Memorandum

U.S. Department
of Transportation

**Federal Highway
Administration**

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive IMS-108
IMS Release Version 2003.05

Date: June, 17 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-108: Release Version 2003.05. This pertains to implementation of the IMS software upgrade from version 2003.03 to 2003.05. IMS upgrade instructions are provided in Attachment 1. The software change notice for this release (SCN 82) is Attachment 2 and is included in the file SCN_82.pdf. 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)

PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area: IMS **Directive Number:** I-108

Date: May 6, 2003

Subject: **IMS Release Version 2003.05**

This directive authorizes implementation of the IMS software upgrade from version 2003.03 to 2003.05.

IMS upgrade instructions are provided in Attachment 1. The software change notice for this release (SCN 82) is Attachment 2 and is included in the file SCN_82.pdf. The upgrade shall be completed by May 16, 2003.

SCN 82 lists all of the changes made to the IMS since the last software release. This notice should be filed in the Operator's Log. SPRs received by May 1 that relate to TST, PGBinder, SPS9, and Mon Category have been addressed. All entry forms, filters, utilities, and QC programs modified since March 28, 2003 have been included in this release.

Version 2003.05 of the IMS software will be delivered via e-mail in a password protected zip file (password_20030506). The files included in the release are the following:

- VR2003_05.ZIP – A zip file with the batch file (VR2003_05.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.

All changes are documented in the Software Change Notice No. 82.

Prepared by: TSSC

Approved by:

Aramis Lopez, Jr.
LTPP Operations, Team Leader

Attachment 1

Instructions to Apply VR 2003.05 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_05 (the directory RELEASES should already exist).

5. Copy and unzip the VR2003_05.ZIP file to the RELEASES\VR2003_05 subdirectory created in step 4.

6. From a DOS prompt in the RELEASES\VR2003_05 directory, type

   `VR2003_05 dbausername/dbapassword@instance`

   to begin the software update. This will run miscellaneous scripts listed in Table 1, below.

7. The scripts make some table changes. 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\vr200305 subdirectory).

Table 1. Scripts run from the VR2003_05.bat file.

Script filename	Description	Output file
SPR3269	Makes fields nullable in SPS9_SP_PMA_MIXTURE_PROP table.	SPR3269.lis
SPR3273_sds	Switches order of sheets 1 and 2 listed in SPS miscellaneous menu.	SPR3273_sds.lis
SPR3273	Alters field SPS_GENERAL.DRAINPIPE_DIAMETER to allow entry of values > 9.9.	SPR3273.lis
SPR3284	Updates data dictionary to show that units for TST_AE09_MASTER.ELONG_RATE	SPR3284.lis

Script filename	Description	Output file
	are mm/min.	
SPR3292and3298	Adds lab codes 9041 and 1231.	SPR3292and3298.lis
SPR3299	Alters fields TST_AE09_MASTER.FAIL_STRAIN_AVG and TST_AE09_DATA.FAIL_STRAIN to Number(4,2).	SPR3299.lis
SPR3301	Alters DATE_COMPLETE fields in SPS9_PMA_COMPACTION and ROLLER to be NOT NULL.	SPR3301.lis
SPR3303	Adds lab codes 5122, 8721, 8921.	SPR3303.lis

Attachment 2

Software Change Notice 82

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

Administrative

1-3303 **3303** **Lab Codes** **4/25/2003** **4/25/2003**

Description

Add lab codes for Region 1.

Resolution

Created script SPR3303.sql to add these three lab codes to the CODES table.

2-3292 **3292** **Lab Codes** **4/10/2003** **4/24/2003**

Description

Add lab code for Saskatchewan Highways & Transportation Lab in Regina, Saskatchewan.

Resolution

Script created to add lab code: SPR3292and3298.sql

4-3298 **3298** **Lab Codes** **4/21/200** **4/24/2003**

Description

Add new lab code for PRI Asphalt Technologies, inc in Tampa, FL.

Resolution

Script created to add lab code: SPR3292and3298.sql

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

Browser

3-749 **3198** **BROWSER** **12/4/2002** **5/2/2003**

Description

1. Incorrect SQL syntax produced on table TRF_MONITOR_VEHICLE_DISTRIB, TRF_MONITOR_AXLE_SUMMARY. Browser assumes this is a date column and generates "…DATE_YEAR=to_date('1998','dd-mon-yyy')"
2. Need "Year option for upgrades on TRF_MON_EST_ESAL, TRF_HIST_EST_ESAL.
3. Dragging on the row divider allows viewing of only part of the comments and generated SQL
4. Option to inlcude "commit" instead of "exit" at the end of each generated script would enhance usability

Resolution

Browser will be modified to run live on the database in the future. Until then, RSCs should modify Browser scripts to run properly. No TSSC action required.

3-706 **3032** **BROWSER.exe, RHB QC** **LAW PCS** **11/13/2001** **5/2/2003**

Description

For RHB QC, BROWSER output for level C QC (update where record_status='B') does not work for newly entered or edited items which are automatically placed at A. Everything works if one manually edits the BROWSER SQL upgrade output file to show "record_status <= B", but this should not be necessary. There is no level B QC for RHB which would place all new and revised records at B.

For the record, in QA_SELECT, B_STATUS and C_STATUS are both set to 'A', but the BROWSER upgrades for level C QC must be appliedbefore the QC is run, so this does not help.

Resolution

Browser will be modified to run live on the database in the future. Until then, RSCs should modify Browser scripts to run properly. No TSSC action required.

3-649 **2898** **Browser** **LAW PCS** **3/26/2001** **5/2/2003**

Description

A new or edited record in the IMS has a RECORD_STATUS = 'A'. Browser upgrades for level C set record from B to C, but since level B QC doesn't exist for most, these records are not upgraded. Browser should be changed to generate SQL that upgrades records less than or equal to (<=) B.

Resolution

Browser will be modified to run live on the database in the future. Until then, RSCs should modify Browser scripts to run properly. No TSSC action required.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-641	2860	BROWSER.EXE		1/16/2001	5/2/2003

Description

SPS_PROJECT_STATIONS upgrade SQL shows SHRP_ID as the SPS project ID, because the "section" in the QC output is the project id. The "test section" heading has the actual SHRP_ID of the section being upgraded. The only immediate fix is to manually edit the generated SQL statement themselves, changing the SHRP_ID to the actual section SHRP_ID. (Manual edits were applied to the BROWSER SQL output and run because the section length restictions (152-153 m) were acknowledged at the RCOC meeting as being too strict.

Resolution

Browser will be modified to run live on the database in the future. Until then, RSCs should modify Browser scripts to run properly. No TSSC action required.

Climatic

S-3291	3291	CLM data	Mactec	4/8/2003	4/15/2003

Description

The deletion of 050900 and 124102 was issued in Directive I-75 (May 2000) and that of 124153 was issued in Directive I-91 (Nov 2001).

Resolution

Deleted the data for the noted section from the CLM_VW_* tables after exporting all CLM tables.

Monitoring Category

3-746	3190	MONCATQC.EXE		11/25/2002	4/29/2003

Description

Experiments moved from SPS to GPS are producing errors out of MONCATQC level E. Error report attached.

Resolution

The date was incorrect because no matching experiment section records were found. The code was changed to print 'Not Found' in that case. Also, due to a "GPS_SPS='G'" condition being left off the subquery that returned the minimum construction_no, the wrong date could be returned. That condition was added to the subquery.

3-750	3199	MONCATQC.EXE, Level E		12/4/2002	5/1/2003

Description

All records failing monitoring category QC are returned to level D even after having been upgraded to level E. This is not consistent with other level E QC programs. It's helpful to view all QC problems, but if the record is at level E, it should remain at that level.

Resolution

Modified MON_CATEGORY specs, received 5/1/03, specify that all records at E should be set back to D before running level E checks. No TSSC action required.

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

PADIAS

2-70 **3296** **Padias deletion form** **Mactec** **4/16/2003** **5/1/2003**

Description

We are unable to delete PADIAS42 data from the filter deletion screens. Version 2003.03 tool out the temporary editing screens for PADIAS42, so now we cannot delete 42 data from RIMS.

Resolution

Reference 3-765. Regions should continue to submit SQL to remove records from PADIAS42 tables. No TSSC action required.

PG Binder

1-124 **3299** **TST.AE09** **Mactec** **4/22/2003** **5/2/2003**

Description

The Percent Peak Strain value is limited to a percentage under 10. The field length is set in the IMS as (3,2). We have values which are larger than the field allows (see attached data form). NARO requests that the field length be increased to (4,2) to allow larger values to be input. Currently no data from a data sheet can be entered into the IMS if the value exceeds the field length.

Resolution

Created SPR3299.SQL to alter the columns.

3-780 **3284** **PGBinderQC.exe** **LAW PCS** **3/27/2003** **5/2/2003**

Description

TST_AE09_MASTER rows are all failing level D QC on ELONG_RATE (in addition to acknowledged “PG Low Temp” problem). This data is reported in mm/sec. on the data collection form. QC apparently expects mm/min. (see attached report excerpt.)

Resolution

Created SPR3284.sql to update the units in LTPPDD. Because the QC did not print the units, no change is necessary. Updated the PGBinder specifications. Modified TST_AE09 form to show correct units. RSCs should re-enter data in units of mm/min.

3-779 **3283** **PGBinderQC.exe, level E** **LAW PCS** **3/27/2003** **5/2/2003**

Description

1. TST_AE09_DATA rows are all failing level E QC according to check E-101: : “Failure stress (FAIL_STRESS) is not equal to peak load (PEAK_LOAD) divided by specimen area (SPECIMEN_AREA in TST_AE09_MASTER for matching TST_ID and AGING_TYPE).” Specimen area is recorded on the data collection form in mm^2 and peak load in N. Upon review, it appears that mm^2 should be converted to m^2 and N to kN in the QC program calculation. See

Resolution

Changed the TST_AE09_DATA E-101 criteria and the E-102 message in PGBINDERQC and its specification document.

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

attached report excerpt and example data/calculation.2. Message for QC check E-102 reads in part: "…Failure strain (FAIL_STRESS)…" Field referenced should be FAIL_STRAIN for clarity.

RIMS

2-71 **3297** **RIMS** **4/16/2003** **4/18/2003**

Description

We cannot exit RIMS from the Data Entry/Edit Menu. The following error shows up on the status bar:FRM-40108: No such form: SHRPMENN.

Resolution

Del_pad menu form set global.menu_1 and global.menu_2 to SHRPMENN. Corrected DEL_PAD form to set global to SHRPMENR, and now RIMS works fine.

Seasonal Monitoring Program

2-60 **3167** **SMP_LAYOUT form** **Mactec** **4/3/2003** **5/2/2003**

Description

When entering in changes for site at 271018, unable to enter changes beyond CN = 2 (trying to enter CN 3 and 4). Form returns the error:

FRM-40735: WHEN-BUTTON-PRESSED trigger raised unhandled exception ORA-00001.

I checked the table. According to the form, I am entering a new CN and install date. This error is related to entering duplicate values in an index.

Resolution

Incorrect entries in SMP_LAYOUT_INFO and related tables. RSC will correct. No TSSC action required.

2-64 **3191** **SMP Sheet 2** **LAW PCS** **11/19/2002** **5/4/2003**

Description

Entries into sheet 2 with a negative overlay thickness raised error: FRM-40735: When button pressed….
Also, entering a negative number only permits an accuracy of 0.01m for overlay thickness, this may cause inaccuracies

Resolution

Error message displayed because data for section/CN is already in all tables affected by this form except SMP_LAYOUT_INFO. Form modified to allow negative values recorded to the thousands to be entered. Script SPR3191.sql created to delete records from appropriate tables. Region 2 should run script and then add CN=2 with new form.

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

SPS9

3-787 **3301** **SPS9.SHEET.13** **Mactec** **4/22/2003** **5/2/2003**

Description

An incorrect layer number was originally reported for 350901 compaction data – 7. Later (but before implementation of release 03.03), the data was deleted for layer 7 and reentered for layer 5 (see attached sample data) . On running CN_SPS9 process, noted errors reported for tables SPS9_PMA_COMPACTION and SPS9_PMA_ROLLER (see excerpt). It appears that deleting the errant layer removed the row from SPS9_PMA_CONSTRUCTION but did not remove the matching rows from SPS9_PMA_COMPACTION and SPS9_PMA_ROLLER. (Subsequently, release 03.03 operation SPR3267.sql did not update the orphaned rows because there was no matching row in SPS9_PMA_CONSTRUCTION.)·□If not already implemented in release 03.03, form should be modified to prevent delete from SPS9_ PMA_CONSTRUCTION until matching rows in SPS9_PMA_COMPACTION and SPS9_PMA_ROLLER have been deleted via a sequence of user-initiated delete operations, or the form should delete rows in the related tables, or appropriate keys and a delete cascade should be defined on the tables. ·□DATE_COMPLETE columns in SPS9_PMA_COMPACTION and SPS9_PMA_ROLLER are allowed to be null. If DATE_COMPLETE in these tables and SPS9_ PMA_CONSTRUCTION are required to match, then they should all have not-null constraints.

Resolution

Form deletes from all tables already. Created SPR3301.sql to add NOT NULL constraints.

3-786 **3300** **SPS9_D.exe** **4/22/2003** **5/1/2003**

Description

Errors reported on ridge height value for table SPS9_MILLED_SECTIONS (see attached report snip). QC requires value to be >= 0. Database value is 0 (see example data).

Resolution

Changed range check minimum from 0.1 to 0.

3-785 **3295** **SPS9_BC.exe, Level C** **4/15/2003** **4/30/2003**

Description

QC output lists no errors for table SPS9_LAYER yet there are rows (for non-supplemental sections) at level B.

Resolution

The update statement had "Record_status < 'B' in the WHERE clause for SPS9_LAYER. This was changed to "=". Also, SPS_ID and SPS9_PMA_MIX_DES_PROP had "Record_status <='B'". These were changed to "=" as well.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-784	3288	SPS9_D.exe, SPS9.SHEET.08	Travis Thompson	3/28/2003	5/1/2003

Description

Range allowed by SPS9_D QC for "PGLow temp is "10 to 46" and the data entry form allows entry of only positive integers (see attached report excerpt and screen shot). "PGLow Temp" range for PGBinderQC and related forms is "–46 to –10." The data would be more consistent and data entry processes less fraught with error if the PG_LOW_TEMP value could be entered as a negative value to SPS9.SHEET.08 and the QC check modified accordingly.

Resolution

Changed range from 10 - 46 to -46 - (-10). This was done under SPR 3287 (3-783).

3-783	3287	SPS9.SHEET.08		3/28/2003	5/1/2003

Description

Data collection form for this data does not indicate which of the "Asphalt Grade" temperature fields is the "high" and which is the "low" value (see attached example). As appeared to be standard for other forms recording such data (see screen shots for TST.AE07, TST.AE08, TST.AE09), the assumption was made that the high value appeared first and the data entered accordingly (see screen shot for SPS9.SHEET.08). (Level D QC report lists columns in High, Low order as well.) Unfortunately, in this case, the order of the values is reversed – the first entry is written into PG_LOW_TEMP and the second into PG_HIGH_TEMP (see example data rows.) It would be more consistent with other forms if this form were modified to switch the order of the fields.

Resolution

High PG Grade temperature should always be first. Modified forms to show high value first and added labels to both entry boxes for clarity. Also constrained entry on PG_LOW_TEMP to a negative value. Changed QC range on PG_LOW_TEMP from 10 - 46 to -46 - (-10). Modified the following four forms: TST_AE07, TST_AE08, TST_AE09, SPS9_SP_PMA_AC_PROPERTIES.

3-778	3282	SPS9_E.exe	LAW PCS	3/27/2003	4/30/2003

Description

SPS9_MILLED_SECTIONS data is failing level E check because "LAYER_NO_OF_REPLACEMENT" is not above "original surface layer" (see attached report excerpt). According to QC documentation, "original surface layer" references INV_LAYER.LAYER_NO for the linked GPS section. None of the SPS9 projects in the Southern Region have linked GPS sections. However, inventory data IS recorded in INV_LAYER at the project level for SPS9O sections. It seems reasonable that the QC check should look directly in INV_LAYER for project level data.

Resolution

Modified SPS9_E qc to check INV_LAYER table for project level SPS records.

4-428	3269	SPS9.SHEET.10	LAW PCS	3/6/2003	5/1/2003

Description

Resolution

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
Receive error 'FRM-40508: ORACLE error: unable to INSERT record' while inserting data into SPS9 Sheet 10. Cannot insert NULL value into BULK_SPEC_GRAVITY_MEAN.			Created SQL script SPR3269.sql to remove the constraints. SPS9_BC.exe already had "C" level Checks for these three fields. No change required. Form (SPS9_SP_PMA_MIXTURE_PROP) was modified to accept null values in these 3 fields.		

SPSM

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
1-121	3273	SPS.SHEET.2	LAW PCS	3/7/2003	5/2/2003

Description

Diameter of longitudinal pipes has a limit of 0-9.9 inches on form SPS.SHEET.2. We have data from SPS9 project 340900 wher they used 15 inch diameter drainpipes. This data item cannot be entered into the IMS because the field is fixed at 0-9.9. Please expand the field to allow entry of the 15 inch drainpipe used for this project.

Resolution

Modified SPS_GENERAL.DRAINPIPE_DIAMETER from Number(2,1) to Number(3,1). Modified form to allow entry of values greater than 9.9.

IMS Traffic

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
1-123	3294	TRF.SHEET.16		4/15/2003	4/15/2003

Description

Question #4 of Sheet 16 asks for all sensors installed in LTPP lane. Information is required in the OTHER box when YES indicated in OTHER sensors. However, the text is deleted upon leaving the OTHER box.

Resolution

Modified form to retain text in sensor description OTHER field.

Materials Testing

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-743	3183	TST_D QC			4/24/2003

Description

TST_L05B problem rows are reported multiple times with different columnar data printed in each set of rows - the first set has no description, the second set includes the description, the third set includes description but no record status (see rows marked in attached sample expurgated report).

It would also be helpful if the TST_L05A and TST_L05B rows were printed in section number order.

Resolution

Within an experiment, the records are in section order. Each experiment is processed separately. As for the duplicates, I was unable to duplicate the exact problem even after downgrading some records. From the results I obtained, the SPPR9TSTL05BD select statement does not seem to be poperly qualified. Therefore, it returns duplicate records. This is a similar problem to SPR 3101. I added the same conditions to the L05B where clause.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-772	3262	TST_D.exe		2/13/2003	4/25/2003

Description

Output for table TST_AC05 is misaligned after first row (see attached excerpt).

Resolution

Saved and restored the TSTAC05D column widths because its subroutines which process the continuation lines changed the column widths.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-747	3196	TST_D.EXE		12/4/2002	4/25/2003

Description

Errors are reporting on SPS9 sections, layer description 8, material typs 83 &79 (see attached). These should be valid for SPS9. Manual upgrades have been applied.

Resolution

Changed the range to 74 - 84.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-744	3184	TST_D			4/24/2003

Description

For some reported TST_L05A problem rows, material codes are printed in the "Measurements Type 2" column (see screen shots and expurgated QC report).

Resolution

The case statement for description 5 was missing a break statement and therefore printed the material codes twice.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
4-435	3307	SDS10A	Mactec	5/2/2003	5/4/2003

Description

Sheet SDS10A will not allow entry of a location number beginning with an 'H'. According to the SPS-9A Sampliong and Testing Guide (page 38), an 'H' is an aceptable location number for samples obtained from the Hot Mix Plant.

Resolution

Modified form to allow "H" in first character of Location number.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
P-3290	3290	TST_C.exe	Mactec	4/7/2003	4/21/2003

Description

While checking some program changes for Tommy, we discovered that TST_SS12 has no check or update statement in the TST_C.exe program. Therefore, the records are never getting to C and will not be updated by the TST_D program. Shall we add an automatic update in TST_C for this table? According to the QC Manual, there are no level C checks for this table.

Resolution

Added TST_SS12 to level C processing so records will get to C, so that the Level D checks will be run. This will allow records in this table to get to E.