

# **Attachment A.8**

**Authority's Resident Engineer Manual (Relevant Sections)**

## **2. DAILY REPORTS**

### **2.1 RESIDENT ENGINEER'S CONTRACT DIARY**

The resident engineer shall make a thorough study of his project, becoming familiar with each construction detail, analyzing plans, performing preliminary quantity calculations, and determining if the estimated quantities cover all items of work contemplated. If any major discrepancies are discovered, the resident engineer is to relay his findings to the construction coordinator. The resident engineer shall conduct a minimum of two daily on-site construction reviews of the work in progress, or as otherwise necessary, to determine to the best of his knowledge how the work is proceeding and that the work completed is in conformance with the contract specifications.

Recording the progress on a construction site is one of the most important responsibilities of a resident engineer. The resident engineer assigned to a wastewater construction contract shall keep a contract diary to record the events and progress of construction. The contract diary shall be maintained on a daily basis and be complete, accurate and up to date at all times. The resident engineer shall begin maintaining the diary on the day he/she has been assigned to a project even if the contractor is not working on site. The resident will continue to maintain the diary until he/she has been reassigned. If the resident engineer is away from the project for any length of time,

**he/she shall designate someone from the field staff to maintain the diary in his/her absence. The resident engineer will be provided a log book and a list of subjects which will be addressed on a daily basis.**

**The overall objective is to utilize the contract diary as the primary record source of the daily events of the project. On contracts where the resident engineer is assigned inspectors, the inspectors will observe the contractor's daily progress and submit a daily report to the resident engineer at the end of each day. The resident engineer will in turn incorporate the information from the inspector's daily report into the contract diary. If the resident engineer has several inspectors working on the project, the resident engineer will be responsible for collecting daily reports from each inspector and consolidating the information into the contract diary, no later than noon time of the following day. If the resident engineer is the sole person on the contract, he/she is responsible for entering the contractor's progress at the end of each work day.**

**The purpose of the contract diary is to have an accurate account, on a daily basis, of the events which occur throughout the life of the construction contract. It is the responsibility of the resident engineer to maintain a contract diary and to ensure the diary reflects the contractor's daily progress. For purposes of uniformity, the Authority will provide a log book which will be used as the contract diary. The Authority will also provide a manifold**



however, the resident engineer should not use a single log book for multiple contracts.

The log book is approximately 10" x 12". The book itself is a hard cover, bound ledger book with numbered pages on a double sided quadrille ruled face. The pages are consecutively numbered from 01 to 160. Each quadrille is one quarter inch square. The inside cover of the book shows a listing of subjects used to record daily events. Upon receiving the log book, the resident engineer shall record the following information on the first page.

1. BOOK \_\_\_ of \_\_\_
2. Construction Coordinator
3. MWRA Contract Number / EPA Job Number
4. Name of Contract
5. Name of Contractor
6. Bid Amount / Duration of Contract
7. Start Date / Completion Date
8. Design Engineer
9. Resident Engineer and Home Phone Number
10. MWRA Resident Staff.

Exhibit 2-A.1 shows how the above information should be displayed. The

**Exhibit 2-A.1 shows how the above information should be displayed. The resident engineer should attempt to include this information as soon as it is known. The resident engineer should contact the project manager if he has any questions or requires information unavailable by the field staff. Often times, more than one contract diary will be used throughout the course of the project to document the entire progress of the contractor. It is suggested that each volume of the diary contain this information.**

**The next page ( Page No.2) should be used for the names, addresses and telephone numbers of key people involved with the project. The listing shall be neat, legible and current. Exhibit 2-A.2 shows a typical listing to be used. In addition, it is a wise idea to record the names and telephone numbers of persons to be contacted in case of an emergency. The listing shall be legible, accurate and current, and any changes shall be updated throughout the course of the project.**

**On the next available page in the log book the resident engineer is to begin recording each day's progress and other events of the job. Normally, the resident engineer would use one or more pages of the diary to record the daily progress. The resident engineer shall not skip pages and shall not enter more than one day's work on a single page unless it is a holiday or a non-working day or weekend. The resident engineer shall consider that each page number of the diary refers to a specific date of the contract. The information**



1

BOOK 19

01

2. CONST. COORDIN: JIM TRAINOR

3. CONTRACT NO. 6759 EPA# 250-460-123

4. CONTRACT NAME:  
SOUTHERN POINT CSO FACILITY  
EAST WATER ST., P.O. BOX 123  
DORCHESTER, MA 02140

5. GENERAL CONTRACTOR:  
NORTHERN CONTINENTAL CONST. CO.  
7722 MASS. AVE., BOSTON, MA 02140

6. BID PRICE: \$16,149,111.00 DURATION: 721 CAL. DAYS

7. START DATE: AUGUST 25, 1989 COMPLETION DATE: FEB. 20 1991

8. CONSULTANT:  
ABC D CONSULTANT ENGINEERS  
214 WASHINGTON ST., BOSTON, MA 02140

9. RESIDENT ENGR: WALLY WATERMAN (SCE)  
(508) 555-5080  
DATE ASSIGNED: DATE LEFT:

10. OFFICE ENGINEER HARRY HUDUNIT (JCE)  
DATE ASSIGNED: DATE LEFT:

INSPECTOR SALLY SUGARMAN (JCE)  
DATE ASSIGNED: DATE LEFT:

INSPECTOR DEWEY LIKEM (SCT)  
DATE ASSIGNED: DATE LEFT:



NAME	ADDRESS	PHONE N.
J. Colahann (SUPT.)	NORTHERN CONTINENTAL P.O. Box 7722 BOSTON, MASS 02140	424-4374 (FAX) 424-4375
Bill Martini (PROJ. MGR.)	ABC'D	424-4376 (FAX) 424-4377
I. SNEZESKI (CHIEF ENGR)	G. WHIZZ SURVEYORS 110 TAFT STREET Lincoln, MA 02140	(413) 876-1234
O. KNOW (MAJOR)	Corps of ENGINEERS 424 TRAPELO ROAD ACTION, MASS 02254-9149	424-4378
VITO Coreleone (DIR.)	BOSTON WATER & SEWER Comm. BACK BAY BLVD. BOSTON, MASS	424-4379
WILL Forgetit (V.P.)	BEST Material Testing Co. 111 TAFT STREET Lincoln, MA 02140	(413) 876-1235
APRIL SHOWERS (G-9)	MWRA - Public Affairs	(617) 242-6000 ext. 1990
HUGH MAKAMISTAKE (SCE)	MWRA - ENGINEERING	(617) 242-6000 ext. 1991



entered into the contract diary must be concise and as detailed as possible. The resident engineer is urged to take as many pages as required to avoid the possibility of not including vital information relating to a particular day's progress or to the overall construction of the project.

The following is an outline on how to fill out a contract diary for a wastewater construction contract. Each day the resident engineer shall record the date in the upper right hand corner of the page. Next, beginning on the left side of the page, the resident engineer shall record the hours the contractor worked on the job site and weather conditions during the day. The resident engineer must enter the actual hours worked by the contractor, not the hours worked by resident engineering staff or the consultant's field staff. If the contractor only worked a half a day, it should be noted along with a reason for it (i.e., Contractor stopped work at noontime due to heavy rains). If the contractor was rained-out although his management staff worked in the field office the entire day, the hours worked by the contractor would be none. The resident engineer will then proceed to enter the following contract information, as a minimum.

**Item    Entry / Subject**

1. Personnel(MWRA) on job
2. Survey Parties
3. GC's Labor & Equip.Force
- 3a Subcontractors Forces
4. General Contractors Progress
- 4a Subcontractors Progress
5. Contact w/MWRA Officials



- 5a. Contact w/Consultants
- 5b. Contact w/Government Officials
6. Contact w/General Contractor
7. Contact w/Utility & Public Officials
8. Contact w/General Public
9. Materials Testing
10. Change Orders
11. Claims and Disputes
12. Right of Way Matters
13. Accidents/Complaints/Safety Matters
14. Job Photographs
15. Traffic Maintenance
16. Miscellaneous

The items listed above reflect the information of the contract which the resident engineer is required to report on a daily basis. A copy of the above list will be attached to the inside cover of each contract diary. The resident engineer will end his/her entries to the daily report with a signature and title.

To avoid redundancy, the resident engineer will need only to update an entry/subject when it changes. At the beginning of each week the resident engineer shall update the contract diary addressing each of the 16 entries listed. With each subsequent day of that week, the resident engineer will compare the entries of the previous day with those of the present day, and record only the changes that appear. For instance, if the contractor's equipment and labor force has not changed from Monday to Tuesday, then Tuesday's entry would include a "No Change " comment. However, if there were a change in the contractor's equipment and labor force, then the resident engineer is expected to make the appropriate entries in his/her diary.

**Exhibit 2-B.1** is an illustration of the entries which should appear in a resident engineer's contract diary. The illustration begins on Monday, April 2, 1990 on page No.26 of the contract diary. It appears the contractor began work at 7:00 a.m. and finished at 3:30 p.m. The report shows the weather was clear and mild all day. The temperature in the morning was 50 degrees, at noon it was 68 degrees and in the afternoon the temperature decreased to 65 degrees. The preferred way to record the weather and temperature is to have three readings, one in the morning, one at mid-day and one at the end of the work day. In using Exhibit 2-B.1 as an example, the resident engineer would begin addressing the list of topics noted above; also posted in the inside cover of the log book. A brief explanation of the topics are as follows:

**Item No. 1** asks to list the MWRA field staff assigned to the contract. If a staff member is out sick, leaves work early, takes a vacation day, or personal day, it should be noted (Item No.16 (Miscellaneous) can be used to explain circumstances in detail if necessary).

**Item No. 2** asks for the names and titles of the people doing survey work at the job site. In this example a survey crew of three men was on site doing surveys. A note should be added by the resident engineer or the inspector indicating the proximity of the survey performed.

**Item No. 3** asks the resident engineer to list the labor force and the equipment operating on site of the general contractor. Item 3a ask for a list of the subcontractors and their work force on the site working. This example



shows that aside from the general contractor, the electrical subcontractor (E.Z.Electric) and the mechanical subcontractor (Ajax Plumbers) are on the site performing work.

On smaller, less complicated construction jobs it may not be much of an effort to identify the labor and equipment on a daily basis. However, on larger jobs it becomes quite a task not only to keep track of the general contractor work force but the numerous subcontractors which arrive on the job site through the day. To simplify this effort, the Authority has developed a form called a "Contractor's Daily Workforce Account". This form was designed to make it easier to record the required information under Item No.3 and 3a. The Contractor's Daily Workforce Account form will be discussed in detail later in this section.

Item No. 4 & 4a, are the heart & soul of the contract diary. It is where the actual daily progress of the general contractor and the subcontractor(s) are recorded. These entries must be complete, accurate and up to date. The example shows the general contractor having four crews working on this day. Two crews are working jointly on the forming for the foundation walls, another crew is clearing and grubbing at the south-east portion of the site. Another crew is working on East Water Street and has installed approximately 75 linear feet of 48" RCP. Both subcontractors are installing underground conduit piping in preparation of pouring the concrete base slab scheduled for the end of the week. Note that in the description of the work there are two references noted in parenthesis. These notations reference the

book and page number of the inspector's daily report book (The inspector's daily report book will be detailed in section 02.2). In this example, an inspector had been assigned by the resident engineer to monitor the work of the two forming crews and the clearing and grubbing crew. To cross-reference this work, one would go to page 53 of book No.1001 of the inspector's daily report book. The other inspector was assigned to cover the pipe line crew and both crews of the subcontractors, and according to the reference notation, the inspector had logged the day's progress on page 15 of book No.1031. Generally, the descriptions found in the inspector's daily report book are more detailed than those found in the resident engineer's contract diary.

Items No. 5 through No.8 deals with the communications or conversations by the resident engineer with persons or parties directly or indirectly involved with the contract. In this example there were two entries, one with J. Callahann the superintendent for the general contractor and the other was with Mickey Splane of the Boston Gas Company. Note: When making entries into the contract diary the resident engineer should include the person(s) name and title, the organization they represent, and the nature of there business.

Items No. 9 through 15 are specific subject relating to requirements of the contract. The example shows a comment under item No.9 indicating that the testing agency was advised of a concrete pour which is schedule to take place on Thursday 4/5/90. Note: After the pour takes place, a similar entry



should appear in the diary noting the particulars of the concrete pour. Items 10 had no comment and were noted as such. However, Item No.10 deals with change orders and should include any information concerning change orders, pending or proposed. The resident engineer is responsible to make note upon receiving any information suggesting changes to the specifications. Also, the resident engineer shall immediately contact his/her construction coordinator and report any such changes or proposed changes.

The above instructions also apply to Item No.11 through No.13. Item No. 14 is self explanatory. Item 15, Traffic Maintenance is important when cross-referencing the police bills at the end of the month. Item No. 16 is provided for the resident engineer to offer any comments unrelated to the categories provided above.

The resident engineer concludes the entries for Monday, April 2, 1990. with his/her signature and title. Note: The use of "White-out" (Correction Fluid) is not permitted to make corrections. If a mistake is made, draw a line through it, make the correction above the line and initial it. If an entire paragraph and/or item is wrong, draw a line through each line and add the corrected information at the end of the report.

When updating the contract diary from one day to another, the resident engineer compares the events which occurred from the pervious work day to what is currently being done. If there are no changes, the resident engineer simply notes there were no changes from previous report. If an event occurs

that did not occur the day previous, it should be noted as such.

Exhibit 2-B.3 (Tuesday, April 3, 1990) is illustration of a another work day at the job site. In analyzing Tuesday's report with Monday's (Exhibit 2-B.1), the contractor tried to work in the areas he was working on Monday but could not achieve any significant progress. The contractor decided to work only a half day due to inclement weather. According to the resident engineer's notes, the weather that day got progressively worse as the day went on. Also.

Item No.1 indicates that Harry called in sick and Sally went home at noon.

Items No.2 & 3 show, although the work crews were only on the job for half a day, they were the same people on the job for Monday. Item No.4 gave the reason why the contractor did not work all day. The only other items that changed from Monday's report were Items No. 6, 10 and 16. Item No. 6 indicates the resident engineer warned the contractor about protection of work in place. Item No. 10 shows the contractor going on record by indicating a possible "change in conditions". Also under Item No. 10, the resident engineer indicates he relayed the contractor's comments to his construction coordinator. Item No. 16 indicates that Harry Hudunit has been out sick five times this month.

Exhibit 2-B.4 illustrates the third day (Wednesday, April 4, 1990), of the work week ending April 6, 1990. In comparing Wednesday with Tuesday (Exhibit 2-B.3) and Monday (Exhibit 2-B.1), we notice the weather continues to get



worse, and the temperature dropping from 60 degrees at 7:00 a.m. to 30 degrees in the afternoon. Also, Item No.1 (MWRA Personnel) shows the people who are working on Wednesday were the same people working on Monday. Item No. 2 indicates the survey crew did not show up at the job site. Item 3 & 3a (GC's Labor and Equipment, and Sub's. Work Force) shows nobody working and the equipment didn't change (Note: the resident engineer not only responded about the work forces not arriving for work, he also addressed the subject regarding the equipment presently on site. In this case, the equipment usage remained the same as the previous two days). Item No. 9 (Materials Testing) indicates that the resident engineer informed the testing agency that the concrete pour scheduled for Thursday morning has been cancelled. Item No. 10 indicates the resident engineer wrote the construction coordinator a speed memo (Ref.#10732) concerning the apparent claim by the contractor regarding differing site conditions surrounding the 48" RCP line. Item No. 11 through No. 15 had no activity. Item No. 16 as previously noted, mentions the circumstances of Harry's absence.

**Note:** It is the construction coordinator's responsibility to review the contract diary at a minimum of twice a month to insure it is being maintained properly. The construction coordinator will then sign and date the diary on the last day of which his review was made.



4/2/90

MONDAY, HOURS WKD. 7:00 to 3:30

WEATHER: AM - CLEAR & MILD, TEMP. 50°  
MOON - SAME " 68°  
PM - SAME " 65°

26

1. MWRA PERSONNEL: W.W. WATERMAN, R.E. (SCE)  
H. HUDUNIT, O.E. (JCE)  
S. SUGARMAN, INSP. (JCE)  
D. LIKEM, INSP. (GCI)

2. G. WHIZZ SURVEYORS: ART ALLDONE, CHIEF  
HERB SAWIT, TRANSITMAN  
BEN BALL, RODMAN

GENERAL CONTR.

3. LABOR	EQUIPMENT
1 SUPERINTENDENT	1 PICKUP (1987)
1 ENGINEER	1 BACKHOE (580E)
2 LABOR F.MAN	1 FRONT END LOADER
1 CARP. F.MAN	1 CHERRY PICKER
8 LABORERS	1 BULL DOZER
6 CARPENTERS	1 POWER SAW
4 OPERATORS, 1 DRIVER	1 EQUIPMENT TRAILER
2 IRONWORKERS	1 TRUCK (MACK, 10-WHEEL)

3a. E. Z. ELECTRIC: (MBE)	LABOR	EQUIP.
	2 ELECTRICIANS	UTIL. TRAILER
	1 HELPER	PIPE BENDER
AJAX PLUMBERS: (WTSE)	2 PLUMBERS	UTIL. TRAILER
	2 JOURNEYMEN	WELD. MACHINE

4. GEN. CONTR. HAS 2 CREWS WORKING ON FORMING FDN. WALLS FOR THE PUMP STATION, AND ONE CREW WORKING ON CLEARING & GRUBBING AT SO. EAST PART OF THE SITE OF P. STA (REF # 1001-53). ALSO, CONTR. STARTED EXCAVATING & INSTALLING NEW 48" R.C.P. ON EAST WATER ST. FROM STA. 109+00 TO STA. 109+75, AND 2 CIP MANHOLES, (REF # 1031-15).

FORMING CREW - 3 CARPS., 2 LABORERS, 1 IRONWLD 1 DRER.

PAGE 26 OF CONTRACT DIARY



4. CLEARING CREW - 4 LABORERS, 2 OPERS.  
PIPE CREW - 4 LABORERS, 1 OPER., 1 T-DRIVER 27

4a. BOTH ELECTRICAL & PLUMBING SUBS. ARE  
INSTALLING UNDERGROUND CONDUIT FOR  
BASE SLAB (REF # 1031-15).

6. SET UP SCHEDULE FOR MONTHLY PROGRESS  
MEETING W/ Supt. - J. CALAHANN.

REMINDED CONTRACTOR (J. CALAHANN) THAT  
CERTIFIED PAYROLLS ARE NOT BEING RECEIVED  
ON A BI-WEEKLY BASIS AS REQUIRED.

7. BOSTON GAS CO. IDENTIFIED GAS LINES ON  
EAST WATER ST. ALONG NEW SEWER ROUTE.  
(MICK SPLANE, PROJ. MANAGER - SO. BOSTON AREA).

9. CONTACTED WILL FORGETT OF BEST TESTING AND  
ADVISED HIM THAT FDM. WALLS ARE EXPECTED TO  
BE POURED ON THURSDAY, 4/5/90.

13. SEE MEMO TO J. TRAINOR DATED 4/2/90 REGARDING  
COMPLAINT BY CLAM CLAN ALLIANCE.

15. POLICE DETAIL ON E. WATER ST. BY OFFICER  
D. TRACY FROM 8:00 TO 3:30.

Wally W. Waterman  
R.E. - (SCE)



4/3/90

TUESDAY, HOURS: 7:00 to NOON

28

WEATHER: A.M. - CLOUDY, TEMP = 55°F  
NOON - RAIN, " = 62°F  
P.M. - H. RAIN, " = 60°F

1, HARRY HUDUNIT CALLED IN SICK (See item #16)  
SALLY SUGARMAN LEFT WORK AT NOON TIME.

2, SAME, CREW LEFT AT NOON TIME.

3+3a EQUIPMENT and Labor as 4/2/90.

4+4a { GEN. CONTR. began working in some areas as 4/2/90  
but little progress was made due to heavy rains.  
CONTRACTOR CALLED OFF WORK AT NOON.  
DUE TO INCLEMENT WEATHER.

6, ADVISED CONTRACTOR (J. Callahan) that he is responsible  
for the protection of his work in case the  
WEATHER GETS ANY WORSE. SEE SPEED MEMO  
DATED 4/3/90, REF. # 10729.

10: THE CONTRACTOR INDICATED THE MATERIAL IN THE  
FIELD WHERE 48" RCP LINE GOES THROUGH IS NOT  
THE SAME AS WHAT IS SHOWN IN THE SPECS.  
RELAYED THIS INFO. TO J. TRAINOR OF HOME OFFICE  
(See memo: REF# 10737, DATED 4/3/90).

16, THIS IS THE FIFTH DAY HARRY'S BEEN OUT OF  
WORK IN A MONTH.

Wally W. Waterman, (SCE)

17



4/4/90

WEDNESDAY, - HOURS:

WEATHER: A.M - H. RAIN, TEMP 60°F

NOON - " " "

P.M - SNOW. " 30°F

29

1: SAME AS 4/2/90

2. NO SHOW.

3. & 3a: LABOR - NO SHOW, EQUIP - SAME

4. & 4a: RAIN-OUT. CONTRACTOR DID NOT WORK.

9: CALLED WILL FORGET IT OF BEST TEST. AND ADVISED HIM THAT THE POUR WILL NOT TAKE PLACE UNTILL MONDAY AT THE EARLIEST.

10: SEE SPEED MEMO, REF. # 10732, DATED 4/3/90 TO J. TRAINOR REGARDING DIFFERING SITE CONDITIONS SURROUNDING 48" RCP LINE.

Wally W. Waterman  
RE. (SEE)