

Review Protocol for Contractor Submitted Deliverables for the Installation and Maintenance of CO-OPS Water Level, Meteorological and Current Meter Stations

Procedure Number: SOP 6.6.1.1

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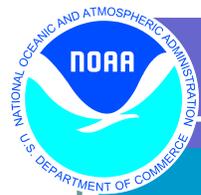
Revised: Adam Grodsky (COET), Sep 2016

1. **Title:** Review Protocol for Contractor Submitted Deliverables for the Installation and Maintenance of CO-OPS Water Level, Meteorological, and Current Meter Stations
2. **Purpose:** This document outlines the various sequential steps, and the corresponding time frames for the actions required by all parties for the submission, quality control and verification of the deliverables after installation and/or maintenance of CO-OPS water level, meteorological, and current meter stations for CO-OPS contract projects.
3. **Background/History:** Historically, CO-OPS installed and maintained all of the water level and current meter stations. As the number of NWLON, PORTS[®] and current meter stations has increased, CO-OPS has augmented field capacity with field support contracts. CO-OPS awarded its first contract in 2004 for the installation and maintenance of NWLON stations in Alaska. Since then, CO-OPS has awarded IDIQ contracts for the installation and maintenance of many water level, meteorological and current meter stations.
4. **Scope/Applicability:** This SOP is applicable for all water level, meteorological and current meter stations that are installed and maintained via IDIQ contract tasks.
5. **Main Processes:**

Three types of documentation for deliverables are defined as follows:

Initial Documentation: Any documentation that is sent to CO-OPS either prior to the station visit or from the site. This includes the preliminary site report which is sent to COET after the testing of the equipment is completed as referenced in the [SOP- 3.2.3.5 \(E3\) Upgrading an existing water level station or installing a new water level station](#).

Preliminary Documentation: All documentation that is required to be submitted to CO-OPS within 30 calendar days, or as stipulated in the contract from the completion of the Installation, Annual Inspection/Maintenance (AI), Removal, Unscheduled Maintenance (EM), or upgrade of water level, meteorological or current meter stations. The 30 calendar days start day after the completion of the activity (e.g. installation, AI, EM, Removal, or upgrade).



For current meter stations, this includes all the required documentation that needs to be submitted to CO-OPS within five (5) working days of or as stipulated in the contract from the completion of the installation, AI, removal, routine or unscheduled maintenance. The 5 working days start day after the completion of the activity (e.g. installation, AI, EM, Removal).

Final Documentation: All the required documentation that has been revised, since the preliminary documentation review by COET and the Technical Representative (TR), to address the comments, and the deficiencies in the 30-day preliminary documentation. If there are no deficiencies in the 30-day preliminary documentation, then that documentation will be designated as 30-day Final documentation.

For current meter stations, this includes all the required documentation that has been revised after COET and TR provide comments and the deficiencies in the 5-day preliminary documentation have been corrected and resolved. If there are no deficiencies in the 5-day preliminary documentation, then that documentation can be designated as the final documentation.

5.1 Note 1: The contractor shall submit all documentation (initial, preliminary, final) in Task Order Management and Information System (TOMIS). If the documentation is not submitted via TOMIS, then for each submission, the contractor shall send an email to the COR, the TR, and other designated CO-OPS recipients providing the task contractors' FTP address and access metadata (login, password, etc.). The email message should contain the same information that is normally included in the transmittal letter.

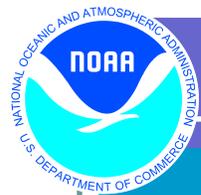
In this document:

- Contractor responsibilities and actions are **PINK**
- Contracting Officers Representative (COR) responsibilities & actions are **BLUE**
- CO-OPS reviewers' responsibilities and actions are **GREEN**
- Technical Representative (TR) responsibilities are **BROWN**

5.2. Upon completion of a site visit for any work described below, the contractor shall submit all required documentation.

The protocol for the delivery of complete station documentation resulting from IDIQ contractor (1) annual inspections, (2) installations, (3) removals, (4) major upgrades (including relocating a station), (5) unscheduled/maintenance, and (6) routine visits follows:

For standard station package deliverables (see Attachments 1 for water level stations with or without meteorological sensors, Attachment 2 for routine or unscheduled maintenance for water level and meteorological/ancillary stations, Attachment 3 for real-time currents, and Attachment 4 for



meteorological/ancillary stations), the contractor shall submit all data and documentation via digital format using the TOMIS interface.

Evaluation of station installations is a two phase process. First, the documentation (and data) shall be evaluated as described below. Second, the TR, or designee, will physically inspect the station installation.

For PORTS® real-time currents stations, DMAT will evaluate the data quality in addition to COET reviewing the documentation.

CO-OPS requires that GPS deliverables be provided in digital media using the TOMIS interface for submission. GPS results shall be published (database option) at the NGS OPUS web page. GPS deliverables are described in the [User's Guide for GPS Observations at Tide and Water Level Station Bench Marks](#) (latest update available in CO-OPS field library).

- 5.3. For a given station, the contractor shall provide the required **Preliminary Documentation** package to both the TR and COR in accepted format as listed above in Note 1.

This time window for submission of preliminary documentation is tracked by the responsible COET person, TR and COR.

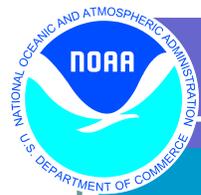
When the COR receives notification from contractor (via TOMIS or otherwise) that the data and documentation are ready for review, the COR shall:

Open TOMIS and forward the deliverables to the TOMIS Reviewers (which include COET, and the TR) for evaluation. The Reviewers will receive an email announcing the deliverables are ready for review and the task contractor's FTP address and access to metadata are to be included.

Via the TOMIS interface, an e-mail will be sent to the task contractor acknowledging that the deliverables were received.

- 5.4. During that **initial review period**, COET and TR will evaluate all submitted **Preliminary Documentation** and will provide comments in TOMIS within 18 business days. The count of 18 business days start day after the documentation is received. COR has two additional business days in TOMIS to review and approve the documentation after COET and TR review and comments. **COET and TR will need to send the COR an e-mail stating the documentation has been reviewed and the review can be forwarded back to the contractor. TOMIS will not automatically notify the COR unless all reviewers provide comments.**

If the contractor has questions or comments regarding the evaluation, they should contact the responsible COET person(s) via email with CCs to the COR and TR.



If the contractor cannot contact COET via email, they should then contact COET via phone. In turn, COET will document the phone response via an email with CCs to the COR and TR, and update the Records Evaluation accordingly.

- 5.5. The contractor shall then make any requested changes, revisions, updates and provide the TR and COR with the Revised (final) Documentation via TOMIS within 10 business days. When the COR receives email notification from TOMIS that the Revised Final Documentation (including the ftp access information), the COR shall forward the deliverables to COET and the TR via TOMIS. The responsible COET person(s) reviews the final package and completes the TOMIS reviewer evaluation.

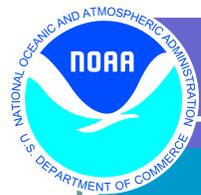
COET and TR will provide this final review within 10 business days of receipt of the revised documentation. If any deficiencies are found, COET, COR, and TR will resolve those deficiencies with the contractor. Once COET approves via TOMIS the final documentation, the contractor is informed that the deliverable is final, and the contractor may submit an invoice for all accepted station documentation.

Once the station documentation has been reviewed by COET and TR and accepted by the COR, and declared final by COR, COET shall then ensure that all CO-OPS station files, both in paper format and in digital format in the CO-OPS Data Management System (DMS), have been updated based on the new documentation.

6. Detailed Sub Processes and Checklist:

In 2010 CO-OPS implemented the TOMIS that supports the management of the CO-OPS IDIQ contract(s) deliverables process. TOMIS functions include task order input (by COR), deliverables submittal (by contractors), deliverables submittal to reviewers (by COR), deliverables review (by reviewers), deliverables acceptance (by reviewers-initial and COR-final), and contractor evaluation (by Task Lead-initial, and COR-final). When a new task is awarded, the COR enters the task into TOMIS. Input into the tracking system includes the deliverables tracking form developed in concert with the COR, IDIQ TR, and task contractor. The form is based on the task schedule and deliverables, and deliverables are associated with pricing. The COR lists the task in TOMIS, and then assigns TOMIS Reviewers, generally COET and the TR.

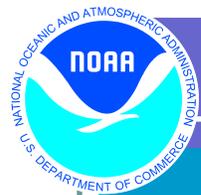
For an NWLON annual inspection, the “Due Date” is when the initial documentation is required to be forwarded by the contractor via TOMIS. The “Date Submitted” is when the contractor submits the deliverable via TOMIS. The “Date Approved” is when the COR, based on reviewer evaluation, posts via TOMIS that the deliverable is final, thus allowing the contractor to then submit invoice. A goal is to keep the deliverables tracking form simple. The COR may update the deliverables tracking form at any time to reflect a change in schedule and/or scope. The COR may also delete or add deliverables if needed.



The task contractor submits preliminary, revised, and final deliverables via TOMIS. An email is sent to the COR once the deliverable has been submitted. The COR goes into TOMIS and submits the deliverable to the TOMIS Reviewers. E-mails are sent back to the contractor and to the Reviewers announcing that the deliverable is ready for review. See the attached *How to Review Documents via TOMIS* that explains how reviewers do the evaluations. The Reviewers then do the deliverable evaluation.

Following each round of evaluation by the Reviewers, the COR releases the reviews to be sent back to the contractor with accept/reject notification. When a deliverable is officially accepted, the process is completed for that deliverable. When a deliverable is rejected the process starts all over for that deliverable. When all deliverables have been accepted, the task is completed. At all steps along the way, the COR may step in and modify comments made by reviewers and/or the Task Order Lead.

7. **Quality Assurance/Control:** CO-OPS' COET and TR are responsible for the quality assurance of the documentation.
8. **Management/Responsibility:** COET is responsible for maintaining and updating this SOP and shall seek appropriate advice from COET and TRs.



Attachment 1 - Water Level Station Documentation Package

Attachment 2 – Unscheduled Site Visit Documentation Requirements

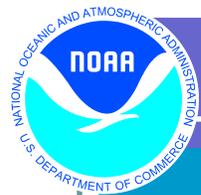
Attachment 3 - Current Station Documentation Package

Attachment 4 - Meteorological/Ancillary Station Documentation Package

Attachment 1 - Water Level Station Documentation Package

The standard water level station documentation package includes the following:

- 1) Transmittal letter (PDF format)
- 2) eSite Report, or Water Level Station Xpert Site Report, or Tide Station Report (eSite report in web based digital format, Water Level Station Xpert Site Report in Microsoft Excel format)
- 3) Sensor test worksheet (PDF format)
- 4) Sensor elevation drawing (PDF format) showing sea floor, pier elevation, and sensor elevation if the sensor is mounted vertically.
- 5) Water level transfer form (for Great Lakes stations only - PDF format)
- 6) Bench mark Diagram (PDF format) – Large-scale bench mark location sketch of the station site showing the relative location of the water level gauge, staff (if any), bench marks, and major reference objects found in the bench mark descriptions. The bench mark diagram shall include an arrow indicating north direction, a title block that includes: the station name and number, NOAA chart number, USGS Quad name, field unit, date created, drawn by, and latitude and longitude (obtained from hand-held GPS receiver) of the gauge, and label of the body of water. (Required for newly installed stations only – PDF format.)
- 7) Bench mark descriptions with handheld GPS coordinates (d/m/s.s format) (digital file - WinDesc).
- 8) “Station to Reach” statement in Microsoft Word format.
- 9) Digital photographs of each bench mark disk (four views), station, DCP, equipment, underwater components, and vicinity (JPEG format).
- 10) Levels (digital files) including leveling equipment information and field notes of precise leveling, if applicable.
- 11) Abstract of precise leveling (digital format).
- 12) Datum offset computation worksheet or Staff/Gauge difference work sheet as appropriate showing how sensor “zero” measurement point is referenced to the bench marks.
- 13) Staff to gauge observations, if applicable (Microsoft Excel format)
- 14) Calibration certificates for Invar leveling rods, if applicable (PDF format)
- 15) Calibration records for sensors, if applicable (PDF format)
- 16) Agreements, MOU, contract documents, utilities/pier agreements, etc., if applicable (PDF format)
- 17) Other information as appropriate, or as specified in the contract (PDF format)
- 18) Water level data download in specified format



- 19) GPS Deliverables - the OPUS published datasheet and 4 photos of the GPSBM in digital format for each observation session as described in the User's Guide for GPS Observations at Tide and Water Level Bench Marks.
- 20) Annual Inspection (AI) checklist (Applicable for all CO-OPS' NWLON AI).
- 21) Diving Documents (DAMP, Dive Plan, etc.).

Water level data downloaded for NWLON, PORTS, Tsunami, COASTAL, or in-house projects shall be in accordance with "*Engineering Bulletin 07-006 Exporting Data from Xpert Family DCP*". Water level data downloaded for contract hydrographic and photogrammetry survey projects and submitted to CO-OPS for validation shall be in accordance with "*NOS Hydrographic Surveys Specifications and Deliverables*" Latest update.

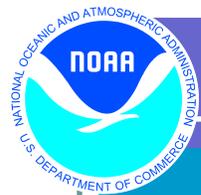
Generally, for established NWLON stations or long term water level stations (more than 1 year), the "To Reach" statement need only be submitted if these items have been revised during the station maintenance or removal, because these items are required and are generally submitted with the installation station package.

When using the digital/barcode system, digital copies of the abstract and bench mark description or recovery notes using the WinDesc and Translev programs shall be submitted. At stations where the automated or manual levels are used, scanned copies of the Precise Leveling sheets of actual runs (NOAA Form 75-29) and Abstract of Precise Levels (NOAA Form 76-183) shall be completed and submitted.

All digital photographs shall be submitted in JPEG format. All digital station photo files should be named such that the name of the file will indicate the station number and the type of photo taken. For example, the acoustic sensor photo for DCP1 at Los Angeles shall be named as 94106601 A1 sensor.jpg.

All digital station bench mark photo files should be named such that the name of the file will indicate the station number, dash, PID number (if available), dash, stamping or designation, dash, photo type, dash, date, dot.jpg. For new mark, the PID is not applicable as it is unavailable. Close-up photo vertically taken of the bench mark is photo type 1, eye level photo vertically taken of the bench mark is photo type 2, and the horizontal view taken of the bench mark is photo type 3. For photo type 3 include the cardinal direction (N, NE, S, SE, etc.) that the camera is pointing. If there are more than one type of photos are taken then re-name them as 1A, 1B, 2A, 2B, 3A, 3B, etc. If a PID is available, then use designation instead of stamping for the naming of the file. Use a maximum of 30 alpha numeric characters to the left of the dot. So if you are exceeding 30 alpha numeric characters in the name, then truncate the stamping or designation so that maximum characters in the name are 30. For example, the bench mark E close-up photo for Seattle water level station should be named as 9447130-7130E1990-1-20090101.jpg.

Sample file names for photo files



| | |
|---|------------------------------------|
| New bench mark without a PID and disk face photo | 9414290-4290A2008-1-20090101.jpg |
| Existing bench mark with a PID and eye level view photo | 9410660-DY2512-BM N-2-20090101.jpg |
| Existing bench mark without a PID and north direction photo | 9447130-7130E1990-3N-20090101.jpg |

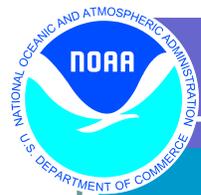
In addition, put a caption for each photograph, indicating the stamping or designation of the mark, PID, photo type with cardinal direction, and the date of photograph taken.

For submission in digital format, the station documentation shall be organized by various folders under the main station number folder, and then pertinent information shall be placed in the various folders and submitted on a digital media, such as DVD/CD-ROM, FTP sites, etc.

Here is an example of submission of the digital folders for San Francisco tide station:

9414290 San Francisco FY 16 Installation

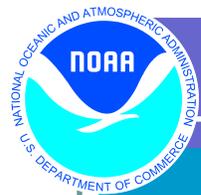
- / Transmittal letter
- / eSite Report, Xpert Site Report (Excel)
- / Sensor test worksheet
- / Sensor elevation drawing
- / Water level transfer form
- / Bench mark Diagram (new installations only)
- / Bench mark descriptions (WinDesc)
- / “Station To Reach” Statement
- / Photographs of bench marks, station, DCP, equipment, and vicinity in digital format
- / Levels (raw digital files) and field notes of precise leveling
- / Abstract of precise leveling
- / Datum offset computation worksheet or Staff/Gauge difference work sheet (elevation of sensor zero measurement point referenced to bench marks)
- / Staff to gauge observations, if applicable
- / Calibration certificates for Invar leveling rods, if applicable
- / Calibration records for sensors, if applicable
- / Agreements, MOU, contract documents, utilities/pier agreements, etc., if applicable
- / Other information as appropriate, or as specified in the contract
- / Water level data (6-minute, hourly heights, high/low, monthly means, station datum)
- / GPS deliverables, as applicable
- / Annual Inspection Checklist
- / Diving Documents
- / GPS deliverables, include the OPUS published datasheet, and four (4) photos of GPSBM



Attachment 2 – Unscheduled Site Visit Documentation Requirements

The documentation package submitted depends upon the type of unscheduled maintenance that is performed. For every unscheduled action, the minimum requirement is that a site report shall be submitted, documenting what was done during that visit. The supporting documentation varies depending upon the nature of the visit and issues addressed.

- (1) Transmittal letter (PDF format)
- (2) eSite Report, or Water Level Station Xpert Site Report, (eSite report in web based digital format, Water Level Station Xpert Site Report in Microsoft Excel format)
- (3) Sensor test worksheet (PDF format)
- (4) If check or bracketing levels are run (after storm/hurricane/earthquake or for stability), submit the raw levels and abstract of precise levels, datum offset computation worksheet; and calibration record of the invar rod.
- (5) If sensor replacement is accomplished, submit the sensor test worksheet, sensor elevation drawing, and calibration records for sensor.
- (6) If new bench marks are installed, submit photos of the marks, and descriptions of the mark with GPS positions using the handheld GPS receiver.
- (7) If GPS observations are made, submit necessary GPS documentation.



Attachment 3 - Current Station Documentation Package

The standard Current Station documentation package includes the following:

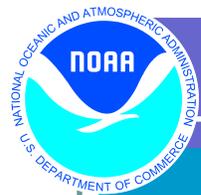
- (1) Transmittal letter
- (2) Current Meter Station Report (PDF)
- (3) Current Meter Maintenance /Installation Checklist (PDF)
- (4) Google Map or chartlet clearly showing the station location in JPEG and PDF format
- (5) Sensor Elevation Drawing (PDF)
- (6) Sensor Test Worksheet
- (7) Photographs of the station, DCP, equipment, underwater components, and station vicinity (JPG)
- (8) Magnetic Declination (Compass calibration) information
- (9) Calibration records
- (10) To Reach Statement and Shore Station To Reach Statement
- (11) Agreements, MOU, contract documents, utilities/pier agreements, etc.
- (12) Data download
- (13) Other information

For submission in digital format, the station documentation shall be organized by folders under the main station number folder, and the pertinent information shall be placed in the various folders and submitted.

Here is an example of submission of the digital folders for the The Narrows current meter station:

- n03020 The Narrows (main folder)
 - /Transmittal letter (subfolder)
 - /Station Report (subfolder)
 - /Maintenance/Installation Checklists (subfolder)
 - /Chartlet (subfolder)
 - /Sensor elevation diagram (subfolder)
 - /Sensor test worksheet (subfolder)
 - /Photographs (subfolder)
 - /Magnetic Declination (Compass Calibration)
 - /Calibration records (subfolder) – Note: May contain configuration screenshots
 - /Station and Shore Station To Reach Statement (subfolder)
 - /Agreements (subfolder) – Note: May contain other documents
 - /Data Downloaded (subfolder)
 - /Other information (subfolder)

Generally, the above information will all be provided along with the station report. Also, please ensure that a screen shot of at least one six minute data dump is provided - shortly after installation or routine maintenance is completed, that shows profiling range. And, if the IP modem address has changed, please provide the new IP address.



Attachment 4 - Meteorological/Ancillary Station Documentation Package

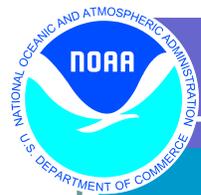
The standard Meteorological/Ancillary Station documentation package includes the following:

- (1) Transmittal letter,
- (2) eSite Report, or Water Level Station Xpert Site Report, or Tide Station Report (eSite report in web based digital format, Water Level Station Xpert Site Report in Microsoft Excel format)
- (3) Google Map or Chartlet in JPEG and PDF format,
- (4) Sensor test worksheet in JPEG and PDF format,
- (5) Sensor elevation drawing
- (6) Photographs of station, DCP, equipment, underwater components, and station vicinity in JPEG format,
- (7) Agreements, MOU, contract documents, utilities/pier agreements, etc., if applicable in original paper form and scanned JPEG and PDF format,
- (8) Other information as appropriate, or as specified in the contract, and
- (9) Calibration records of the sensor, if applicable
- (10) Data download

For submission in digital format, the station documentation shall be organized by various folders under the main station number folder, and then pertinent information shall be placed in the various folders and submitted

Here is an example of submission of the digital folders for the Chesapeake Bay Bridge Tunnel water level station:

863 8863 Chesapeake Bay Bridge Tunnel
/Transmittal letter
/Site Report
/Google Map or Chartlet
/Sensor test worksheet
/Sensor elevation drawing
/Photographs station, DCP, equipment, and vicinity in digital and paper format
/Agreements, MOU, contract documents, utilities/pier agreements, etc., if applicable
/Other information as appropriate, or as specified in the contract
/Calibration records for sensors, if applicable
/ Data download



Data Dictionary

COASTAL: Coastal Oceanographic Applications and Services of Tides and Lakes

CO-OPS: Center for Operational Oceanographic and Products and Services

COET: Configuration and Operational Engineering Team

COR: Contracting Officer's Representative

DCP: Data Collection Platform

DMS: Data Management System

FTP: File Transfer Protocol

GPS: Global Positioning System

GPSBM: GPS bench mark

IDIQ: Indefinite Delivery Indefinite Quantity

IP: Internet Protocol (modem)

JPEG: Joint Photographic Expert Group or Image File format

MOU: Memorandum of Understanding

NGS: National Geodetic Survey

NWLON: National Water Level Observation Network

OPUS: (NGS) Online Positioning User Service

PDF: Portable Document Format

PID: Permanent Identifier

PORTS: Physical Oceanographic Real Time Systems

SOP: Standard Operating Procedure

TR: Technical Representative

TOMIS: Task Order Management and Information System

USGS: United States Geological Survey