Central Federal Lands Highway Division

QL-PAY 5.30

Users Manual

January 2011



The purpose of this manual is giving the user basic skills to operate QL-PAY 5.30. This includes setting up projects, entering specifications, inputting test results, creating reports, and emailing reports. One of the major objectives of this software is to compare test results from two different labs to determine if statistically the material is from the same population, this is called "hypothesis testing". For more details on the analysis being performed you will need to contact Materials.

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Version and build determination

It is imperative that the latest version of the software is being used. There are usually 1-2 new "builds" per year. Obviously if you just downloaded the software you should have the most recent version and build. To check the version and build do the following:

click HELP>>>>> About QL-PAY

dialog box below should appear

🔜 About QL-PAY	
QLPAY version 5.30 (build 3986) Production compile on Nov 16 2010	
Copyright (C) 2008	
ОК	
	li.

Because the build number changes every time there is an update, you will need to check with Materials to find out the most current.

Setting up a project for analysis

Before we get started, let's change the "header" that will print out on the reports.

🔜 Settings	_	
Organization name	Central Federal Lands Highway Division	
Print signature block		
Quality Level format		
Percent Within Limits		
C Percent Defective		
<u>.</u>		
	OK Cancel	
		///

click FILE>>>>> SETTINGS

Change from "Western Federal Lands Highway Division" to "Central Federal Lands Highway Division"

It is now time to setup a project. The example below is based on setting up a project with structural concrete (552) with 28 day design strength (f'c) of 4000psi. The principals for setting up a project and adding properties are all the same.

- 1. Start on the bottom left of the screen enter "Contract Number"
- 2. Enter "Item" (e.g. 55201-4200)
- 3. Enter "Lot" number
- 4. Use the pull down to select the appropriate laboratory, "Contractor"

🔜 Q	uality Level -	Pay Factor Analysis				
File	Sample Sets	Reports Property specifica	tions Test Resul	ts He	elp	
C		•:				
San	Imported	Contract number	Item	Lot	Laboratory	Project name
		DTFH-68-10-C-00004	40101 TS1	TS	Central Lab	Carlsbad Caverns
		DTFH-68-10-C-00004	40101 TS1	TS	Contractor Lab	Carlsbad Caverns
		DTFH60-08-C-00027	409	1	Central Lab	Dinosaur National Monument
		DTFH60-08-C-00027	409	1	Contractor Lab	Dinosaur National Monument
		DTFH60-08-C-00028	409	1	Central Lab	Death Valley Pavement Preservation
		DTFH60-08-C-00028	409	1	Contractor Lab	Death Valley Pavement Preservation
		DTFH68-06-C-00017	30101-0000	1	Central Lab	Cuba-LaCueva
		DTFH68-06-C-00017	30101-0000	1	Contractor Lab	Cuba-LaCueva
		DTFH68-06-C-00026	40201-3800	5	Central Lab	VALLEY LOOP ROAD
	lentify new or	existing sample set(s)		с н		
	Select all	Lopy to fields	Llear	fields	Restore fields	
	Contractorum	w Itam	Lat	1 -1	horston	
	Contract num		LUI	La	Doracoly	5
						Specifications
	1	2	3	-	4	Specifications
	_				- -	Test Results Exit QLPAY

5. Next *click SPECIFICATIONS*

Entering specifications

🔡 Specificatio	ons							
Lot Specification	Options							
Project Sp	pecifications				1			
Con	tract Number DTF	H68-10-C-00038						
F	Project Name	5 1						
F	Project Number					. D:- J D I		
					Aspha	(Binder Pay i	actors	
ltem and L	ot Specifications				you	ximum Pay Fac ir Contract = 1.	ctor for asphalt binder 01	per
ltem [55201-4200	Lot 1			(If unc	hecked , max .	asphalt binder PF = 1.0)5)
Property Sp	ecifications							
5.2	Select templ	ate>						•
Add prope	erty Prope	rties	T	arget spec	*	D elete sel	ected rows	
Propertu	Category (1 or 2)	Target Tupe	Target Value	+ -	LowValue	High Value	Estimated # tests	
Tiopoly		Taigot Typo	raigot raido		2011 1 0100	riigh Falao	E dimated in coco	
Sa	ave	Save &	Close		Qu	it		//

5.1 Enter "Project Name" and "Project Number"

5.2 Next click ADD PROPERTY

I	<mark>स</mark> Select a P	roperty	×
	Property	Description	
	E %RES	% residue	
	E rp77	residue penetration @ 77 F	
	E rd39	residue ductility @ 39.2 F	
	E rd77	residue ductility @ 77 F	
	ErTUF	residue toughness	
	ErTEN	residue tenacity	
	E %SOL	% solubility in trichlorethylene	
	E SET	settlement test	
	E %POL	% polymer	
	*****	***************************************	
		Portland Cement Concrete	
	% AIR	air content of plastic concrete	
	SLUMP	concrete slump	
5.2.1	28 day	28 day compressive strength	-
	•		
		OK Cancel	

5.2.1 click 28 day>>>>> OK

Specifications							
Lot Specification Options							
Project Specifications				1			
			_				
Contract Number D	TFH68-10-C-00038						
Project Name	ajique-Torreion Loo	p Bridges					
Project Number	M PFH 57-1(1)			Acoba	t Dindor Daul	Factor	
				Aspha			
⊢ltem and LotSpecification:	5				ximum Pay Fac ir Contract = 1.	ctor ror aspnait binder per 01	
Item 55001 (200	I.a. F			(If unc	hecked , max -	asphalt binder PF = 1.05)	
Item [55201-4200	Lot						
Property Specifications							
Select ter	nplate>		F D				_
	····· · ,		5.3				
Add property Pro	perties	T	arget spec	\$	Delete sel	ected rows	
Property Category (1 or 2	Target Tupe	Target Value	[+.	Low Value	High Value	Estimated #trests	
28 day 1) Taiget Type	Talget Value	- - , -	Low value	Tigit value	Listinated # tests	
		·		·			
Save	Save &	Close		Qu	it		

5.3 Highlight the "28 day" row and *click TARGET SPECS*

🔡 Target specifi	cations		_ 🗆 🗵
	28 day		
Criticalit	ty Level (1 or 2) 2	5.3.1	
Target Specific	cations		
○ +/- dev	Target value +/- allowable deviation	Target Value	
• min	Minimum 5.3.2	Allowable Deviation	
C max	Maximum	Low Value	4000 5.3.3
O info	Property is Informational Only	High Value	
Estimated	umbarathata 15 5	2 /	
Estimated		5.7	
	ОК	Cancel	li

- 5.3.1 This is where you enter the Critical Level or Category; this will be listed in the Sampling and Testing Tables at the back of the applicable section.
- 5.3.2 Since the spec is a "Minimum", click the min button
- 5.3.3 In the "Low Value" enter 4000
- 5.3.4 Divide the contract quantity by the sampling frequency, this is your "Estimated number of tests", e.g. contract quantity = 450 cuyd, sampling frequency = 30 cuyd, therefore estimated number of tests = 15

click>>>>> OK

Specification Specification	ons n Options							
-Project S	pecifications				٦			
Cor	ntract Number D	FH68-10-C-00038	}					
	Project Name Ta	ijique-Torreion Loo	p Bridges					
	Project Number N	4 PFH 57-1(1)		_				
					Aspha	lt Binder Pay	Factors	
-Item and I	Lot Specifications				und Ha	ximum Pay Fa ur Contract = 1.	ctor for asphalt binder p 01	ber
Item	55201-4200	Lot [1		(If unc	hecked , max	asphalt binder PF = 1.05	5)
Property Sp	Decifications	nlate>						
Property Sp Add prop	becifications Selecttem erty Pro	plate>		arget spe	cs	Delete sel	lected rows	
Property Sp Add prop	Select terrer Select terrer erty Pro	plate> perties	Target Value	arget spe	cs	Delete sel	ected rows	
Property Sp Add prop Property 28 day	Select terr rerty Pro	plate> perties	Target Value	arget spe	cs	Delete sel	Estimated # tests	
Property Sp Add prop Property 28 day	Select terr rety Pro	plate> perties Target Type min	Target Value	arget spe	cs	Delete sel	ected rows Estimated # tests 15	
Property Sp Add prop Property 28 day	Select terr Select terr erty Pro Category (1 or 2) 2	plate> perties Target Type min	Target Value	arget spe	Cs	Delete sel	ected rows Estimated # tests 15	
Property Sp Add prop Property 28 day	Select terr Select terr erty Pro Category (1 or 2) 2	plate> perties Target Type min	Target Value	arget spe	cs	Delete sel	Estimated # tests	
Add prop Property 28 day	Select terr erty Pro Category (1 or 2) 2	plate> perties Target Type min	Target Value	arget spe	cs	Delete sel	Estimated # tests	
Add prop Property 28 day	Select terr Select terr Pro Category (1 or 2) 2	plate> perties	Target Value	arget spe	cs	Delete sel	Estimated # tests	
Property Sp Add prop Property 28 day	Select terr erty Pro Category (1 or 2) 2	plate> perties Target Type min	Target Value	arget spe	cs	Delete sel	Estimated # tests	

click>>>>> SAVE & CLOSE

Inputting test results

Once back to the main screen, highlight the project we just created click>>>>> TEST RESULTS

🔜 Sample Test Resu	ults					
Form Test Results R	leports					
Contract Number	Item 55201-42	L. 00 1	ot Laborator	y r Lab]	
Test Results						
Exclude	Sample	28 day	Remark			
	(null)					
Clear Checks	Delete selected i	rows Sa	ave S	ave and Close	Quit	

It is extremely important that numbering is done correctly. The software will do a statistical analysis between both labs based on numbering. In other words sample 1 tested by the contractor's lab must be a split sample of what the Central lab is testing as sample 1.

🔛 San	nple Test Resu	ults					
Form	Test Results F	Reports					
Contra DTFHI	ct Number 68-10-C-00038	Item 55201-42	L 200 1	ot Laborator	y vr Lab		
Test	Results						
	Exclude	Sample	28 day	Remark			▲
		1	4566				
		2	4388				
		3	4507				
		4	4922				
		5	4125				
		6	5019				
		7	5099				
		8	4752				
./		9	4615				-
Clea	r Checks	Delete selected	rows S	ave S	ave and Close	Quit	

Simply enter Sample numbers and test results click>>>>> SAVE & CLOSE

Copying projects

Now we are going to enter the test results from the Central Lab. From the main screen, highlight the project we have been working on and

click>>>>> CLEAR FIELDS>>>>>SELECT ALL>>>>>>COPY TO FIELDS

Change the Laboratory to "Central Lab"

🔡 Quality	Level - I	Pay Factor Analysis					_ 🗆 X
File Sampl	le Sets - F	Reports Property specifica	tions Test Results	s He	elp		
Sample Se	et Select	tion					
Imp	orted	Contract number	Item	Lot	Laboratory	Project name	-
		DTFH68-06-C-00017	30101-0000	1	Central Lab	Cuba-LaCueva	
		DTFH68-06-C-00017	30101-0000	1	Contractor Lab	Cuba-LaCueva	
		DTFH68-10-C-00038	55201-0200	1	Contractor Lab	Tajique-Torreon Loop Bridges	
•		DTFH68-10-C-00038	55201-4200	1	Contractor Lab	Tajique-Torreion Loop Bridges	
		DTFH-68-10-C-00004	40101 TS1	TS	Central Lab	Carlsbad Caverns	
		DTFH-68-10-C-00004	40101 TS1	TS	Contractor Lab	Carlsbad Caverns	
		DTFH68-08-C-00023	40201-3800	TS	Central Lab	Northshore Road	
		DTFH68-08-C-00023	40201-3800	TS	Engr's Field Lab	Northshore Road	
		DTFH68-09-C-00040	40201-4700	TS	Contractor Lab	Northshore Road	
•	-						
ldentify	new or e	existing sample set(s)					
Se	elect all	Copy to fields	Clear f	ields	Restore fields		
Contra	act numb	er Item	Lot	Lal	boratory		
DTFH6	8-10-C-00	0038 55201-4200	1	Cer	ntral Lab		
,				_		Specifications	1
				Cer	ntral Lab 💌 💌	Test Besults Exit	QLPAY

click>>>>> SPECIFICATIONS

Verify that the specifications are correct

click>>>>> SAVE & CLOSE

The software should have created another row with the "Central Lab" listed as the Laboratory. You should now have 2 Sample Sets that are identical except for the Laboratories. Now go back to "Entering Test Results" section and input Central Lab data.

It should be noted that anytime the "Contract number", "Item", or "Lot" is changed, you will have to re-enter the specifications.

Creating reports

From the main screen, highlight the "Contractors Lab" row

click>>>>> REPORTS>>>>>SHORT ANALYSIS

Reports on single or paired sample	sets	<u>_ ×</u>
Pick reports		
List test results	Clear selections	
Calculate pay factor		
Histograms		
Null Hypothesis		
Skewness and kurtosis		
Control charts		
Sampleset differences		
Primary Lab: Contractor Lab		
Range of sample numbers		
• All		
C Range: to		
ОК	Cancel	

Make sure the "Primary Lab" is "Contractor Lab" and "Alternate Lab" is "Central Lab"

click>>>>> OK

A screen with a .pdf file should appear. This is the QL-Pay report. Since the report has all the test results listed by both labs, it always a good idea to verify the data entry. Transposing errors happen frequently.

Save the report to your hard drive, click "Save As" and give it a name. e.g. **552-sept10.pdf**

Emailing reports

Now that the report has been created, it is time to share the data with the appropriate personnel. CFL Materials have created a mailbox that is checked daily for updated QL-Pay reports (<u>cfl.qlpay@dot.gov</u>). Simply attach the .pdf report, saved on your hard drive, via email.

During production the reports should be sent in weekly for review.



Questions/Comments/Concerns

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