

APPENDIX F

Electronic Data Deliverable Specifications and Format

F-1. REFERENCES

(a) Environmental Information Management System – Help Page
<https://eims3.sscno.nmci.navy.mil/EIMsv3/Help/UserManual.aspx>

(b) ISO 19115 – 2: Geographic information - Metadata - Part 2.
<http://www.fgdc.gov/metadata/geospatial-metadata-standards>

(c) FGDC *Geospatial Positioning Accuracy Standards, Part 4: Architecture, Engineering, Construction, and Facilities Management* (FGDC-STD-007.4-2002), Federal Geographic Data Committee, 2002. <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part4>.

(d) FGDC *Geospatial Positioning Accuracy Standards, Part 1: Reporting Methodology* (FGDC-STD-007.1-1998), Federal Geographic Data Committee, 1998.
<http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part1/index.html>

(e) FGDC *Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy* (FGDC-STD-007.3-1998), Federal Geographic Data Committee, 1998. <http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/index.html>.

(f) Contributing Data to OBIS-SEAMAP.
http://seamap.env.duke.edu/about/provider_faq

F-2. GENERAL SPECIFICATIONS

Data deliverables shall be fully compatible with the Navy/Marine Corps Internet (NMCI), Environmental Information Management System (EIMS). EIMS is a Navy-owned enterprise geo-referenced information management system to support USFF and Pacific Fleet environmental and range sustainment information technology needs, including operational and environmental planning and compliance; natural resources, encroachment and weapon danger zone analysis; range clearance and management. The fleets are developing an enterprise database within EIMS for geospatial, tabular and text data that will initially support specific elements of the Tactical Training Theater Assessment and Planning (TAP) Program, and has the flexibility and scalability to expand with emergent Fleet data collection requirements.

All contractors are required to request an EIMS account at the start of the contract for access to necessary geospatial data, reports, or other pertinent information. Reference (a) provides information on accessing EIMS. The contractor shall provide all data deliverables in both raw working formats (Microsoft Office products, such as Word (.doc), Excel (.xls/.csv), Access (.mdb), and ESRI ArcGIS products, such as ArcMap (.mxd)), personal geodatabase, and finished format, such as Adobe Acrobat (.pdf) and .jpeg.

All digital files prepared for this contract, including source data acquired, source code generated and/or used, and related materials, including that furnished by the Government, shall be provided in digital form and become the property of the Government upon completion of this contract. Hard copy deliverables may also be required by individual task order statements of work. The Contractor shall not issue, distribute, or publish any information or data generated as result of this contract without prior notification to the Navy and in accordance with LMR Appendix C – Release of Data and Information.

Digital geospatial maps and associated data shall be included for review in the draft and final task order submittals. The contractor shall have a technical consultant available to assist with any digital data discrepancies. The data will be analyzed for subject content and system compatibility. Review of comments to data shall be incorporated by the contractor prior to approval of the final submittal.

F-3. GEOSPATIAL DATA REQUIREMENTS

F-3.1. Data Standards

Geospatial data shall be delivered in a single personal geodatabase format, unless otherwise directed by the Government, compatible with Oracle using ArcGIS 10.0, or higher, and must be importable to an Oracle 11g multi-user geodatabase using ArcSDE 10.0 or higher. Digital map files (.mxd files) shall be delivered in ArcGIS 10.0 format and the associated data layers shall be sourced by a relative file pathway to the file geodatabase. In addition, all geospatial data delivered by the Contractor shall adhere to the following criteria:

- (1) Precise geographic coordinates in decimal degree format with at least four decimal precision;
- (2) Units of nautical miles (nm) for expansive marine areas and statute miles (mi) for expansive land areas;
- (3) Reference the GRS 1980 spheroid and the North American Datum 1983 (WGS-84);
and
- (4) Contain a projection file, if appropriate, based on format.

In general, contractors will be required to consult with the Navy Technical Representative (NTR)/Contract Officer Representative (COR) assigned to the resulting award concerning software version preferences prior to demonstration of the data recording package requested in the LMR BAA. While LMR is seeking a stand-alone product that will not need to be integrated with Navy software systems, subsequent decisions about Navy acquisition of the LMR-funded product will take into consideration requirements for Navy internal-use software. Those requirements can change and it may be advantageous to both the Navy and Contractor to have the LMR work product be compatible with the most current software in use by Navy hardware/software systems at the time of project completion.

F-3.2. Metadata Standards

The term “metadata” is defined as data about data. The term is often used to refer to information that allows either: (1) discovery of data, (2) understanding the provenance and quality of the data, or/and (3) analysis of the data via a set of machine readable instructions that describe the data and its relationships. The contractor shall provide metadata in ISO 19115 – 2: Geographic information - Metadata - Part 2, reference (b), the current preferred US Federal metadata standard.

The contractor shall ensure that metadata is provided for all geospatial data delivered, including data furnished by the Government, a third party, or generated as a result of this project. All metadata shall be delivered in XML format. The contractor shall reference the ISO 19115 metadata style sheet when populating Service-level and Feature Class-level metadata. The contractor is required to supply metadata for all fields within this style sheet.

F-3.3. Mapping Guidelines

The contractor shall comply with FGDC *Geospatial Positioning Accuracy Standards, Part 4: Architecture, Engineering, Construction, and Facilities Management*, reference (c), which provides accuracy standards for engineering drawings, maps, and surveys. Map or drawing scales will be determined by the NTR/COR, given specific project requirements.

F-3.4. GPS Surveys

The contractor shall comply with the FGDC *Geospatial Positioning Accuracy Standards, Part 1: Reporting Methodology*, reference (d), when conducting GPS surveys and collecting geospatial data. Specifically, the contractor shall ensure that the horizontal accuracy for planning grade GPS data collection shall be sub-meter, unless otherwise specified. Every effort shall be made to capture feature locations without using offsets, unless obstructions are present. If offsets are used, the contractor shall ensure that they are agreed to by the Government and documented, per direction of the NTR/COR, given specific project requirements.

Data sets derived from GPS data collection efforts (mapping or survey grade) shall include metadata to record descriptions of the receiver and other equipment used during collection and processing, base stations used for differential corrections, software used for performing differential corrections, estimated horizontal and vertical accuracies obtained, and conversion routines used to translate the data into final geospatial data delivery format (see Section A-3.1). All metadata shall comply with the metadata format requirements as described in this document (see Section A-3.2). Metadata must include an accuracy statement at the 90% or 95% confidence interval. Accuracy

statements shall include the method of determination, as specified in the FGDC *Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy*, reference (e).

F-3.5. Data Integrity

The contractor shall employ appropriate QA/QC standards to ensure that data is topologically correct, accurate and complete, including:

- (1) No erroneous overshoots, undershoots, dangles or intersections in the line work;
- (2) Point and line features shall be snapped together where appropriate to support networks, e.g. do not break linear features for labeling or other aesthetic purposes;
- (3) Lines should be continuous and point features should be digitized as points;
- (4) No sliver polygons;
- (5) Digital representation of the common boundaries for all graphic features must be coincident, regardless of feature layer.

F-4. USE OF AUTHORITATIVE DATA & EIMS

F-4.1 Navy Maintained Common Operating Picture (COP)

The Navy has identified geospatial data layers that will be maintained by the EIMS Data Process Team as the authoritative Common Operating Picture (COP). The COP will be maintained and made available to contractors via EIMS. The following data layers will be maintained by the Navy:

- (1) Boundaries of Air, Land, and Sea Training & Testing Areas
- (2) Special Use Airspace (SUAS)
- (3) Shoreline/Land Mass

Reference (a) provides information on accessing EIMS.

F-4.2 Geospatial Data Use & Project Management on EIMS

Contractors responsible for data generation, maintenance, and map/figure production for this task are required to request an EIMS account at the start of the project. After successful completion of the non-disclosure agreement and creation of the project workspace the contractor is required to submit a Data Action Item (DAI) to receive any required Government-furnished information (GFI). The EIMS Data Team is responsible for reviewing DAIs and will populate the project folder in EIMS with the following GFI:

- (1) Standardized ESRI ArcMap (.mxd) map templates for use in project
 - a. 8.5 x 11 inches portrait layout
 - b. 8.5 x 11 inches landscape layout
- (2) Associated authoritative data layers noted in section A-4.1

Reference (a) provides information on submitting a data request in EIMS.

The contractor is required to utilize the ArcMap templates and the Common Operating Picture data provided by the government to produce all maps and figures for the task in the appropriate project folder on EIMS, as needed. New data generated by the

contractor as a part of this Task will be uploaded to the project folder in EIMS, adhering to the data format and metadata standards outlined in previous sections of this appendix.

F-4.3 Geospatial Data Deliverables

The contractor is required to upload the project data to the appropriate project folder in EIMS, which will be set up in coordination with the LMR NTR/COR and contractor at the initiation of the project.

In addition to uploading data and information to EIMS the contractor is required to submit all source survey data to the Ocean Biogeographic Information System Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP) website, a spatially, temporally interactive online archive for marine mammal, sea turtle and seabird data. Data sets will be attributed to the original collector with acknowledgement of appropriate the U.S. Navy Command(s) as the funding source.

Reference (f) provides information on submitting data to OBIS-SEAMAP, including submitter data rights.