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March 26, 1998

Project Number 7752

40183

Mr. James Shafer
Remedial Project Manager
Northern Division, Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 0302

Subject: Responses to Comments,
Work Plan For Investigations of the Stillwater Basin at Derecktor Shipyard

Dear Mr. Shafer:

Enclosed are four copies of the responses to RIDEM and USEPA comments to the subject work plan identified above.

As you may recall, we originally did not plan to issue a response to comments to the work plan, but instead intended to address comments during the performance of the work. However, since there was more interest in the issues than we expected, we determined that a response letter would be appropriate after all.

Please be advised that the winter deployments went forward as described in the work plan because there was an urgency to capture the winter deployment window. We should meet and discuss these responses prior to the summer sampling event.

If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker
Project Manager

SSP/

attachment

c: K. Coyle, NETC (w/encl. - 4)
K. Keckler, U.S. EPA - (w/encl. - 3)
P. Kulpa, RIDEM - (w/encl. - 4)
K. Finkelstein - (w/encl. - 1)
J. Stump, Gannett Fleming (w/encl. - 1)
D. Egan, TAG - (w/encl. - 1)
J. Trepanowski/G. Glenn, B&RE (w/encl.)
File 7752-3.2 (w/o encl.) 7752-8.0 (w/encl.)

ATTACHMENT A
Responses to Comments On the
Work Plan for Evaluation of the Still Water Basin
Received from The U.S. EPA on February 7, 1998

Cover Letter:

The placement of a reference station within an enclosure similar to the DSY-40 and DSY-41 stations should be considered. A suggested additional location is the enclosure north of station 25. It has similar bathymetry, distribution of sand in surface sediments, grain size characteristics, and depositional regime as the DSY 40 and DSY 41 stations. The attached figure indicates one suggested location. Since the suggested enclosure does not contain a historical sampling station, it is recommended as an additional reference station, not as a replacement to the locations proposed in the plan. The other reference locations should also be sampled.

Response: *One of the criteria for selection of the stations is that the stations have existing data (sediment chemistry at the least) from the ERA. Other ERA data are available for the stations selected. Adding a station in the Northern boat basin would be interesting, but not purposeful to the ends of the investigation.*

Both the RIDEM and the EPA requested that reference stations be added. However, the goals of this brief study are only to help determine if there is a lower concentration of dissolved oxygen in the water at an extended time period corresponding to a time where there is limited biological activity. The use of the stations selected as described in the plan is the most cost effective method for making this simple determination, and while testing other stations would be interesting on a scientific basis, they would not lend any further information required.

Attachment:

1. p. 1-3, s1.2

This section should specify that the technical memorandum deliverable will also present an evaluation of findings from this field investigation in conjunction with pertinent information from the Derecktor Shipyard Marine Ecological Risk Assessment Report and any other relevant reports in order to draw meaningful conclusions. Specifically, the technical memorandum will evaluate the effect of the basin configuration, water flows and velocities on flushing oxygen levels, and the import of food for macroinvertebrates.

Response: *The Navy concurs with the suggested approach. The technical memorandum will address these topics and issues.*

2. p. 2-1, s2.1

The third paragraph indicates that temperature, pH, specific conductance, dissolved oxygen and salinity will all be measured in the field using a portable water quality meter. The use of a portable meter for these parameters is the most appropriate approach given the immediate holding times of these parameters. The procedures for calibration of the field meter should be included in the plan.

Response: *The Navy concurs with this suggestion, and the calibration procedures are attached to this response summary.*

3. p. 2.2, s2.1

The report characterizes TDS as a measure of inorganic salts and nonvolatile organics in a water sample. While dissolved solids can include the abovementioned matter, they may not be all that composes dissolved solids. Standard Methods define "solids" as matter suspended or dissolved in water or wastewater. The dissolved portion is that which filters through a 2.0 micron or smaller filter.

Response: *The Navy concurs with the definitions described above. These definitions will be clarified as they are pertinent to the data collected in the technical memorandum for this study.*

4. p.3-3, s3.2

This text states that water samples will be collected and analyzed for dissolved oxygen to ground truth the continuous electronic data recorder readings. The use of a portable meter for these parameters is the most appropriate approach given the immediate holding times of these parameters. The frequency for collection of these samples is not indicated in the plan. The frequency, depth, and method for collection and analysis of water samples to verify the continuous monitoring data should be determined and included in this section

Response: *The method specified is an accurate method, and the one that is consistently used for determination of water chemistry. This is the same method used for collection and analysis of "whole water" samples collected for the ERA. Verification samples will be taken weekly, from the lowest depth measured in the water column by the electronic instruments.*

5. p. 3-5, s3.4

This section indicates that outfall water samples will be collected in a polyethylene or stainless steel bucket and then transferred into the appropriate sample containers and preserved if necessary. Samples to be analyzed for SVOCs should not be collected in any type of plastic due to the potential for phthalate contamination. Outfall water samples should be collected in a stainless steel bucket.

Response: *The Navy concurs with the suggested change, and samples will be collected as described above.*

6. Table 3-2, p. 3-7

The Method reference for TDS is not included in the table. Method reference EPA 160.2 should be added to the table for TDS.

Response: *The Navy concurs with this suggestion, the proper method will be used as described above and described in the tech memo.*

Footnote (4) references the 17th edition of Standard Methods. However, the 18th edition is most frequently referenced and accepted for water quality projects and routine chemical methods. Reference to the 17th edition should be verified as correct for this project.

Response: *The correct reference is the 18th edition. This error will be rectified in the technical memorandum.*

The method reference for Fecal Coliform is listed as SM 9221B. However, SM9221B is the method for Total Coliform determination. The correct method reference for Fecal Coliform determination is SM 9221E.

Response: *The typographical error will be corrected for the preparation of the technical memorandum.*

Listed methods for the bacteriological parameters all reference the 19th Edition of Standard Methods. The methods for these analyses have not been significantly changed from the 18th to the 19th Edition. However, the 19th Edition has not formally been approved for typical water quality analyses. Reference to the 19th Edition should be verified as correct for this project.

Response: *The analytical laboratory was contacted, and provided a reference for the 19th edition. They are currently evaluating changes in the method between the 18th and 19th editions. If any appreciable changes are noted, the method described in the 18th edition will be used.*

ATTACHMENT B
Responses to Comments On the
Work Plan for Evaluation of the Still Water Basin
Received from The RIDEM February 18, 1998

1. **Section 2.1...**

This section of the report discusses sampling of outfalls. It appears that seven samples will be collected as a part of this effort. Please indicate if these samples are individual samples or composites, and how this sampling is best suited to suspected sources.

Response: *Outfall samples will be collected as discrete samples, one sample per outfall during a precipitation event. In this manner each sample will be representative of water from each outfall individually.*

2. **Section 2.1...**

This section (of) the report states that TAL metals will be collected from the site. Please indicate whether said list will include (tributyltin).

Response: *The Navy concurs with this suggestion. Butyltins will be added to the list of analytes.*

3. **Section 2.1...**

This section of the report delineates the various bacteriological test(s) to be performed at the site. Please note, these test(s) may be unnecessary unless there is a suspected sewage source at the site.

Response: *The bacteriological tests have been included in the data collection efforts specifically because members of the EAB have voiced suspicions several times that there might be a sewage contribution to the area. There is no record of sewage contribution to this area, and the Navy has no reason to suspect such a discharge at this time. However, such a test will help to rule out the possibility of such an influence as a stressor to this system.*

4. **Section 3.1/3.2...**

This section of the plan discusses the synthetic media to be employed at the site. The Office recommends that algae growth measurements and chlorophyll A analysis be collected during the deployment of the synthetic media in order to (assess) potential toxins to algae that could (be) related directly to macroinvertebrate stress. This task is easily accomplished as it only entails attaching a glass slide to the synthetic media.

Response: *Testing for chlorophyll a was performed at two of these stations as a part of the ERA. The reviewer is referred to the final ERA report, figure 5.3-9.*

5. **Section 3.1/3.2...**

This section of the plan indicates that the sampling disk will be suspended one meter above the bottom of the sediment. Placement of the sampling disk one meter above the bottom of the sediments may not represent exposure to sediment contaminates.

Therefore, these disks should be placed in the sediment (note the office would review any proposal to use rock baskets at the site in lieu of the disc replicates).

Response: *Deployments are made to within one meter of the bottom sediments. The one meter interval above the bottom sediment is the portion of the water column at which DO is lowest. To deploy disks on the bottom sediments may allow contaminants in the sediments (already measured as described in the ERA) to interfere with the growth. The reviewer is reminded that the investigation is to be done to evaluate conditions in the water that may inhibit growth. Conditions in the sediment have been measured already. Use of rock baskets is not recommended for a quantitative measurement, because there is an undefined quantity of surface area available for growth and picking organisms is much more difficult. Use of disk replicates is a better quantifiable method.*

6. **Section 3.1/3.2...**

This section of the plan discusses the sampling locations for the deployed disk(s). Although not stated it is assumed that all disk(s) will be placed in water of equal depth (i.e. if the water in the Still Water basin is an average of ten feet deep accounting for tide the sampling depths for Station 25 and 26 should be approximately ten feet.

Response: *Disks shall be deployed at depths measured from the surface of the water and will extend to within one meter of the bottom (sediment/water interface). Therefore at each station, there will be disks within one meter of the bottom in the water which has the lowest DO, and all the disk elevations will be comparable between stations.*

7. **Section 3.1/3.2...**

This section of the report discusses the placement of the synthetic media. Although not stated it is assumed that said placement will occur after the remote sensing and photographic survey. This is necessary as it would optimize placement of the disk.

Response: *The Navy concurs with the suggested approach. The Laser line scan survey will be performed prior to the placement of the deployments.*

8. **Section 3.1/3.2...**

This section of the report depicts the location of the reference stations. The locations chosen are in known areas of Naval activity and are probably contaminated. Therefore, these stations should bet be designated as background sampling locations. The Office recommends collecting this type of sample from the Jamestown Cove reference station.

Response: *As stated in the work plan, the purpose of the study is to investigate an apparent lack of indigenous biota observed in 1992 in the Still Water Basin near Building 42. The deployments shall be made in order to compare biological growth at stations within the Still Water basin to similar stations outside the Still Water basin. The exterior stations 25 and 26 were selected because they have similar bottom materials and depths as was found in the Still Water basin, and because there is a full set of risk data available for them. The data from the analysis of sediments at these exterior stations is similar to that inside the basin, and this similarity will allow for a better comparison of new data.*

The Jamestown station has different bottom materials, different contaminant set, and may be influenced by a nutrient source, the Jamestown POTW, which may encourage growth where it would not be under natural conditions.

9. Section 3.3.1...

This section of the report delineates the various indices to be used at the site. Although not stated, it is assumed that this analysis will include identification of known pollution intolerant and tolerant species. This identification should also depict the nature of the tolerance/intolerance (i.e. intolerant to solids contamination, chemical contamination, low dissolved oxygen, etc.).

Response: For comparability, the same suite of organisms will be recorded as were done for the ERA. (The reviewer is asked to refer to tables 5.3-1 and 5.3-2 of the final ERA report). If possible, a qualitative discussion on the tolerance of the species identified to different stressors will be included in the SBE report.

10. Section 3.3.1...

This section of the report discusses the indices to be performed at the site. Please note if a reference sample is collected from the Jamestown station, the Still Water Basin stations should be compared to the Jamestown station.

Response: There is no plan to perform a synthetic media deployment at the Jamestown station. The reader is asked to please refer to the response to comment no. 8, above.

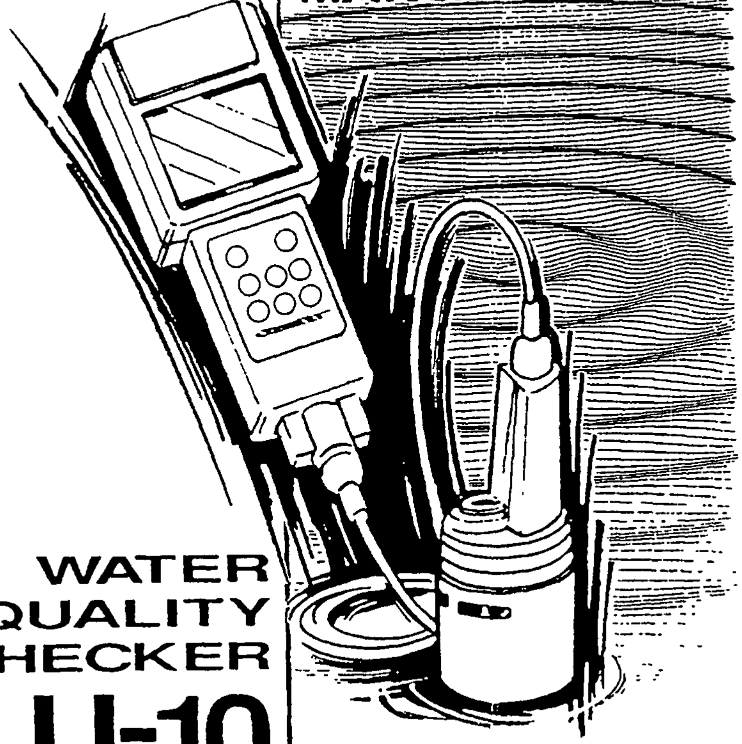
Attachment C

Calibration Procedures for Horriba Water Quality Meter
Outfall Sampling, Still Water Basin Evaluation

HORIBA

Rental Property Of:
US Environmental Rental Corp.
160 A Massachusetts Avenue
Arlington, MA 02174
(888) 550-8100

INSTRUCTION MANUAL



WATER QUALITY CHECKER U-10

CODE [illegible]

After measurement: Cleaning and storing the U-10

POWER

1. Turn OFF the power.

2. Wash the probe thoroughly with tap water. Be sure to flush off all of sample solution from the probe.

Storing the U-10 for brief periods, *i.e.*, about 1 week or less:
Fill the calibration beaker with tap water and fit the probe over it.

For longer storage
The pH sensor must always be kept moist. Fill the small rubber cap with water and use it to cover the pH sensor.
The KCl internal solution in the reference sensor may seep out over time. Place vinyl tape around the O-ring portion to prevent this.
If you are going to store the U-10 for a prolonged period without using it, remove the battery from the main unit.

Section 3
Calibrating the U-10

The U-10 Water Checker may be calibrated either manually or automatically. The 4-parameter auto-calibration procedure is quite handy and should be sufficient for most measurement operations.

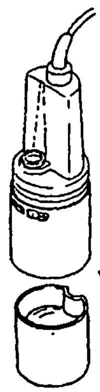
Manual calibration for each of the four parameters is more accurate but, of course, also more time-consuming. This method should be used for more precise measurement. The manual calibration procedure is explained below in detail, following the description of the auto-calibration procedure.

The auto-calibration procedure is extremely simple. The U-10 Water Checker uses just a single solution to do a simultaneous calibration of four parameters: *pH, COND, TURB,* and *DO.* Your U-10 comes with a bottle of standard phthalate pH solution and a calibration beaker for this purpose

Auto-calibration procedure

Fill the calibration beaker to about 2/3 with the standard solution. Note the line on the beaker.

Fit the probe over the beaker, as illustrated Note that the beaker is specially shaped to prevent the DO sensor from being immersed in the standard solution. This is because the DO auto-calibration is done using atmospheric air.



Calibration beaker

MODE

With the power on, press the MODE Key to put the unit into the MAINT mode. The lower cursor should be on the AUTO Sub-Mode; if it is not, use the MODE Key to move the lower cursor to AUTO.

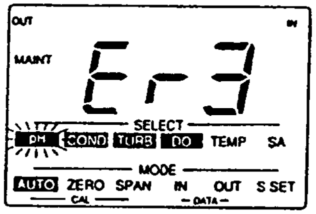
ENT

With the lower cursor on AUTO, press the ENT Key. The readout will show CAL. Wait a moment, and the upper cursor will gradually move across the four auto-calibration parameters one-by-one: *pH, COND, TURB,* and *DO.* When the calibration is complete, the readout will briefly show End and then will switch to the MEAS mode.

The upper cursor will blink while the auto-calibration is being made When the auto-calibration has stabilized, the upper cursor will stop blinking.

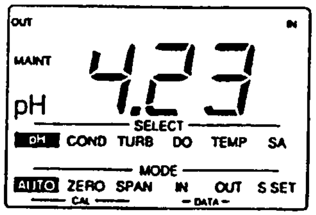
Auto-calibration error

After the DO auto-calibration, if the unit does not switch to the MEAS mode as it should, and the readout shows either Er3 or Er4, an auto-calibration error has occurred. Parameters will blink where an error occurred.



pH auto-calibration error

CLR — If this happens, re-do the auto-calibration. First, press the CLR Key to cancel the error code.



ENT — Then press the ENT Key to re-start the auto-calibration. Restart the auto-calibration beginning again with pH.

Manual (2-point) calibration procedures

For normal measurements, the 4-parameter auto-calibration described above is sufficiently accurate. However, you may wish to do a parameter-by-parameter, 2-point manual calibration of one or more of the four parameters. This is recommended either for high-accuracy measurements, especially when using the expanded readout mode. It is necessary if a new probe is being used for the *first time.*

Parameters to be calibrated manually.

pH	• Zero	(see page 24.)
	• Span	(see page 25.)
COND	• Zero	(see page 28.)
	• Span	(see page 29.)
TURB	• Zero	(see page 31)
	• Span	(see page 31.)
DO	• Zero	(see page 32.)
	• Span	(see page 33.)

Parameters not to be calibrated.

Sample temperature
Salinity

pH calibration

pH calibration on the U-10 is done using two commercially-available standard solutions of different pH values, one for the zero calibration, the other for the span calibration. Note that the temperature characteristics of the various standard solutions that are available may differ; therefore, before using these two solutions to make the pH calibration, carefully measure the temperature and determine the temperature characteristics of each.

Preparation

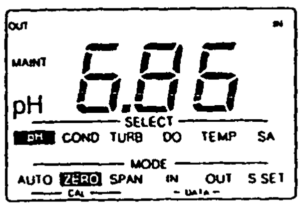
Wash the probe 2-3 times, using de-ionized or distilled water. Place it in a beaker of each standard solution.

1. Zero calibration

Use a pH7 standard solution for the zero calibration.

Operation

1. With the power on, press the MODE Key to put the unit into the MAINT mode.
2. Press the MODE Key again to move the lower cursor to ZERO.
3. Use the SELECT Key to move the upper cursor to pH.
4. When the readout has stabilized, use the UP/DOWN Keys to select the value of the pH 7 standard solution at the temperature of the sample. Refer to Table 2 for pH values of standard solutions at various temperatures.



5. Press the ENT Key to complete the zero calibration for pH.

2. Span calibration

Use either a pH4 or a pH9(10) standard solution for the span calibration.

Operation

1. Use the MODE Key to move the lower cursor to SPAN.
2. As in Step 4. above in zero calibration, when the readout has stabilized, use the UP/DOWN Keys to select the value of the standard solution (i.e., either pH4 or pH9) at the temperature of the sample. Again, refer to Table 2 for pH values of standard solutions at various temperatures.
3. Press the ENT Key to complete the span calibration for pH.

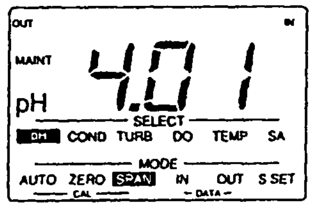


Table 2 pH values of standard solutions at various temperatures*

Temperature ℃ / °F	pH2[a]	pH4[b]	pH7[c]	pH9[d]	pH10[e]	pH12[f]
0 / 32	1.67	4.01	6.98	9.46	10.32	13.43
5 / 41	1.67	4.01	6.95	9.39	10 25	13 21
10 / 50	1.67	4.00	6.92	9.33	10.18	13.00
15 / 59	1.67	4 00	6.90	9.27	10.12	12.81
20 / 68	1.68	4 00	6 88	9 22	10.06	12 63
25 / 77	1 68	4 01	6 86	9.18	10.01	12 45
30 / 86	1.69	4.01	6 85	9.14	9 97	12.30
35 / 95	1.69	4 02	6.84	9 10	9 93	12.14
40 / 104	1.70	4 03	6.84	9 07	9.89	11 99
45 / 113	1.70	4 04	6 83	9.04	9 86	11 84
	1.71	4 06	6.83	9.01	9 83	11 70

a oxalate, b . phthalate, c neutral phosphate, d borax,
e carbonate, f Sat calcium hydroxide solution

* These pH valves are for Japanese standard solutions Should you prefer to use different standard solutions, be sure to make the proper adjustments in calibration

COND calibration

The U-10 can measure conductivity in the range of 0-100 mS/cm. Depending on the sample concentration, however, the U-10 automatically selects the proper range out of its three possible ranges of 0-1 mS/cm, 1-10 mS/cm, and 10-100 mS/cm.

Therefore, if you are doing a manual calibration for COND, this must be done for each of the three ranges. However, since the zero point is common for all three ranges, only the three one-point span calibrations need be done separately.

Preparing the standard solution for COND span calibration

This solution uses a potassium chloride as a reagent. For greater accuracy, the solution should be freshly prepared each time. If it is unavoidable to use a stored solution, be sure to keep it tightly capped in a polyethylene or hard glass bottle. The shelf life of this solution is six months. Date-stamp the bottle for reference. Never use a KCl standard solution that has been stored for more than six months: the calibration accuracy may be adversely affected.

Use potassium chloride powder of the best quality commercially available. Dry the powder for two hours at 105°C, and cool it down, in a desiccator. Weigh out an appropriate amount of dried and cooled potassium chloride powder according to the table below. Make the potassium chloride standard solution as shown.

Table 3 Making the potassium chloride standard solution

KCl standard solution	KCl weight g	Conductivity* mS/cm	Range to be calibrated mS/cm
0 005N	0.373	0.718	0-1
0.05N	3.73	6.67	1-10
0 5N	37.28	58.7	10-100

* Value at the temperature, 25°C

To prepare the standard solution use a 1-liter volumetric flask. First, dissolve the KCl in a small amount of de-ionized or distilled water. Then fill the flask with de-ionized or distilled water up to the 1-liter line. Finally, shake the solution to mix it thoroughly.

1. Zero calibration

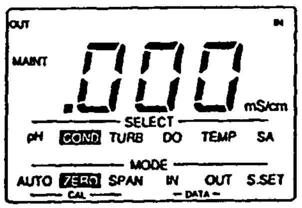
This calibration is carried out in atmospheric air; no solution is needed.

Preparation

Wash the probe 2-3 times, using de-ionized or distilled water. Shake the probe to remove any water droplets from the COND sensor. Then allow it to dry by exposing it to fresh air.

Operation

1. Use the MODE Key to move the lower cursor to ZERO.
2. Use the SELECT Key to move the upper cursor to COND.
3. Use the UP/DOWN Keys to set the readout to zero.



4. Press the ENT Key. This completes the zero calibration for COND.

2. Span calibration

This procedure uses a standard solution of potassium chloride. For best results, a fresh batch of the solution should be prepared each time. See page 27 for details.

Preparation

Wash the probe 2-3 times using de-ionized or distilled water. Following this, wash it 2-3 times in the KCl standard solution you have prepared. Then place the probe in a beaker of the KCl solution maintained at a temperature of 25±5°C.

Operation

1. Use the MODE Key to move the lower cursor to SPAN
2. After the readout stabilizes, as you did for the pH calibration, use the UP/DOWN Keys to select set the value of the KCl standard solution, referring to the KCl table.
3. Press the ENT Key to complete the span calibration for this COND range.
4. Repeat this procedure for the three ranges, using each of three values of KCl standard solutions.

TURB calibration

Use good-quality de-ionized water, which may be considered as having a turbidity of zero. If that is not readily available, distilled water may be used instead. When doing the turbidity zero calibration, it is particularly crucial that you clean the probe thoroughly. Never use a dirty probe; otherwise the calibration will be unreliable.

Preparing the standard solution for TURB span calibration

1. Weigh out 5.0 g of hydrazine sulfate.
2. Dissolve this in 400 *ml* of de-ionized or distilled water.
3. Then weigh out 50 g of hexamethylenetetramine, and dissolve it in 400 *ml* of de-ionized or distilled water.
4. Mix these two solutions, add enough de-ionized or distilled water to make 1,000 *ml*, and stir the mixed solution thoroughly.
5. Allow this solution to stand for 24 hours at a temperature of 25±3°C.

   The turbidity of this solution is equivalent to 4000 NTUs. The shelf-life of this solution is six months; i.e., this 4,000-NTU value will remain accurate for a maximum of six months.

   Each time you carry out this calibration, it is necessary to dilute the 4,000-NTU standard solution to prepare an 800-NTU standard solution for calibration. To do this, measure out 50 *ml* of the 4,000-NTU solution into a 250-*ml* measuring flask.

   It is recommended that you use a rubber pipette aspirator for this. Then add de-ionized or distilled water up to the 250-*ml* line.

   The standard solution used here for the turbidity calibration will precipitate easily. Therefore, be sure to stir the solution thoroughly before use

1. Zero calibration

Preparation

Wash the probe thoroughly 2-3 times using de-ionized or distilled water. Shake off excess water droplets, and then place it in a beaker of de-ionized or distilled water.

Operation

1. Use the MODE Key to move the lower cursor to ZERO.
2. Use the SELECT Key to move the upper cursor to TURB.
3. After the readout has stabilized, set it to 0.0, using the UP/DOWN Keys.
4. Press the ENT Key to complete the zero calibration for TURB.

2. Span calibration

Preparation

Wash the probe thoroughly, using de-ionized or distilled water. Shake off excess water droplets. Then place it in a beaker of the 800-NTU solution you have prepared for this purpose.

Operation

1. Stir this 800-NTU span standard solution thoroughly.
2. Use the MODE Key to move the lower cursor to SPAN.
3. After readout has stabilized, i e., about 60 to 90 seconds, set the readout to "800" NTU, which is the value for this standard solution.
4. Press the ENT Key to complete the span calibration for TURB.

DO calibration

Unlike the other calibration procedures, the solution for the DO calibration cannot be stored for use; because the amount of dissolved oxygen in the solution is crucial, a fresh batch must be prepared each time, just before it is used in the DO calibration.

1. Zero calibration

Use a solution of sodium sulfite dissolved in either de-ionized water or tap water.

Preparation

1. Add about 50g of sodium sulfite to 1,000 ml of water (either de-ionized water or tap water will do). Stir this mixtuer to dissolve.

2. Wash the probe 2-3 times in tap water, and place it in the zero standard solution.

Operation

1. Use the MODE Key to move the lower cursor to ZERO.

2. Use the SELECT Key to move the upper cursor to DO.

3. After the readout has stabilized, set it to 0.0, using the UP/DOWN Keys.

4. Press the ENT Key. This completes the zero calibration for DO.

2. Span calibration

Use either de-ionized water or tap water that has been saturated with oxygen in air.

Preparation

1. Put 1 or 2 liters of water in a container (either de-ionized water or tap water will do). Use an air pump to bubble air through the solution until it is oxygen-saturated.

2. Wash the probe 2-3 times in tap water, and put it in the span calibration solution.

Operation

1. First, be sure the U-10 is set for fresh water readings. To do this, set the S.SET Sub-Mode to 0.0%.

2. Then, use the MODE Key to move the lower cursor to SPAN.

3. After the readout has stabilized, while slowly moving the probe up and down in the solution, set the readout value to the appropriate DO value for the temperature of this solution. For DO values at various temperatures, refer to Table 4.

4. Press the ENT Key to complete the span calibration for DO.

Table 4 Amounts of saturated dissolved oxygen in water at various temperatures, salinity = 0.0%

Temperature	DO	Temperature	DO
0 °C	14.16 mg/l	21 °C	8.68 mg/l
1	13.77	22	8.53
2	13.40	23	8.39
3	13.04	24	8.25
4	12.70	25	8.11
5	12.37	26	7.99
6	12.06	27	7.87
7	11.75	28	7.75
8	11.47	29	7.64
9	11.19	30	7.53
10	10.92	31	7.42
11	10.67	32	7.32
12	10.43	33	7.22
13	10.20	34	7.13
14	9.97	35	7.04
15	9.76	36	6.94
16	9.56	37	6.86
17	9.37	38	6.76
18	9.18	39	6.68
19	9 01	40	6.59
20	8.84		

Section **4**

Data Storage and Printout

The U-10 can store up to 20 sets of data, 120 data points, of the values measured for each of the six parameters: pH, COND, TURB, DO, TEMP, and SALINITY. Values stored in memory can be recalled to the readout as desired.

If a printer is connected to the U-10 printer port, whenever a Data-Set is either stored in memory or recalled to the readout, it can also be simultaneously output to the printer.