

## CO-OPS Evaluation Criteria for Water Level Station Documentation

**Procedure Number: SOP-3.2.3.5 E7**

**Update Date: May 22, 2009**

**Approved By: Tom Mero (EDRB Chair)**

1. **Title**

CO-OPS Evaluation Criteria for Water Level Station Documentation

2. **Purpose**

ED/OET personnel and task managers are required to evaluate the quality of water level and meteorological station documentation submitted for entry in the database and in the water level station package. The evaluation criteria described here provides guidelines for OET team regarding the specifics – why, how, and what to look for – in the submitted documentation. The evaluation criteria along with the specifications listed in the Standing Project Instructions which are available at CO-OPS' website at [http://tidesandcurrents.noaa.gov/publications/Standing\\_Project\\_Instructions\\_for\\_Coastal\\_and\\_Great\\_Lakes\\_Water\\_Level\\_Stations\\_updated\\_November2008.pdf](http://tidesandcurrents.noaa.gov/publications/Standing_Project_Instructions_for_Coastal_and_Great_Lakes_Water_Level_Stations_updated_November2008.pdf) help the field parties understand how OET evaluates the submitted documentation and quantifies the comments and deficiencies. As submitted documentations is evaluated by OET and Task Managers (TM), any deficiencies discovered are noted on the evaluation form in timely fashion and provided to the responsible field party for correction and/or resubmission.

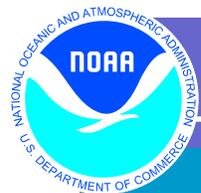
3. **Background/History**

ED/OET group is the steward for the documentation and metadata for the water level and meteorological stations for the CO-OPS Database Management System (DMS) Data Processing and Analysis Subsystem (DPAS) database. It is CO-OPS requirement and OET responsibility to ensure that the submitted water level station documentation is complete, timely, meets the specifications, and is of a high quality. Metadata is required to completely describe the data used for all of CO-OPS products, and for various applications that generate the products and services CO-OPS offers. The National Water Level Program (NWLP) supports various other programs, applications, and projects such as Physical Oceanographic Real Time System (PORTS<sup>®</sup>), hydrographic and photogrammetry surveys, long term sea level rise studies, tsunami detection and notification, marine boundary determinations, and coastal management.

Field submitted documentation is the source of all this metadata which supports various CO-OPS programs and applications. These procedures are designed to provide detailed feedback to CO-OPS field parties and contractors in order to ensure that CO-OPS receives the most complete and highest quality documentation for each field operation.

4. **Scope/Applicability**

These procedures are applicable to all of the water level station data submitted for the National Water Level Observation Network (NWLON), stations installed to support hydrographic and photogrammetry surveys, PORTS<sup>®</sup>, coastal, and reimbursable special



projects where the data is stored in DMS and in station packages. These procedures are applicable for the water level station data submitted by CO-OPS Field Operations Division, CO-OPS' IDIQ contractors, OCS and NGS contractors, and others.

## 5. Main Processes

First, a few definitions are defined for the three types of documentation.

**24 Hour Notification:** A one day site report, draft ready e-site, or email stating the critical information required to configure sensors installed at water level or meteorological stations.

**Preliminary Documentation:** This includes all the required documentation that needs to be submitted to CO-OPS within 30 days or as stipulated in the contract from the completion of the annual maintenance, installation, removal, emergency maintenance, or meteorological upgrade or installation.

**Revised Final Documentation:** This includes all the required documentation that has been revised after OET and Task Manager provide comments and the deficiencies in the 30-day preliminary documentation have been corrected and resolved. If there are no deficiencies in the 30-day preliminary documentation, then that documentation can be designated as 30-day revised documentation.

The procedures detailed in Step 6 below are first performed on the preliminary documentation received from the CO-OPS field party or contractor after performing work in the field. The procedures are repeated on each set of revised documentation received until all deficiencies have been addressed. Appendix A contains the form used to record all evaluations.

## 6. Detailed Sub-Processes/Checklists

### **Deliverables Timeliness**

- One day site report, Draft Ready, or Email notification received within one day of maintenance.
- Final reviewed documents received before 30 day deadline.

**Transmittal letter (PDF)** – required for each submission.

### **Annual Inspection Station Specific Requirements**

- All items completed, or explained sufficiently in section regarding the work to be performed next year.

### **Annual Inspection Checklist**

- Completed and submitted in electronic format.



**(E)-Site Report** (or in a file format agreed upon in the kickoff meeting) - required for installation, annual inspection, emergency maintenance, remote maintenance [corrective or preventive], bracketing levels, and removal of a water level station.

- All applicable information completed, especially serial numbers of DCP/sensors, dates of installation/removal of DCP/sensors, and levels.
- Lat/Long for DCPs and all sensors in d/m/s.x determined by handheld GPS.
- Noted date/time sensor offset change entered in Xpert DCP (time of startup after upgrade).
- Noted date/time new datum offset entered in Xpert DCP.
- Metadata provided for ancillary sensors.
- Actual notes on results of dive inspection or cleaning of underwater components.
- Status of valid tie to NAVD88 noted in level section remarks, where applicable.
- Excessive movement of WL sensor or bench marks noted in level section remarks.
- Included in station notes, any required security clearances and contact points for clearances, advanced notice requirement and contact point, dive rental contact info, other useful logistic information such as local hardware stores, lodging, etc.

**Protective Well/Sounding Tube Diagram (PDF)**

- Elevations related to station datum submitted for new installations or relocations.

**Station “To Reach” Statement**

- Provided in proper NOS format (as found in the published bench mark sheet) in the E-Site Report or separately in a text document (in a file format agreed upon in the kickoff meeting).

**Chart Section (PDF)**

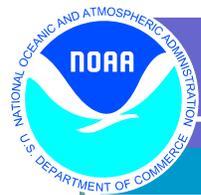
- Station location clearly indicated by a symbol.
- Standard title block includes: station number, station name, lat/long as d/m/s.x, NOAA Chart number, and USGS quad name in all caps.

**Bench Mark/Station Location Sketch (PDF)**

- Standard title block includes: station number, station name, field unit, date drawn, and 2 to 3 latest revision dates.
- North arrow shown.
- Gage and bench marks locations shown, local body of water labeled.
- All active (recovered and not recovered) BMs identified by designation; BMs confirmed as destroyed removed from sketch.

**Sensor Elevation Drawing (PDF)**

- Show harbor bottom, supporting structure elevation, and sensor elevations.



**Digital Photographs (JPG)** – photos must be of digital camera quality and clearly in focus; photos are required only if noted in the station specific project instructions or if existing equipment has changed, or new bench marks established.

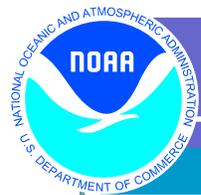
- Station Photos – shelter and its nearby area (to show station and sensors in relation to their physical surroundings), well and brackets, DCPs; file names start with station number followed by the specific view, with jpg extension (i.e. 8661070 inside shelter.jpg)
  - Several shots of met tower and sensors from different directions (i.e. 8661070 met tower looking SW.jpg)
- Bench Mark Photos – (1) close up on disk face, with or w/o GPS handheld in view; (2) chest high view of setting; (3) two photos from two different (perpendicular) directions showing general location for all new marks; file names start with the station number in all cases with no hyphens or blank space and follow CO-OPS' file naming convention for bench mark photos.

### **Bench Mark Descriptions/Recovery Notes**

- Non-electronic:
  - Descriptions provided digitally in NOS format as displayed on the published bench mark sheet.
  - RAD/xxx noted for marks recovered as described, where xxx is contractor, field party, or party chief initials.
  - Handheld GPS position in d/m/s.x provided at the end of the text description.
- Electronic (old technology DOS program):
  - All HA file codes completed accurately.
  - Text description begins with a statement on how to reach the mark, followed by the description in NOS format.
  - Handheld GPS position in d/m/s.x provided at the end of the text description; must use d/m/s in position coding in the HA file (does not accept s.x).
- New WinDesc Program:
  - All DES file codes completed accurately.
  - Text description begins with a statement on how to reach the mark, followed by the description in NOS format.
  - Handheld GPS position in d/m/s.x.

### **Levels**

- Marks leveled to this inspection include those not leveled to previous year (all marks must be leveled to once every two years), and/or marks must be connected as noted in the annual specific station requirements. Explanation provided for any marks not leveled to.
- Non-electronic (optical) - in a file format agreed upon in the kickoff meeting:
  - C-shot notes provided.
  - Level note pages filled out completely; marks identified by designation.
  - If level note pages are in Excel, the page for the backward run must be modified to include the section marks (as on the forward run page).
  - NOS-approved Wiz level notes acceptable in existing format.



- Sectional and overall closures within allowable.
- Abstracted mark elevations start with PBM accepted elevation and end with the Primary Sensor elevation above station datum (spur to primary sensor).
- Check for valid tie to NAVD88, where applicable
- Electronic (old technology DOS program):
  - Original IN file provided in separate folder if IN is edited.
  - All file dates must be chronologically consistent; the HA and INX files cannot have dates more recent than that for the ABS file.
  - Error flags not allowed on sectional distances of the abstract.
  - Abstracted mark elevations start with PBM accepted elevation and end with the Primary Sensor elevation above station datum.
  - Check for valid tie to NAVD88, where applicable
  - Invar rod calibration certificates required for the first-time digital leveling.
- New TransLev Program:
  - Original GSI file provided in separate folder if GSI is edited.
  - All file dates must be chronologically consistent; the DES and INX files cannot have dates more recent than that for the ABS file.
  - Error flags not allowed on sectional distances of the abstract.
  - Abstracted mark elevations start with PBM accepted elevation and end with the Primary Sensor elevation above station datum.
  - Check for valid tie to NAVD88, where applicable.
  - Invar rod calibration certificates required for the first-time digital leveling.

### **GPS Documentation**

- GPS observations performed on the designated GPS Bench Mark (GPSBM); explanation provided if another mark is selected.
- Data file submitted to OPUS-DB for publication; digital and hard copy of OPUS-DB datasheet submitted with four photos of the GPSBM.
- GPS submission meets all other criteria as stated in the User's Guide for GPS Observations, latest copy.

### **Water Level Data Download**

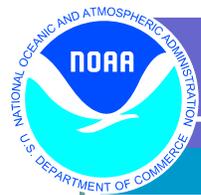
- Zmodem file (Xpert, Dark, 9210) of downloaded data from the primary and/or backup DCP for known periods of missing transmissions or maintenance actions (minimum 15 days of data required).
- Data download must be in .txt format for loading in DMS.

### **Other Station Information**

- Lease or license agreements with owner, contract documents, etc.

### **Task Order Deliverables**

- Deliverables include any additional requirements specified in the task order for that particular station.



7. **Quality Assurance/Control**

ED/OET and Task Managers are responsible for the quality assurance of the documentation.

8. **Management/Responsibility**

ED/OET is responsible for maintaining and updating this SOP.



## Appendix A

**CO-OPS WATER LEVEL STATION RECORDS EVALUATION**

STATION NAME:  
STATION NUMBER:  
PARTY CHIEF/FIELD PARTY-CONTRACTOR:  
DATE OF O&M:  
EVALUATOR:  
DATE O&M PAPERWORK RECEIVED:  
DATE EVALUATED:

Deficiencies in documentation noted in red – action needed listed below; acknowledgements noted in blue

**Deliverables Timeliness**

One Day E-Site Report/Excel SR - **Received/Not Received**  
30 day station package submission - **Received/Not Received**

**Annual Inspection Checklist**

**Received/Not Received – Please submit**

**Transmittal letter**

**Received/Not Received – Please submit**

**Annual Inspection Station Specific Requirements (must be completed or an explanation provided) – Any requirements that were not completed will be added to next year’s Station Specific Requirements**

**The following Station Specific Requirements were completed this year:**

**Site/E-site Report (if E-site was submitted, provide a comment concerning the status of the submission)**

**Protective Well/Sounding Tube Diagram**

**N/A – if not required**

**Station “To Reach” Statement-**

**N/A – if not required**

**Chart Section**

**N/A – if not required**

**Bench Mark/Station Location Sketch**

N/A – if not required

**Digital Photographs**

N/A – if not required

**Bench Mark Descriptions/Recovery Notes**

**Levels**

**GPS Documentation**

**Data Downloads**

**Future Work Requests (contractor and FOD):** Work to be accomplished by the contractor or FOD will be documented in the next year’s project instructions.

**USE A COLOR OTHER THAN RED OR BLUE SO THE TEXT WILL STAND OUT TO THE TM REVIEWING THIS EVALUATION.**

For contracts and future work requests:

Task Manager Initials - Agree \_\_\_\_\_ Disagree \_\_\_\_\_

ADDITIONAL COMMENTS AND RECOMMENDATIONS