ASTM TMC

Users guide for Electronic Transmission of Test Report Data

This document is a guide that can be used to implement the Electronic Test Report Transmission Model (ETRTM) outlined by the Data Communication Committee (DCC).

Section 1
Construction of the Flatfile for transmission

- Obtain the approved data dictionary for the particular test type for which electronic transfer is being developed. This can be obtained from the Test Monitoring Centers WWW site **http://www.astmtmc.cmu.edu** (see section 4) or from the latest published information letter for the test type. (see attachment 1 for example)
- Construct the "flatfile" data file following the standard outlined in the ETRTM section 2. This file can be created using a text editor or word processing package by typing the data dictionary field name in columns 1 to 8, leave column 9 blank followed by the data and ending with a carriage return. Software application such as Microsoft Access® or Microsoft Excel® can be used to create the file. These applications provide mechanisms to create data entry screens that would provide descriptive fields for the data to be entered and then written to a file in the correct format. (see attachment 2 for example)
- The first fields that should appear in the file should be from the header dictionary (hdr obtained from the TMC WWW pages). These fields are used to identify the file and provide information pertaining to the particular transmission (see attachment 3 for example). These fields shall be at the top of the file, every field shall be included in the file and the order of the hdr fields shall be maintained (see section 2.8 of ETRTM).
- Once the "flatfile" is constructed it can be "transmitted" to a receiver using the protocols outline in the ETRTM document. (see section 3 of ETRTM).
- When a transmission is received the receiver can, at the senders request, send back a "Functional Acknowledgment" to a specified internet e-mail address that is used by the transmitting organization as a confirmation of receipt.

Section 2
forms package usage information

The report forms are created using MS Word and then converted to Adobe Acrobat PDF files. Adobe Acrobat provides a mechanism to create complex forms that can contain fields that can be filled in with data. There are several ways that the forms can be used: as a data entry mechanism or as a template to merge data and send to a printer.

The file named fillable.pdf that is posted to the TMC website contains the fillable fields and can be populated via an Adobe tagged .xdf file.

Section 3
Electronic Test report related documents available on the TMC WWW pages

Data Dictionary and report form version status

The TMC maintains a Microsoft Excel® document on the TMC WWW pages that provides information about the status of report forms and data dictionaries for each test type including report packet version numbers and the information letter numbers that put the version into use. This document is named datadict.xls and is located in the "FTP Directories for Data Dictionaries" section of the TMC WWW page.

Electronic Test Report Transmission Model (ETRTM)

The DCC maintains the ETRTM document and it is published on the TMC WWW pages under the "FTP Directories for Documents" section.

Section 4
Structure of the TMC WWW pages for Data Dictionaries and Report form retrieval

Content of the data dictionary (datadict) directory:

The datadict directory contains a directory for each of the Test Types that currently have official data dictionaries. Each test area directory contains three subdirectories (CURRENT, BETA and ARCHIVE). The CURRENT directory is broken into two directories that contain data dictionary and form files. The naming convention for dictionary files is as follows:

NameOfTestType.csv where NameOfTestType is the code for the test type and .csv specifies files that contain comma separated information with column headers.

NameOfTestType.txt where NameOfTestType is the code for the test type and .txt specifies files that contain only the data dictionary information without page headers and footers.

NameOfTestTyperep.txt where NameOfTestType is the code for the test type with 'rep' appended and .txt. This contains the repeating field's information.

NameOfTestType.exp where NameOfTestType is the code for the test type and .exp specifies files that contain the data dictionary information expanded using the repeating field's specification without page headers and footers.

The files contain records of data with space delimited fields in the following order:

test_type	test type of the form
form_number	number of the form on which the variable appears
field_name	name of the variable
data_type	data type of the variable, C = character N = numeric
field_size	width of the whole field
decimal_size	portion of the whole field width devoted to fractional part
unit_of_measure	what units the field is measured in
description	description of the variable
sequence_number	sequence number of variable

The variables currently have the following definitions:

test_type	character of length 8
form_number	character of length 4
field_name	character of length 8
data_type	character of length 1
field_size	integer of length 4
decimal_size	integer of length 4
unit_of_measure	character of length 15
description	character of length 60
sequence_number	integer of length 4

There is also directories under each test type directory labeled ARCHIVE, that contain previous versions of the data dictionaries, pdf, and MS Word files. The directory name will be the version number of the data dictionary.

Under each test type resides a BETA directory, which contains archived beta versions and the current beta report form and data dictionary revisions not yet implemented. These dictionaries will remain in the beta directory until they have been

tested by a transmitter/receiver pair. Once the dictionary is certified for use and the effective date has been reached, it will be copied to the upper level CURRENT directory. The version will be the same as the beta without the word BETA in the VERSION description.

Additional File Descriptions:

datadict/testarea/
datadict/testarea/current - all files associated with the current version of dictionary
datadict/testarea/current/dictionary - dictionary related files

datadict/testarea/current/dictionary/txt/ -contains text only files for the dictionary
datadict/testarea/current/dictionary/txt/testarea.exp - expanded version of dictionary
datadict/testarea/current/dictionary/txt/testarea.txt - text version of basic dictionary
datadict/testarea/current/dictionary/txt/testarea.csv - csv version of basic dictionary

datadict/testarea/current/dictionary/txt/testarearep.txt - repeating document for dictionary
datadict/testarea/current/dictionary/txt/whatchng.txt - what changed from last version
datadict/testarea/current/dictionary/txt/whatchng.csv – csv version what changed from last version

datadict/testarea/current/forms/pdf - Source forms

datadict/testarea/current/forms/pdf – PDF (ready to print) source of report forms
datadict/testarea/current/forms/pdf/fields.pdf – report forms populated with variable field names
datadict/testarea/current/forms/pdf/fillable.pdf - blank ready to print report forms that also contain fillable field boxes
datadict/testarea/current/forms/pdf/template.pdf - report forms populated with field format information

datadict/testarea/archive/CCYYMMDD - version CCYYMMDD of dictionary. organized like current

datadict/testarea/beta - Beta versions of dictionary organize like top level, sans beta directory, naturally.

Attachment 1
Example of Data Dictionary

Sequence	Test Form	Area	Field Name	Field Length	Decimal Size	Data Type	Units/Format	Description
10	0	L33	VERSION	8	0	C		L33 VERSION 19971218
20	0	L33	TSTSPON1	40	0	C		CONDUCTED FOR, FIRST LINE
30	0	L33	TSTSPON2	40	0	C		CONDUCTED FOR, SECOND LINE
40	0	L33	LABVALID	1	0	C	V, I OR N	TEST LAB VALIDATION (V, I OR N)
50	0	L33	RMSTAND	5	0	C		REFERENCE MOTORING STAND
60	0	L33	MSTAND	5	0	C		MOTORING STAND
70	0	L33	SBOXNUM	5	0	C		STORAGE BOX NUMBER
80	0	L33	RSBOXRUN	5	0	C		REFERENCE STORAGE BOX RUN NUMBER
90	0	L33	SBOXRUN	5	0	C		STORAGE BOX RUN NUMBER
100	0	L33	RDTCOMP	8	0	C	YYYYMMDD	REFERENCE COMPLETED DATE
110	0	L33	DTCOMP	8	0	C	YYYYMMDD	NON-REFERENCE COMPLETED DATE
120	0	L33	REOTTIME	5	0	C	HH:MM	REFERENCE END OF TEST TIME
130	0	L33	EOTTIME	5	0	C	HH:MM	NON-REFERENCE END OF TEST TIME (HH:MM)
140	0	L33	OILCODE	38	0	C		NON-REFERENCE OIL CODE
150	0	L33	CMIR	6	0	C		CMIR
160	0	L33	FORM	38	0	C		FORMULATION/STAND CODE
170	0	L33	ALTCODE1	10	0	C		ALTERNATE OIL CODE 1
180	0	L33	ALTCODE2	10	0	C		ALTERNATE OIL CODE 2
190	0	L33	ALTCODE3	10	0	C		ALTERNATE OIL CODE 3
200	0	L33	OPVALID	8	0	C		OPERATIONAL VALIDITY -- HAS/HAS NOT
210	0	L33	SUBLAB	40	0	C		SUBMITTED BY: TESTING LABORATORY
220	0	L33	SUBSIGIM	70	0	C		SUBMITTED BY: SIGNATURE IMAGE
230	0	L33	SUBNAME	40	0	C		SUBMITTED BY: SIGNATURE TYPED NAME
240	0	L33	SUBTITLE	40	0	C		SUBMITTED BY: TITLE
250	0	L33	SUBSECT	40	0	C		SUBMITTED BY: SECTION
260	1	L33	LAB	2	0	C		LAB CODE
270	1	L33	RDTSTRT	8	0	C	YYYYMMDD	REFERENCE STARTING DATE
280	1	L33	RTESTLEN	3	0	Z	HHH	REFERENCE LENGTH
290	1	L33	IND	6	0	C		TMC OIL CODE
300	1	L33	RSAEVISC	7	0	C		REFERENCE SAE VISCOSITY GRADE
310	1	L33	RLABOCOD	12	0	C		LABORATORY INTERNAL OIL CODE
320	1	L33	RINFOLET	8	0	C		REFERENCE INFORMATION LETTER NUMBER
330	1	L33	RPINBAT	6	0	C		REFERENCE PINION BATCH INDENTIFIER
340	1	L33	RRINGBAT	6	0	C		REFERENCE RING BATCH INDENTIFIER
350	1	L33	RAREA4	2	0	N	MERITS	REFERENCE RUST/CORROSION MERIT RATINGS AREA 4
360	1	L33	RLOMERIT	2	0	N	MERITS	REF. RUST/CORR MERIT RATINGS LOW OF AREAS 1-3,5-10 (MERITS)
370	1	L33	RRCMRFNL	6	2	N	LEVEL	REFERENCE FINAL RUST CORROSION MERIT RATING (LEVEL)
380	1	L33	RGEARVER	8	0	C		REFERENCE GEAR VERSION
390	1	L33	DTSTRT	8	0	C	YYYYMMDD	NON-REFERENCE STARTING DATE (YYYYMMDD)
400	1	L33	TESTLEN	3	0	Z	HHH	NON-REFERENCE TEST LENGTH (HHH)
410	1	L33	SAEVISC	7	0	C		NON-REFERENCE SAE VISCOSITY GRADE
420	1	L33	LABOCODE	12	0	C		LABORATORY INTERNAL OIL CODE
430	1	L33	INFOLETN	8	0	C		NON-REFERENCE INFORMATION LETTER NUMBER
440	1	L33	PINBAT	6	0	C		NON-REFERENCE PINION BATCH INDENTIFIER
450	1	L33	RINGBAT	6	0	C		NON-REFERENCE RING BATCH INDENTIFIER
460	1	L33	AREA4	2	0	N	MERITS	NON-REFERENCE RUST/CORROSION MERIT RATINGS AREA 4 (MERITS)
470	1	L33	LOWMERIT	2	0	N	MERITS	NON-REF RUST/CORR MERIT RATING LOW OF AREAS 1-3,5-10(MERITS)
480	1	L33	RCMRFNL	6	2	N	LEVEL	NON-REFERENCE FINAL RUST CORROSION MERIT RATING (LEVEL)
490	1	L33	GEARVER	8	0	C		NON-REFERENCE GEAR VERSION
500	2	L33	RINIT1	3	0	C		RATERS INITIALS AFTER TEST
510	2	L33	RCDCPINC	2	0	N	LEVEL	RUST/CORROSION DIFF CASE AT PINION CONTACT (LEVEL)
520	2	L33	RCPINWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE AT PINION CONTACT [N/A]
530	2	L33	RCDCDFGC	2	0	N	LEVEL	RUST/CORROSION DIFF CASE DIFF GEAR CONTACT (LEVEL)

Name	Length	Size	Type	Units/Format	Decimal	Data	Description	Form Area
540	2	L33	RCGRCWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE DIFF GEAR CONTACT [N/A](LE
550	2	L33	RCDCDFGS	2	0	N	LEVEL	RUST/CORROSION DIFF CASE DIFF GEARS - - SIDE (LEVEL)
560	2	L33	RCGRSWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE DIFF GEARS-SIDE [N/A](LEVE
570	2	L33	RCDCAXHC	2	0	N	LEVEL	RUST/CORROSION DIFF CASE AXLE HSG COVER (LEVEL)
580	2	L33	RCAXHWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE AXLE HSG COVER [N/A](LEVEL
590	2	L33	RCDCDGR	2	0	N	LEVEL	RUST/CORROSION DIFF CASE DRIVE GEAR - - RING (LEVEL)
600	2	L33	RCDGRWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE DRIVE GEAR-RING [N/A](LEVE
610	2	L33	RCDCDPIN	2	0	N	LEVEL	RUST/CORROSION DIFF CASE DRIVE PINION (LEVEL)
620	2	L33	RCDPNWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST DIFF CASE DRIVE PINION [N/A](LEVEL)
630	2	L33	RCBDPNR	2	0	N	LEVEL	RUST/CORROSION BEARING DRIVE PINION ROLLER (LEVEL)
640	2	L33	RCBPRWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST BEARING DRIVE PINION ROLLER [N/A](LE
650	2	L33	RCBDPNC	2	0	N	LEVEL	RUST/CORROSION BEARING DRIVE PINION CUPS (LEVEL)
660	2	L33	RCBPCWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST BEARING DRIVE PINION CUPS [N/A](LEVE
670	2	L33	RCBDFCR	2	0	N	LEVEL	RUST/CORROSION BEARING DIFF CASE ROLLER (LEVEL)
680	2	L33	RCBCRWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST BEARING DIFF CASE ROLLER [N/A](LEVEL
690	2	L33	RCBDFCC	2	0	N	LEVEL	RUST/CORROSION BEARING DIFF CASE CUPS (LEVEL)
700	2	L33	RCBCCWGT	5	2	A	LEVEL	REF. RUST/COR. WGT RUST BEARING DIFF CASE CUPS [N/A](LEVEL)
710	2	L33	OINIT	3	0	C		OPERATORS INITIALS
720	2	L33	TTPINBRK	5	0	N	LBF-IN.	TURNING TORQUES PINION BREAK (LBF-IN.)
730	2	L33	TTPINTRN	5	0	N	LBF-IN.	TURNING TORQUES PINION TURN (LBF-IN.)
740	2	L33	TTASSBRK	5	0	N	LBF-IN.	TURNING TORQUES FULL ASSEMBLY BREAK (LBF-IN.)
750	2	L33	TTASSTRN	5	0	N	LBF-IN.	TURNING TORQUES FULL ASSEMBLY TURN (LBF-IN.)
760	2	L33	WUTIMEST	5	0	C	HH:MM	WARM-UP TIME START (HH:MM)
770	2	L33	WUTIMEFN	5	0	C	HH:MM	WARM-UP TIME FINISH (HH:MM)
780	2	L33	WUTEMPST	5	1	N	øF	WARM-UP TEMPERATURE START (øF)
790	2	L33	WUTEMPFN	5	1	N	øF	WARM-UP TEMPERATURE FINISH (øF)
800	2	L33	MPTIMEST	5	0	C	HH:MM	MOTORING PHASE TIME START (HH:MM)
810	2	L33	MPTIMEFN	5	0	C	HH:MM	MOTORING PHASE TIME FINISH (HH:MM)
820	2	L33	MPAVPSST	5	0	N	R/MIN	MOTORING PHASE PINION SPEED START (R/MIN)
830	2	L33	MPAVPSFN	5	0	N	R/MIN	MOTORING PHASE PINION SPEED FINISH (R/MIN)
840	2	L33	MPOTEMPA	5	1	N	øF	MOTORING PHASE OIL TEMPERATURE AVG (øF)
850	2	L33	MPOTEMPX	5	1	N	øF	MOTORING PHASE OIL TEMPERATURE MAX (øF)
860	2	L33	MPOTEMPI	5	1	N	øF	MOTORING PHASE OIL TEMPERATURE MIN (øF)
870	2	L33	SPTIMEST	5	0	C	HH:MM	STORAGE PHASE TIME START (HH:MM)
880	2	L33	SPTIMEFN	5	0	C	HH:MM	STORAGE PHASE TIME FINISH (HH:MM)
890	2	L33	SPOTEMPA	5	1	N	øF	STORAGE PHASE OIL TEMPERATURE AVG (øF)
900	2	L33	SPOTEMPX	5	1	N	øF	STORAGE PHASE OIL TEMPERATURE MAX (øF)
910	2	L33	SPOTEMPI	5	1	N	øF	STORAGE PHASE OIL TEMPERATURE MIN (øF)
920	2	L33	REMK1	60	0	C		REMARKS LINE 1
930	2	L33	REMK2	60	0	C		REMARKS LINE 2
940	2	L33	REMK3	60	0	C		REMARKS LINE 3

Sequence	Length	Form Area	Name	Field Size	Decimal	Data Type	Units/Format	Description
950	2	L33	REMK4	60	0	C		REMARKS LINE 4
960	2	L33	REMK5	60	0	C		REMARKS LINE 5
970	2	L33	REMK6	60	0	C		REMARKS LINE 6
980	3	L33	DWNOCR	2	0	Z		NUMBER OF DOWNTIME OCCURRENCES
990	3	L33	DOWNHxxx	5	0	C	HH:MM	DOWNTIME TEST HOURS (HH:MM)
1000	3	L33	DDATHxxx	8	0	C	YYYYMMDD	DOWNTIME DATE (YYYYMMDD)
1010	3	L33	DTIMHxxx	5	0	C	HH:MM	DOWNTIME TIME (HH:MM)
1020	3	L33	DREAHxxx	60	0	C		DOWNTIME REMARKS/REASONS
1030	3	L33	TOTLDOWN	6	0	C	HHH:MM	DOWNTIME TIME TOTAL (HHH:MM)
1040	3	L33	TOTCOM	2	0	Z		TOTAL LINES OF COMMENTS & OUTLIERS
1050	3	L33	OCOMHxxx	70	0	C		OTHER DOWNTIME COMMENT XXX
1060	4	L33	MATCHNO	6	0	C		MATCH NUMBER
1070	4	L33	RATEDATE	8	0	C	YYYYMMDD	RATING DATE (YYYYMMDD)

		Test	Field	Field	Decimal	Data		
Name	Length	Size	Type	Units/Format		Description	Sequence Form Area	

Sequence	Length	Form Area	Name	Field Size	Decimal	Data Type	Units/Format	Description
1080	4	L33	RINIT2	3	0	C		RATERS INITIALS BEFORE TEST
1090	4	L33	RDCPINC1	70	0	C		AT PINION CONTACT BEFORE TEST RATING LINE 1
1100	4	L33	RDCPINC2	70	0	C		AT PINION CONTACT BEFORE TEST RATING LINE 2
1110	4	L33	RDCDFGC1	70	0	C		AT DIFFERENTIAL GEAR CONTACT BEFORE TEST RATING LINE 1
1120	4	L33	RDCDFGC2	70	0	C		AT DIFFERENTIAL GEAR CONTACT BEFORE TEST RATING LINE 2
1130	4	L33	RDCDFGC3	70	0	C		AT DIFFERENTIAL GEAR CONTACT BEFORE TEST RATING LINE 3
1140	4	L33	RDCDFGC4	70	0	C		AT DIFFERENTIAL GEAR CONTACT BEFORE TEST RATING LINE 4
1150	4	L33	RDCDFGS1	70	0	C		AT DIFFERENTIAL GEAR --SIDE GEARS-- BEFORE TEST RATING LINE 1
1160	4	L33	RDCDFGS2	70	0	C		AT DIFFERENTIAL GEAR --SIDE GEARS-- BEFORE TEST RATING LINE 2
1170	4	L33	RDCAXHC1	70	0	C		AXLE HOUSING COVER BEFORE TEST RATING LINE 1
1180	4	L33	RDCAXHC2	70	0	C		AXLE HOUSING COVER BEFORE TEST RATING LINE 2
1190	4	L33	RDCDGR1	70	0	C		DRIVE GEARS RING BEFORE TEST RATING LINE 1
1200	4	L33	RDCDGR2	70	0	C		DRIVE GEARS RING BEFORE TEST RATING LINE 2
1210	4	L33	RDCDPIN1	70	0	C		DRIVE PINION BEFORE TEST RATING LINE 1
1220	4	L33	RDCDPIN2	70	0	C		DRIVE PINION BEFORE TEST RATING LINE 2
1230	4	L33	RBDPNR1	70	0	C		DRIVE PINION ROLLERS BEFORE TEST RATING LINE 1
1240	4	L33	RBDPNR2	70	0	C		DRIVE PINION ROLLERS BEFORE TEST RATING LINE 2
1250	4	L33	RBDPNC1	70	0	C		DRIVE PINION CUPS BEFORE TEST RATING LINE 1
1260	4	L33	RBDPNC2	70	0	C		DRIVE PINION CUPS BEFORE TEST RATING LINE 2
1270	4	L33	RBDFCR1	70	0	C		DIFFERENTIAL CASE ROLLERS BEFORE TEST RATING LINE 1
1280	4	L33	RBDFCR2	70	0	C		DIFFERENTIAL CASE ROLLERS BEFORE TEST RATING LINE 2
1290	4	L33	RBDFCC1	70	0	C		DIFFERENTIAL CASE CUPS BEFORE TEST RATING LINE 1
1300	4	L33	RBDFCC2	70	0	C		DIFFERENTIAL CASE CUPS BEFORE TEST RATING LINE 2

Attachment 2
Example of Flatfile

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TESTTYPE L33
VERSION  L33 VERSION 19971218
TSTSPON1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
TSTSPON2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
LABVALID C
RMSTAND  CCCCC
MSTAND   CCCCC
SBOXNUM  CCCCC
RSBOXRUN CCCCC
SBOXRUN  CCCCC
RDTCOMP  YYYYMMDD
DTCOMP   YYYYMMDD
REOTTIME HH:MM
EOTTIME  HH:MM
OILCODE  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CMIR     CCCCCC
FORM     CC-CCCCCCCCCC-C-C-CCCCCC-CC-CC-CCCCC
ALTCODE1 CCCCCCCCCC
ALTCODE2 CCCCCCCCCC
ALTCODE3 CCCCCCCCCC
OPVALID  CCCCCCCC
SUBLAB   CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
SUBSIGIM Signature Image
SUBNAME  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
SUBTITLE CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
SUBSECT  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
LAB      CC
RDTSTRT  YYYYMMDD
RTESTLEN S12
IND      CCCCCC
RSAEVISC CCCCCCC
RLABOCOD CCCCCCCCCCCC
RINFOLET CCCCCCCC
RPINBAT  CCCCCC
RRINGBAT CCCCCC
RAREA4   S1
RLOMERIT S1
RRCMRFNL S12.12
RGEARVER CCCCCCCC
DTSTRT   YYYYMMDD
TESTLEN  S12
SAEVISC  CCCCCCC
LABOCODE CCCCCCCCCCCC
INFOLETN CCCCCCCC
PINBAT   CCCCCC
RINGBAT  CCCCCC
AREA4    S1
LOWMERIT S1
RCMRFNL  S12.12
GEARVER  CCCCCCCC
RINIT1   CCC
RCDCPINC S1
RCPINWGT S1.12
RCDCDFGC S1
RCGRCWGT S1.12
RCDCDFGS S1
RCGRSWGT S1.12
RCDCAXHC S1
RCAXHWGT S1.12
RCDCDGR  S1
RCDGRWGT S1.12
RCDCDPIN S1
RCDPNWGT S1.12
RCBDPNR  S1
RCBPRWGT S1.12
RCBDPNC  S1
RCBPCWGT S1.12
RCBDFCR  S1
RCBCRWGT S1.12
RCBDFCC  S1
RCBCCWGT S1.12
OINIT    CCC
TTPINBRK S1234
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TTPINTRN S1234
TTASSBRK S1234
TTASSTRN S1234
WUTIMEST HH:MM
WUTIMEFN HH:MM
WUTEMPST S12.1
WUTEMPFN S12.1
MPTIMEST HH:MM
MPTIMEFN HH:MM
MPAVPSST S1234
MPAVPSFN S1234
MPOTEMPA S12.1
MPOTEMPX S12.1
MPOTEMPI S12.1
SPTIMEST HH:MM
SPTIMEFN HH:MM
SPOTEMPA S12.1
SPOTEMPX S12.1
SPOTEMPI S12.1
REMK1    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
REMK2    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
REMK3    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
REMK4    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
REMK5    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
REMK6    CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
DWNOCR   S1
DOWNH001 HH:MM
DDATH001 YYYYMMDD
DTIMH001 HH:MM
DREAH001 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
TOTLDOWN HHH:MM
TOTCOM   S1
OCOMH001 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
MATCHNO  CCCCCC
RATEDATE YYYYMMDD
RINIT2   CCC
RDCPINC1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCPINC2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGC1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGC2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGC3 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGC4 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGS1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDFGS2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCAXHC1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCAXHC2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDGR1  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDGR2  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDPIN1 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RDCDPIN2 CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDPNR1  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDPNR2  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDPNC1  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDPNC2  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDFCR1  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDFCR2  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDFCC1  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
RBDFCC2  CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

Attachment 3
Header Data Dictionary (hdr)

```
         Test Field    Field  Decimal Data
Sequence Form Area Name    Length Size___  Type Unit_Of_Measure Description

  10   99   HDR VERHDR     8      0      C   YYYYMMDD       HDR VERSION 19931221
  20   99   HDR TESTTYPE   8      0      C                  TEST TYPE
  30   99   HDR TESTSPON  40      0      C                  TEST SPONSOR
  40   99   HDR LAB        2      0      C                  LAB CODE
  50   99   HDR CMIR       6      0      C                  CMIR
  60   99   HDR OILCODE   38      0      C                  CANDIDATE OIL CODE
  70   99   HDR DTCOMP     8      0      C   YYYYMMDD       EOT DATE (YYYYMMDD)
  80   99   HDR TESTNUM   30      0      C                  TEST NUMBER
  90   99   HDR DTTRANS    8      0      C   YYYYMMDD       DATE TRANSMITTED (YYYYMMDD)
 100   99   HDR TITRANS    5      0      C   HH:MM          24 HOUR TIME TRANSMITTED
 110   99   HDR FORM      38      0      C                  FORMULATION/STAND CODE
 120   99   HDR PURPCODE   2      0      C                  EDI REPORT PURPOSE CODE
 130   99   HDR SPONID    10      0      C                  SPONSOR ID
 140   99   HDR VERSION    8      0      C   YYYYMMDD       VERSION OF THE FOLLOWING DATA DICTIONARY


VERHDR    19931221
TESTTYPE  L33
TESTSPON  Your Laboratory name
LAB       XX
CMIR      12345
OILCODE
DTCOMP
TESTNUM   XX-XXX-XX
DTTRANS   19980101
TITRANS   14:30
FORM
PURPCODE
SPONID
VERSION   19971218
```

Attachment 4
Report forms with data populated
(Download from TMC WWW page)