Memorandum

U.S. Department
Of Transportation

Federal Highway Administration

6300 Georgetown Pike
McLean, Virginia 22101

Subject: **ACTION**: LTPP Directive IMS-109
IMS Release Version 2003.07

Date: November 4, 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-109: Release Version 2003.07. This pertains to implementation of the IMS software upgrade from version 2003.05 to 2003.07. 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:493-3153:11/04/03
File: c:/wendy/directives/ims/109dir.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-109

Date: November 4, 2003

Supersedes: I-108

Subject: IMS Software Release Version 2003.07

This directive authorizes implementation of the IMS software upgrade from version 2003.05 to 2003.07. Upgrade instructions are provided in attachment 1. The upgrade shall be completed by August 8, 2003.

The software change notice, contained in the attached file SCN_83.pdf, lists all of the changes made to the IMS software since the last software release. This notice should be filed in the Operator's Log. This release contains all QC programs that have been updated to process records for supplemental sections. The QC programs also had "instrumentation" added to aid in error checking and debugging. In addition, most SPRs received by July 20, 2003 that were related to TST, PGBinder, SPS9, and Mon Category were addressed. All entry forms, filters, utilities, and QC programs modified since May 6, 2003 have been included in this release.

Version 2003.07 of the IMS software will be delivered via e-mail in a password protected zip file (password_20030729). The files included in the release are the following:

- VR2003_07.ZIP – A zip file with the batch file (VR2003_07.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 2003.07 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_07 (the directory RELEASES should already exist).

5. Copy and unzip the VR2003_07.ZIP file to the RELEASES\VR2003_07 subdirectory created in step 4.

6. Two of the scripts called from the batch file VR2003_07 require data to be examined and corrected before they are run. SPR3306 makes TST_AE08_MASTER.SOAK_TIMES a primary key. Records with null values for SOAK_TIMES must either be deleted or the field populated in order for the change to the table structure to be made. SPR3342.sql adds a foreign key restriction between TST_AC01 and TST_AC01_LAYER. Therefore, all records in TST_AC01_LAYER must have a matching record in TST_AC01 for the restriction to be applied. Either delete records in TST_AC01_LAYER with no matching record in TST_AC01, or add a matching record in TST_AC01 for the matching record in TST_AC01_LAYER.

7. From a DOS prompt in the RELEASES\VR2003_07 directory, type

   `VR2003_07 dbausername/dbapassword@instance`

   to begin the software update. This will run the scripts listed in table 1.

8. The scripts make some table changes. Verify that all scripts completed successfully by reviewing all *.lis files. Ignore errors concerning dropping non-existent objects.

9. 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.

10. The OracleVersions.zip file is included for reference only. Extract these files into a subdirectory named IMSVersions\OracleVersions\vr200307.

Table 1. Scripts run from the VR2003_07.bat file.

Script filename	Description	Output file
SPR3306	Adds SOAK_TIME to the TST_AE08_DATA table and added foreign key.	SPR3306.lis
SPR3310	Added a LAYER_TYPE code of 'EF' for Engineering Fabric.	SPR3310.lis
SPR3313	Makes nullable the REG_* fields in TST_AE08_MASTER.	SPR3313.lis
SPR3317	Makes nullable the field TST_SP01_MASTER.MIX_MAX_SPEC_GRAV.	SPR3317.lis
SPR3316	Makes nullable the field TST_AE09_MASTER.FRACTURE_TYPE.	SPR3316.lis
SPR3318	Makes nullable two fields in SPS9_SP_PMA_MIXTURE_PROP.	SPR3318.lis
SPR3327	Creates new code SPS9_MINERAL_FILLER	SPR3327.lis
SPR3340	Added database trigger to PGBinder tables to clean up TST_LINK_SAMPLE and TST_LINK_LAYER when TST_IDs are deleted.	SPR3340.lis
SPR3342	Checks for orphans in TST_AC01_LAYER table. Adds constraint from layer table to TST_AC01 table to prevent future orphans.	SPR3342.lis
SPR3347	Add SURFACE_TEMPERATURE field to MON_DEFL_TEMP_VALUES table.	SPR3347.lis
UpdateLTPPDD.sql	Make various LTPPDD updates.	UpdateLTPPDD.lis

Attachment 2

Software Change Notice 83

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
Administrative					
3-782	**3286**	**EXP_QC.exe, Level E**		**3/28/2003**	**7/29/2003**
Description			**Resolution**		
See attached level E output. Message should be revised to read "…does not exist…"			Corrected error message.		
3-790	**3310**	**CODES (LAYER_TYPE)**		**5/6/2003**	**6/1/2003**
Description			**Resolution**		
We have a number of rows in TST_L05A and TST_L05B with LAYER_TYPE = "EF – Engineering Fabric." There is no corresponding entry in the CODES table.			Created SPR3310.sql to add code to CODES table.		

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

CN Assign

3-808 **3346** **cn_sps9.sql** **7/1/2003** **7/25/2003**

Description

In checking data relationship integrity, found rows in SPS9_PMA_COMPACTION and SPS9_PMA_ROLLER that have no match in SPS9_PMA_CONSTRUCTION. Found that rows in SPS9_PMA_CONSTRUCTION had a different construction number than the related “child” rows in the other two tables. CN_SPS9.SQL sets construction number in COMPACTION and ROLLER based on the max CN_ASSIGN_DATE <= DATE_COMPLETE. Construction number in SPS9_PMA_CONSTRUCTION is set based on the max CN_ASSIGN_DATE <= DATE_BEGAN. DATE_BEGAN is not in the COMPACTION and ROLLER tables. In this case, the DATE_BEGAN happened to occur several days before the CN_ASSIGN_DATE. It would seem that either SPS9_PMA_CONSTRUCTION.DATE_BEGIN or EXPERIMENT_SECTION.CN_ASSIGN_DATE need to be adjusted. But, for the sake of consistency, it would seem logical for CN_SPS9 to use a consistent date.

Resolution

Per Gary and Travis, no TSSC action required. RSC will need to correct CN_ASSIGN_DATE for this section.

S-3281 **3281** **CN Assign programs** **3/31/2003** **7/18/2003**

Description

New version of Oracle does not support the current use of the To_Date function as used in some of the CN Assign programs. These need to be modified slightly to allow the table name and date to be printed in the log file.

Resolution

Moved long string out of the TO_CHAR format.

Other changes: CN_SPS1.sql - Removed alter table statements which added CN to various tables; CN_SPS3.sql - See CN_SPS1.sql; CN_P07V2.sql - Added WHERE clause to update TST_AC07_V2_MR_SUM statement to prevent error.

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

Flexible Backcalculation

S-3213 **3213** **Flexible Backcalc QC** **12/23/2002** **6/12/2003**

Description

Error message(s) E–1 refers to MON_DEFL_FLX_NMODEL_LAYER table which doesn't exist. Assume this should refer to the MON_DEFL_FLX_BAKCAL_LAYER table instead.

Resolution

Corrected error message.

Falling Weight Deflectometer

4-451 **3347** **MON.01** **MACTEC** **7/13/2003** **7/28/2003**

Description

Directive FWD-27 directs the regions to collect infrared (IF) surface temperature measurements. The IMS data entry form does not currently allow entry of this data.

Resolution

Created SPR3347.sql to add the column and LTPPDD entry. Modified FWD25.pc to add new QC check. Added SURFACE_TEMPERATURE to entry form.

Inventory

4-418 **3193** **INV_QC** **11/26/2002** **7/24/2003**

Description

When running the inventory QCs, the error logs are empty. However, when checking for records with RECORD_STATUS<>E, records existed in several inventory tables.

Resolution

Made the list of experiment_no's in level C,D,E match the list in level B QC.

S-3077 **3077** **INV Data - Region 2** **Jake Walter, ERES** **2/21/2002** **6/1/2003**

Description

Record in INV_MAJOR_IMP has incorrect SHRP_ID (190700). Please correct in regional database and in Central database.

Resolution

Jake modified data in regional database in December 2002. New data uploaded centrally in June 2003.

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

Monitoring Category

P-3305 **3305** **MON_CATEGORY QC** **4/30/2003** **7/17/2003**

Description

Modified Specs for Mon_category QC. Many level E changes removed.

Resolution

Resolves SPR 3-750. Revised QC to match new specifications.

PG Binder

3-770 **3252** **TST.SP02 form** **MACTEC** **1/24/2003** **7/16/2003**

Description

Form required entry of coarse, fine and mineral filler data, which is unavailable since Law tests only for combined and effective aggregate properties (see data collection form). It is unlikely that the data will ever be available. Data entry for these cases has halted pending direction from TSSC or modified entry form/table.

Resolution

In order to allow the entry of records without these values, the non-null constraints should be removed and replaced with level C checks. Created script SPR3252.sql to alter the table.
Updated PG_TAB_SPECS_FINAL.DOC. Added level C checks for TST_SP02 to PGBINDERQC. Modified form to allow nulls.

Re-opened on 5/30/03. Check that output sent to file when error generated. See e-mail from Mary Panak on 5/29/03.

Cannot reproduce problem on current (not yet distributed) version of program. SPR closed.

3-791 **3311** **TST.AE07** **5/6/2003** **7/7/2003**

Description

On requery, data entered to “Complex Modulus and Phase Angle” section of form is returned in temperature order instead of the order in which it was entered from the data collection form (see screen shot and scanned example form). This makes double-checking of data entry more time consuming. Unless there’s some requirement that the original data entry form list the temperatures in order (meaning the form has simply been completed incorrectly), it would be better to redisplay the rows in the order in which they were entered.

Resolution

Cannot change order of record presentation on requery without addition of new field. No change required.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-793	3313	TST.AE08	MACTEC	5/6/2003	7/8/2003

Description

"Regression Coefficients" were not reported with data for sections 4809XX (see attached data collection form example). As the lab in question no longer exists, it is unlikely that this data will ever be available. There is some valuable data on the forms but as the regression coefficient values are required, it cannot be entered. Request that null values be allowed in these columns.

Resolution

Removed constraints and replaced with level C checks. Modified schema, form, and QC.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-797	3324	PGBinderQC.exe		5/22/2003	7/8/2003

Description

More than 50% of the data in table TST_AE08_DATA is failing level D QC because the "load" value is less than .98. See attached report excerpt. Testing specifications call for values of .98 +/- .05, so the range of acceptable values should be .93 - 1.03.

Resolution

Modified QC range as suggested.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-801	3339	PGBinderQC.exe, Level D	MACTEC	6/4/2003	7/16/2003

Description

A large number of rows in TST_AE07_MASTER fail level D QC on "plate diameter." See attached report excerpt. Though the data entry form and table accommodate two decimal places, the data collection form allows for only one; all data reported includes one decimal place only. Lab 5132 reported a diameter of 7.9, which falls outside the QC range of 7.95 – 8.05. It seems reasonable – given the limitation imposed by the data collection form and the volume of data already reported and entered that the QC ranges should be redefined to something like 7.8 - 8.1 and 24.9 - 25.1.

Resolution

Modified level D check as indicated. Updated specifications document.

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
3-802	3340	TST_LINK_SAMPLE, TST_LINK_LAYER	MACTEC	6/4/2003	7/16/2003

Description

Rows in TST_LINK_SAMPLE fail level E QC because they have no match in any of the sample log tables. (See attached report excerpt.) After checking the related tables (TST_AE07, TST_AE08, TST_AE09, TST_SP01, TST_SP02) for the TST_ID, found that many of these TST_LINK_SAMPLE rows were orphans created when all related test data was deleted, as might be the case if a layer number changes. An attempt to delete the sample and related TST_LINK_LAYER data via form TST.LINK_SAMPLE merely resulted in

Resolution

Created delete triggers on the "master" tables to delete from the "link" tables when the last of the TST_Ids has been deleted.

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

orphaned TST_LINK_LAYER data.Discussion with TSSC resulted in a suggestion that "on-delete" database triggers be added to the TST_AE* and TST_SP* tables. When data is deleted from one of these tables, the trigger will survey the other tables for the TST_ID. If it finds no other "child" data, the rows for the TST_ID will also be deleted from TST_LINK_SAMPLE and TST_LINK_LAYER.Until the solution is implemented, the tables will be monitored for orphaned data and SQL scripts used to remove the unnecessary data.

3-805 **3343** **PGBinderQC.exe, level E** **MACTEC** **6/30/2003** **7/16/2003**

Description

Per the SPS 9A material sampling plan, bulk hot mix asphalt samples taken at the time of construction have sample numbers beginning with "BA" (see attached example data). However, gyratory compacted samples made from these bulk samples are required to have sample numbers beginning with "DA." Therefore, test results with sample numbers beginning with "DA" do not have a valid match in the sampling data and consequently fail level E QC (see attached report excerpt.) Need direction from TSSC (e.g. different sample numbers, ignore and upgrade, new QC).Rows for table TST_LINK_SAMPLE appear to be listed in random order. The report would be easier to review if the rows were listed in order by test ID.

Resolution

Changed TST_LINK_SAMPLE-E-101 to use TST_SAMPLE_LOG_LAB.LAB_SAMPLE_NO

4-434 **3306** **TST.AE08** **MACTEC** **5/2/2003** **7/23/2003**

Description

As per LTPP Materials Sampling and Testing Guide for SPS-9A (see SPR4-434_01.tif file), the testing laboratory performed the Bending Beam Rheometer (BBR) test with and without a 24 hour conditioning at the two different temperatures on asphalt cement samples sampled from the hot mix plant. However, the IMS data entry sheet TST.AE08 does not have a field to enter whether the sample was conditioned or not (see SPR4-434_02.jpg file). We need directions on entry procedure or a modified sheet/table from TSSC.

Resolution

Created SPR3306.sql. This script requires that all soak_times be not null. It also populates TST_AE08_DATA.SOAK_TIME with the master value. The LTPPDD entries are also updated by the script. Updated the level D QC to check the new ranges.

4-437 **3316** **TST.SHEET.AE09** **MACTEC** **5/8/2003** **7/8/2003**

Description

Form requires entry of Type of Fracture which is unavailable. It was not reported by the lab and data entry of this form is not possible due to the following error

Resolution

Removed constraint and replaced with level C check. Modified schema, form and QC program.

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

message:FRM-40202: Field must be entered.

4-438 **3317** **TST.SHEET.SP01** **MACTEC** **5/9/2003** **7/2/2003**

Description

Form requires entry of Gmm(meas) which is unavailable. It was not reported by the lab and data entry of this form is not possible due to the following error message:FRM-40202: Field must be entered (attached).

Resolution

Removed constraint as requested on TST_SP01_MASTER.MIX_MAX_SPEC_GRAV.

M-3334 **3334** **PGBinderQC, level E** **6/2/2003** **7/23/2003**

Description

Check TST_AE09_DATA-E-102: is incorrect. The original specifications list it as comparing PEAK_ELONG/TST_AE09_MASTER.GAUGE_LENGTH to FAIL_STRAIN.

The comparison should be between (FIAL_ELONG/TST_AE09_MASTER.GAUGE_LENGTH) * 100 to FAIL_STRAIN.

Resolution

Multiplied by 100 in E-102.

All QC Programs

P-3177 **3177** **Supplemental Section QC** **10/18/2002** **7/1/2003**

Description

Review QC Manual chapters modified to incorporate checks on SPS Supplemental Sections. Implement these changes as directed.

Resolution

Modified all QC to include supplemental sections in all applicable checks.

S-3050 **3050** **Level E QC Programs** **1/10/2002** **7/1/2003**

Description

There is the potential for errors in checking null values in all level E QC programs. Therefore, check all level E QC programs before next release (May 2002) for proper null value checks

Resolution

Modified all level E QC to check for null values in fields included in coded checks.

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

Rehabilitation

2-62 **3189** **RHB sheet 61** **MACTEC** **11/15/2002** **7/28/2003**

Description

It appears that either the query is not robust enough to match the IMP_TYPE when other records exist with the same date in the RHB_IMP, or there should not be entries with the same date in the RHB_IMP

Resolution

See resolution to 3-803 (S-3341). Added IMP_TYPE limitations on entry forms: RHB_61, RHB_62.

3-796 **3323** **RHB_D.exe** **5/22/2003** **6/29/2003**

Description

Invalid data is reported for "Bulk Max" on RHB_HMRAP_MIX_PROP. Unable to determine actual data problem. See attached screen shots of data and report excerpt.

Resolution

Corrected field reference from BULK_SPEC_GRAVITY to BULT_SPEC_GRAVITY_MAX. Also corrected formatting errors.

3-803 **3341** **RHB.SHEET.61, RHB.SHEET.62** **MACTEC** **6/4/2003** **7/28/2003**

Description

When data is entered to sheet 61, an IMP_TYPE from RHB_IMP for the same completion date is written to RHB_RESTORE_AC_SHOULDER.IMP_TYPE – possibly the lowest IMP_TYPE in numerical order if there's more than one for the date. If the original RHB_IMP.IMP_TYPEs are later changed (either removing the original "lowest" IMP_TYPE, or adding a new "lowest" IMP_TYPE), the existing row in RHB_RESTORE_AC_SHOULDER cannot be retrieved using this form. It's necessary to reenter the data, thereby writing a new record with the correct IMP_TYPE to the table. Then, SQL scripts must be used to delete the orphaned/extraneous rows. It's likely this problem would also occur for sheet 62, RHB_RESTORE_PCC_SHOULDER.As long as there's one (and only one) match on RHB_IMP.IMP_DATE to RHB_RESTORE_AC_SHOULDER.DATE_COMPLETE, IMP_TYPE in RHB_RESTORE_AC_SHOULDER doesn't seem to be necessary to maintain the data relationship.

Resolution

Added level D checks for IMP_TYPE to RHB_D.PC. Added limitation on IMP_TYPE to event selection from RHB_IMP table to forms RHB_61 (IMP_TYPEs allowed: 10,11) and RHB_62 (IMP_TYPEs allowed: 8,9). NOTE: Many records not selected into the form because the IMP_TYPE in RHB_IMP is not one of theIMP_TYPES allowed. Resolves SPR 2-62.

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

RIMS

4-441 **3320** **RIMS** **5/5/2003** **5/6/2003**

Description

I have installed a new Oracle workstation on a Windows 98 machine. Everything installed fine, however, when I pull up RIMS the forms are all squashed onto the left side. How can I change the font to show a full size screen?

Resolution

Sent file with new registry entry to specify the file. The region was able to fix the problem by adding a similar entry: HKEY_LOCAL_MACHINE\SOFTWARE\ORACLE\HOME1\MS Sans Serif.10.Plain.Bold

SPS4

3-800 **3338** **SPS4_E.exe** **6/4/2003** **7/24/2003**

Description

Data in SPS4_UNDERSAL_PRES_GROUT was recently edited. The data failed at level C and was then upgraded. It appears from the QC documentation that there are no E-level checks defined on the table. The rows remained at level D (and continued to appear in the SPS4_D2 output, even though the data was at level D). See attached report excerpt.

Resolution

As a part of the program instrumentation work, SPS4_E.exe had been changed to update all SPS4_UNDERSEAL_PRES_GROUT records at level 'D' to level 'E' unconditionally. At some point in time before, I started keeping revisions, SPS4_D2.exe had the range of records to check hard coded to between 'C' and 'D' for this table. This occurred before 3/1/1999. Assume this was done on purpose and leave it 'as is'.

SPS9

4-439 **3318** **SPS9.SHEET.10** **MACTEC** **5/12/2003** **7/8/2003**

Description

Form requires entry of VOIDS_MINERAL_AGGR and EFF_ASPHALT_CONTENT which are unavailable. It was not reported by the lab and data entry of this form is not possible due to the following error message:FRM-40202: Field must be entered.This SPR is similar to SPR 4-428.

Resolution

Removed constraints and replaced with level C checks. Modified schema, form and QC program.

4-443 **3322** **SPS9_D.exe** **5/21/2003** **6/29/2003**

Description

Level D QC outputs for the SPS9_PMA_PLACEMENT_INFO table report incorrect data in the “date complete” column. Please see attachments for

Resolution

Corrected date field printed to QC output.

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

comparison of data from the database (Attachment A) and QC outputs (Attachment B).

4-444 **3327** **SPS9_E.exe** **5/23/2003** **7/14/2003**

Description

SPS-9 level E QC's for the SPS9_SP_PMA_AGGREGATE_PROP table check for non-null values in the MINERAL_FILLER_OTHER field when MINERAL_FILLER=5. Because MINERAL_FILLER=5 corresponds to no mineral filler used, the MINERAL_FILLER_OTHER field is not necessary. Rather, the QC should check for non-null values in the MINERAL_FILLER_OTHER field when MINERAL_FILLER=6. A QC output is attached as an example

Resolution

Changed check to look for MINERAL_FILLER=6 (instead of 5). Changed check on SPS9_PMA_AGGREGATE_PROP table also. Created new code SPS9_MINERAL_FILLER to allow 6 codes.

4-448 **3335** **SPS9_E** **6/3/2003** **7/13/2003**

Description

SPS-9 Level E QC's for the SPS9_PMA_MIX_DES_PROP table check for non-null values in the MIX_DESIGN_OTHER field when MIX_DESIGN_TYPE=4. Three sections in the Western Region are failing this check even though they have MIX_DESIGN_TYPE=4 and non-null values in the MIX_DESIGN_OTHER field. Please see Attachment A for the QC outputs.

Resolution

Corrected level E QC.

4-449 **3336** **SPS9_E** **6/3/2002** **7/14/2003**

Description

According to the QC manual, SPS-9 Level E QC's for the SPS9_PMA_MIXTURE_PROP table check to ensure that the standard deviation field is non-null only if the number of samples is greater than one. In the Western Region, instances where the number of samples equals two and the standard deviation field is null are failing the QC. The standard deviation field for these cases was left null as per Appendix B of the Data Collection Guidelines which states, "The standard deviation should be entered only if there are at least four test results for the item of concern." Please see attachments for comparison of data from the database (Attachment A) and QC outputs (Attachment B).

Resolution

Corrected level E check on all STD_DEV fields in the SPS9_PMA_MIXTURE_PROP and SPS9_SP_PMA_MIXTURE_PROP tables.

4-450 **3337** **SPS9_E** **6/3/2003** **7/14/2003**

Description

Resolution

REG #	SAIC #	Program Name	Referred To	Date Rec	Date Comp
SPS-9 Level E QC's for the SPS9_MILLED_SECTIONS table check to ensure that the LAYER_NO_OF_REPLACEMENT field is above the original surface layer reported in the INV_LAYER table. However, the 04B900 project fails this check even though the LAYER_NO_OF_REPLACEMENT is above the original layer in the INV_LAYER table. This problem is similar to SPR 3-778 with the exception that 04B900 is linked to section 041007 through the SPS_GPS_LINK table and is not in the INV_LAYER table directly. Please reference attachment A for data from the database and attachment B for the QC output.			Added new SELECT statement to find layers for linked SPS sections.		
M-3325	**3325**	**SPS9.exe, Level D**		**5/29/2003**	**6/30/2003**
Description			**Resolution**		
Modify the QC for SPS9_PMA_MIXTURE_PROP.ANTISTRIP_AGENT_TYPE from 1-70 to 0-70.			Modified range as requested.		

SPSM

3-742	**3185**	**SPS_MISC.EXE**	**MACTEC**	**10/23/2002**	**7/25/2003**
Description			**Resolution**		
Pavement type problems are being reported on SPS_GENERAL for two sections. Appears something about the QC program has changed, causing this record to fail QC.			Added ranges specific to SPS1, 2, 8 and 9.		

Transverse Profile

3-799	**3330**	**TPROF.exe, Level D**		**5/29/2003**	**7/28/2003**
Description			**Resolution**		
Several rows in MON_T_PROF_DEV_CONFIG fail level D QC, but nothing appears on the report for this table. See attached data spreadsheet and example report.			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.		

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

IMS Traffic

4-442 **3321** **IMS Traffic QC** **5/22/2003** **5/22/2003**

Description

The WRSC was looking through the IMS QCs and several items were flagged in the Level C checks for table TRF_EQUIPMENT_MASTER. These values come from the Traffic Sheet 16. According to the latest IMS Quality Control Checks Manual May 2002, this table does not have any Level C checks. Please see attached pages.

Resolution

May 2002 QC manual is out of date. Updated version will be distributed in next several weeks.

Materials Testing

2-69 **3293** **TST_SS08 form** **MACTEC** **4/15/2003** **7/21/2003**

Description

When attempting to edit data already in the database from the TST_SS08 form, I could not retrieve the data. The error given was "invalid sample number." This occurred for 190702, field_set=2, layer_no=1, loc_no=A2, and (test_no=1 and sample_no='JS03') and (test_no=2 and sample_no='JS04').

Resolution

Modified CN assign scripts for TST_SS08 so that TST_HOLE_LOG is included in match.

3-792 **3312** **TST_D.exe** **MACTEC** **5/6/2003** **7/5/2003**

Description

Sections 124100, 014155, and 123997 are in the GPS-6S experiment. Layers with DESCRIPTION = 4 in TST_L05A and TST_L05B fail QC on material code 13 (see attached report excerpt). We believe material code 13 should be valid in these cases. It would also be helpful if the layer description code were printed on the report as well.

Resolution

Added MATL_CODE= 13 for DESC=4. Also corrected several inconsistencies between code and QC manual.

3-798 **3326** **TST_E.exe** **5/22/2003** **7/7/2003**

Description

A number of rows in TST_L05A and TST_L05B are failing QC on: “TST_L05A-E-29, There cannot be >= 2 layers with a DESCRIPTION of 5. Exempt for SPS-1,2” or “TST_L05A-E-27, There cannot be >= 2 layers with a DESCRIPTION of 1. Exempt for GPS-6C,6D,6S,7C,7D,7F,7R,7S.” See attached report excerpt. In

Resolution

Code corrected to get EXPERIMENT_NO and GPS_SPS from EXPERIMENT_SECTION in cursor for TST_L05A/B tables.

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

all these cases, the experiments are of the correct type. Instead of failing the data, the QC process should check the experiment type.

3-804 **3342** **TST.SHEET.AC01** **MACTEC** **6/9/2003** **7/25/2003**

Description

Form does not require entry to T01A data before entry or save of T01B data (see attached screenshot). Consequently, data rows rows exist in TST_AC01_LAYER with no match in TST_AC01. The data entry form should require entry to TST_AC01 before saving the layer data. An additional level E check to check for the existence of TST_AC01 rows would identify existing integrity problems and those that might occur in the future (e.g. through updates via SQL) after the form is corrected.

Resolution

Removed the unique indexes from TST_AC01 & TST_AC01_LAYER and replaced them with primary keys. Added a foreign key from TST_AC01_LAYER to TST_AC01. Modified form to display error message if layers (child records) are entered without the corresponding master record.

4-447 **3333** **TST.SHEET.AC01** **MACTEC** **5/29/2003** **6/2/2003**

Description

For California section 068535, the lab reported 11 layers on Form T01B. The data entry form will only allow entry up to 10 layers (see attachment). Please make the necessary changes to allow for more than 10 layers to be entered. The L05 tables have already been updated with 11 layers.

Resolution

Modified form to allow entry of up to 12 layers.