2ft blanking distance

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Project deo Contract No. No.	1470-10-D-3006 Navat base Kitsap ballgoi
Item 9: Enter the calculated standard deviation of the background response:	1.1
The minimum recommended target selection threshold is: (auto-filled)	5.5
Item 10: Target Selection Method:	Amplitude
Project Geophysicist Signature	15
Date	2023-08-03
QC Geophysicist Signature	gessie L'Ervers
Date	2023-08-03

Personnel Signatures		
Date/Time	2023-07-21 09:07:00	
SOP	4	
Team Member	Brett Yarborough	
Signature		

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Project Geo

Contract No. N62470-16-D-900	Contra	act No.	N62470-1	L6-D-900
------------------------------	--------	---------	----------	----------

Personnel Signatures	
Date/Time	2023-07-21 09:07:00
SOP	6
Team Member	Brett Yarborough
Signature	BAJA (

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:09:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line

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Project Geo Contract No. N62470-16-D-9008 **Naval Base Kitsap Bangor Coordinate Units** Feet Seed Item Easting Seed Item Northing Target Easting Target Northing Target Offset (auto-filled) 0.36 **Detection Sensor** em61_hp 165 **Expected Response** Observed Response 89.06

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:13:11
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	1176887.88
Seed Item Northing	262352.07

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Target Easting	1176888.036
Target Northing	262352.2178
Target Offset (auto-filled)	0.21
Detection Sensor	em61_hp
Expected Response	31
Observed Response	41

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:14:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	AM
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.23

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Detection Sensor	em61_hp
Expected Response	232
Observed Response	220.43

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Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 18	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline (0.8 for both smoothness and Tension) for leveling data
Item 7: Enter latency correction in seconds:	0.18
Item 8: Enter Gridding parameters:	.20 ft grid cell; minimum curvature; 2 ft blanking distance
Item 9: Enter the calculated standard deviation of the background response:	1.22

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SERVICE SERVICE CONTROL OF THE SERVICE	
The minimum recommended target selection threshold is: (auto-filled)	6.1
Item 10: Target Selection Method:	Amplitude
Additional Notes or Comments	The target picking threshold in this form is auto-populated as 5x the noise levels input by the processor. The target picking threshold for this project remains at 5mV on Channel 2.
Project Geophysicist Signature	
Date	2023-08-31
QC Geophysicist Signature	Jessu L Powers
Date	2023-08-31

Personnel Signatures	
Date/Time	2023-08-31 10:17:09
SOP	4
Team Member	Brett Yarborough
Signature	BH Juli

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Project Geo

Contract No. N62470-16-D-9008

Personnel Signatures	
Date/Time	2023-08-31 10:17:27
SOP	6
Team Member	Brett Yarborough
Signature	BALLA

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:21:32
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO

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Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.13
Detection Sensor	em61_hp
Expected Response	165
Observed Response	121.31

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:27:45
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet

Page 4/6 C-10



,	
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.28
Detection Sensor	em61_hp
Expected Response	31
Observed Response	59

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:31:31
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	1176888
Seed Item Northing	262334.75
Target Easting	1176887.96

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Target Northing	262334.85
Target Offset (auto-filled)	0.11
Detection Sensor	em61_hp
Expected Response	232
Observed Response	383

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 42	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO_08
Data Collection Team ID	Geo4
Collection Date(s)	08/07/2023 08/08/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A
Item 6: Was the in-line spacing metric achieved for this grid?	Yes
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	Yes

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Processor Contract No. N624	70-16-D-9008 Naval Base Kitsap Bangor
Comments	Targets marked as noise inside the targets database
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	N/A
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	No
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	N/A
Footprint Coverage .pdf	N/A
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	BAM

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Date	2023-08-25

Personnel Signatures	
Date/Time	2023-08-25 17:06:13
SOP	6
Team Member	Brett Yarborough
Signature	In May 1

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 51	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO_08
Data Collection Team ID	Geo5
Collection Date(s)	09/13/2023 09/14/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	Yes
Item 6: Was the in-line spacing metric achieved for this grid?	Yes
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No

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Processor Contract No. N624	Navat Base Kitsap Bangor
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	No
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	Yes
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	Yes
Footprint Coverage .pdf	Yes
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	BH ZH
Date	2023-10-06

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-10-06 17:12:25
SOP	6
Team Member	Brett Yarborough
Signature	BAM

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 54	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO_10
Data Collection Team ID	Geo4, Geo5
Collection Date(s)	08/10/2023 08/15/2023
	08/16/2023
	08/17/2023
	08/18/2023
	08/21/2023
	08/30/2023 08/31/2023
Detection Sensor	EM61-HP
Detection Sensor	LINO 1-1 II
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A
Item 6: Was the in-line spacing metric achieved for this grid?	Yes

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Processor Contract No. N624	70-16-D-9008 Naval Base Kitsap Bangor
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	No
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	N/A
Target .csv	N/A
Target_PEN .csv	N/A
SRA .ply	No
OBS .ply	Yes
Footprint Coverage .map	N/A
Footprint Coverage .pdf	N/A
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	BALLA

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Date	2023-10-09

Personnel Signatures	
Date/Time	2023-10-09 10:55:32
SOP	6
Team Member	Brett Yarborough
Signature	The state of the s

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 48	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO_15
Data Collection Team ID	Geo4, Geo5
Collection Date(s)	07/24/2023
	07/25/2023
	07/26/2023
	07/27/2023
	07/31/2023
	08/01/2023
	08/02/2023
	08/03/2023
	08/07/2023
	09/12/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A

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Processor Contract No	o. N62470-16-D-9008	Naval Base Kitsap Bangor	
Item 6: Was the in-line spacing metric achieved grid?	for this		
Item 7: Are the position and orientation data val reasonable?	Yes		
Item 8: (MM2x2 only) Is the minimum transmit co >6A?	N/A urrent		
Item 9: Were any noteworthy variations with res the background response model or sens noise levels observed?	pect to loor		
Item 10: Were any deviations from the standard processing routine necessary for this su unit?	No		
Survey Unit .gdb	Yes		
Survey Unit packed .map	Yes		
Survey Unit Map .pdf	Yes		
Target .gdb	Yes		
Target .csv	Yes		
Target_PEN .csv	No		
SRA .ply	Yes		
OBS .piy	Yes		
Footprint Coverage .map	No		
Footprint Coverage .pdf	No		
Along-line Spacing .map	Yes		
Along-line Spacing .pdf	Yes		

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		THE THE PASS THE SAME SAME SAME SAME SAME SAME SAME SAM
Data Processor Signature		SHALL STATES
Date	2023-09-22	

Personnel Signatures	
Date/Time	2023-09-22 09:49:28
SOP	6
Team Member	Brett Yarborough
Signature	BAMA

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Processor

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Checklist for Survey Unit Dynamic Data Processing

Record: 45	
Project	Kitsap Bangor
Project Geo	Matt Barner
Data Processor(s)	Brett Yarborough
Survey Unit ID	UXO_16
Data Collection Team ID	Geo4, Geo5
Collection Date(s)	08/09/2023
	08/14/2023
	08/23/2023
	09/05/2023
	09/06/2023
	09/07/2023
	09/08/2023
	09/11/2023
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the Dynamic Data reviewed SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	Yes
Item 3: Was dynamic data collected in accordance with SOP5?	Yes
Item 4: Were all raw data saved to the project files?	Yes
Item 5: Was the coverage metric achieved for this grid?	N/A
Item 6: Was the in-line spacing metric achieved for this grid?	Yes

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Processor Contract No. N624	70-16-D-9008 Naval Base Kitsap Bangor
Item 7: Are the position and orientation data valid and reasonable?	Yes
Item 8: (MM2x2 only) Is the minimum transmit current >6A?	N/A
Item 9: Were any noteworthy variations with respect to the background response model or sensor noise levels observed?	No
Item 10: Were any deviations from the standard processing routine necessary for this survey unit?	No
Survey Unit .gdb	Yes
Survey Unit packed .map	Yes
Survey Unit Map .pdf	Yes
Target .gdb	Yes
Target .csv	Yes
Target_PEN .csv	No
SRA .ply	Yes
OBS .ply	Yes
Footprint Coverage .map	No
Footprint Coverage .pdf	No
Along-line Spacing .map	Yes
Along-line Spacing .pdf	Yes
Data Processor Signature	BAJA

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Date	2023-09-21

Personnel Signatures	
Date/Time	2023-09-21 16:44:17
SOP	6
Team Member	Brett Yarborough
Signature	The Hall

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Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Jacob Jankowski, Zach Weston
PLS Subcontractor	AES Consultants INC.
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Item 3: Have you been trained on anomaly avoidance procedures?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Will you be establishing control at the site?	No
Item 6: Civil Survey Tasks to be performed:	Other
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

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Naval Base Kitsap Bangor

0001	Contract No. No2410	Tuvat base tittsap bangor
Supervisor Signature	e	ZM Mm
Date		2023-07-18

QRIR	
Date	2023-07-19 12:37:32
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	No photo allowed on current device
Inspector Signature	W Tro

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Geo1

Scan all equipment barcodes and o	an all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:03	
Is this an External instrument?	No	
Barcode	304684	
Serial Number	3011788	
Model	TS16	
Equipment Source	Tetra Tech Warehouse	

Scan all equipment barcodes and e	an all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:36	
Is this an External instrument?	No	
Barcode	593963	
Serial Number	2491286	
Model	CS20 (RTS)	
Equipment Source	Tetra Tech Warehouse	

Scan all equipment barcodes and	n all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:41:38	
Is this an External instrument?	No	
Barcode	570273	
Serial Number	24158	

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Model	GRZ122
Equipment Source	Tetra Tech Warehouse

Personnel Signatures	
Date/Time	2023-07-19 13:04:39
SOP	11
Team Member	Zac Weston
Signature	Joseph Zaman

Personnel Signatures	
Date/Time	2023-07-19 13:04:56
SOP	11
Team Member	Jacob Jankowski

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Geo1	Contract No. N62470-16-D-	9008 Naval Base Kitsap Bangor
Signature		
		J.M.

Geodetic Functionality	
Date/Time	2023-07-18 13:33:00
Operator	Jacob Jankowski
Control Point	CP23
Control Point Easting	
Control Point Northing	
Checkshot Easting	
Checkshot Northing	
Offset	0.2187989945088
Checkshot Filename	230718G1CS1
Sensor Type	RTS

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Contract No. N62470-16-D-9008

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Operator	Jacob Jankowski, Zach Weston, Jason Null
Dynamic Detection System	EM61-HP
Positioning System	RTS
Survey Unit(s)	UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes
System current and/or battery level are within the acceptable range.	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
A passing SFT was collected.	Yes
IVS was collected IAW SOP2 prior to starting production data collection.	Yes
Confirm you are a minimum of 200ft from other systems on site.	Yes
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	Yes
Item 4: Enter the maximum acceptable line spacing for this project:	2

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Naval Base Kitsap Bangor

Unit of Measure	Feet
Item 5: Navigation Method:	Flags
Item 7: Were all obstacles circled in the data or documented on the FDS?	Yes
Item 8: Were all raw data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston
Supervisor Signature	DO TIM
Date	2023-07-24

Personnel Signatures	
Date/Time	2023-07-24 10:35:00
SOP	5
Team Member	Jacob Jankowski
Signature	

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:35:00
SOP	9
Team Member	Jacob Jankowski
Signature	

Personnel Signatures	
Date/Time	2023-07-24 10:36:00
SOP	5
Team Member	Zac Weston
Signature	What was

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:36:00
SOP	9
Team Member	Zac Weston
Signature	Tyy m

Personnel Signatures	
Date/Time	2023-07-24 10:37:00
SOP	5
Team Member	Jason null
Signature	

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-24 10:37:00
SOP	9
Team Member	Jason null
Signature	Mal

Item 6: Complete the FDS for this Survey Unit.	
Date/Time	2023-07-24 12:08:00
Survey Unit/Grid	UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20
Data Type	Initial Dynamic
Status	Started & Incomplete
Operator(s)	Jacob Jankowski, Zach Weston
Datum	NAD83 CONUS
Coordinate System	State Plane
Terrain	Level
Tree Cover	None
Brush	None
Weather	Sunny, Cloudy

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Battery Voltage or Transmit Current Start	12.3
Battery Voltage or Transmit Current End	11
Raw Data File Names	230724g1uxo15

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Contract No. N62470-16-D-9008

Field Checklist for Dynamic Detection Survey

Field Checklist for Dynamic Detection Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Operator	Jacob Jankowski, Zach Weston
Dynamic Detection System	EM61-HP
Positioning System	RTS
Survey Unit(s)	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07
Item 1: Have all personnel involved with Dynamic Detection reviewed SOP5 (EM61-HP) or SOP9 (TEM-8g)?	Yes
Operator has a current DOC for dynamic data collection on file or has been designated as a SME.	Yes
System was turned on for the appropriate warm- up period as defined in the SOP and user manual.	Yes
System current and/or battery level are within the acceptable range.	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
A passing SFT was collected.	Yes
IVS was collected IAW SOP2 prior to starting production data collection.	Yes
Confirm you are a minimum of 200ft from other systems on site.	Yes
Item 3: Are grid or transect stakes emplaced or do you have a shapefile (or equivalent) loaded to a digital application to define survey unit boundaries?	Yes
Item 4: Enter the maximum acceptable line spacing for this project:	25

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Naval Base Kitsap Bangor

Geol Contract No. N62470-	16-D-9008 Naval Base Kitsap Bangor
Unit of Measure	Feet
Item 5: Navigation Method:	Flags
Item 7: Were all obstacles circled in the data or documented on the FDS?	Yes
Item 8: Were all raw data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston
Supervisor Signature	Just Myo
Date	2023-09-06

Personnel Signatures	ersonnel Signatures	
Date/Time	2023-09-06 12:20:00	
SOP	5	
Team Member	Zac Weston	

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Geol Contract No. N62470-16-D-9008 Naval Base Kit	tsap B	ango
---	--------	------

Signature	
	Mr Wha

Personnel Signatures	
Date/Time	2023-09-06 12:20:00
SOP	5
Team Member	Jacob Jankowski
Signature	M. M.

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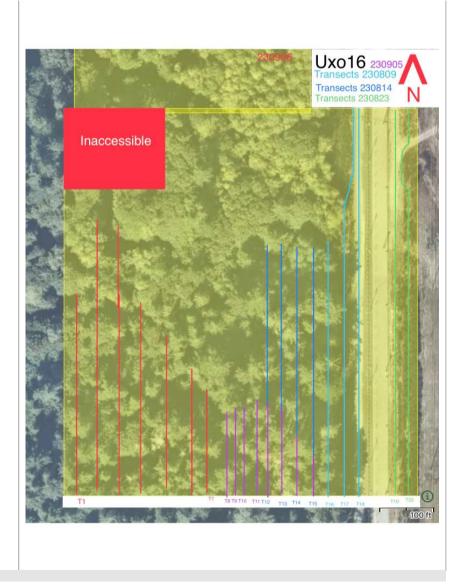
Naval Base Kitsap Bangor

Item 6: Complete the FDS for this Survey Unit.	
Date/Time	2023-09-06 12:20:00
Survey Unit/Grid	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07
Data Type	Initial Dynamic
Status	Started & Completed
Operator(s)	Jacob Jankowski, Zach Weston
Datum	NAD83 CONUS
Coordinate System	State Plane
Terrain	Level, Moderate Slope, Steep, Rolling, Ruts, Gullies, Dangerous
Tree Cover	Thick
Brush	Light
Weather	Sunny, Cloudy
Battery Voltage or Transmit Current Start	12.6
Battery Voltage or Transmit Current End	11.7
Raw Data File Names	230906g5uxo16
Comments	Norther portion of transects 1-3 inaccessible due to steep terrain and no safe path to ascend with EM61 MKii HP
	See obs file for additional inaccessible areas

Grid Drawing(s)	
Direction of Travel	N/S

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Grid drawing



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Field Checklist for EM61 HP Assembly

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assen	nbly
FIELD CHECKLIST FOR EMOT HE ASSET	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
Positioning Sensor Type	Leica RTK GPS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.41275
Z-Vertical Offset (up is positive):	1.016
Y-Offset in direction of travel (forward is positive)	0.2921
X-Offset perpendicular to direction of travel (right is positive)	0.4826
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes

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Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.00159
Supervisor	Zach Weston
Supervisor Signature	Zng no
Date	2023-07-18

QRIR	
Date	2023-07-18 21:10:43
Project	Kitsap Bangor
Inspector	Zach Weston

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Naval Base Kitsap Bangor

CONTRACT NO. NO.2410	10 D 3000 Havat Base Hitsap Bangor
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Battery casing has small crack by clasp mount Prism tripod loose worn
Inspector Signature	Zeng Zma

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:10:56
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:11:31
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61HP
Barcode	
Comments	EM61HP from KD Jones SN 032109

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:26
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:54
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX

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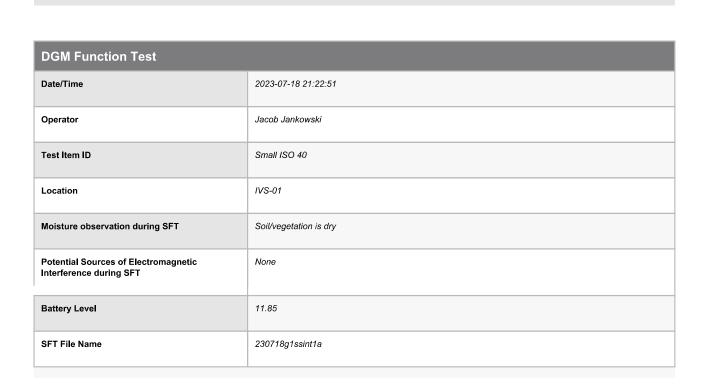
Equipment Source	Huntsville Warehouse

Personnel Signatures	
Date/Time	2023-07-18 21:19:00
SOP	4
Team Member	Zac Weston
Signature	Both Into

Personnel Signatures	
Date/Time	2023-07-19 12:35:48
SOP	4
Team Member	Jacob Jankowski

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Signature



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Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1555
Chan 3	896
Chan 4	576
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	1

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Chan 2	4
Chan 3	0
Chan 4	-2
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly

Field Checklist for EM61 HP Assembly	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0
Z-Vertical Offset (up is positive):	0
Y-Offset in direction of travel (forward is positive)	0
X-Offset perpendicular to direction of travel (right is positive)	0
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes

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Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0
Supervisor	Zach Weston
Supervisor Signature	JA 32
Date	2023-08-22

QRIR	
Date	2023-08-22 16:48:13
Project	Kitsap Bangor
Inspector	Zach Weston

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Naval Base Kitsap Bangor

Contract No. NO2 410	10 b 3000 Marat base Mesap bangor
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Received 2 console boxes from KD Jones, one was known to not work but KD Jones how no cable to check
Inspector Signature	John Mun

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-08-22 16:48:25
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKII HP Console
Comments	SN:022025

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-08-22 16:53:14
SOP	4
Team Member	Zac Weston
Signature	my m
Comments	Console box replacement

DGM Function Test	
Date/Time	2023-08-22 17:07:11
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.45

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SFT File Name	230822g5ss1

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3195
Chan 2	1740
Chan 3	991
Chan 4	640
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-3
Chan 2	-1
Chan 3	-2
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Jacob Jankowski, Zach Weston, Jason Null
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	230720g1ivsinit
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	N/A
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

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Naval Base Kitsap Bangor

Supervisor Signature	316 Ava
Date	2023-07-20

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:12:19
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:13:00
Is this an External instrument?	No
Barcode	

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Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:15:41
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKII HP sn 032109
Comments	Kd jones equipment

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:16:55
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-07-20 15:08:40
SOP	1
Team Member	Zac Weston
Signature	Joseph Mark

Personnel Signatures	
Date/Time	2023-07-20 15:08:55
SOP	2
Team Member	Jacob Jankowski
Signature	MM

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Personnel Signatures	
Date/Time	2023-07-20 16:20:17
SOP	2
Team Member	Jason null
Signature	MI

DGM SFT	
Date/Time	2023-07-20 16:22:24
Operator	Jacob Jankowski
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Battery Level	11.85
SFT File Name	230720g1ssam

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	1
Chan 3	1
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1540
Chan 3	881
Chan 4	575
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-15
Chan 2	-9
Chan 3	-3
Chan 4	-1
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Geo1 Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	230822g5ivsinit
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	Yes
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

Geo1	Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Supervisor Signature	John John
Date	2023-08-22

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:11:25
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:16:33
Is this an External instrument?	No
Barcode	304684



Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:17:07
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKIIHP console
Comments	SN022025

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:18:44
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville Warehouse

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-08-22 17:19:59
SOP	2
Team Member	Zac Weston
Signature	35 hm

DGM SFT	
Date/Time	2023-08-22 19:34:31
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.45
SFT File Name	230822g5ss1

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Geo1 Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	o
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3195
Chan 2	1740
Chan 3	991
Chan 4	640
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	SFT Results	
Line Type	Background	
Line Number	2	
Chan 1	-3	

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Chan 2	-1
Chan 3	-2
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 252	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 2307178 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	N/A
Item 2 Comments	Positioning System Operator Certifications for Geo1 on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica RTS positioning system on 07/18/2022 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

<u> </u>	
Item 6 Comments	No points were reacquired; No temporary control was emplaced
QC Geophysicist Signature	gessie L'Owers
Date	2023-07-18

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 255	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230720G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica RTS positioning system on 07/20/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Item 6 Comments	No points were reacquired; No temporary control was emplaced
QC Geophysicist Signature	Jessue L'Owers_
Date	2023-07-20

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 258	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230724 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 07/24/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	
	Jessue L. Rowers
Date	2023-07-24



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 261	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230725 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 07/25/23 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse & Powers
Date	2023-07-25

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 264	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230726 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 07/26/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Ban	Contract No. N62470-16-D-9008 Naval	Base Kitsap Bang
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QC Geophysicist Signature	Jesse Z Powers
Date	2023-07-26

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 267	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230727 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 07/27/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessue L'Porvera
Date	2023-07-27

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 270	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230731 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 07/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessie L'Orvers
Date	2023-07-31



QC Geo Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 273		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220801 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning systems on 08/01/2023 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bang	QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessu L Cowers
Date	2023-08-01

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 276	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230802 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/02/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jessie L Powers
Date	2023-08-02

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 279	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230803 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/03/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



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QC Geophysicist Signature	Jessie L Parvers
Date	2023-08-03

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 282	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220807 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Orners
Date	2023-08-07

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 285	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230808 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/08/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L Powers
Date	2023-08-08



Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 288	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 220902 G1 Logbook. Assembly and geodetic checkshots for Geo2 using Leica RTS verified in 220902 G2 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 and Geo2 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning systems prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning systems on 09/02/2022 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A



QC Geo Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.
QC Geophysicist Signature	Jessu L Powers
Date	2023-08-09

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 291	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230810 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/10/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



Naval Base Kitsap Bangor

QC Geophysicist Signature	gisse L Powers
Date	2023-08-10

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 294		
Project	Kitsap Bangor	
QC Geophysicist	Jessie Powers	
PLS Subcontractor	AES Consultants	
Positioning Sensor Type	Leica RTS	
Item 1: Was the Field Checklist completed?	Yes	
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230814 G1 Logbook.	
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes	
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.	
Item 3: Was the correct project coordinate system used?	Yes	
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet	
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A	
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.	
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes	
Item 5 Comments	All checkshots for Leica positioning system on 08/14/2023 were within 4 inches of ground truth (passed).	
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A	
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.	



QC Geophysicist Signature	Jesse L Powers
Date	2023-08-14

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 297	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230815 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/15/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geophysicist Signature	Jesse L Powers
Date	2023-08-15



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 300	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230816 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/16/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	gessie L'Oovers
Date	2023-08-16



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 303	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230817 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/17/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	gessu L Powers
Date	2023-08-17

eo Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 306	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230818 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/18/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geophysicist Signature	gessu I	Povers
Date	2023-08-18	

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 309	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230821 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/21/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L'Owers_
Date	2023-08-21

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 312	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230823 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/23/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geophysicist Signature	Jessel L Powers
Date	2023-08-23

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 315	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230824 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/24/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jesse L'Overs	
Date	2023-08-24	



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Project Kitsap Bango QC Geophysicist Jessie Power PLS Subcontractor AES Consults	
	s
PLS Subcontractor AFS Consult.	
ALS CONSUM	ants
Positioning Sensor Type Leica RTS	
Item 1: Was the Field Checklist completed? Yes	
Item 1 Comments Assembly and	d geodetic checkshots for Geo1 using Leica RTS verified in 230828 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	
Item 2 Comments Positioning S	ystem Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used? Yes	
Item 3 Comments NAD83 CON	JS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	
Item 4 Comments Control estab	lished by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs? Yes	
Item 5 Comments All checkshot	s for Leica positioning system on 08/28/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	
Item 6 Comments Transect end DGM SOP 07	point locations marked for navigational purposes; temporary control points recorded IAW



QC Geophysicist Signature	Jesse L Powers
	Cjessie or a Gwevi
Date	2023-08-28

QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 321	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230830 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/30/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geophysicist Signature	Jesse L Powers
Date	2023-08-30

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 324	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230831 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 08/31/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geophysicist Signature	Jesse L Porvers
Date	2023-08-31

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

TETRA TECH

Record: 327	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230905 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/05/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

QC Geophysicist Signature	Jesse L'Owers
Date	2023-09-05

Contract No. N62470-16-D-9008

QC Checklist for Civil Survey

Record: 330	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230906 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/06/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



QC Geophysicist Signature	Jessu L Porvers
Date	2023-09-06



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 333	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230907 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/07/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geophysicist Signature

The Signature 2023-09-07



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 336	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230908 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/08/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.



Date

QC Geo	Contract No. N6247	-16-D-9008 Naval Base Kitsap Bangor
QC Geophysicist Sig	gnature	Jusse I Powers

2023-09-08



QC Checklist for Civil Survey

Contract No. N62470-16-D-9008

Record: 339	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
PLS Subcontractor	AES Consultants
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Assembly and geodetic checkshots for Geo1 using Leica RTS verified in 230912 G1 Logbook.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC or have been designated as a SME?	Yes
Item 2 Comments	Positioning System Operator Certifications for Geo1 operators on Project SP Site.
Item 3: Was the correct project coordinate system used?	Yes
Item 3 Comments	NAD83 CONUS Washington North State Plane, feet
Item 4: Was project control established either by reference to existing NGS benchmarks or by reference to HARN, CORS, VRS, or OPUS networks?	Yes
Item 4b: If we established control, was their sufficient data collected for an OPUS solution?	N/A
Item 4 Comments	Control established by PLS used to verify positioning system prior to emplacing temporary control.
Item 5: Did all geodetic functionality tests meet the project MQOs?	Yes
Item 5 Comments	All checkshots for Leica positioning system on 09/12/2023 were within 4 inches of ground truth (passed).
Item 6: Did all installed stakes and/or flags meet the project MQOs?	N/A
Item 6 Comments	Transect endpoint locations marked for navigational purposes; temporary control points recorded IAW DGM SOP 07.

QC Geo	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
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QC Geophysicist Signature	Jusse Z Porners
Date	2023-09-12

TETRA TECH

QC Geo

QC Checklist for Dynamic Data Submittal

Record: 6	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO8_T01, UXO8_T02, UXO8_T03, UXO8_T04, UXO8_T05, UXO8_T06, UXO8_T07
Survey Units Reviewed by QC	UXO8_T01, UXO8_T02, UXO8_T03, UXO8_T04, UXO8_T05, UXO8_T06, UXO8_T07
Data Collection Start Date	2023-08-07
Data Collection End Date	2023-08-08
Operators	Jacob Jankowski, Zach Weston, Other
Enter "Other" operator	Jason Null
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	Operator Certification forms for Weston, Jankowski and Null are posted to the MMRP SP site. Yarborough is a designated SME for EM61 collection and data processing.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	The initial Dynamic Detection Survey checklist for the G4 system was submitted on 07/24/2023 and is posted to the project SP site.
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	The Survey Unit Dynamic Data Processing checklist for UXO-08 was completed and posted to the project SP site.
Item 4: Were all required files included in the deliverable folders?	Yes

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QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

QC CCO Contract No. No2+10-10-0-3000 Navat base Nicsap Bangoi	
Item 4 Comments	All raw, converted and processed files were included as part of the deliverable
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	The IVS and SFT tests for 08/07/23 - 08/08/23 pass project MQOs and were delivered as part of the weekly QC data packages.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transects meet the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction. One 7.5' unaccounted for gap identified but not issued for recollection, as the gap does not have an impact on derived target densities.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds installed for transect data
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-25

Contract No. N62470-16-D-9008

QC Checklist for Dynamic Data Submittal

Record: 9		
Project	Naval Base Kitsap Bangor	
QC Geophysicist	Jessie Powers	
Survey Units included in Data Deliverable	UXO15_T01, UXO15_T02, UXO15_T03, UXO15_T04, UXO15_T05, UXO15_T06, UXO15_T07, UXO15_T08, UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20, UXO15_T21	
Survey Units Reviewed by QC	UXO15_T01, UXO15_T02, UXO15_T03, UXO15_T04, UXO15_T05, UXO15_T06, UXO15_T07, UXO15_T08, UXO15_T09, UXO15_T10, UXO15_T11, UXO15_T12, UXO15_T13, UXO15_T14, UXO15_T15, UXO15_T16, UXO15_T17, UXO15_T18, UXO15_T19, UXO15_T20, UXO15_T21	
Data Collection Start Date	2023-07-24	
Data Collection End Date	2023-09-12	
Operators	Jacob Jankowski, Zach Weston, Jason Null	
Data Processors	Brett Yarborough	
Detection Sensor	EM61-HP	
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes	
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.	
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes	
Item 2 Comments	Yes - the initial dynamic detection checklist for the G5 system was submitted and posted to the project SP site on 230906	
Item 3: Were all required Data Processing Checklists completed?	Yes	
Item 3 Comments	Yes - data processing checklist submitted for UXO-15 on 09/22/2023	
Item 4: Were all required files included in the deliverable folders?	Yes	



QC Geo Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

go deo contract no. No.2-10 20 5 5000 navat base into ap bango	
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS data and SS data associated with UXO-15 pass project MQOs and were delivered in the 230922 Running Access Database.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transects met the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds emplaced for transect collection.
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jesse L Powers
Date	2023-09-22

QC Checklist for Dynamic Data Submittal

Record: 12	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07, UXO16_T08, UXO16_T09, UXO16_T10, UXO16_T11, UXO16_T12, UXO16_T13, UXO16_T14, UXO16_T15, UXO16_T16, UXO16_T17, UXO16_T18, UXO16_T19, UXO16_T20
Survey Units Reviewed by QC	UXO16_T01, UXO16_T02, UXO16_T03, UXO16_T04, UXO16_T05, UXO16_T06, UXO16_T07, UXO16_T08, UXO16_T09, UXO16_T10, UXO16_T11, UXO16_T12, UXO16_T13, UXO16_T14, UXO16_T15, UXO16_T16, UXO16_T17, UXO16_T18, UXO16_T19, UXO16_T20
Data Collection Start Date	2023-08-09
Data Collection End Date	2023-09-11
Operators	Jacob Jankowski, Zach Weston, Jason Null
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklist for the G5 system was submitted and posted to the project SP site on 230906
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	Yes - data processing checklist submitted for UXO-16 on 09/22/2023
Item 4: Were all required files included in the deliverable folders?	Yes

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Naval Base Kitsap Bangor

331111111111111111111111111111111111111	Navat Base Misap Bangor
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS data and SS data associated with UXO-16 pass project MQOs and were delivered in the 230922 Running Access Database.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transects met the in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds emplaced for transect collection.
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jessie L. Powers
Date	2023-09-22

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TETRA TECH

QC Geo

QC Checklist for Dynamic Data Submittal

Record: 15	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO10_T01, UXO10_T02, UXO10_T03, UXO10_T04, UXO10_T05, UXO10_T06, UXO10_T07, UXO10_T08, UXO10_T09, UXO10_T10, UXO10_T11, UXO10_T12, UXO10_T13, UXO10_T14, UXO10_T15, UXO10_T16, UXO10_T17, UXO10_T18, UXO10_T19, UXO10_T20, UXO10_T21, UXO10_T22, UXO10_T23, UXO10_T24, UXO10_T25, UXO10_T26, UXO10_T27, UXO10_T28, UXO10_T29, UXO10_T30, UXO10_T31, UXO10_T32, UXO10_T33, UXO10_T34, UXO10_T35, UXO10_T36, UXO10_T37, UXO10_T38, UXO10_T39, UXO10_T40, UXO10_T41, UXO10_T42, UXO10_T43, UXO10_T44, UXO10_T45
Survey Units Reviewed by QC	UXO10_T01, UXO10_T02, UXO10_T03, UXO10_T04, UXO10_T05, UXO10_T06, UXO10_T07, UXO10_T08, UXO10_T09, UXO10_T10, UXO10_T11, UXO10_T12, UXO10_T13, UXO10_T14, UXO10_T15, UXO10_T16, UXO10_T17, UXO10_T18, UXO10_T19, UXO10_T20, UXO10_T21, UXO10_T22, UXO10_T23, UXO10_T24, UXO10_T25, UXO10_T26, UXO10_T27, UXO10_T28, UXO10_T29, UXO10_T30, UXO10_T31, UXO10_T32, UXO10_T33, UXO10_T34, UXO10_T35, UXO10_T36, UXO10_T37, UXO10_T38, UXO10_T39, UXO10_T40, UXO10_T41, UXO10_T42, UXO10_T43, UXO10_T44, UXO10_T45
Data Collection Start Date	2023-08-10
Data Collection End Date	2023-08-31
Operators	Brett Yarborough, Jacob Jankowski, Jason Null
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklists for the G4 and G5 systems were submitted and posted to the project SP site on 230825 and 230906.
Item 3: Were all required Data Processing Checklists completed?	Yes

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Naval Base Kitsap Bangor

QC Geo Contract No. No241	0-10-D-3006 Navat Base Kitsap Baligoi
Item 3 Comments	Yes - the data processing checklist submitted for UXO-10 on 10/09/2023
Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes
Item 5 Comments	All passing IVS data and SS data associated with UXO-10 pass project MQOs and were delivered in the 230922 Running Access Database. The 230821 PM SS and IVS tests could not be successfully performed due to equipment failures associated with the G4 system. Based on review of the data, there is no impact to the production data collected with the G4 system on 230821.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of transects met in-line spacing MQO @ 3.3ft and 0.75ft. 100% of transects are within 25ft of planned transect locations unless deviating around a documented obstruction.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 7 Comments	Note: Gridded data were not targeted and no SRAs were delineated due to the overall saturated nature of the site.
Item 8b: Did all blind seeds meet project MQOs?	N/A
Item 8b Comments	No blind seeds emplaced for transect collection.
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	
	Jessie Z Powers
Date	2023-10-09

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QC Checklist for Dynamic Data Submittal

Record: 18	
Project	Naval Base Kitsap Bangor
QC Geophysicist	Jessie Powers
Survey Units included in Data Deliverable	UXO_08
Survey Units Reviewed by QC	UXO_08
Data Collection Start Date	2023-09-13
Data Collection End Date	2023-09-14
Operators	Brett Yarborough, Jacob Jankowski
Data Processors	Brett Yarborough
Detection Sensor	EM61-HP
Item 1: Is there documentation to confirm that all applicable personnel (operators and data processors) have a current DOC or are designated as SMEs for the equipment used during dynamic data collection saved to the project files or MMRP SharePoint?	Yes
Item 1 Comments	All DGM operators have valid operator certification forms posted to the MMRP SP Site. The letter designating Brett Yarborough as an SME for EM61 data collection and processing is posted to the MMRP SP Site.
Item 2: Have all operators completed a Field Checklist for Dynamic Detection Surveys?	Yes
Item 2 Comments	Yes - the initial dynamic detection checklists for the G5 system was submitted and posted to the project SP site on 230906.
Item 3: Were all required Data Processing Checklists completed?	Yes
Item 3 Comments	Yes - the data processing checklist submitted for UXO-10 on 10/06/2023
Item 4: Were all required files included in the deliverable folders?	Yes
Item 5: Are the corresponding IVS and SFT data saved in the project files and do they meet project MQOs?	Yes

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Naval Base Kitsap Bangor

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Item 5 Comments	All passing IVS data and SS data associated with UXO-08 pass project MQOs and were delivered in the 230922 Running Access Database.
Item 6: Have coverage and in-line spacing MQOs been met for each survey unit?	Yes
Item 6 Comments	100% of full coverage data met in-line spacing MQO @ 3.3ft and @ 0.75ft. 99% coverage @ 2ft; 100% full coverage @ 3.3ft unless deviating around a documented obstruction.
Item 7: Were chevron-shaped anomalies present in the gridded data?	No
Item 8b: Did all blind seeds meet project MQOs?	Yes
Item 8b Comments	Yes - all blinds seeds were detected and targeted within 2.5ft of ground truth (maximum: 1.7ft).
Item 9: Does the data processor need to make any revisions?	No
QC Geophysicist Signature	Jessie L Powers
Date	2023-10-09

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APPENDIX	D – MASTER	R PROJECT D	ATABASE (EL	ECTRONIC SUBM	IITTAI \
				LOTRONIO GODII	III I AL)
					TAL)

Final Geophysical Mapping Survey Report

Sites UXO 8, 10, 15, and 16

Naval Base Kitsap Bangor, WA



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16

APPENDIX E – SURVEYOR REPORT









NOTIFICATION: THIS PAGE CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

EXEMPTION 3. (5 USC 552(b)(3))

Information exempted by other statutes

10 USC Section 130(e) Treatment of Certain Critical Infrastructure Security Information

Pages ## - ##

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Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16
APPENDIX F – IVS MEMORANDA	



FINAL

Addendum 02: Instrument Verification Strip Technical Memorandum

Site Inspection Multiple Munitions Response Program Sites Naval Base Kitsap Bangor, WA

Contract Number: N6247016D9008

Task Order Number: N4425519F4112

Document Control Number: NBK-179-8015-DOC-006

September 14, 2023

PRESENTED TO

UNITED STATES DEPARTMENT OF THE NAVY Naval Facilities Engineering Command Northwest 1101 Tautog Circle Silverdale, WA 98315-1101

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09/14/2023

Project Geophysicist

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09/14/2023

QC Geophysicist

Approved for Public Release: Distribution Unlimited

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
DGM	Digital Geophysical Mapping
HP	High Power
ISO	Industry Standard Object
IVS	Instrument Verification Strip
MEC	Munitions and Explosives of Concern
MRP	Munitions Response Program
MQO	Measurement Quality Objective
mV	Millivolt
NAD83	North American Datum 1983
NCR	Nonconformance Report
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QRIR	Quality Receiving Inspection Reports
RTS	Robotic Total Station
SI	Site Inspection
SOP	Standard Operating Procedure
V	volt

1.0 INTRODUCTION

This addendum presents the results of digital geophysical mapping (DGM) system validation at the Instrument Verification Strip (IVS) established at Naval Base Kitsap Bangor in support of a Site Inspection (SI) of multiple installation munitions response program (MRP) sites. This document is submitted as Addendum No. 02 to the *Final Instrument Verification Strip Technical Memorandum, Site Inspection, Naval Base Kitsap Bangor, WA*, dated September 14, 2022 (hereafter referred to as the "final IVS technical memorandum").

The subject of this addendum is the validation of person-portable Geonics, Ltd. EM61-MK2 High Power (EM61-MK2HP) systems to be used for DGM, upon re-mobilization to the project site in July 2023. A system ID "G4" was assigned for the EM61-MK2HP sensor originally mobilized for this phase of work. However, following equipment hardware failures of the G4 system, a replacement EM61-MK2HP sensor was mobilized to the site and validated with a system ID of "G5". The results of both sensors are presented in this addendum.

Standard operating procedures (SOPs) applicable to this addendum, and which are included with the Munitions and Explosives of Concern (MEC) Quality Assurance Project Plan (QAPP), include the following: Validation at the IVS (DGM SOP-2); EM61-MK2HP assembly (DGM SOP-4); EM61-MK2HP data processing (DGM SOP-6); and Civil Survey Instrument Assembly and Use (DGM SOP-7). Completed field and quality control (QC) checklists associated with these SOPs relevant to system validation at the IVS are included as Appendix A to this memorandum.

2.0 IVS LOCATION AND AS-BUILT DETAILS

Validation of the G4 and G5 systems were performed at IVS #1, located at the Tetra Tech field operations staging area. The IVS as-built construction details remain unchanged from previous IVS technical memoranda. Prior to beginning work, the Tetra Tech field team verified the IVS remained intact and that the previously presented construction details are still valid.

Coordinates presented in this memorandum are Washington North State Plane, North American Datum 1983 (NAD83), and units of U.S. Survey Feet. Site controls at the IVS area from the final IVS technical memorandum remain unchanged.

3.0 DGM SYSTEM VALIDATION RESULTS

The G4 EM61-MK2HP sensor was assembled by the Tetra Tech field team on July 18, 2023, and the G5 EM61-MK2HP sensor was assembled by the Tetra Tech field team on August 22, 2023. Both sensors were assembled in accordance with the relevant SOPs listed in Section 1.0. Photographs of the assembled sensors were taken by Navy personnel with authorized camera permits in accordance with installation security requirements; no photo documentation was performed by the Tetra Tech DGM field team. As of the date of this memorandum, the photos have not yet been released for inclusion in reports.

Documentation of the new DGM sensor serial numbers and components is provided in the geophysical team digital daily logbooks provided with raw data packages and the updated quality receiving inspection report (QRIR) completed at the time of equipment inspection. The applicable QRIRs were provided to the project team in the weekly DGM quality control (QC) reports for the week ending July 21, 2023, and August 25, 2023, respectively.

3.1 SENSOR FUNCTION CHECKS

The G4 sensor function test taken after assembly did not meet the ±20% criterion for system response to a small industry standard object (ISO) in Measurement Quality Objective (MQO #3-2) in Worksheet #22 of the MEC QAPP. The predicted responses are included in Appendix B of this memorandum and were derived during the fall 2022 DGM operations; this table was also provided in previous IVS technical memoranda submittals. Measured responses as part of the sensor function test are compared to the predicted values as a check of the accuracy of the measurements and validates proper system functionality.

As a result of the failure, Non-conformance Report (NCR) 006 was initiated. This NCR is included as Appendix C to this memorandum and includes the associated root cause analysis. Corrective actions included additional sensor function tests, which did meet the MQO criterion and are presented in Table 1.

Offset	2022 EM61-MK2HP (mV)			G4 EM61-MK2HP (mV)			Percent difference					
(cm)	Ch1	Ch2	Ch3	Ch4	Ch1	Ch2	Ch3	Ch4	Ch1	Ch2	Ch3	Ch4
51	112	62	39.2	22.8	99.8	60.2	38.7	28.2	12.2	3	1.3	19.2
51	112	62	39.2	22.8	102.5	66.6	41.6	27.9	9.3	6.9	5.8	18.1

Table 1. EM61-MK2HP System G4 Accuracy Test Results.

Table 2 presents the static measurements recorded with a small Schedule 40 ISO at 2cm from the G4 EM61-MK2HP system on July 18, 2023. These tests were conducted using the same approach presented in the final IVS technical memorandum.

Table 2. EM61-MK2HP System G4 Baseline Responses (07/18/2023) for Ongoing Sensor Function Tests.

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch1: 2700.16	
Ch1: 2679.61	2662.92
Ch1: 2637.43	

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch1: 2640.15	
Ch1: 2657.24	
Ch2: 1527.11	
Ch2: 1511.81	
Ch2: 1499.32	1518.86
Ch2: 1525.63	
Ch2: 1530.45	
Ch3: 873.94	
Ch3: 859.57	
Ch3: 860.32	874.77
Ch3: 887.16	
Ch3: 892.86	
Ch4: 572.83	
Ch4: 564.07	
Ch4: 558.54	575.21
Ch4: 591.79	
Ch4: 588.80	
mV = milliVolts	•

The G5 sensor function test taken after assembly did meet the $\pm 20\%$ criterion for system response to a small ISO compared to predicted response (Appendix B) and is presented in Table 3.

 Table 3. EM61-MK2HP System G5 Initial Sensor Function Test Results.

Offset	2022 EM61-MK2HP (mV)			Set ,		Percent difference						
(cm)	Ch1	Ch2	Ch3	Ch4	Ch1	Ch2	Ch3	Ch4	Ch1	Ch2	Ch3	Ch4
53	104.8	61.6	36.3	24.5	102.4	56.0	30.2	19.7	2.3	9.1	16.8	19.8

Table 4 presents the G5 static measurements recorded with a small Schedule 40 ISO using the same approach as the G4 system (as presented in Table 2).

Table 4. EM61-MK2HP System G5 Baseline Responses (08/22/2023) for Ongoing Sensor Function Tests.

Measured Response (mV)	Averaged (Baseline) Response (mV)
Ch1: 3180.47	
Ch1: 3203.32	3173.78

Ch1: 3137.54	
Ch2: 1736.96	
Ch2: 1745.22	1733.09
Ch2: 1717.10	
Ch3: 988.87	
Ch3: 992.26	986.67
Ch3: 978.87	
Ch4: 640.49	
Ch4: 640.68	636.75
Ch4: 629.09	

3.2 GEODETIC SYSTEM FUNCTION TEST

No new site controls were established at the IVS prior to the 2023 field operations. Existing staging area site controls previously reported include those in Table 5.

Table 5. Existing Project Site Controls.

Point ID	Easting (U.S. Survey Feet)	Northing (U.S. Survey Feet)	Elevation (U.S. Survey Feet)
CP1			
CP2			
CP23			

As part of the system validation and in accordance with Tetra Tech's DGM SOPs, a geodetic function check was performed with the robotic total station (RTS) planned for use in conjunction with each EM61-MK2HP. The result of these checks with the G4 and G5 systems is presented in Table 6.

Table 6. Geodetic Function Check Results.

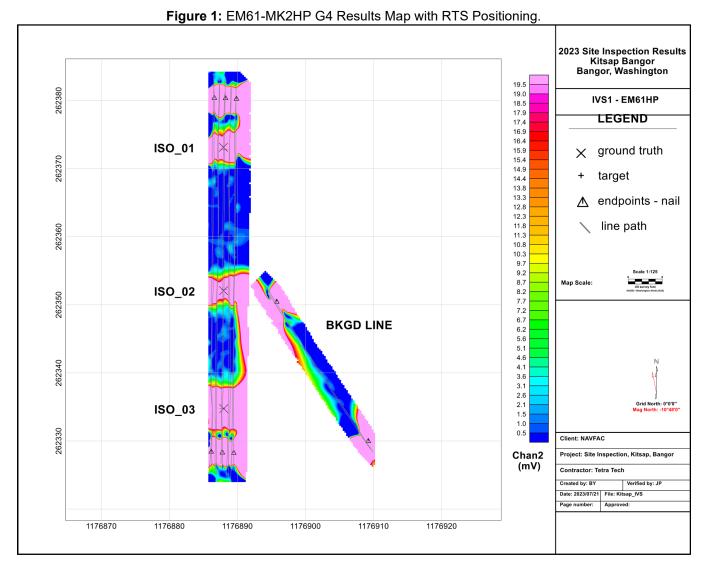
Date	System Type	Point ID	Measured Easting (U.S. Survey Feet)	Measured Northing (U.S. Survey Feet)	Radial Offset (Inches)
7/18/2023	RTS	CP23			2.6
08/22/2023	RTS	CP23			0.82

3.3 POST-SEEDED IVS SURVEYS

Because the same IVS location previously used and documented in prior technical memoranda submittals was used, no steps were needed to first assess the suitability of an IVS location. Therefore, no pre-seeded DGM survey was completed at the IVS location.

A dynamic survey of existing IVS #1 was completed on July 20, 2023, with the G4 EM61-MK2HP system and August 22, 2023, with the G5 EM61-MK2HP system. The EM61-MK2HP data collection and processing were completed in accordance with the relevant SOPs listed in Section 1.0. The post-seeded results for the G4 and G5 systems are presented in Figures 1 and 2, respectively.

Processed IVS data were transmitted to the Navy EODTECHDIV Quality Assurance (QA) Geophysicist via Tetra Tech's secure SharePoint site. The electronic deliverables include an updated master project database in Microsoft Access format. This project database includes running QC summaries for field QC checks presented in this memorandum, ongoing QC checks throughout the production survey, and performance metrics assessed during data processing.



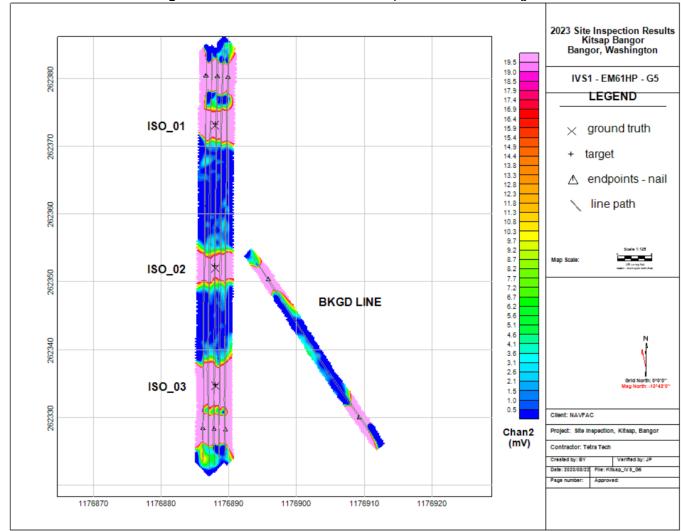


Figure 2: EM61-MK2HP G5 Results Map with RTS Positioning.

3.4 TARGET PICKING

The target picking threshold used for the EM61-MK2HP G4 and G5 IVS results was 5mV on Channel 2, consistent with the threshold used during previous DGM surveys at the project site. The standard deviation in the IVS noise strip was 1.0mV for the G4 system and 1.2mV for the G5 system.

Table 7 presents the derived seed targets from the survey of IVS #1 using the G4 and G5 systems. Tetra Tech evaluated picking targets from the gridded IVS data as well as from profiles along the seeded survey line for the G5 system because both target picking methods will be used during G5 EM61-MK2HP data processing. Only transect target picking will be performed using data collected with the G4 system due to the hardware problems before commencement of full coverage surveys.

Data collected with each EM61-MK2HP along individual transects will undergo target picking from the recorded profiles along each transect, whereas areas with full coverage EM61-MK2HP surveys will undergo target picking from the gridded data sets. Tetra Tech will continue to monitor the validity of the established target picking threshold for each DGM sensor type throughout the production survey.

Table 7. IVS Seed Targets Relative to Ground Truth.

DGM System	Picking Method	Ground Truth Easting	Ground Truth Northing	Seed ID	Target Easting	Target Northing	Radial Offset (inches)
G4	Profile			ISO_1			4.3
G4	Profile			ISO_2			1.6
G4	Profile			ISO_3			2.5
G5	Grid			ISO_1			1.51
G5	Grid			ISO_2			3.63
G5	Grid			ISO_3			1.31
G5	Profile			ISO_1			4.87
G5	Profile			ISO_2			4.13
G5	Profile			ISO_3			1.85

4.0 QUALITY CONTROL

The IVS data collection met the requirement QC performance metrics established in MEC QAPP Worksheet #22. Table 8 summarizes the DGM system performance related to applicable MQOs in the QAPP. This table also cites the table, figure, or appendix in which supporting detail is provided.

Table 8. Performance Metrics for G4 EM61-MK2HP System Validation.

QAPP Table	MQO	Acceptance Criteria	Result	Verification
22-3	#3-1 Verify correct assembly (DGM Sensors)	As specified in the instrument operation manual	PASS	Daily field logs provided with data package submittals; Appendix A
22-3	#3-2 Initial Instrument Function Test (EM61-MK2 HP)	Response (mean static spike minus mean static background) within 20% of predicted response (after predicted responses are scaled appropriately for HP sensor)	1.3% – 19.8%; PASS	Table 1; Table 3; Master project database; Appendix C (NCR-006)
22-3	#3-6 Initial dynamic positioning accuracy (IVS)	Derived positions of IVS targets are ±10in of the ground truth locations	1.3 - 4.9 inches; PASS	Table 7; Master project database
22-3	#3-8 In-line measurement spacing	98% ≤ 0.75ft between successive measurements; 100% ≤3.3ft. Gaps are filled or adequately explained (e.g., unsafe terrain, obstructions)	100% ≤ 0.75ft; PASS	Master project database
22-3	#3-14 Battery voltage (EM61-MK2 HP)	Voltage must be ≥11.0 V	All >11.0V; PASS	Daily field logs provided with data package submittals; Appendix A
V = volts				

5.0 CONCLUSIONS

The G4 and G5 EM61-MK2HP systems planned for use in support of the SI were successfully validated at the IVS for use with RTS positioning. No other positioning methods are planned for use with the DGM survey.

The results of the IVS validation demonstrate the DGM systems have met the requisite MQOs and are capable of collecting data in support of the DGM objectives and overall SI objectives. The target picking threshold for the EM61-MK2HP data remains at 5mV on Channel 2.

DGM surveys and data processing have been completed in accordance with the requirements outlined in the project-specific MEC QAPP and applicable SOPs. As of the date of this addendum, the G4 system has been demobilized from the project and will no longer be used in support of this phase of work.

6.0 REFERENCES

- Tetra Tech, Inc., 2022. FINAL Instrument Verification Strip Technical Memorandum, Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, WA. September.
- Tetra Tech, Inc., 2021. FINAL Munitions Response Quality Assurance Project Plan for Munitions and Explosives of Concern Site Inspection at Naval Base Kitsap Bangor, Multiple MRP Sites, Naval Base Kitsap Bangor, Silverdale, Washington. Revision 0. June.

APPENDIX A – APPLICABLE SOP CHECKLISTS

Geo1

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly

Field Checklist for EM61 HP Assembly				
Project	Kitsap Bangor			
Project Geo	Matt Barner			
Field Personnel	Zach Weston			
Positioning Sensor Type	Leica RTK GPS			
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes			
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No			
Item 3: Are you using both a top and bottom coil?	No			
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes			
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0.41275			
Z-Vertical Offset (up is positive):	1.016			
Y-Offset in direction of travel (forward is positive)	0.2921			
X-Offset perpendicular to direction of travel (right is positive)	0.4826			
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release			
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes			
Item 8: What data acquisition software are you using?	EM61-MK2			
Item 9: Is the sampling rate set to 10Hz or higher?	Yes			



Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0.00159
Supervisor	Zach Weston
Supervisor Signature	Zng no
Date	2023-07-18

QRIR		
Date	2023-07-18 21:10:43	
Project	Kitsap Bangor	
Inspector	Zach Weston	

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Naval Base Kitsap Bangor

Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Battery casing has small crack by clasp mount Prism tripod loose worn
Inspector Signature	Zing Ima

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:10:56
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

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Naval Base Kitsap Bangor

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:11:31
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61HP
Barcode	
Comments	EM61HP from KD Jones SN 032109

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:26
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-18 21:14:54
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX



Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Equipment Source	Huntsville Warehouse

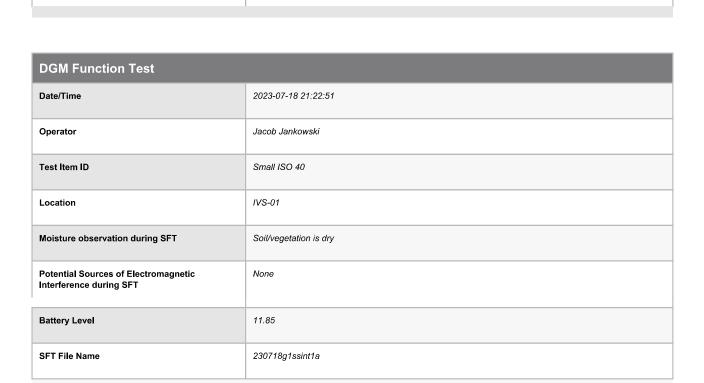
Personnel Signatures	
Date/Time	2023-07-18 21:19:00
SOP	4
Team Member	Zac Weston
Signature	Boy mor

Personnel Signatures	
Date/Time	2023-07-19 12:35:48
SOP	4
Team Member	Jacob Jankowski

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Geo1 Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Signature





Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1555
Chan 3	896
Chan 4	576
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	1

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Chan 2	4
Chan 3	0
Chan 4	-2
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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TETRA TECH



QC Checklist for EM61 HP Assembly

Record: 6	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist was filled out for data collected on 07/18/23 and uploaded to SP. No photos have been approved to date.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston and Jacob Jankowski have valid operator certification forms for the EM61 HP and RTS on the project SP site. Jason Null will receive an operator certification form at a future date before collecting data.
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 3 Comments	Yes - raw data was used to establish new attenuation curves for G4 system
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	AM SS test passes compared to initial SS test. No data spikes or data failures
QC Geophysicist Signature	gessu L'Owers
Date	2023-08-03

Page 1/1 F-24 Geo1

Contract No. N62470-16-D-9008

Field Checklist for Civil Survey

Field Checklist for Civil Survey	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Jacob Jankowski, Zach Weston
PLS Subcontractor	AES Consultants INC.
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with civil survey reviewed SOP11?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Item 3: Have you been trained on anomaly avoidance procedures?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Will you be establishing control at the site?	No
Item 6: Civil Survey Tasks to be performed:	Other
Item 7: Have you received all required control points, stakeout or reacquisition locations and loaded them to the controller?	Yes
Item 8: Were all recorded data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

Geo1	L C	ontract N	lo. N6247	0-16-D-9008

Naval Base Kitsap Bangor

Supervisor Signature	ZM Mu
Date	2023-07-18

QRIR	
Date	2023-07-19 12:37:32
Project	Kitsap Bangor
Inspector	Zach Weston
Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	No photo allowed on current device
Inspector Signature	Wy Tro

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Geo1

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:03
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:38:36
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-07-19 12:41:38
Is this an External instrument?	No
Barcode	570273
Serial Number	24158

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Model	GRZ122
Equipment Source	Tetra Tech Warehouse

Personnel Signatures		
Date/Time	2023-07-19 13:04:39	
SOP	11	
Team Member	Zac Weston	
Signature	Joseph Zaman	

Personnel Signatures		
Date/Time	2023-07-19 13:04:56	
SOP	11	
Team Member	Jacob Jankowski	

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Geo1	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor
Signature		M J.M.

Geodetic Functionality	
Date/Time	2023-07-18 13:33:00
Operator	Jacob Jankowski
Control Point	CP23
Control Point Easting	
Control Point Northing	
Checkshot Easting	
Checkshot Northing	
Offset	0.2187989945088
Checkshot Filename	230718G1CS1
Sensor Type	RTS

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Field Checklist for Instrument Verification at IVS

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Jacob Jankowski, Zach Weston, Jason Null
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	230720g1ivsinit
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	N/A
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

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Geo1	Contract No. N62470-16-D-9008
------	-------------------------------

Naval Base Kitsap Bangor

Supervisor Signature	316 Ava
Date	2023-07-20

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:12:19
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:13:00
Is this an External instrument?	No
Barcode	



Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:15:41
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKII HP sn 032109
Comments	Kd jones equipment

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-07-20 15:16:55
Is this an External instrument?	No
Barcode	304684
Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse



Naval Base Kitsap Bangor

CONTRACTIVO: NOZ410	Navat base Kitsap bangoi
Personnel Signatures	
Date/Time	2023-07-20 15:08:40
SOP	1
Team Member	Zac Weston
Signature	Von mod

Personnel Signatures	
Date/Time	2023-07-20 15:08:55
SOP	2
Team Member	Jacob Jankowski
Signature	MM

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Personnel Signatures	
Date/Time	2023-07-20 16:20:17
SOP	2
Team Member	Jason null
Signature	MI

DGM SFT	
Date/Time	2023-07-20 16:22:24
Operator	Jacob Jankowski
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None

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Battery Level	11.85
SFT File Name	230720g1ssam

SFT Results	
Line Type	Background
Line Number	0
Chan 1	0
Chan 2	1
Chan 3	1
Chan 4	o
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	2740
Chan 2	1540
Chan 3	881
Chan 4	575
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes



Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-15
Chan 2	-9
Chan 3	-3
Chan 4	-1
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 9	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field checklist was filled out for data collected on 07/20/23 and uploaded to SP.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston and Jacob Jankowski have valid operator certification forms for the EM61 HP and RTS on the project SP site. Jason Null will receive an operator certification form at a future date before collecting data.
Item 3: Were all required data files uploaded to the project files?	Yes
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.03 feet of control point CP3 ground truth.
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	New attenuation curves were created for G4 system to use for initial SS tests. Ongoing SS test was within 20% of established initial average values.
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sample separation passed. Target locations passed: IVS03 = 0.23ft, IVS02 = 0.21ft, IVS01 = 0.36ft.
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes
Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes

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Item 8 Comments	No photographs required since no IVS seeds were installed.
QC Geophysicist Signature	Jessu L Porvers
Date	2023-08-03

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Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 15	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Enter "Other" Datum	NAD83
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline (0.80 for both smoothness and tension) for leveling the data.
Item 7: Enter latency correction in seconds:	0.08
Item 8: Enter Gridding parameters:	0.25ft grid cell; minimum curvature, 2ft blanking distance

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Troject ded contract no. No.	Navat Base Nitsap Bangoi
Item 9: Enter the calculated standard deviation of the background response:	1.1
The minimum recommended target selection threshold is: (auto-filled)	5.5
Item 10: Target Selection Method:	Amplitude
Project Geophysicist Signature	15
Date	2023-08-03
QC Geophysicist Signature	Jessie L'Ervers
Date	2023-08-03

Personnel Signatures	
Date/Time	2023-07-21 09:07:00
SOP	4
Team Member	Brett Yarborough
Signature	

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Project Geo

Contract No. N62470-16-D-9008

Personnel Signatures	
Date/Time	2023-07-21 09:07:00
SOP	6
Team Member	Brett Yarborough
Signature	BAJA (

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:09:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO
Depth to COM (in)	3
Orientation	Horiz. Along-Line

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Project Geo Contract No. N62470-16-D-9008 **Naval Base Kitsap Bangor Coordinate Units** Feet Seed Item Easting Seed Item Northing Target Easting Target Northing Target Offset (auto-filled) 0.36 **Detection Sensor** em61_hp **Expected Response** 165 Observed Response 89.06

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:13:11
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	1176887.88
Seed Item Northing	262352.07



The Board of Comment of the Comment	3
Target Easting	1176888.036
Target Northing	262352.2178
Target Offset (auto-filled)	0.21
Detection Sensor	em61_hp
Expected Response	31
Observed Response	41

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-03 09:14:58
Team ID	Geo1
Data Collection Date	2023-07-20
Time of day	АМ
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.23



Detection Sensor	em61_hp
Expected Response	232
Observed Response	220.43



Field Checklist for EM61 HP Assembly

Contract No. N62470-16-D-9008

Field Checklist for EM61 HP Assembly	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
Positioning Sensor Type	Leica RTS
Item 1: Have all personnel involved with sensor assembly reviewed SOP4?	Yes
Item 2: Do you need to perform any DOC's for sensor assembly at this time?	No
Item 3: Are you using both a top and bottom coil?	No
Item 3b: Have you connected the grounding plug to the bottom coil?	Yes
Item 4: Enter the measured distance from the ground to the bottom of the lower coil housing in meters:	0
Z-Vertical Offset (up is positive):	0
Y-Offset in direction of travel (forward is positive)	0
X-Offset perpendicular to direction of travel (right is positive)	0
Item 5b: What positioning sensor reference point was used for the measurement?	Bottom of Quick Release
Item 6: Is the electronics fuse depressed and are the switches set to Master and 4 (and HP if applicable)?	Yes
Item 8: What data acquisition software are you using?	EM61-MK2
Item 9: Is the sampling rate set to 10Hz or higher?	Yes



Naval Base Kitsap Bangor

Item 10: Did the system warm up for at least 15 minutes?	Yes
Item 11: 60-second Cable Shake Test Status	Pass
Item 12: 60-second Drift/Spike Test Status	Pass
Item 13: Have you verified that the positioning sensor is functioning correctly and has been successfully integrated into the acquisition software?	Yes
Item 14b: Measured Distance (in meters) of center of ISO to the plane of the top of the orange coil housing	0
Supervisor	Zach Weston
Supervisor Signature	JA 32
Date	2023-08-22

QRIR	
Date	2023-08-22 16:48:13
Project	Kitsap Bangor
Inspector	Zach Weston

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Naval Base Kitsap Bangor

Are all items listed on the photographed documentation accounted for and in good, working condition?	Yes
Additional Comments	Received 2 console boxes from KD Jones, one was known to not work but KD Jones how no cable to check
Inspector Signature	John Mus

Scan all equipment barcodes and enter any external equipment.	
Date/Time	2023-08-22 16:48:25
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKII HP Console
Comments	SN:022025



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-08-22 16:53:14
SOP	4
Team Member	Zac Weston
Signature	my zm
Comments	Console box replacement

DGM Function Test	
Date/Time	2023-08-22 17:07:11
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.45

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SFT File Name	230822g5ss1

SFT Results	
Line Type	Background
Line Number	0
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3195
Chan 2	1740
Chan 3	991
Chan 4	640
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes



Geo1

Contract No. N62470-16-D-9008

Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-3
Chan 2	-1
Chan 3	-2
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes



QC Checklist for EM61 HP Assembly

TETRA TECH

Record: 9	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Positioning Sensor Type	Leica RTS
Item 1: Was the Field Checklist completed with all required photos?	Yes
Item 1 Comments	Field checklist submitted on 08/22/2023 and uploaded to the SP. No assembly photos have been approved at the date of this checklist.
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC saved in the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston, Jacob Jankowski and Jason Null have valid operator certification forms for the EM61 HP and RTS on the MMRP SP site.
Item 3: Was the raw SFT data file named using the correct convention and saved to the project files?	Yes
Item 3 Comments	
Item 4: SFT status when processed in Geosoft UXO- Land:	Pass
Item 4 Comments	Initial SS test passes compared to existing HP response curves. No data spikes or identified failures
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-31

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Geo1

Contract No. N62470-16-D-9008

Field Checklist for Instrument Verification at IVS

Field Checklist for Instrument Verification at IVS	
Project	Kitsap Bangor
Project Geo	Matt Barner
Field Personnel	Zach Weston
IVS ID	IVS1
Data Type	Dynamic
Item 1: Have all personnel involved with Initial IVS reviewed SOP2?	Yes
Item 2: Do you need to perform any DOC's at this time?	No
Geodetic Functionality test was collected prior to Initial IVS data collection	Yes
The data acquisition software was monitored to ensure expected data streams (e.g., EMI, GPS, and IMU) are valid and being recorded.	Yes
Confirm you are a minimum of 200ft from other transmitting systems on site.	Yes
Item 4: Perform a SFT	DGM
Dynamic IVS File Name:	230822g5ivsinit
Item 6: Was dynamic data collected at the required line spacing IAW the SOP?	Yes
Item 7: Was cued data collected over each IVS item and the blank space IAW the SOP?	N/A
Item 7b: Were background validation measurements collected over the blank space?	Yes
Item 8: Were all SFT and IVS data downloaded for transfer to the project files?	Yes
Supervisor	Zach Weston

Geo1	Contract No. N62470-16-D-9008	Naval Base Kitsap Bangor

Supervisor Signature	
	Do Som
Date	2023-08-22

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:11:25
Is this an External instrument?	No
Barcode	593963
Serial Number	2491286
Model	CS20 (RTS)
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:16:33
Is this an External instrument?	No
Barcode	304684



Serial Number	3011788
Model	TS16
Equipment Source	Tetra Tech Warehouse

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:17:07
Is this an External instrument?	Yes
External Instrument	Other
Enter "Other" external instrument	EM61MKIIHP console
Comments	SN022025

Detection and Positioning Sensors used for initial IVS	
Date/Time	2023-08-22 17:18:44
Is this an External instrument?	No
Barcode	
Serial Number	44434
Model	Allegro CX
Equipment Source	Huntsville Warehouse



Naval Base Kitsap Bangor

Personnel Signatures	
Date/Time	2023-08-22 17:19:59
SOP	2
Team Member	Zac Weston
Signature	35 hm

DGM SFT	
Date/Time	2023-08-22 19:34:31
Operator	Zach Weston
Test Item ID	Small ISO 40
Location	IVS-01
Moisture observation during SFT	Soil/vegetation is dry
Potential Sources of Electromagnetic Interference during SFT	None
Battery Level	12.45
SFT File Name	230822g5ss1

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Naval Base Kitsap Bangor

SFT Results	
Line Type	Background
Line Number	o
Chan 1	-2
Chan 2	-1
Chan 3	0
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Spike
Line Number	1
Chan 1	3195
Chan 2	1740
Chan 3	991
Chan 4	640
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

SFT Results	
Line Type	Background
Line Number	2
Chan 1	-3



Chan 2	-1
Chan 3	-2
Chan 4	0
Ch1 > Ch2 > Ch3 > Ch4? (Auto-filled)	Yes

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Naval Base Kitsap Bangor

QC Checklist for Instrument Verification at IVS

Record: 12	
Project	Kitsap Bangor
QC Geophysicist	Jessie Powers
Item 1: Was the Field Checklist completed?	Yes
Item 1 Comments	Field checklist was completed on 08/22/23 and uploaded to the project SP Site
Item 2: Is there documentation to confirm that all applicable personnel have a current DOC for the equipment used during initial IVS data collection saved to the project files or MMRP SharePoint?	N/A
Item 2 Comments	There are no DOCs required for this project. Zach Weston, Jacob Jankowski and Jason Null have valid operator certification forms for the EM61 HP and RTS on the MMRP SP site.
Item 3: Were all required data files uploaded to the project files?	Yes
Item 4: Did the geodetic functionality test meet the project MQO?	Yes
Item 4 Comments	Checkshot was within 0.07 feet of control point CP23 ground truth
Item 5: Did the processed SFT data meet project MQOs?	Yes
Item 5 Comments	Ongoing SS test was within 20% of established initial average values
Item 6: Were initial IVS data collected IAW the SOP?	Yes
Item 6b: Did the processed IVS data meet project MQOs?	Yes
Item 6 Comments	Sample separation passed. Target locations passed: IVS03 = 0.11, IVS02 = 0.28, IVS01 = 0.13
Item 7: Is the observed background noise acceptable for meeting project DQO's?	Yes
Item 8: Do you have sufficient information and photographs to complete the IVS Report?	Yes

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Item 8 Comments	Photos have not yet been released but are not crucial to Memo
QC Geophysicist Signature	Jesse L Powers
Date	2023-08-31

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Project Geo

Contract No. N62470-16-D-9008 Naval Base Kitsap Bangor

Checklist for Initial IVS Dynamic Data Processing

Record: 18	
Project	Kitsap Bangor
Project Geo	Matt Barner
QC Geo	Jessie Powers
Data Processor(s)	Brett Yarborough
IVS ID	IVS1
Detection Sensor	EM61-HP
Geodetic Sensor	Leica RTS
Item 1: Have all personnel involved with processing the initial IVS reviewed SOP4 and SOP6?	Yes
Item 2: Do all personnel involved with data processing have a valid DOC on file?	N/A
Item 3: Was all required IVS data saved to the project files?	Yes
Datum	NAD83 CONUS
Coordinate System	State Plane
Item 5: Did IVS data meet applicable project MQOs (e.g coverage, along-line spacing, valid positioning data)?	Yes
Item 6: Describe the method and parameters used to level the data?	B-spline (0.8 for both smoothness and Tension) for leveling data
Item 7: Enter latency correction in seconds:	0.18
Item 8: Enter Gridding parameters:	.20 ft grid cell; minimum curvature; 2 ft blanking distance
Item 9: Enter the calculated standard deviation of the background response:	1.22

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6.1
Amplitude
The target picking threshold in this form is auto-populated as 5x the noise levels input by the processor. The target picking threshold for this project remains at 5mV on Channel 2.
2023-08-31
Jesse L Powers
2023-08-31

Personnel Signatures		
Date/Time	2023-08-31 10:17:09	
SOP	4	
Team Member	Brett Yarborough	
Signature	BH Juli	

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Project Geo

Contract No. N62470-16-D-9008

Personnel Signatures	
Date/Time	2023-08-31 10:17:27
SOP	6
Team Member	Brett Yarborough
Signature	BALL

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:21:32
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_01
Seed Type	Small ISO

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rioject ded contractito. Noz	Havat base Kitsap bangor
Depth to COM (in)	3
Orientation	Horiz. Along-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	
Target Northing	
Target Offset (auto-filled)	0.13
Detection Sensor	em61_hp
Expected Response	165
Observed Response	121.31

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:27:45
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	АМ
Location within IVS	ISO_02
Seed Type	Small ISO
Depth to COM (in)	7.5
Orientation	Horiz. Across-Line
Coordinate Units	Feet



0.28
em61_hp
31
59

Item 11: Dynamic IVS Target Information	
Date/Time	2023-08-31 10:31:31
Team ID	Geo5
Data Collection Date	2023-08-22
Time of day	AM
Location within IVS	ISO_03
Seed Type	Medium ISO
Depth to COM (in)	10
Orientation	Horiz. Across-Line
Coordinate Units	Feet
Seed Item Easting	
Seed Item Northing	
Target Easting	



Target Northing	
Target Offset (auto-filled)	0.11
Detection Sensor	em61_hp
Expected Response	232
Observed Response	383

APPENDIX B - E	M61-MK2HP RES	PONSE MEASUREMEN	TS
APPENDIX B - E	M61-MK2HP RES	PONSE MEASUREMEN	TS
APPENDIX B - E	M61-MK2HP RES	PONSE MEASUREMEN	TS
APPENDIX B - E	M61-MK2HP RES	PONSE MEASUREMEN	TS

Appendix B. EM61-MK2HP Response Measurements Compared to Standard EM61-MK2 Responses.

offset	Std EM61	L-MK2			Multipl	ier			EM61-I	MK2HP		
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4
30	112.3	62.3	28.1	9.7	5	6	7	14	606.4	355.1	207.9	139.7
31	103.7	57.5	25.9	8.9	5	6	7	14	560.0	327.8	191.7	128.2
32	95.7	53.1	23.9	8.2	5	6	7	14	516.8	302.7	176.9	118.1
33	88.4	49	22.1	7.6	5	6	7	14	477.4	279.3	163.5	109.4
34	81.6	45.3	20.4	7	5	6	7	14	440.6	258.2	151.0	100.8
35	75.4	41.8	18.9	6.5	5	6	7	14	407.2	238.3	139.9	93.6
36	69.7	38.7	17.4	6	5	6	7	14	376.4	220.6	128.8	86.4
37	64.4	35.7	16.1	5.5	5	6	7	14	347.8	203.5	119.1	79.2
38	59.6	33	14.9	5.1	5	6	7	14	321.8	188.1	110.3	73.4
39	55.1	30.6	13.8	4.7	5	6	7	14	297.5	174.4	102.1	67.7
40	51	28.3	12.7	4.4	5	6	7	14	275.4	161.3	94.0	63.4
41	47.2	26.2	11.8	4.1	5	6	7	14	254.9	149.3	87.3	59.0
42	43.7	24.3	10.9	3.8	5	6	7	14	236.0	138.5	80.7	54.7
43	40.5	22.5	10.1	3.5	5	6	7	14	218.7	128.3	74.7	50.4
44	37.6	20.8	9.4	3.2	5	6	7	14	203.0	118.6	69.6	46.1
45	34.8	19.3	8.7	3	5	6	7	14	187.9	110.0	64.4	43.2
46	32.3	17.9	8.1	2.8	5	6	7	14	174.4	102.0	59.9	40.3
47	30	16.7	7.5	2.6	5	6	7	14	162.0	95.2	55.5	37.4
48	27.9	15.5	7	2.4	5	6	7	14	150.7	88.4	51.8	34.6
49	25.9	14.4	6.5	2.2	5	6	7	14	139.9	82.1	48.1	31.7
50	24.1	13.4	6	2.1	5	6	7	14	130.1	76.4	44.4	30.2
51	22.4	12.4	5.6	1.9	5	6	7	14	121.0	70.7	41.4	27.4
52	20.9	11.6	5.2	1.8	5	6	7	14	112.9	66.1	38.5	25.9
53	19.4	10.8	4.9	1.7	5	6	7	14	104.8	61.6	36.3	24.5
54	18.1	10.0	4.5	1.6	5	6	7	14	97.7	57.0	33.3	23.0
55	16.9	9.4	4.2	1.4	5	6	7	14	91.3	53.6	31.1	20.2
56	15.7	8.7	3.9	1.4	5	6	7	14	84.8	49.6	28.9	20.2
57	14.7	8.1	3.7	1.3	5	6	7	14	79.4	46.2	27.4	18.7
58	13.7	7.6	3.4	1.2	5	6	7	14	74.0	43.3	25.2	17.3
59	12.8	7.1	3.2	1.1	5	6	7	14	69.1	40.5	23.7	15.8
60	12.0	6.6	3.0	1.0	5	6	7	14	64.8	37.6	22.2	14.4

APPENDIX C – NONCONFORMANCE REPORTS



	Naval Base Kits N6247016		gor								
TASK ORDER # N4425519F411	2	NCR #	006			08/04/2023					
LOCATION: Silverdale, WA			CLIENT REP NOTIFED:	Melissa US Nav QA Geo	y, EÖl	DTECHDIV					
1 Plan, Procedure, Specification, or			quirement from tl	he source	e)						
MR-QAPP for Naval Base Kitsap Ban	gor Site Inspection	(SI).									
MQO# 3-2: Initial Instrument Function within 20% of predicted response (aft RCA/CA.											
2 Description of Nonconforming Item or Condition											
The initial instrument function test response for the G4 EM61-HP system does not fall within 20% of the predicted response on the established HP sensor curve.											
Signature: Junis J. Pawers_											
Prepared by: <u>Jessie Powers</u>		Title:	QC Geophysic	cist D	ate: _	08/08/2023					
3 Disposition Required by Responsi	ible Organization										
 ☑ Use As-Is ☐ Rework ☐ Other - specify: Does the nonconforming condition reprocess or products (data or cleared) 		of previo	ous) S	⊠No						
4 Responsible Organization Correct	ive Action										
Please refer to the RCA worksheet in	cluded with this NC	R for mo	ore information.								
Root Cause: The project team did no because the HP sensors are used informadditional measurements completed is sensor validation. Therefore, it is an improvement when failures appear because of the unusual configuration	requently by Tetra - in 2023) demonstra acceptable correctiv and are associated	Tech. Al te the at ve action with imp	so, field measure bility to achieve p to complete add	ements ir roper fun ditional st	n 2022 action to atic tes	(as well as esting and st					
Corrective Action:											
Additional static measurements were collected to help validate the sensor prior to production surveys. Other than completion of these tests, the data for which are presented in the RCA, no further corrective action is needed, and existing production data can be used as intended to support the SI objectives.											
Organization: Tetra Tech	Signature:	fand	En Burno	_ D	ate: 0	8/17/2023					
Title (Site Supervisor, Technical Lead, Senio											
5 Independent Evaluation of Cor	rective Action (PN	i, or Des	signee)								
□ Accept □ Accept with comments: □ Reject											

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QP-11 Rev. 1, Rev Date 01/28/2021



☐ Reject with comments	:			
Signature: Mitch Ban	0			Date: 08/17/2023
6 Verification and Clo	sure (PQM, UXOQCS, or	Designee)		
Verification required: Verified and	Junie Z Powers	⊠ Yes	□No	
closed by:	V		QC Geophysicist	08/17/2023
Sig	nature		Title	Date

Acronym: PM-Project Manager, PQM-Project Quality Manager

Additional Distribution To: File, Director of Quality or Designee, Project Manager



Nonconformance Root Cause Analysis Worksheet

Problem Statement/Nonconformance

The initial instrument function test response for the EM61-MK2 HP system (system ID G4) does not satisfy MQO #3-2 because responses do not fall within ±20% of the predicted response on the previously established HP sensor response curve for the project.

Investigation Results/Analyze Data

The initial instrument function test collected for the G4 system was outside the ±20% range for all four EM61-MK2HP time channels. The field team reported using a small Schedule 40 ISO for this test placed on the ground surface under the coil. The measured distance to the ISO was 42.5 cm from the coil. Because of the HP version battery configuration in the center of the EM coils, a test jig is not used with this sensor for sensor function tests.

The initial function test measurements were as follows:

Channel 1: 120.5mV Channel 2: 74.8mV Channel 3: 48mV Channel 4: 29.3mV

Unlike the standard power EM61-MK2 sensors, there are no published response curves for expected responses from the HP version of this sensor. The manufacturer only stipulates the HP version of the coil provides an eightfold increase in signal receiver compared to a standard coil, with an increased depth of detection between 45-80%. Therefore, the 2022 field season included recording a series of static measurements using a small Schedule 40 ISO and varying its distance from the HP sensor to derive a response curve for each of the four time gates (i.e., channels). Table 1 presents the values from this derived curve.

The predicted responses in Table 1 were compiled from field test measurements completed during the 2022 field season at the same project site. Table 1 predicted responses were originally presented in Appendix D, Table D-4, of the IVS Technical Memorandum, dated September 14, 2022, and again in Appendix B of Addendum 01 to the IVS Technical Memorandum, dated October 17, 2022. As observed in this table, the failing initial function test measurements for the G4 system are more in line with a small ISO40 offset at 50cm than 42cm or 43 cm.

Table 1. EM61-MK2 HP Responses from 2022 Static Testing.

offset	Std EM61	L-MK2 (r	nV)		Multipl	ier			EM61-MK2HP (mV)			
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4
30	112.3	62.3	28.1	9.7	5	5	7	12	561.5	311.5	196.7	116.4
31	103.7	57.5	25.9	8.9	5	5	7	12	518.5	287.5	181.3	106.8
32	95.7	53.1	23.9	8.2	5	5	7	12	478.5	265.5	167.3	98.4
33	88.4	49	22.1	7.6	5	5	7	12	442	245	154.7	91.2
34	81.6	45.3	20.4	7	5	5	7	12	408	226.5	142.8	84
35	75.4	41.8	18.9	6.5	5	5	7	12	377	209	132.3	78
36	69.7	38.7	17.4	6	5	5	7	12	348.5	193.5	121.8	72
37	64.4	35.7	16.1	5.5	5	5	7	12	322	178.5	112.7	66
38	59.6	33	14.9	5.1	5	5	7	12	298	165	104.3	61.2
39	55.1	30.6	13.8	4.7	5	5	7	12	275.5	153	96.6	56.4

40	51	28.3	12.7	4.4	5	5	7	12	255	141.5	88.9	52.8
41	47.2	26.2	11.8	4.1	5	5	7	12	236	131	82.6	49.2
42	43.7	24.3	10.9	3.8	5	5	7	12	218.5	121.5	76.3	45.6
43	40.5	22.5	10.1	3.5	5	5	7	12	202.5	112.5	70.7	42
44	37.6	20.8	9.4	3.2	5	5	7	12	188	104	65.8	38.4
45	34.8	19.3	8.7	3	5	5	7	12	174	96.5	60.9	36
46	32.3	17.9	8.1	2.8	5	5	7	12	161.5	89.5	56.7	33.6
47	30	16.7	7.5	2.6	5	5	7	12	150	83.5	52.5	31.2
48	27.9	15.5	7	2.4	5	5	7	12	139.5	77.5	49	28.8
49	25.9	14.4	6.5	2.2	5	5	7	12	129.5	72	45.5	26.4
50	24.1	13.4	6	2.1	5	5	7	12	120.5	67	42	25.2
51	22.4	12.4	5.6	1.9	5	5	7	12	112	62	39.2	22.8
52	20.9	11.6	5.2	1.8	5	5	7	12	104.5	58	36.4	21.6
53	19.4	10.8	4.9	1.7	5	5	7	12	97.0	54.0	34.3	20.4
54	18.1	10.0	4.5	1.6	5	5	7	12	90.5	50.0	31.5	19.2
55	16.9	9.4	4.2	1.4	5	5	7	12	84.5	47.0	29.4	16.8
56	15.7	8.7	3.9	1.4	5	5	7	12	78.5	43.5	27.3	16.8
57	14.7	8.1	3.7	1.3	5	5	7	12	73.5	40.5	25.9	15.6
58	13.7	7.6	3.4	1.2	5	5	7	12	68.5	38.0	23.8	14.4
59	12.8	7.1	3.2	1.1	5	5	7	12	64.0	35.5	22.4	13.2
60	12.0	6.6	3.0	1.0	5	5	7	12	60.0	33.0	21.0	12.0

When the initial failure was identified, additional static measurements were collected with a small ISO positioned at distances of 30cm, 40cm, 50cm and 60cm from the sensor. The comparison of these measurements to Table 1 is presented as Table 2.

Table 2. G4 EM61-MK2 HP Responses Compared to 2022 Responses.

Offset	2022 EI	2022 EM61-MK2HP (mV)				G4 EM61-MK2HP (mV)					Percent difference			
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4		
30	561.5	311.5	196.7	116.4	548.7	317.4	184.8	124.1	2.3	1.9	6.5	6.2		
40	255	141.5	88.9	52.8	279.9	164.1	97.1	66.2	8.9	13.8	8.4	20.3		
50	120.5	67	42	25.2	135.5	78.3	44.8	30.3	11.1	14.4	6.3	16.8		
60	60.0	33.0	21.0	12.0	66.1	39.0	23.2	15.5	9.3	15.5	9.3	22.6		

Table 2 demonstrates a few late time (i.e., Channel 4) responses exceeding the 20% criterion. An additional check of the G4 system was subsequently completed by taking two sets of measurements with the ISO both below and above the EM61-MK2 HP bottom coil, at the same offset distance in each case, to assess the relationship between the two measurements and verify that the sensor is properly working. With EM61-MK2 sensors, the direction of the ISO from the coil (i.e., above or below) does not matter, provided the responses are background corrected for proper comparison. The parameter of greatest interest is the distance from the coil.

Table 3 summarizes these responses compared to predicted HP responses in Table 1. The two sets of static test results conform to each other and are within ±20% of the predicted responses from Table 1.

Table 3. G4 Static Measurements at 51cm from Sensor

Offset	2022 EM61-MK2HP (mV)				G4 EM61-MK2HP (mV)				Percent difference			
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4
51												
(below)	112	62	39.2	22.8	99.8	60.2	38.7	28.2	12.2	3	1.3	19.2
51												
(above)	112	62	39.2	22.8	102.5	66.6	41.6	27.9	9.3	6.9	5.8	18.1

In Table 2, most of the responses are within 20% difference, with two late time readings (Channel 4) in Table 2 between 20-23% difference. The subsequent measurements at 51cm in Table 3 do meet the 20% tolerance criterion for system response.

As of the date of this RCA, ongoing instrument function test responses for the G4 system are within ±20% of the average baseline response established on 07/18/23. Together with the responses provided in Tables 2 and 3, there does not appear to be an adverse impact on the usability of the data to meet the DGM survey objectives for the SI.

Utilizing the "5 Why" method, identify the root cause.

	Why did the G4 EM61-MK2HP sensor fail the MQO for initial instrument function test response on 7/18/2023?
1. Why?	The initial G4 EM61-MK2HP response values collected for a small ISO at 42.5cm were lower than those expected for an ISO at this offset distance compared to response curves derived during the 2022 field season.
2. Why?	Why was the response lower than the expected value? Imprecision in field measurements when completing these tests have a more pronounced effect on the resulting sensor responses with an HP sensor compared to a standard power EM61-MK2 sensor. Also contributing to this could be differences in specific battery quality and minor fluctuations in voltage that are still within the operational specifications for the sensor.
3. Why?	Why is there imprecision in the field measurements? Due to the physical configuration of the HP sensor, the field team is unable to use the test jigs created for standard power EM61-MK2 sensors. Therefore, there is a higher probability for error in the measurements when attempting to visually center the ISO above the coil.
4. Why?	Why is no permanent test jig constructed for the HP sensors to further reduce sources of measurement error? Root cause: The project team did not see a practicable need for a test jig ahead of the 2023 field surveys because the HP sensors are used infrequently by Tetra Tech. Also, field measurements in 2022 (as well as additional measurements completed in 2023) demonstrate the ability to achieve proper function testing and sensor validation. Therefore, it is an acceptable corrective action to complete additional static test measurements when failures appear and are associated with imprecision in making field measurements because of the unusual configuration of the HP sensors.



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Repor Sites UXO 8, 10, 15, and 16
APPENDIX G – NCRS AND RCAS	





	Naval Base Kits N6247016		gor								
TASK ORDER # N4425519F411	2	NCR #	006			08/04/2023					
LOCATION: Silverdale, WA			CLIENT REP NOTIFED:	Melissa US Nav QA Geo	y, EÖl	DTECHDIV					
1 Plan, Procedure, Specification, or			quirement from tl	he source	e)						
MR-QAPP for Naval Base Kitsap Ban	gor Site Inspection	(SI).									
MQO# 3-2: Initial Instrument Function within 20% of predicted response (aft RCA/CA.											
2 Description of Nonconforming Item or Condition											
The initial instrument function test response for the G4 EM61-HP system does not fall within 20% of the predicted response on the established HP sensor curve.											
Signature: Junis J. Pawers_											
Prepared by: <u>Jessie Powers</u>		Title:	QC Geophysic	cist D	ate: _	08/08/2023					
3 Disposition Required by Responsi	ible Organization										
 ☑ Use As-Is ☐ Rework ☐ Other - specify: Does the nonconforming condition reprocess or products (data or cleared) 		of previo	ous) S	⊠No						
4 Responsible Organization Correct	ive Action										
Please refer to the RCA worksheet in	cluded with this NC	R for mo	ore information.								
Root Cause: The project team did no because the HP sensors are used informadditional measurements completed is sensor validation. Therefore, it is an improvement when failures appear because of the unusual configuration	requently by Tetra - in 2023) demonstra acceptable correctiv and are associated	Tech. Al te the at ve action with imp	so, field measure bility to achieve p to complete add	ements ir roper fun ditional st	n 2022 action to atic tes	(as well as esting and st					
Corrective Action:											
Additional static measurements were collected to help validate the sensor prior to production surveys. Other than completion of these tests, the data for which are presented in the RCA, no further corrective action is needed, and existing production data can be used as intended to support the SI objectives.											
Organization: Tetra Tech	Signature:	fand	En Burno	_ D	ate: 0	8/17/2023					
Title (Site Supervisor, Technical Lead, Senio											
5 Independent Evaluation of Cor	rective Action (PN	i, or Des	signee)								
□ Accept □ Accept with comments: □ Reject											



☐ Reject with comments:	
Signature: Mitch Baror	Date: 08/17/2023
6 Verification and Closure (PQM, UXOQCS, or De	signee)
Verification required: Verified and	⊠ Yes □No
closed by:	QC Geophysicist 08/17/2023
Signature	Title Date

Acronym: PM-Project Manager, PQM-Project Quality Manager

Additional Distribution To: File, Director of Quality or Designee, Project Manager



Nonconformance Root Cause Analysis Worksheet

Problem Statement/Nonconformance

The initial instrument function test response for the EM61-MK2 HP system (system ID G4) does not satisfy MQO #3-2 because responses do not fall within ±20% of the predicted response on the previously established HP sensor response curve for the project.

Investigation Results/Analyze Data

The initial instrument function test collected for the G4 system was outside the ±20% range for all four EM61-MK2HP time channels. The field team reported using a small Schedule 40 ISO for this test placed on the ground surface under the coil. The measured distance to the ISO was 42.5 cm from the coil. Because of the HP version battery configuration in the center of the EM coils, a test jig is not used with this sensor for sensor function tests.

The initial function test measurements were as follows:

Channel 1: 120.5mV Channel 2: 74.8mV Channel 3: 48mV Channel 4: 29.3mV

Unlike the standard power EM61-MK2 sensors, there are no published response curves for expected responses from the HP version of this sensor. The manufacturer only stipulates the HP version of the coil provides an eightfold increase in signal receiver compared to a standard coil, with an increased depth of detection between 45-80%. Therefore, the 2022 field season included recording a series of static measurements using a small Schedule 40 ISO and varying its distance from the HP sensor to derive a response curve for each of the four time gates (i.e., channels). Table 1 presents the values from this derived curve.

The predicted responses in Table 1 were compiled from field test measurements completed during the 2022 field season at the same project site. Table 1 predicted responses were originally presented in Appendix D, Table D-4, of the IVS Technical Memorandum, dated September 14, 2022, and again in Appendix B of Addendum 01 to the IVS Technical Memorandum, dated October 17, 2022. As observed in this table, the failing initial function test measurements for the G4 system are more in line with a small ISO40 offset at 50cm than 42cm or 43 cm.

Table 1. EM61-MK2 HP Responses from 2022 Static Testing.

offset	Std EM61	L-MK2 (r	nV)		Multipl	ier			EM61-	EM61-MK2HP (mV)			
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	
30	112.3	62.3	28.1	9.7	5	5	7	12	561.5	311.5	196.7	116.4	
31	103.7	57.5	25.9	8.9	5	5	7	12	518.5	287.5	181.3	106.8	
32	95.7	53.1	23.9	8.2	5	5	7	12	478.5	265.5	167.3	98.4	
33	88.4	49	22.1	7.6	5	5	7	12	442	245	154.7	91.2	
34	81.6	45.3	20.4	7	5	5	7	12	408	226.5	142.8	84	
35	75.4	41.8	18.9	6.5	5	5	7	12	377	209	132.3	78	
36	69.7	38.7	17.4	6	5	5	7	12	348.5	193.5	121.8	72	
37	64.4	35.7	16.1	5.5	5	5	7	12	322	178.5	112.7	66	
38	59.6	33	14.9	5.1	5	5	7	12	298	165	104.3	61.2	
39	55.1	30.6	13.8	4.7	5	5	7	12	275.5	153	96.6	56.4	

40	51	28.3	12.7	4.4	5	5	7	12	255	141.5	88.9	52.8
41	47.2	26.2	11.8	4.1	5	5	7	12	236	131	82.6	49.2
42	43.7	24.3	10.9	3.8	5	5	7	12	218.5	121.5	76.3	45.6
43	40.5	22.5	10.1	3.5	5	5	7	12	202.5	112.5	70.7	42
44	37.6	20.8	9.4	3.2	5	5	7	12	188	104	65.8	38.4
45	34.8	19.3	8.7	3	5	5	7	12	174	96.5	60.9	36
46	32.3	17.9	8.1	2.8	5	5	7	12	161.5	89.5	56.7	33.6
47	30	16.7	7.5	2.6	5	5	7	12	150	83.5	52.5	31.2
48	27.9	15.5	7	2.4	5	5	7	12	139.5	77.5	49	28.8
49	25.9	14.4	6.5	2.2	5	5	7	12	129.5	72	45.5	26.4
50	24.1	13.4	6	2.1	5	5	7	12	120.5	67	42	25.2
51	22.4	12.4	5.6	1.9	5	5	7	12	112	62	39.2	22.8
52	20.9	11.6	5.2	1.8	5	5	7	12	104.5	58	36.4	21.6
53	19.4	10.8	4.9	1.7	5	5	7	12	97.0	54.0	34.3	20.4
54	18.1	10.0	4.5	1.6	5	5	7	12	90.5	50.0	31.5	19.2
55	16.9	9.4	4.2	1.4	5	5	7	12	84.5	47.0	29.4	16.8
56	15.7	8.7	3.9	1.4	5	5	7	12	78.5	43.5	27.3	16.8
57	14.7	8.1	3.7	1.3	5	5	7	12	73.5	40.5	25.9	15.6
58	13.7	7.6	3.4	1.2	5	5	7	12	68.5	38.0	23.8	14.4
59	12.8	7.1	3.2	1.1	5	5	7	12	64.0	35.5	22.4	13.2
60	12.0	6.6	3.0	1.0	5	5	7	12	60.0	33.0	21.0	12.0

When the initial failure was identified, additional static measurements were collected with a small ISO positioned at distances of 30cm, 40cm, 50cm and 60cm from the sensor. The comparison of these measurements to Table 1 is presented as Table 2.

Table 2. G4 EM61-MK2 HP Responses Compared to 2022 Responses.

	2010 21 0 1 2110 1 111 12 111 1 1 0 0 0 0													
Offset	2022 E	M61-MK	2HP (mV	')	G4 EM6	1-MK2H	P (mV)		Percer	nt differe	ence			
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4		
30	561.5	311.5	196.7	116.4	548.7	317.4	184.8	124.1	2.3	1.9	6.5	6.2		
40	255	141.5	88.9	52.8	279.9	164.1	97.1	66.2	8.9	13.8	8.4	20.3		
50	120.5	67	42	25.2	135.5	78.3	44.8	30.3	11.1	14.4	6.3	16.8		
60	60.0	33.0	21.0	12.0	66.1	39.0	23.2	15.5	9.3	15.5	9.3	22.6		

Table 2 demonstrates a few late time (i.e., Channel 4) responses exceeding the 20% criterion. An additional check of the G4 system was subsequently completed by taking two sets of measurements with the ISO both below and above the EM61-MK2 HP bottom coil, at the same offset distance in each case, to assess the relationship between the two measurements and verify that the sensor is properly working. With EM61-MK2 sensors, the direction of the ISO from the coil (i.e., above or below) does not matter, provided the responses are background corrected for proper comparison. The parameter of greatest interest is the distance from the coil.

Table 3 summarizes these responses compared to predicted HP responses in Table 1. The two sets of static test results conform to each other and are within ±20% of the predicted responses from Table 1.

Table 3. G4 Static Measurements at 51cm from Sensor

Offset	2022 E	M61-M	<2HP (m	V)	G4 EM	61-MK2	HP (mV)		Percer	nt differe	nce	
(cm)	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4	ch1	ch2	ch3	ch4
51												
(below)	112	62	39.2	22.8	99.8	60.2	38.7	28.2	12.2	3	1.3	19.2
51												
(above)	112	62	39.2	22.8	102.5	66.6	41.6	27.9	9.3	6.9	5.8	18.1

In Table 2, most of the responses are within 20% difference, with two late time readings (Channel 4) in Table 2 between 20-23% difference. The subsequent measurements at 51cm in Table 3 do meet the 20% tolerance criterion for system response.

As of the date of this RCA, ongoing instrument function test responses for the G4 system are within ±20% of the average baseline response established on 07/18/23. Together with the responses provided in Tables 2 and 3, there does not appear to be an adverse impact on the usability of the data to meet the DGM survey objectives for the SI.

Utilizing the "5 Why" method, identify the root cause.

1. Why?	Why did the G4 EM61-MK2HP sensor fail the MQO for initial instrument function test response on 7/18/2023?						
1. Wily:	The initial G4 EM61-MK2HP response values collected for a small ISO at 42.5cm were lower than those expected for an ISO at this offset distance compared to response curves derived during the 2022 field season.						
2. Why?	Why was the response lower than the expected value? Imprecision in field measurements when completing these tests have a more pronounced effect on the resulting sensor responses with an HP sensor compared to a standard power EM61-MK2 sensor. Also contributing to this could be differences in specific battery quality and minor fluctuations in voltage that are still within the						
	operational specifications for the sensor. Why is there imprecision in the field measurements?						
3. Why?	Due to the physical configuration of the HP sensor, the field team is unable to use the test jigs created for standard power EM61-MK2 sensors. Therefore, there is a higher probability for error in the measurements when attempting to visually center the ISO above the coil.						
	Why is no permanent test jig constructed for the HP sensors to further reduce sources of measurement error?						
4. Why?	Root cause: The project team did not see a practicable need for a test jig ahead of the 2023 field surveys because the HP sensors are used infrequently by Tetra Tech. Also, field measurements in 2022 (as well as additional measurements completed in 2023) demonstrate the ability to achieve proper function testing and sensor validation. Therefore, it is an acceptable corrective action to complete additional static test measurements when failures appear and are associated with imprecision in making field measurements because of the unusual configuration of the HP sensors.						



Naval Base Kitsap Bangor N6247016D9008									
TASK ORDER #	N4425519F411	2	NCR #	007	DATE:	08/09/2023			
LOCATION: Silv	erdale, WA			CLIENT REP NOTIFED:	Melissa Kir US Navy, E QA Geophy	ODTECHDIV			
	ure, Specification, or			quirement from t	he source)				
MR-QAPP for Na	MR-QAPP for Naval Base Kitsap Bangor Site Inspection (SI).								
running average	ing detection survey positions; RCA/CA.		on; Deriv	ed positions of I	VS targets ±1	Oin of the			
2 Description o	f Nonconforming Ite	m or Condition	2000 4:4	not contain on.	nacitional dat	- and anulal			
The G4 EM61-HP AM IVS data files collected on 08/02/2023 did not contain any positional data and could not be processed to verify system functionality.									
Signature:	Junie Z Powers)							
Prepared by: _J	lessie Powers		Title:	QC Geophysic	<u>cist</u> Date:	08/09/2023			
3 Disposition R	equired by Respons	ible Organization							
☐ Use As-Is									
Rework									
Other - specify:									
	nforming condition ructs (data or cleared		of previo	ous 🗀 Ye	es ⊠t	No			
4 Responsible	Organization Correct	ive Action							
Please refer to th	e RCA worksheet in	cluded with this NC	R for mo	ore information.					
and became com	e operator has perfo placent in the daily o etween the RTS and	operations, failing to	o comple						
Corrective Actio	ns:								
 Verify all QC and production EM61-MK2HP data collected with the G4 system on 08/02/23 (apart from the AM IVS) pass all project MQOs. This was completed and verified on 08/08/23 with results presented in the running QC summaries (Project Access Database). Retrain DGM operators working at the project site on the steps IAW SOP 4 to viewing the incoming positional data to the EM61-MK2HP data collector software, as well as re-emphasize the importance of these checks. This training was completed on 08/14/2023 (documentation attached to the end of this NCR). 									
Organization: T	etra Tech	Signature:	faret	En Barno	Date:	08/17/2023			
	r, Technical Lead, Seni								
5 Independent Evaluation of Corrective Action (PM, or Designee)									



☐ Reject ☐ Reject with comments:								
Signature: PM Mitch Baror			Date: 08/18/2023					
6 Verification and Closure (PQM, UXOQCS, or	Designee)							
Verification required: Verified and Ginni Z Gavers	⊠ Yes	□No						
closed by:		QC Geophysicist	08/17/2023					
Signature		Title	Date					

Acronym: PM-Project Manager, PQM-Project Quality Manager

Additional Distribution To: File, Director of Quality or Designee, Project Manager



Nonconformance Root Cause Analysis Worksheet

Problem Statement/Nonconformance

The AM IVS data files collected using the EM61-MK2HP (system ID G4) on 08/02/2023 did not contain positional data in the raw data file and could not be processed to verify conformance to MQO #3-7.

Investigation Results/Analyze Data

Converted EM61-MK2HP data files (.M61) for the AM IVS collected with the G4 System on 08/02/2023 produced an error in the Geomar TrackMaker61MK2 software when creating positioned data files (.XYZ) for import into Geosoft for data processing. A review of the raw (.R61) data files for the AM IVS show no positional information populated by the pseudo-NMEA GGA stream as part of the data file (Figure 1). As shown in the bottom image of Figure 1, a raw .R61 file with positional data will contain Northing, Easting and GPS Quality values as part of the GGA pseudo-NMEA string output from the RTS positioning system.

Figure 1: Raw EM61-MK2HP Data File Comparison

L 1.0	00 230802	2g4 GPS 1 0 0	2.00	1.2/	0.10	00.43.03.03/
В	0.00 0					
AN	1.6	900				
Z 08	/04/2004 00:4	13:43				
0	-188.79 -26	9.95 79.95	93.33			
1	0.000	11.12	6.75	4.46	3.18	00:43:46.562
T	1.000	10.78	6.96	4.46	3.42	00:43:46.658
T	2.000	10.86	6.75	4.60	3.41	00:43:46.770
_	08/02/23 A	M IVS —				
T	9.000	4.50	2.87	1.27	0.64	09:06:30.274
Т	10 000	3.86	2 3/	a 97	1 40	09:06:30.367
@,17	2921.90,2623	41.37,N,117690	1.26,E,1,05	,1.0,09:06:3	0.400	
1	11.000	2.3/	2.13	0.66	1.65	09:06:30.480
T	12.000	1.01	2.02	0.66	1.91	09:06:30.576
	08/01/23 A	M IVS				

A review of the raw geodetic data collected on 08/02/23, show no streaming points stored from the morning of 08/02/23, which correspond to the DGM survey of IVS01. During data collection, the RTS writes to disk the measured positions at the specific output frequency as well as exporting the data to the EM61-MK2HP data collector to embed in the geophysical data file. The lack of stored points in the RTS file indicate the RTS was not outputting a pseudo-NMEA stream during collection of the AM IVS.

The geodetic check shots, PM IVS survey and EM61-MK2HP function tests from 08/02/23 pass all MQOs, and preliminary review of the transect data collected on 08/02/23 indicate no QC problems with positioning data. Therefore, this data review indicates the nonconformance is isolated to the AM IVS data file from 08/02/2023. The lack of positioning data in this file has no detrimental effect to the usability of the production data collected on this day.



Utilizing	Utilizing the "5 Why" method, identify the root cause.								
1. Why?	Why did the EM61-MK2HP dynamic data fail the MQO for ongoing survey positioning precision for the 08/02/23 AM IVS?								
	The raw data files contained no positional data and could not be converted into .XYZ files for processing.								
	Why was there no positional information in the raw data files?								
2. Why?	The complete GGA pseudo-NMEA string was missing in the raw data because of the Leica RTS unit not outputting the formatted string during collection.								
	Why was there no positional data output from the Leica during IVS collection?								
3. Why?	The lack of RTS positions was the result of human error due to the operator not hitting "Start" on the Leica controller before walking the IVS survey lines. The operator did not realize the error because they did not verify the incoming pseudo-NMEA string in the collection software window IAW Attachment 1 of SOP-4 prior to collection of dynamic data.								
	Why did the operator not perform this check from the SOP?								
4. Why?	Root Cause : The operator has performed this type of survey countless times prior to this nonconformance and became complacent in the daily operations, failing to complete a basic, yet important check of communication between the RTS and the geophysical sensor.								



TRAINING SIGN-IN SHEET

Name	e of Course: NB	K NCR-007	Location: Virtu	al	Date: 08/14/2023		
Topic	s Covered (list	or attach agenda):	-10	3. N/A	**		
	view of SOP4 At ics EM61 MK2 S	tachment 1A: Data collection wo	ith	4. N/A			
2. N/	A			5. N/A			
Instru autho	uctors: octor signature rizes electronic- ture on certificate	э.	1. Jessie Powers	s	Jani F. Course		
			2. N/A				
			3. N/A				
		12.000	ATTENDEES				
	Date	Print Name	Sign Name	Job Title	Company / OU		
1.	08/14/2023	Zachary Weston	youth Westr	DGM Field Lead/Operator	Tetra Tech TMR		
2.	08/14/2023	Jacob Jankowski	WW	DGM Operator	Tetra Tech TMR		
3.	08/14/2023	Jason Null	Jule	DGM Operator	Tetra Tech TMR		
4.							
5.							
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13.							
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15.							
16.							

Tetra Tech Proprietary Information 08/07/2020

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HSE-06 Rev 1, Rev Date

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Naval Base Kitsap Bangor N6247016D9008													
TASK ORDER	N4425519 2 # F4112	NCR#	008	DATE:	09/22/2023								
LOCATI ON: Silverdale, WA		NON#	CLIENT REP NOTIFED:	Melissa King US Navy, EODTEC QA Geophysicist									
	edure, Specification, or			ement from the source	9)								
MQO# 3-4: On	MR-QAPP for Naval Base Kitsap Bangor Site Inspection (SI). MQO# 3-4: Ongoing Instrument function test; Response (mean static spike minus mean static background) within 20% of initial response; RCA/CA.												
	n of Nonconforming Ite												
				3 did not contain stat	ic spike response data								
and could not l	oe compared to the init	ial response	values.										
Signature:	Junie Z Pawers	-1											
Prepared by:	Jessie Powers	Title:	QC Geophysic	ist Date:	10/10/2023								
3 Dispositio	n Required by Respons	ible Organiza	tion										
⊠ Use As-Is													
Rework													
Other - speci	fy:												
	Does the nonconforming condition require reevaluation of previous process or products (data or cleared areas)? ☐Yes ☐No												
4 Responsible Organization Corrective Action													
Please refer to	the RCA worksheet in	cluded with th	nis NCR for more in	formation.	Please refer to the RCA worksheet included with this NCR for more information.								

Root Cause: The operator has performed this type of survey countless times prior to this nonconformance and became complacent in the daily operations, failing to alert the team leader that a secondary instrument function test had been performed. Lack of communication between the operator and the team leader to confirm file names and saved file locations led to the incorrect file being retrieved from the data collector.

Corrective Actions:

- 1. Verify the response values for the 09/13/2023 AM instrument function test presented in the G1 logbook meet MQO 3-4. This was verified on 10/10/2023 and presented as part of the RCA worksheet.
- 2. Verify all QC and production EM61-MK2HP data collected with the G5 system on 09/13/23 (apart from the AM function test) pass all project MQOs. Data were verified as passing on 09/22/2023, with results presented in the running QC summaries (Project Access Database). The data package and Access Database were delivered on 10/02/2023.
- 3. Verify QC seed(s) encountered by the G5 system on 09/13/2023 were adequately detected. This was verified by the QC Geophysicist on 09/15/2023 and delivered on 10/09/2023 as part of the updated blind seed registry.
- 4. Add a field to the TetraForms digital logbook that requires the operator to confirm that logbook file names have been verified against file names on the data collector.

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QP-11 Rev. 1, Rev Date 01/28/2021



Organization: Tetra Tech	Signature:	Barna	Date: 10/12/2023				
Title (Site Supervisor, Technical	Lead, Senior Geophysicist, etc.): P	roject Geophysicist					
5 Independent Evaluati	ion of Corrective Action (PM	, or Designee)					
⊠ Accept							
☐ Accept with comments:							
☐ Reject							
☐ Reject with comments:							
Signature: PM Mitch Ban	97-		Date:				
	ure (PQM, UXOQCS, or Desi	gnee)					
Verification required:	Junie Z Powers_ N Yes	N o					
Verified and	_						
closed by:		QC Geophysicist	10/20/2023				
Signa	ature	Title	Date				

Acronym: PM-Project Manager, PQM-Project Quality Manager

Additional Distribution To: File, Director of Quality or Designee, Project Manager



Nonconformance Root Cause Analysis Worksheet

Problem Statement/Nonconformance

The G5 EM61-HP AM instrument function test collected on 09/13/2023 did not contain static spike response data and could not be compared to the initial response values.

Investigation Results/Analyze Data

Converted EM61-MK2HP data files (.M61) for the AM instrument function test collected with the G5 System on 09/13/2023 did not contain any static spike response data when imported into Geosoft for data processing. A review of the raw (.R61) data file for the AM function test confirmed the file only contained one line of data consisting of 139 stations, compared to a normal function test which contains three lines (two background lines and a static spike line), with approximately 600 stations per line. The raw data shows a distinct shift in values across all four channels starting at station 78, indicating a possible data spike rather than normal sensor drift (Figure 1).

00	0.00					
65.00	0.00	3.95	0.32	0.36	-0.50	00:21:39.771
66.00	0.00	3.14	1.35	0.66	-0.26	00:21:39.884
67.00	0.00	2.46	1.45	0.80	-0.27	00:21:39.982
68.00	0.00	1.92	0.94	0.65	-0.52	00:21:40.074
69.00	0.00	2.27	0.43	0.65	-0.53	00:21:40.187
70.00	0.00	2.28	0.54	0.50	-0.05	00:21:40.285
71.00	0.00	2.36	1.05	0.19	-0.30	00:21:40.379
72.00	0.00	3.13	1.36	0.04	-0.56	00:21:40.475
73.00	0.00	4.38	0.44	0.33	-1.30	00:21:40.586
74.00	0.00	5.70	-0.07	0.93	-1.56	00:21:40.684
75.00	0.00	6.47	-0.17	1.22	-1.81	00:21:40.778
76.00	0.00	6.40	0.24	0.92	-1.33	00:21:40.891
77.00	0.00	6.14	0.04	0.62	-1.33	00:21:40.986
78.00	0.00	5.18	0.55	1.66	-0.61	00:21:41.085
79.00	0.00	0.86	2.90	5.70	-0.38	00:21:41.197
80.00	0.00	-3.33	5.65	10.19	0.09	00:21:41.290
81.00	0.00	-6.08	7.69	12.74	0.08	00:21:41.387
82.00	0.00	-7.86	9.12	15.73	0.81	00:21:41.498
83.00	0.00	-8.19	9.33	17.37	1.53	00:21:41.596
84.00	0.00	-7.97	9.53	18.26	1.76	00:21:41.691
85.00	0.00	-6.92	9.33	18.70	1.75	00:21:41.788
86.00	0.00	-6.97	9.43	18.70	1.98	00:21:41.899
87.00	0.00	-6.82	9.13	18.69	2.70	00:21:41.997
88.00	0.00	-7.63	8.82	18.38	2.93	00:21:42.092
89.00	0.00	-7.55	8.62	18.38	2.68	00:21:42.206
90.00	0.00	-5.55	7.09	19.12	1.94	00:21:42.300
91.00	0.00	-4.03	6.18	19.72	1.93	00:21:42.396
92.00	0.00	-2.71	5.67	19.41	1.92	00:21:42.509

Figure 1: Raw EM61-MK2HP 09/13/2023 AM Instrument Function Test Data

It is assumed the operator aborted the test after 139 stations to assess the issue and determined that collecting a new instrument function test was necessary. The 09/13/2023 G1 Logbook contains entries for all three lines of the AM instrument function test, which pass the requirement of MQO 3-4 to be within 20% of the initial G5 response (Figure 2). However, the actual EM61 data file from which these values were obtained was either not saved correctly or not retrieved from the data collector. No secondary data file was submitted by the field team and there was no annotation in the 09/13/2023 G1 logbook describing the need to perform a secondary AM instrument function test. In accordance with Tetra Tech quality procedures, the data collector was wiped of all project specific data prior to being demobilized from the project and therefore was unable to be verified if a second instrument function test file for 09/13/2023 was present on the collector.

SFT Results			
Channel 1	3390	6.8%	Pass
Channel 2	1834	5.8%	Pass
Channel 3	1029	4.3%	Pass
Channel 4	658	3.3%	Pass

Figure 2: 09/13/2023 Logbook AM Instrument Function Test Results

The assumed root cause of the missing file is lack of communication by the operator to notify the team leader to disregard the original AM instrument function test. This would have alerted the team leader to retrieve a data file with a naming convention other than 230913ssam from the data collector for this test and revise the logbook to include the updated file name. Without this information, it is likely the team leader was unaware the 230913ssam file was not the complete file when data were retrieved off the data collector.

The PM function test response on 09/13/23 was within 20% of the initial G5 response and targeted IVS (Instrument Verification Strip) amplitude values for 09/13/2023 are consistent with values throughout the project. Review of the dynamic data collected on 09/13/23 confirms QC seeds were successfully detected, indicating no issues with system response. As this nonconformance is isolated to the AM function test data file from 09/13/2023, there is no impact to the usability of the production data collected on this day.

Utilizing the "5 Why" method, identify the root cause.		
	Why did the EM61-MK2HP static data fail the MQO for ongoing instrument function test?	
1. Why?	The raw data files did not contain data from the static spike item and therefore could not be compared to the initial G5 response.	
	Why was there no data for the static spike item?	
2. Why?	The data file only contained 139 measurements of the prespike background line and no data for the subsequent spike and post-spike lines. Response values of the spike test were in the daily logbook, indicating the full instrument function test was performed, but not collected in the data file.	

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3. Why?	Why was the data file associated with the logbook response values not submitted? The logbook provides no indication that the field team leader was aware of two files existing for the 09/13/2023 AM instrument function test. With no reason to assume the operator had deviated from the established naming convention for project files, the team leader only retrieved the 230913g5ssam file from the data collector for this test. The lack of raw data was the result of human error due to the operator aborting the collection and creating a new file. This file was not named correctly and was missed during the exporting process from the data collector.
4. Why?	Why was the team leader unaware that a secondary data file for the 09/13/2023 AM instrument function test was present on the data collector? Root Cause: The operator has performed this type of survey countless times prior to this nonconformance and became complacent in the daily operations, failing to alert the team leader that secondary instrument function test had been performed. Lack of communication between the operator and the team leader to confirm file names and saved file locations led to the incorrect file being retrieved from the data collector.



Naval Base Kitsap Bangor, WA	Final Geophysical Mapping Survey Report Sites UXO 8, 10, 15, and 16
APPENDIX H – DGM MAPS	





