Memorandum

U.S. Department
Of Transportation

Federal Highway Administration

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive I-130
Release of LTPP IMS Software Release Version 2006.08

Date: August 25, 2006

From: Eric Weaver
Long Term Pavement Performance Team

Reply to
Attn of: HRDI-13

To: Dr. Frank Meyer, PM - LTPP North Atlantic Regional Contract
Dr. Frank Meyer, PM - LTPP North Central Regional Contract
Mr. Mark Gardner, PM - LTPP Southern Regional Contract
Mr. Kevin Senn, PM - LTPP Western Regional Contract

Attached is the Long Term Pavement Performance (LTPP) Program Directive I-130. This directive authorizes implementation of the IMS software upgrade from version 2006.05 to 2006.08. Upgrade instructions are provided in attachment 1. Please notify the FHWA and TSSC when the upgrade has been installed. Please ensure that all personnel involved with the IMS are aware of this new directive.

Should you have any questions or would like to discuss this directive, please do not hesitate to contact me at 202-493-3153.

Attachments (5)

FHWA:HRDI-13:EWeaver:mdeeney:493-3153:08/30/06
File: c:/mdeeney/directive/ims/I-130dir.doc
cc:
Gonzalo Rada
Directive Binder
LTPP Team
Official file
Chron

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area: IMS **Directive Number**: I-130

Date: August 25, 2006 **Supersedes**: I-129

Subject: IMS Software Release Version 2006.08

This directive authorizes implementation of the IMS software upgrade from version 2006.05 to 2006.08. Upgrade instructions are provided in attachment 1. Please notify the FHWA and TSSC when the upgrade has been installed.

Software change notice 96, contained in the attached file, SCN_96.pdf, lists all of the changes made to the IMS software since the last software release. This notice serves as attachment 2 to this directive. This notice shall be filed in the Operator Log. This release includes resolutions to several SPRs, some minor, and some that could affect multiple processes. Please read the documentation carefully, before applying this release.

Due to problems with new foreign key constraints on many of the materials testing tables, triggers have been added to these materials testing tables to look up the correct Construction Number (CN) before records are inserted. Failures can still occur if parent records are not in the TST_L05B table; an error message is written to the log file to indicate the nature of the problem to the user. Other updates to the new data loader for data collected as part of the SPS Materials Action Plan have been included along with updated instructions on how to use the loader from RIMS and from the command line (attachment 3).

Scripts are included to update core diameters in TST_HOLE_LOG and TST_SAMPLE_LOG and the data entry forms have been corrected. These scripts will populate missing core diameters from the other table if a diameter is available. To resolve the issues identified in DAOFR TSSC-87, the regions will need to investigate records that should have a core diameter, but the core diameters are null.

A new CN assignment procedure is included in this release. Instructions are provided for removing old CN assign scripts and for using the new procedure (attachment 4).

Scripts are provided to update the database for SPS projects with sections on opposite sides of the road. These scripts will automatically populate the SPS_PROJECT_STATIONS table with the

information previously provided by the regions. The script will also reset the RECORD_STATUS of all entries in this table requiring the QC processing to be completed by the regions prior to the next upload.

Version 2006.08 of the IMS software is distributed in a password protected zip file. The zip file distributed via-e-mail is named PASSWORD_20060815.PIZ in an attempt to get it through e-mail firewalls. The extension should be renamed zip for unzip programs to automatically recognized it. The software can also be downloaded from the LTPP FTP site ftp://ftp.ltpp.org, under the directory VR2006_08. On the FTP site, the file is named PAASWORD_20060815.ZIP. The files included in the password protected zip file are:

- VR2006_08.ZIP – A zip file with the batch file (VR2006_08.BAT) and scripts needed to make miscellaneous updates to the database and to run other related administrative commands. Refer to the table included in attachment 1 for an alphabetic list and descriptions of the scripts called by this batch file.
- LTPP.ZIP - A zip file with all files to go in the LTPP area (and subdirectories) on the server.
- OracleVersions.ZIP – A zip file with listings of all Oracle files and versions loaded on the server at the central site. These are included for reference only.

Prepared by: TSSC

Approved by:

Aramis López
LTPP Team Leader

Attachment 1

Instructions to Apply VR 2006.08 Release

1. Create the subdirectory RELEASES\VR2006_08 (the directory RELEASES should already exist).

2. Copy and unzip the VR2006_08.zip file into the subdirectory created in step 1.

3. Shutdown ORACLE in normal mode and backup Server.

4. Bring ORACLE up.

5. From a DOS prompt in the RELEASES\VR2006_08 directory, type

   `VR2006_08 dbausername/dbapassword@instance`

   to begin the software update. This batch file will run the scripts listed alphabetically in table 1, below.

6. The scripts make some very important table changes and data updates. **Check carefully that all scripts completed successfully by reviewing the *.lis files (refer to list, below).** Ignore errors about dropping non-existent objects.

7. **NEW STEP:** Remove the obsolete CN assign scripts from the ltpp\cn area. In addition, be sure to remove calls to these programs from the various QC batch files and anywhere else they may have been used.

8. Copy the LTPP.ZIP file into the LTPP subdirectory. Right-click on the filename and choose "Extract to Here" to unzip the file into the LTPP subdirectory. Answer "Yes to all" to overwrite existing files. Delete the LTPP.ZIP file.

9. **REVISED STEP:** Copy the MatActLoad.ZIP file from the VR2006_08 directory into the directory created for the new Materials Action Plan data loader. Right-click on the filename and choose "Extract to Here" to unzip the file into the new directory. Reply "Yes to All" when asked if you want to replace existing files. Delete the MatActLoad.ZIP file. See attachment 3 for updated instructions on using this new data loader.

10. The OracleVersions.zip file is included for reference only. Extract these files into the OracleVersions directory. It will create an OracleVersions\VR200608 subdirectory.

Table 1. Scripts run from the VR2006_08.bat file

Script and Output Filenames (.sql & .lis)	**Description**
CNUtilites	Creates a package of stored procedures used to assign Construction Number.
ResetRecordStatus_0608	Resets to D all level E records in SPS_PROJECT_STATIONS and INV_ID and SPS_ID due to changes to the data and new QC.
SPR3617CoLocatedSPSSites	Adds and populates new field (DIRECTION_OF_TRAVEL) to SPS_PROJECT_STATIONS table. Also updates INV_ID and SPS_ID where DIRECTION_OF_TRAVEL = 5 (both directions).
SPR3645UpdateDiameter	Updates diameter field in both TST_HOLE_LOG and TST_SAMPLE_LOG.
SPR3669AlterPadias42JPCC	Changes MON_DIS_PADIAS42_JPCC.MAP_CRACK_A from number(4,1) to number(5,1).
SPR3682MatActLoadTriggers	Creates DB triggers on each of the materials tables that is part of the new data loader program (MatActLoad). The triggers look up the correct CN as records are inserted.

Attachment 2

Software Change Notice 96

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp

CN Assign

S-3636 **3636** **CN Assign Scripts** **1/14/2005** **8/14/2006**

Description

Review CN Assign scripts to verify that each table with a construction number (CN) is represented.

Resolution

Created CNUtilites to create a series of stored procedures to process construction numbers.

Inventory

M-3686 **3686** **INV_QC** **8/10/2006** **8/11/2006**

Description

INV LEVEL E

INV_ID and SPS_ID

Matching records may not exist in SPS_ID

Reset INV_ID and SPS_ID to level D

Resolution

Updated INV_QC.pc to include this check. Added statement to ResetRecordStatus_0608.sql to set INV_ID record_status to D where record_status =E.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp

Materials Testing

2-75 **3565** **TST_AE01** **MACTEC** **12/3/2004** **7/18/2006**

Description

In the table TST_AE01 the ASH_CONTENT_OF_BITUMEN value should be below 2. Whenever values exceed this range the asphalt extraction tests are considered suspect.

Section 550116, layer 6, field set 1, Loc_No B25A, Test No 3 has an ASH_CONTENT_OF_BITUMEN value reported by the lab as 10.2. The field will not allow values greater than 9.9. Should this field be increased to allow the value recorded by the lab to be entered?

Having the value there will tell an analysis to be wary of the other extracted asphalt data. If a record is not present than we must determine if the remaining data is of any value and remove it if deemed suspect.

Please see Gary Elkins's attached email.

Resolution

For TST_AE01 records with ASH_CONTENT_OF_BITUMEN values greater than 9.9, the value should be entered as 9.9 and a comment made to notify the user of the actual value. No TSSC action necessary.

3-737 **3170** **TST.SDS.02, TST.SHEET.AC04** **T Thompson, LAW PCS** **9/6/2002** **7/18/2006**

Description

Data in the TST_AC04 table can be orphaned if related data is deleted from the TST_SAMPLE_LOG and TST_HOLE_LOG tables first. Should TST_SDS2 form be modified to not allow deletions if related data exists in other tables?

Resolution

New QC related to the TST sampling view will identify orphans. No TSSC action necessary.

3-3645 **3645** **TST Sampling Entry Forms** **MACTEC** **7/22/2005** **8/4/2006**

Description

The problem of null core diameter in some of the sampling tables was created by the way the sample data entry forms operate. You can either enter "Core Size" in block two, which places the diameter in TST_HOLE_LOG and may or may not default it into TST_SAMPLE_LOG.DIAMETER, or in a few forms, you can enter "Core Size" in block three, placing the diameter in TST_SAMPLE_LOG.DIAMETER, leaving TST_HOLE_LOG.DIAMETER null. There is no form that allows entry of both.

Resolution

Modified all forms to update diameter in TST_HOLE_LOG and TST_SAMPLE_LOG, per 5/4/2006 memo from Travis Thompson. Also, created SPR3645UpdateDiameter.sql to update existing records.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
4-3681	3681	TST_QC.bat	MACTEC	6/8/2006	7/10/2006

Description

Add the TST_SAMPLE_BASIC_INFO view refresh script to the batch file that runs the TST QC. The refresh should be done before level E QC is run.

Resolution

Created RefreshTstSampleBasicInfo.sql to refresh the TST_SAMPLE_BASIC_INFO materialized view. Changed TSTQC.BAT to run this script from the same directory as TST_C.exe. It is expected that the "QC" directory will be in the path. If not, then TSTQC.bat must be run from the "QC" directory.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
S-3682	3682	DB Triggers on TST Tables	MACTEC	6/20/2006	8/11/2006

Description

Create database triggers on each of the TST tables that is part of the SQL Loader materials data loader program. These triggers should look up the correct CN as records are inserted.

Resolution

Created SPR3682MatActLoadTriggers.sql to populate construction number on insert. Depends on routines in the CNUtilities.sql script. Created AssignCN.sql to run the CN_Utilities.assign_cn stored procedure. Created AssignCN.bat to execute the AssignCN.sql script. It takes the connect string, a table name wildard pattern, and an output filename as parameters. There is also an optional parameter to force plain text output.

P46

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-3684	3684	P46.exe	MACTEC	8/1/2006	8/1/2006

Description

Errors UG07_WK-E-7 and UG07_SUM-E-5 are being reported when the data is not in error.

Resolution

Found brackets and parentheses missing in these two checks. Also used abs(absolute value) function in many of the range checks so that negative values are checked correctly - even if the values should not be negative.

PADIAS

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-889	3669	PADIAS loader	MACTEC	1/3/2006	7/20/2006

Description

I believe
that the problem here is with the length of the Map Cracking Area field in the file. This requires a change in the database to allow for over 1000 sq m of map cracking. Both of the files for 400605 have over 1000 sq m of map cracking

Resolution

Created SPR3669AlterPadias42JPCC.sql to modify column size.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp

PG Binder

1-127 **3380** **PG Binder Data** **MACTEC** **10/14/2003** **7/18/2006**

Description

The PG Binder lab tests are performed on samples derived from a variety of sample material. This causes problems determining what sample number to use for data entry especially when the RIMS program requires that all sample numbers be in the TST_SAMPLE_LOG, TST_HOLE_LOG, TST_UNCOMPACTED_BITUMNOUS and TST_ASPHALT_CEMENT tables. Direction is needed when the following situations occur:Samples from the eight 'C' type cores are combined to form a new sample. These new combined samples are tested more than once.Samples are made by combining the bulk 'BU**' (aggregate) and 'BC**' (binder) samples. These new samples are tested more than once.Samples derived from the same bulk materials are split into top lift (surface coarse) and bottom lift (binder coarse)Attached are examples of tested samples. Determination of the sample number is hindering the entry of this data.

Resolution

Use TST_SAMPLE_COMBINE to account for combined samples and combine as described in SPR Resolution document dated 7/18/2006. No further TSSC action necessary.

SPSM

M-3617 **3617** **Co-located SPS Sites** **6/2/2005** **8/8/2006**

Description

Specifications to handle SPS projects with test sections located in both directions of travel.

Resolution

Per TSSC memo, dated April 20, 2005, Created SPR3617CoLocatedSPSSites.sql to add and populate field SPS_PROJECT_STATIONS.DIRECTION_OF_TRAVEL. Also modified form SPS_PROJECT_STATIONS.fmb to allow entry of new field and to generate/assign order_no based on state-code, project_id, and direction_of_travel.

M-3685 **3685** **SPS_MISC QC** **8/9/2006** **8/11/2006**

Description

SPS Level E:

SPS_ID and INV_ID

Matching records may not exist in INV_ID

Reset INV_ID and SPS_ID to level D.

Resolution

Updated SPS_MISC.pc to include this check. Created ResetRecordStatus_0608.sql to set SPS_ID record_status to D where record_status =E.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp

Traffic

3-892 **3677** **TRF Sheet 16** **4/24/2006** **8/8/2006**

Description

While entering sheet 16's, it appears as though the section for the classifier expects entry of data, even when the sheet 16 is for the WIM only. (No data is present for the classifier) Simple entering "unknown" inserts a record with no values, where qc expects values.

Resolution

Cannot reproduce problem. Gary says it looks okay.

Attachment 3

Instructions For MatActLoad Data Loader

General Information

The MatActLoad data loader is a command procedure that uses SQL*Loader and a set of control files (.ctl) to load .csv data files into the appropriate materials tables in the PPDB. For technical support with this loader, call TSSC programming staff at (865) 481-8502 (Miriam Pitz). For procedural support, call TSSC engineering staff at (775) 825-5885, ext. 3 (Pete Schmalzer).

Input Files

The input files are named like RR(R)TTTT_MM-DD-YYYY.csv, where RR is the region (sometimes RRR), and TTTT is the LTPP test designation. For example, SRAC01_3-16-2006.csv would be Southern Region, AC01 (For upload into TST_AC01). See table 2 for a list of tables loaded and input filename examples. Input files can be located anywhere on the network, as long as a full directory path can be specified. The loader will attempt to load any file in the input directory whose filename contains a string of characters that matches a string in the second column of table 2, below.

Directory Structure

A default directory structure is included with the procedure and this structure must exist with the necessary control files for the procedure to work. The top level of the structure can be named anything obvious – we would suggest something like MatActLoad. The MatActLoad.zip file provided with release 2006.05 should be unzipped into this root level directory. Assuming the root level directory is named MatActLoad, the default structure should exist as follows:

MatActLoad
MatActLoad\CTLFiles
MatActLoad\LogFiles
MatActLoad\BadFiles
MatActLoad\DataFiles

The CTLFiles directory has the control files necessary to load the .csv files we expect to receive. The LogFiles directory will hold the log files created as the procedure loads data into the database. Log files will have the same base name as the input file with a .log extension. The BadFiles directory will hold a file for each input file that fails to load completely. Any records that are not inserted into the database will be written to a .bad file, with the base filename being the same as the input file with a .bad extension. The DataFiles directory is included for user convenience. It is not necessary to put input files in this directory. However, if input files are moved into the DataFiles directory for the loading process, it is recommended that they (and related .log and .bad files) be archived after loading in a different area, according to current regional procedures.

Using MatActLoad from the Command Line

Use the command line to run MatActLoad as follows:

1. Open a command prompt (DOS) window.
2. Use the following syntax to run the batch command:

```
<MatActLoad_path>MatActLoad <input_directory> <connectstring> <MatActLoad_path>
```

where,

MatActLoad_path is the path to the MatActLoad.bat file and is the root of the required directory structure. Make sure to include a trailing backslash ('\') in the path. In some cases, as explained below, this parameter can be omitted.

input_directory is the path from the current directory to the files to load. This path can be either relative or fully qualified.

connectstring is the Oracle connect string in the format of user\pass@inst.

Example:

```
C:\ltpp\matactload\MatActLoad c:\ltpp\matactload\DataFiles scott\tiger@proddb c:\ltpp\matactload\
```

In this example, if the MatActLoad.bat file is run from c:\ltpp\matactload and the input files are in the default DataFiles directory, the <matactload_path> can be omitted from the command in each place as follows:

```
MatActLoad DataFiles scott\tiger@proddb
```

Using MatActLoad from the RIMS Application

Use RIMS to run the MatActLoad data loader as follows:

1. Start the RIMS application.
2. Use the System Options screen (option #5, RIMS Main Menu) to update the path to the MatActLoad root directory. Make sure to include a trailing backslash ('\') in the path. Save changes (F10) and return to Main Menu.
3. Select option 4, Filter Processing and Deleting, from the Main Menu.
4. Select 1 from Filter Menu and 17 from Filter Processing Menu.
5. On the Materials Action Plan Data Load screen, enter the full path to the data files to be loaded.
6. Press enter to start the load.

Log Files and Bad Files

Once the loader has finished, it is important to check all log files and bad files in the MatActLoad directory structure to verify that all data was loaded. It is recommended that log files and bad files be archived with data files in order to verify the history of the data load.

Table 2. MatActLoad Tables and Input Files

Table	Filename Must Include…	Examples
TST_AC01	AC01_?- or AC01_??-[1]	WRAC01_5-4-2006.csv
TST_AC01_LAYER	AC01_LAYER	WRAC01_LAYER_5-4-2006.csv
TST_AC02	AC02	WRAC02_10-12-2005.csv
TST_AC03	AC03	NARAC03_5-4-2006.csv
TST_AC04	AC04	NARAC04_7-23-2005.csv
TST_AE01	AE01	NARAE01_6-12_2005.csv
TST_AE03	AE03	SRAE03_3-16-2006.csv
TST_AE05	AE05	SRAE05_3-16-2006.csv
TST_AG01	AG01	SRAG01_3-16-2006.csv
TST_AG02	AG02	NCRAG02_12-1-2005.csv
TST_AG04	AG04	NCRAG04_5-4-2006.csv
TST_AG05	AG05	WRAG05_10-12-2005.csv
TST_PC01	PC01	SRPC01_3-16-2006.csv
TST_PC02	PC02	SRPC02_3-16-2006.csv
TST_PC04	PC04	SRPC04_3-16-2006.csv
TST_PC05	PC05	SRPC05_3-16-2006.csv
TST_PC06	PC06	SRPC06_3-16-2006.csv
TST_PC08	PC08	SRPC08_3-16-2006.csv
TST_SS01_UG01_UG02	SS01 or UG01	WRSS01_3-16-2006.csv, NCRUG01_5-25-2006.csv
TST_SS02_UG03	SS02	NARSS02_6-12_2005.csv
TST_UG04_SS03	SS03 or UG04	SRSS03_3-16-2006.csv, WRUG04_6-17-2005.csv
TST_SS04_UG08	SS04 or UG08	NARSS04_10-12-2005.csv, WRUG08_6-17-2005.csv
TST_UG05_SS05	SS05 or UG05	NARSS05_10-12-2005.csv, NCRUG05_6-17-2005.csv
TST_UNBOUND_SPEC_GRAV	SS13 or UG13	NARSS13_6-12-2005.csv, NARUG13_6-12-2005.csv
TST_TB01	TB01	WRTB01_12-12-2005.csv

[1] Each '?' mark represents a single character.

Attachment 4
Instructions For CN Assignment

General Information

The construction number (CN) assignment procedure has been revised to be more consistent across data modules. This has been accomplished by using a package of stored procedures to assign the construction number instead of a series of SQL scripts. The previous SQL scripts had specific code for each table. This made them difficult to maintain and allowed inconsistencies in processing to exist. In some cases, such as MON_DEFL_DROP_DATA, those scripts purposely did not follow the standard processing. Now all tables go through the same process. As each table is processed, a list of records to be updated will be generated. In addition, several record counts will be provided, as they were in the previous output, including: the total number of records, the number of records with the correct CN, the number of records with the wrong CN, the number of records updated, and the number of records which still contain the wrong CN after the update.

The format of the listing file has also been changed. The default format is HTML. This makes the output easier to read although there is also an option to write a plain text report.

Process Notes

The new CN procedure will always begin by processing the six TST sampling tables using EXPERIMENT_SECTION to set the CN. These tables are: TST_ASPHALT_CEMENT, TST_FRESH_PCC, TST_SAMPLE_BULK_AC_AGG, TST_SAMPLE_LOG, TST_SAMPLE_LOG_SPS_3_4, and TST_UNCOMP_BITUMINOUS. The procedure will then refresh the TST_SAMPLE_BASIC_INFO view. At this point, the procedure will set the CN for all tables selected for processing, based on the fields available in each table. For example, if the table has STATE_CODE, SHRP_ID and FIELD_SET, the procedure will use the updated sampling view to set the CN. If FIELD_SET is not available, the procedure will use an appropriate date field and the EXPERIMENT_SECTION table to set the CN.

Using the CN Utilities

A batch file has been provided for running the CN assignment utilities. It is called AssignCN.bat and is located in the CN directory under the LTPP client software root directory. This batch file runs AssignCN.sql which in turn calls the CN utilities to update the construction numbers.

AssignCN.bat takes three mandatory parameters and one optional parameter. The mandatory parameters are the connect string, the wildcard for the tables to process, and the output filename. The optional parameter is the HTML output flag.

AssignCN connect_string table_wildcard output_filename (html_flag)

The connect string is a standard Oracle connect string consisting of the username, password, and instance. It is formatted as “username/password@instance”. The table wildcard pattern follows the

Oracle standard for wildcards. Therefore, to process all of the tables beginning with ‘TST’, the wildcard would be written as ‘TST%’. The output filename can be either a relative or absolute path for where the file is to be written. Spaces are not allowed in the path or filename, and if the extension is omitted, “.lis” is appended by default. **Note:** The file extension does NOT affect the format of the file. Finally, there is the HTML flag. If it is not specified, the output file will be formatted with HTML. This is also the case when this flag is ‘TRUE’. If plain text output is desired, then specify ‘FALSE’ for the HTML flag.

An example of setting the construction number for all SPS1 tables with HTML output would be as follows.

```
AssignCN user/pass@inst sps1% sps1_cn.html
```

An example of setting the construction number for all SPS1 tables with plain text output would be as follows.

```
AssignCN user/pass@inst sps1% sps1_cn.lis false
```