Memorandum

U.S. Department
Of Transportation

Federal Highway Administration

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive I-131
IMS Software Release Version 2006.09

Date: October 16, 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-131. This directive authorizes implementation of the IMS software upgrade from version 2006.08 to 2006.09. 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 (3)

FHWA:HRDI-13:EWeaver:mdeeney:493-3153:10/13/06
File: c:/mdeeney/directive/ims/I-131dir.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-131

Date: Sept 29, 2006 **Supersedes**: I-130

Subject: IMS Software Release Version 2006.09

This directive authorizes implementation of the IMS software upgrade from version 2006.08 to 2006.09. Upgrade instructions are provided in attachment 1. Please notify the FHWA and TSSC when the upgrade has been installed.

Software change notice 97, contained in the attached file, SCN_97.pdf, lists all of the changes made to the IMS software since the last software release. This notice shall be filed in the Operator's Log.

This release includes resolutions to several SPRs. New distress QC has been implemented to validate related groups of fields in each table. For example, if there is a non-null value in the MON_DIS_AC_REV. PATCH_A_H field, there should be a non-null value in the PATCH_NO_H field, and vice-versa. Database triggers were modified so that records updated with the triggers will also have RECORD_STATUS set to 'A.'

The FWD temperature form has been updated so as not to discourage weather related comments in the WEATHER_CONDITION field, and existing entries in that field have been "decoded" to be the text of the coded value.

Level E QC on SPS_PROJECT_STATIONS and SPS_CUT_FILL_LOCATIONS has been modified to correctly enforce the existence of supporting records in CUT_FILL_LOCATIONS when there is a value of 4 (mixture of cut/fill) in a SPS_PROJECT_STATIONS record, and vice-versa.

In addition, the size of the ASH_CONTENT_OF_BITUMEN field has been increased in both the TST_AE01 and TST_AE01S tables. Review the Software Change Notice (attachment 2) for other changes.

Version 2006.09 of the IMS software will be distributed via TSSC ftp site to each region. The files included in the password protected zip file are:

- VR2006_09.ZIP – A zip file with the batch file (VR2006_09.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 2006.09 Release

1. Create the subdirectory RELEASES\VR2006_09 (the directory RELEASES should already exist).

2. Copy and unzip the VR2006_09.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_09 directory, type

   `VR2006_09 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. 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.

8. The OracleVersions.zip file is included for reference only. Extract these files into the OracleVersions directory. It will create an OracleVersions\VR200609 subdirectory.

Table 1. Scripts run from the VR2006_09.bat file

Script and Output Filenames (.sql & .lis)	**Description**
SPR3532CascadeUpdateRecordStatus	Updates RECORD_STATUS to 'A' when record updated with a cascade update database trigger.
SPR3565EnlargeAshContentOfBitumen	Changes ASH_CONTENT_OF_BITUMEN from NUMBER(2,1) to NUMBER(3,1) in TST_AE01 and TST_AE01S to allow results reported by the lab.
SPR3627UncodeWeatherCondition	Populates the MON_DEFL_TEMP_DEPTHS.WEATHER_CONDITION field with the full text of the coded value and removes the CODETYPE, WEATHER_CONDITION.
SPR3695AsphaltGrade	Adds CODETYPE = ASPHALT to the LTPPDD record for SPS9_PMA_MIX_DES_PROP.ASPHALT_GRADE.
ResetRecordStatus_0609	Resets to 'A' all records in the manual and automated distress tables due to updates to the distress QC (SPR 3608). Also resets the records in SPS_CUT_FILL_LOCATIONS and SPS_PROJECT_STATIONS to 'D' due to changes to the level E QC (SPR 3694).

Attachment 2

Software Change Notice 97

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

Administrative

M-3695 **3695** **Codes** **8/21/2006** **9/12/2006**

Description

SPS9_PMA_MIX_DES_PROP.ASPHALT_GRADE has lost the associated code of ASPHALT. This needs to be fixed.

Resolution

Created spr3695AsphaltGrade.sql to add codetype='ASPHALT' to LTPPDD record for subject field.

Database Administration

3-781 **3285** **SECTMANT.exe** **3/28/2003** **8/29/2006**

Description

After deleting CN 2 for a GPS4 section (see excerpt from log file), found that the SPS_GPS_LINK record had also been deleted, even though both CN 1 and the linked SPS sections were still in the database. Reentry of the SPS_GPS_LINK data resolved the QC problems that resulted. TSSC agreed that the logic for deleting the SPS_GPS_LINK should be:If CN 1 for the GPS section is deleted (therefore all CNs have been deleted – the section is deleted), then the SPS_GPS_LINK row should be deleted.If CN 1 for all of the linked SPS sections are deleted (all CNs have been deleted – the project is deleted), then the SPS_GPS_LINK row should be deleted.

Resolution

Delete from SPS_GPS_LINK and SPS_PROJECT_STATIONS only when the delete_entire_section flag is true. It should also be noted that the logic for seting the flag would fail for constrution_no > 9. This has been corrected as well. The flag is set only when construction_no is "%" or "1". Another problem found during testing was that the program had not been updated for the new CLM table names. The new CLM table names are now used. In addition, deleting from the CLM tables has been made conditional on the delete_entire_section flag. Due to new constraints, TST_L05B has to be processed last. The program now avoids processing the TST_SAMPLE_BASIC_INFO materialized view.

S-3532 **3532** **All database triggers** **9/28/2004** **8/21/2006**

Description

When a record is updated with a cascade update database trigger, the RECORD_STATUS of that record should be set to "A". All database triggers should be evaluated and modified to comply with this rule.

Resolution

Created SPR3532CascadeUpdateRecordStatus.sql to set the record status on cascaded records to 'A'.

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

Falling Weight Deflectometer

3-883 **3627** **MON.01** **MACTEC** **6/24/2005** **9/22/2006**

Description

Allowed values for MON_DEFL_TEMP_VALUES.WEATHER_CONDITION are S (Sunny), PC (Partly Cloudy), C (Cloudy), and R (Rain) (see attached screenshot), however data entry form allows entry of anything to a maximum length of 15 characters. If column were shortened to a maximum of 2 characters, invalid entries would be far less likely.
FWD Monitoring Temperature Measurements – Form F01 of 10/15/1999 indicated that only these terms were to be used in the "Weather Conditions" column: "Sunny", "Partly Cloudy", "Cloudy", "Rain", "Night." (Night testing is no longer allowed.)

Form F01 of March 2005 now shows only an "Operator Comment" column. The notes indicate that the comments should "include weather related comments and any other comments necessary to explain unusual temperature readings."

Need further direction from TSSC. Is WEATHER_CONDITION now a container for free-form comments (up to 15 characters only), or should we continue to check/scrub the data to contain one of the approved mnemonics?

Resolution

Created SPR3627UncodeWeatherCondition.sql to replace the coded values with the detail and then remove the codes and codetypes. Updated MON_DEFL_TEMP_VALUES.fmb to change prompt for WEATHER_CONDITION field and to increase size of form window.

Longitudinal Profile

3-886 **3644** **PROFLOAD.EXE** **7/22/2005** **8/22/2006**

Description

Filter inserts 0 into AVERAGE_SPEED and FILTER_WAVELENGTH. These columns are required to be NULL for longitudinal dipstick data (DEVICE_CODE='D').

START_METHOD, STOP_METHOD, and SENSOR_TYPE are required to be null and filter correctly inserts NULL; evaluation of the device code should make it possible to dispense with the "Possible invalid…" messages in the filter log file (see attached excerpt).

Resolution

Changed PROFLOAD.exe to always insert a null for the listed columns when DEVICE_CODE='D' (dipstick). I also ran a query to make sure that all dipstick data in the database currently has null in these columns. No suspect data was found.

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

Manual Distress

M-3608 **3608** **Distress QC Programs** **4/20/2005** **9/22/2006**

Description

Specifications for additional QC checks for distress tables. These came out of resolution to DAOFRs TSSC-73, 74, 75, 76.

Resolution

Modified DIS_QC.PC, DISPAD10.PC and DISPAD42.PC.
Added two new routines fNullIfPair() and dNullIfComponentsToTotal() to check if columns are required based on other columns in the row. Added Level C checks using these routines for each set of columns. This implements the checks described in "Additional QC checks for DAOFRs TSSC-73, 74,75 & 76.doc".
Having records which now fail level C checks also exposed a latent problem in MonDisPadias42AcD. If a record could not be updated because it did not have the correct record status, sqlca.sqlerrd[2] was added to the NotUpdated count. By definition, sqlca.sqlerrd[2] was alway zero when no records were updated. Therefore, NotUpdated remained zero even though some records could not be updated. This lead to incorrect totals of records processed. This was flagged by the TableStatistics library. Requires the data in all affected distress tables to be set back to level A.

Materials Testing

2-75 **3565** **TST_AE01, AE01S** **MACTEC** **12/3/2004** **9/22/2006**

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

Increase the size of the TST_AE01.ASH_CONTENT_OF_BITUMEN to allow entry of values greater than 9.9. Update forms and QC as necessary. Do the same for this field in the TST_AE01S table.

Created SPR3565EnlargeAshContentOfBitumen.sql to widen the column in the tables. Modified TST_D to increase the output column width from 4 to 5. Also added QC range (0.0 - 2.0) to TST_AE01S.ASH_CONTENT_OF_BITUMEN (level D). Updated forms TST_AE01 and TST_AE01S to allow larger numbers (0.0 - 99.9) and to validate sample_no against TST_SAMPLE_BASIC_INFO view.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-894	3707	RIMS		9/1/2006	9/15/2006

Description

Moisture and bulk unbound base/subgrade samples obtained during the materials action plan were logged on sampling data sheet 5. The RIMS does not include a SDS05 entry form. Data entry for moisture samples obtained form the 4 in core hole (C type location) and bulk and moisture samples obtained from the 12 in bore hole (B type location) was attempted via RIMS form S02. The bulk and moisture samples could not be entered due to "Unhandled exception" error. The bulk and moisture samples obtained from the 12 in bore hole could be entered via the RIMS form SDS12. There is no sampling data form in the RIMS that will allow the entry of the moisture samples from the 4 in "C" type location. The screen captures of the errors and copies of the sampling forms are attached to this SPR.

Resolution

Modified form TST_S02.fmb to commit one set of changes before updating diameter in the data block to avoid record locking issues. Region 3 says they are now able to enter the data.

M-3706	3706	TST QC, Level D		8/28/2006	9/12/2006

Description

The D level check for TST_PC03.DIAMETER needs to be widened to allow 90-160 mm.

Resolution

Updated TST_D.pc to allow range 90 - 160 mm in TST_PC03.DIAMETER field.

SPSM

M-3694	3694	SPS_CUT_FILL_LOCATIONS		8/14/2006	9/12/2006

Description

1. Add level E QC to SPS_CUT_FILL_LOCATIONS as follows:
If section_cut_fill=4 (combination of cut-fill) in the SPS_PROJECT_STATIONS table, then a matching record should exist in the SPS_CUT_FILL_LOCATIONS table, with no restriction on experiment category.

2. This should replace the level E QC checks between these tables. The error message is: matching record does not exist in SPS_CUT_FILL_LOCATIONS for section_Cut_Fill = 4

3. Also create a backwards check that says if a record exists in SPS_CUT_FILL_LOCATIONS, then the matching record in SPS_PROJECT_STATIONS should have an entry of 4.

Resolution

Modified SPS_MISC.pc to make the following changes:
1. This check already exists (E-107)
2. Removed check E-106, requiring a record for each SPS 1,2,8,9 project in SPS_CUT_FILL_LOCATIONS.
3. Created new check, SPS_CUT_FILL_LOCATIONS-E-102 to check PROJECT_STATIONS for record with CUT_FILL=4.

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

Transverse Profile Cross Slope

3-885	**3643**	**CrossSlopeQC.exe, Level D, Level E**		**7/20/2005**	**8/22/2006**

Description

Report would be easier to use if data could be printed in section, survey date, and point loc order (see attached excerpt).

Resolution

Added SURVEY_DATE and POINT_LOC to the ORDER BY clause on Level D and E select statements.