Memorandum

U.S. Department
Of Transportation

Federal Highway Administration

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive IMS-111
IMS Release Version 2003.11

Date: November 5, 2003

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 IMS-111: Release Version 2003.11. This pertains to implementation of the IMS software upgrade from version 2003.09 to 2003.11. IMS upgrade instructions are provided in attachment 1. The software change notice for this release is contained in attachment 2, which lists all the changes made since the last software release. 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:wlin:493-3153:11/05/03
File: c:/wendy/directives/ims/111dir.doc
cc:
Dr. 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-111

Date: November 5, 2003 **Supersedes**: I-110

Subject: IMS Software Release Version 2003.11

This directive authorizes implementation of the IMS software upgrade from version 2003.09 to 2003.11. Upgrade instructions are provided in attachment 1. The upgrade shall be completed by November 14, 2003.

Software change notice 85, contained in the attached file SCN_85.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 contains resolutions to many PGBinder and other miscellaneous SPR's. Please read the software change notice carefully to assess impacts on database operations.

Version 2003.11 of the IMS software will be delivered via e-mail in a password protected file named PASSWORD_20031104.zip. This file contains the following zip files:

- VR2003_11.ZIP – A zip file with the batch file (VR2003_11.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 a complete 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 2003.11 Release

1. Shutdown the Data Extraction Service.

2. Shutdown ORACLE in normal mode and backup server.

3. Bring ORACLE up.

4. Create the subdirectory RELEASES\VR2003_11 (the directory RELEASES should already exist).

5. Copy and unzip the VR2003_11.ZIP file to the RELEASES\VR2003_11 subdirectory created in step 4.

6. From a DOS prompt in the RELEASES\VR2003_11 directory, type

   `VR2003_11 dbausername/dbapassword@instance`

   to begin the software update. This batch file will export tables MON_DRAIN_MASTER and TST_ISD_MOIST and will run the miscellaneous scripts listed in table 1, below.

7. The scripts make some table changes. Check that export files DRAIN.dmp and ISD_MOIST.dmp were created successfully and verify that all scripts completed successfully by reviewing all *.lis files (refer to list, below). Ignore errors about dropping non-existent objects.

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. The OracleVersions.zip file is included for reference only. Extract these files into the IMSVersions directory (will create a IMSVersions\OracleVersions\vr200311 subdirectory).

Table 1. Scripts run from the VR2003_11.bat file.

Script filename	**Description**	**Output file**
UpdateLTPPDD	Updates the LTPPDD table with miscellaneous changes.	UpdateLTPPDD.lis
SPR3350	Updates the LTPPDD to set QA_MINIMUM to 'X' when the column can not be null.	SPR3350.lis
SPR3353	Recalculates the TST_ISD_MOIST. ISD_WET_AVG for all records.	SPR3353.lis
SPR3369	Adds field FAULT_MEASURE_DEVICE to the MON_DIS_JPCC_FAULT table.	SPR3369.lis

Script filename	Description	Output file
SPR3372	Add LAB_CODE for Wyoming DOT, 5621.	SPR3372.lis
SPR3375	Alter fields TST_HOLE_LOG.WIDTH and .LENGTH from NUMBER(2,0) to NUMBER(3,1)	SPR3375.lis
SPR3376	Modifies size of fields MON_DRAIN_MASTER.END_OFFSET and MON_DRAIN_MASTER.PROJECT_STATION and removes MON_DRAIN_CONDITION. TRAFFIC_CONTROL from table.	SPR3376.lis
SPR3385	Allows nulls in many TST_AE09_MASTER fields: PEAK_LOAD_%, FAIL_%. Update LTPPDD.QA_MINIMUM for these fields.	SPR3385.lis

Attachment 2

Software Change Notice 85

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

Administrative

4-3372 **3372** **Lab Code** **10/3/2003** **10/17/2003**

Description

Add lab code for Wyoming DOT, 5621.

Resolution

Lab Code added. SQL script SPR3372.

S-3350 **3350** **Data Dictionary** **7/8/2003** **10/31/2003**

Description

Modify the QA MINIMUM field in the Data Dictionary to have an 'X' for all non-null fields as well as all fields that have a level C check defined.

Resolution

Created SPR3350.sql to set the QA_MINIMUM field in LTPPDD.

Data

S-3370 **3370** **TST Data** **8/4/2003** **10/2/2003**

Description

Before we can apply VR 2003.07 to the central database, we must make the same corrections to the TST_AC01_LAYER and TST_AE08_MASTER tables that were applied to the regional databases. Please send us an email detailing the changes made in order to apply VR 2003.07. If you have any scripts prepared, those would be helpful. See attached for a list of records in the central database that need correction.

Resolution

Applied all scripts to update TST_AC01 and TST_AC01_LAYER and TST_AE08_MASTER.

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

Manual Distress

M-3369 **3369** **JPCC Fault table** **9/16/2003** **10/21/2003**

Description

Create a new field in MON_DIS_JPCC_FAULT named FAULT_MEASURE_DEVICE.Description: Device used to measure faulting.Format: VARCHAR2(1)Codes: FAULT_MEASURE_DEVICE·□Add a level C check on the new FAULT_MEASURE_DEVICE field.·□Create the FAULT_MEASURE_DEVICE code in CODES and CODETYPES:·□Create an entry in LTPPDD for MON_DIS_JPCC_FAULT. FAULT_MEASURE_DEVICE·□The current description for MON_DIS_JPCC_FAULT_SECT should be updated to indicate that devices other than the Georgia Faultmeter may have been used. The table description for MON_DIS_JPCC_FAULT_SECT should be changed to the following: Contains section faulting statistics from transverse joints and cracks using data from MON_DIS_JPCC_FAULT table.

Resolution

Added new field MON_DIS_JPCC_FAULT.FAULT_MEASURE_DEVICE and made all specified changes/additions (see script SPR3369.sql). Modified DIS_QC.pc to include a level C check for this field.

Drainage

M-3376 **3376** **MON_DRAIN** **10/7/2003** **10/16/2003**

Description

Make changes to MON_DRAIN as detailed in the 10/7/2003 e-mail from Travis Thompson.

Resolution

Modified MON_DRAIN forms and QC as specified.

PG Binder

3-761 **3246** **TST.AE09** **MACTEC** **4/24/2003** **11/3/2003**

Description

A single sample was tested at two different temperatures for an SPS9 project. Data entry form TST_AE09 does not allow for multiple tests on the same sample. Data entry for these cases has halted pending direction on approprate corrective action or new data entry form.

Resolution

Form already allows entry of multiple tests on the same sample, where test_temp is different. Entry process described to region 3. No change required. SPR originally complete on 1/10/2003. Re-opened on 4/24/2003. New resolution received on 5/7/2003 - TEST_TEMP will become a key field in the TST_AE09_* tables.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-813	3363	PGBinder.exe, Level C		9/2/2003	9/26/2003

Description

A number of rows in TST_AE08_MASTER, TST_AE09_MASTER, TST_SP01_MASTER and TST_SP02 are hanging at record status "B," but nothing shows up on the PGBinder level C output. Note also that "Begin Status" and "End Status" on the report-end metrics section are "A" to "B." See attached report excerpts.

Resolution

Cannot reproduce problem. These records are not selected by the QC program for processing at the region, but are selected and processed correctly on the central system.

Added "DEBUG10046" option to PGBINDERQC to run a 10046 Trace. Corrected copy and paster errors in PGBINDERQC identified by the 10046 trace.

Rehabilitation

4-453	3378	RHB_E	MACTEC	10/6/2003	10/18/2003

Description

Multiple sections are failing the RHB_E QC (see attachment for example error message). The QCs are checking for data in RHB_CRACK_SEAT_PCC, SPS6_CRACK_SEAT_PCC, or SPS9_LAYER when IMP_TYPE=46 in RHB_IMP. Data has been entered in the SPS6_CRACK_SEAT_PCC table for these sections (example IMS output is attached). However, the sections are still failing the check for the other two tables which are not required for SPS-6 test sections.

Resolution

Warning W-53a-c modified to check for records in only one of the 3 possible tables.

M-3386	3386	RHB_E.exe		10/29/2003	10/31/2003

Description

Add the following level E RHB QC:

Table: RHB_IMP

For each record in RHB_IMP, a record must exist in RHB_LAYER with matching STATE_CODE, SHRP_ID, and CONSTRUCTION_NO.

Error message: RHB_IMP-E-131, for each record in RHB_IMP, a matching record must exist in RHB_LAYER.

Table: RHB_LAYER

For each STATE_CODE, SHRP_ID, and CONSTRUCTION_NO in

Resolution

Added level E QC checks to RHB_E.

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

RHB_LAYER, there can be only one value for DATE_COMPLETE.

Error message: RHB_LAYER-E-101, only one DATE_COMPLETE value can exist per construction event.

For the RHB_LAYER check, if there is more than one DATE_COMPLETE per CONSTRUCTION_NO, then all the entries for that CN need to be flagged.

Seasonal Monitoring Program

S-3219 **3219** **SMP QC** **MACTEC** **12/20/2002** **10/30/2003**

Description

Add level D check to check for '0000' time stamp in each SMP table. Should value be changed to '0001' in QC program, or should an error be generated for the region to investigate?

Resolution

Added a level D check for TIME = '0000' to SMP_D.exe.

SPS5

3-807 **3345** **SPS5.SHEET.08** **MACTEC** **7/1/2003** **9/20/2003**

Description

In checking data relationship integrity, found rows in SPS5_PMA_COMPACTION and SPS5_PMA_ROLLER that have no match in SPS5_PMA_CONSTRUCTION. After some struggles with the form, managed to delete all data associated with the section (created "dummy" parent rows, etc.) and proceeded to reenter it. This particular section had two compaction operations for two separate layers on the same day (see attached scanned forms). On attempting to enter the construction data for the second layer, found that the data entered for the first layer had been retrieved. Changing the data merely overwrites the row in SPS5_PMA_CONSTRUCTION with data for the new layer – leaving newly orphaned rows in SPS5_PMA_ROLLER and SPS5_PMA_COMPACTION. See attached before and after data, scanned forms, and screen shots. Same problem may also occur with SPS1.SHEET.10, SPS2.SHEET.14, SPS6.SHEET.08, SPS8.SHEET.10 and SPS9.SHEET.13.See SPR 3-745.

Resolution

Added LAYER_NO to query in CONSTRUCTION block of SPS5.SHEET.08 and SPS6.SHEET.08. Other forms listed have different key fields.

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

Transverse Profile

3-799 **3330** **TPROF.exe, Level E** **5/29/2003** **10/16/2003**

Description

Several rows in MON_T_PROF_DEV_CONFIG fail level E QC, but nothing appears on the report for this table. See attached data spreadsheet and example report.

10/6/2003 Addendum: TSSC Resolution reads: "Cannot reproduce the problem. Program has been modified to process supplementals records in the meantime. RSC should run the new executable and resubmit SPR if this is still a problem." We still have 17 rows in this table at level D. The only row now printing on the level E QC output is for a supplemental section (see attached report excerpt and data).

Resolution

Cannot reproduce the problem. Program has been modified to process supplementals records in the meantime. RSC should run the new executable and resubmit SPR if this is still a problem.

SPR resubmitted/re-opened on 10/6/2003

DEV_CONFIG records are only processed when MASTER records are processed. Master records were upgraded to E so no DEV_CONFIG records are processed/listed in the output. DEV_CONFIG records will be listed in the output before MASTER records are upgraded. No TSSC action required.

Traffic Analysis QC

1-125 **3329** **Traffic Analysis QC** **MACTEC** **5/27/2003** **10/30/2003**

Description

After completing the Compute IMS data portion of the Analysis software, the Traffic_Analysis_QC.cmd executable was run to Quality Control the traffic data and move to Level E. A large portion of the data is failing Level E checks and keeping the data at Level D. The TRF_MONITOR_AADT and TRF_MONITOR_LTPP_LN tables are having Intra-Modular Checks E-103, E-104, and E-105 for two, four and six lane highways fail the Level E checks.341031 1999 TRF_MONITOR_AADT E-103: Annual trucks estimated excessive for 4-lane roadway 341031 1999 TRF_MONITOR_AADT E-104: Average weekday trucks estimated excessive for 4-lane roadway 341031 1999 TRF_MONITOR_AADT E-105: Total trucks counted is large for 4-lane roadway Due to a large amount of data being held at Level D, North Atlantic Region would request that these QC Checks/Ranges be re-evaluated to allow larger estimates in the data.

Resolution

Fixed syntax error. All ranges were correct.

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

Materials Testing

1-128 **3381** **TSTL05AS.fmx** **10/14/2003** **10/18/2003**

Description

There are two IMS forms used in the entry of the TST_L05A data form. The TST_L05A.FMX is used for entering all GPS sections. The TSTL05AS.FMX is used for entering all SPS sections. In the latest IMS release (VR2003.09), the form was changed to allow entry of a new two digit MEASURE_TYPE code (10). Only the TST_L05A.FMX form was provided in the email sent to the regions by the TSSC on September 22, 2003. An updated form TSTL05AS.FMX is required to allow entry of this new two digit code.

Resolution

Modified form TSTL05AS to allow MEASURE_TYPE code 10.

3-810 **3352** **TST.SHEET.S05** **8/7/2003** **11/3/2003**

Description

TSSC recently brought to our attention a large number of rows in table TST_SAMPLE_LOG that have no match in TST_HOLE_LOG (being the "parent" record). On investigation, found that most of the orphaned rows are for shoulder probe data, entered via this form. The form does not require entry to the second block (table TST_HOLE_LOG) before saving data to the table for the third block (TST_SAMPLE_LOG) (see attached screenshot). Since this orphaned data is an error condition, it seems reasonable for the form to be modified to require entry of the TST_HOLE_LOG. Also, pressing tab on "Auger Date" field causes display of message: "Pavement section undefined…," which is incorrect.

Resolution

Corrected error message for null Auger Date field. Force entry of Auger Date to ensure record inserted in TST_HOLE_LOG table. Added level E check to TST_E (TST_SAMPLE_LOG-E-1).

3-811 **3353** **TST.SDS.08** **8/7/2003** **10/18/2003**

Description

Attempted to correct/enter data. Form raises error 40508: Oracle error: unable to INSERT record (see screenshots of form and database error). Problem was resolved after deleting second block data (previously saved) and reentering all data at once.

Resolution

Modified form to require entry in TST_HOLE_LOG block before leaving form (if data entered in TST_ISD_MOIST block). Also corrected calulation of ISD_WET_AVG. SQL script SPR3353 will update TST_ISD_MOIST.ISD_WET_AVG in regional databases.

3-816 **3368** **TST_AE08** **9/11/2003** **11/3/2003**

Description

Resolution

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
		Insert to TST_AE08_DATA does not include SOAK_TIME which as of 3.07 is a required data item (see attached screen shot). Unable to enter data.	Corrected form to include SOAK_TIME in data table. Modified layout of form to group key fields at the top of the form. This will ensure that one master record is selected. Also, modified master/data relationship in form to display only selected data records. Made similar modifications to forms TST_AE07 and TST_AE09.		
3-818	**3375**	**TST.SDS.12, Table TST_HOLE_LOG**	**MACTEC**	**9/30/2003**	**10/17/2003**
Description		Data collection guide instructions (SPS 8, 9) for "Sampling Data Sheet 12 – Bulk Sampling of Subgrade and Unbound Granular Materials" call for "Excavation Size" (Pit Size) length and width to be recorded to the nearest half foot. The data entry form and table allow entry of integer data only. The data entry form also displays message: "Enter length to nearest foot." -- contrary to data collection guide. Table and form should be modified to allow entry of data in the precision in which it has been collected. A review of the existing LENGTH and WIDTH data in TST_HOLE_LOG suggests that some of the values may have been entered as inches.	**Resolution**	Created SPR3375.sql to change fields to NUMBER(3,1) to allow entry of 1 decimal place. Modified form to allow entry of 1 decimal place in both LENGTH and WIDTH fields.	
3-819	**3379**	**TST.SHEET.AC01**	**MACTEC**	**10/10/2003**	**10/20/2003**
Description		Unable to enter data for layers of type "EF" – Engineering Fabric (see attached screenshot), between two layers of AC. Since a number of rows for layers of this type already exist in table TST_AC01_LAYER, it seems as though the form allowed entry of this data at one time. The form should be modified to again allow entry of this data, or TSSC should provide alternate direction (e.g. to include deleting all existing data in TST_AC01_LAYER for layers of this type.)	**Resolution**	Form only allows layer types AC and TB. Added EF to allowed layer types.	
M-3382	**3382**	**TST_AE07**		**10/15/2003**	**10/17/2003**
Description		In the AE07 form, new records would not get created in the DATA table because of a null in test_run. The test run field was populated on the form, but it looked like the records it was trying to create in the DATA table were not getting a test_run assigned. When I created a MASTER record only, everything worked fine.	**Resolution**	TST_AE07 form modified so that TEST_RUN is populated on INSERT and UPGRADE operations.	

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
M-3385	3385	TST_AE09 Table		10/29/2003	10/30/2003

Description

Remove the following non-null constraints:

TST_AE09_MASTER
- PEAK_LOAD_AVG
- PEAK_LOAD_STD
- FAIL_STRESS_AVG
- FAIL_STRESS_STD
- FAIL_ELONG_AVG
- FAIL_ELONG_STD
- FAIL_STRAIN_AVG
- FAIL_STRAIN_STD

Each of these constraints should be replaced with a level C check.

Resolution

Created SPR3385.sql to alter the table and update LTPPDD. Updated PGBINDERQC to add level C checks and modified form to allow null values.