

PERCEPTION[®]

**Measuring Work Order
Performance**

A Training Tutorial

While *PERCEPTION* measures performance at all defined WBS levels of a project, it is equally important to monitor performance at the work order level of detail.

This tutorial describes an analysis of user-selected work orders to measure work order performance in terms of both cost (labor hours) and schedule.

This analysis can highlight the more significant problem areas, so that management can better focus their resources on resolving them early and with greater effectiveness.

PERCEPTION collects detailed information of work orders, their costs and schedules.

This tutorial describes work order cost and schedule performance reports that compliment reports available from within the *PERCEPTION* system.

These reports are generated using a Microsoft Excel workbook named “WorkOrderAnalysis.xls” that has been specifically linked directly to the *PERCEPTION* “Work Order Table.”

This tutorial is structured into three basic sections:

- 1. Descriptions of each of the additional graphical tracking reports**
- 2. Instructions for setting up the Excel workbook so that it links directly to the *PERCEPTION* Database.**
- 3. Instructions for the user to select any particular project and generate the reports automatically.**

The following slide provides options for the user to proceed to any one of these sections.

Training Sections



Descriptions Of Work Order Analysis Reports



Initial Set Up of *PERCEPTION* Work Order Database Query.



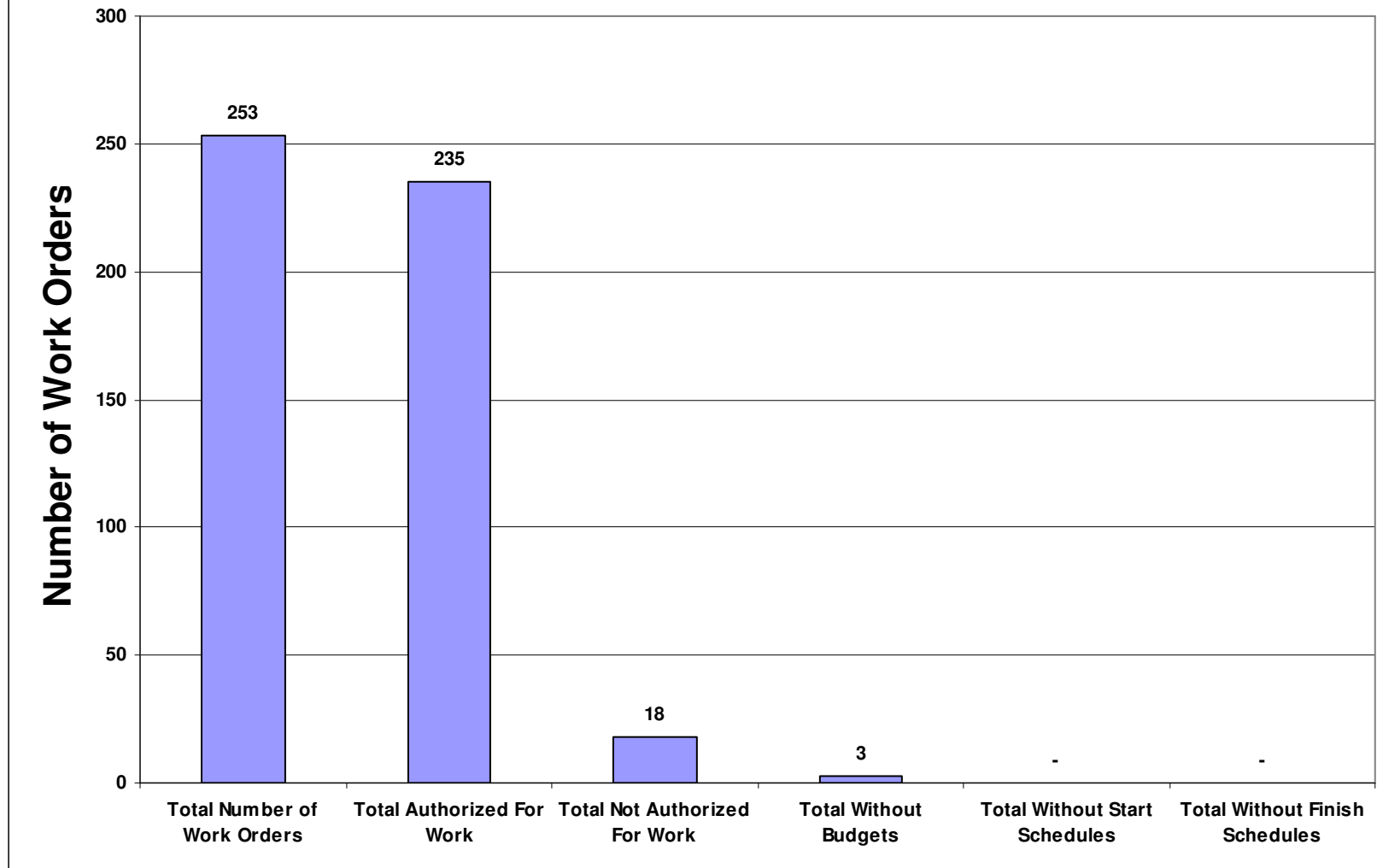
Initiating A Work Order Performance Analysis

**What Additional
Information Can
PERCEPTION Work
Order Data Provide?**

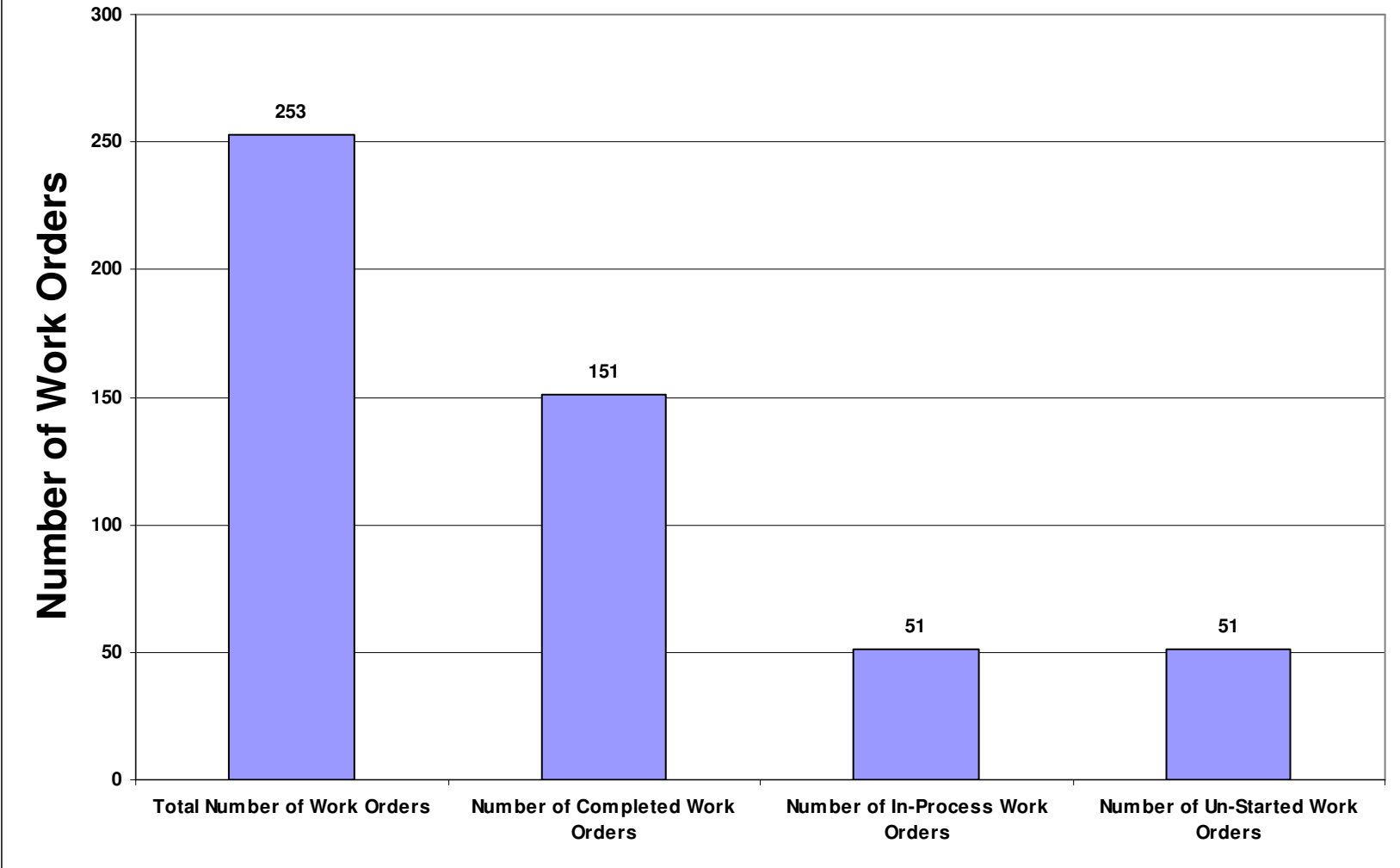
Overall Work Order Performance

PERCEPTION summarizes overall work order planning status & performance as illustrated by the following set of graphics.

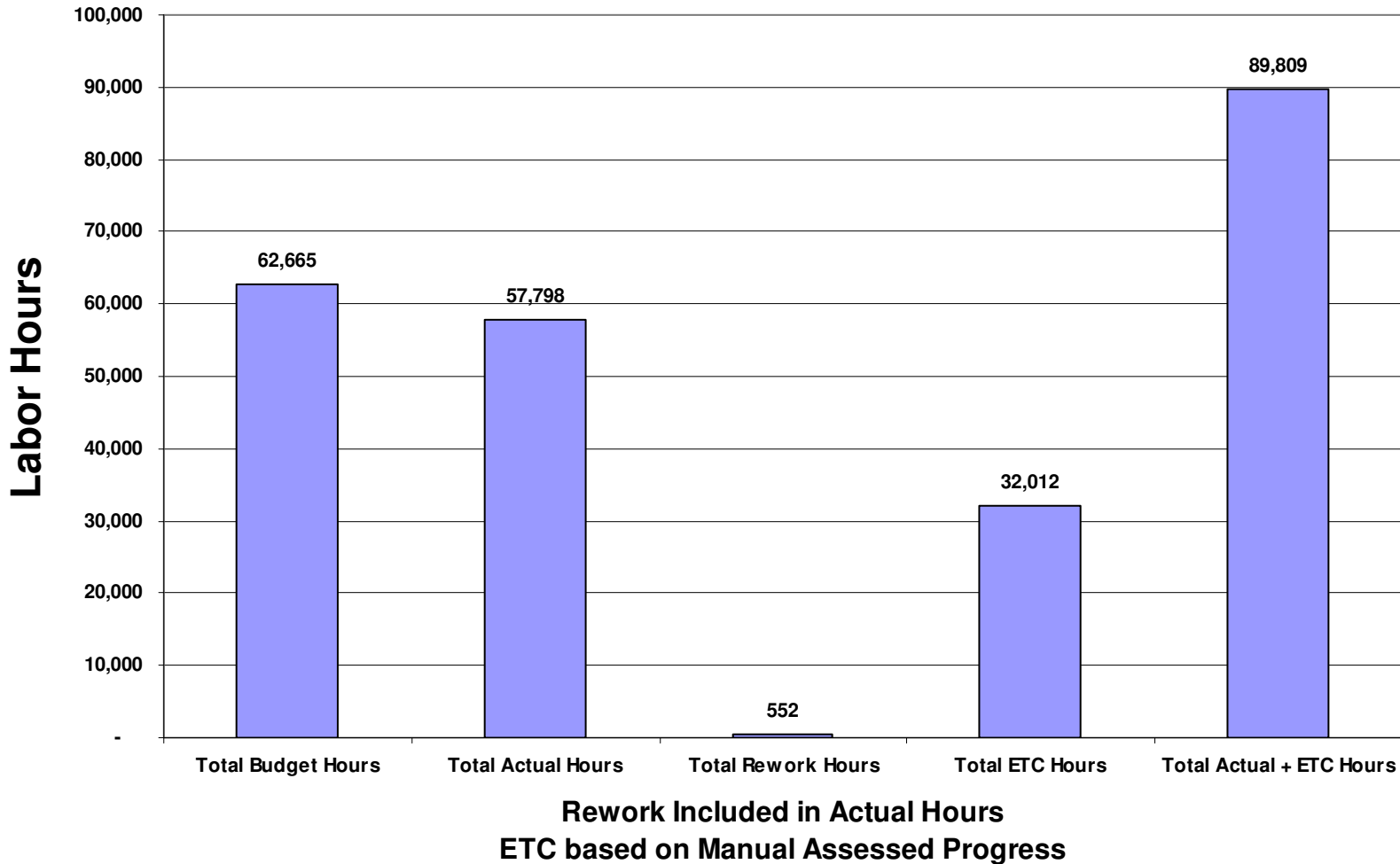
Overall Work Order Planning Status



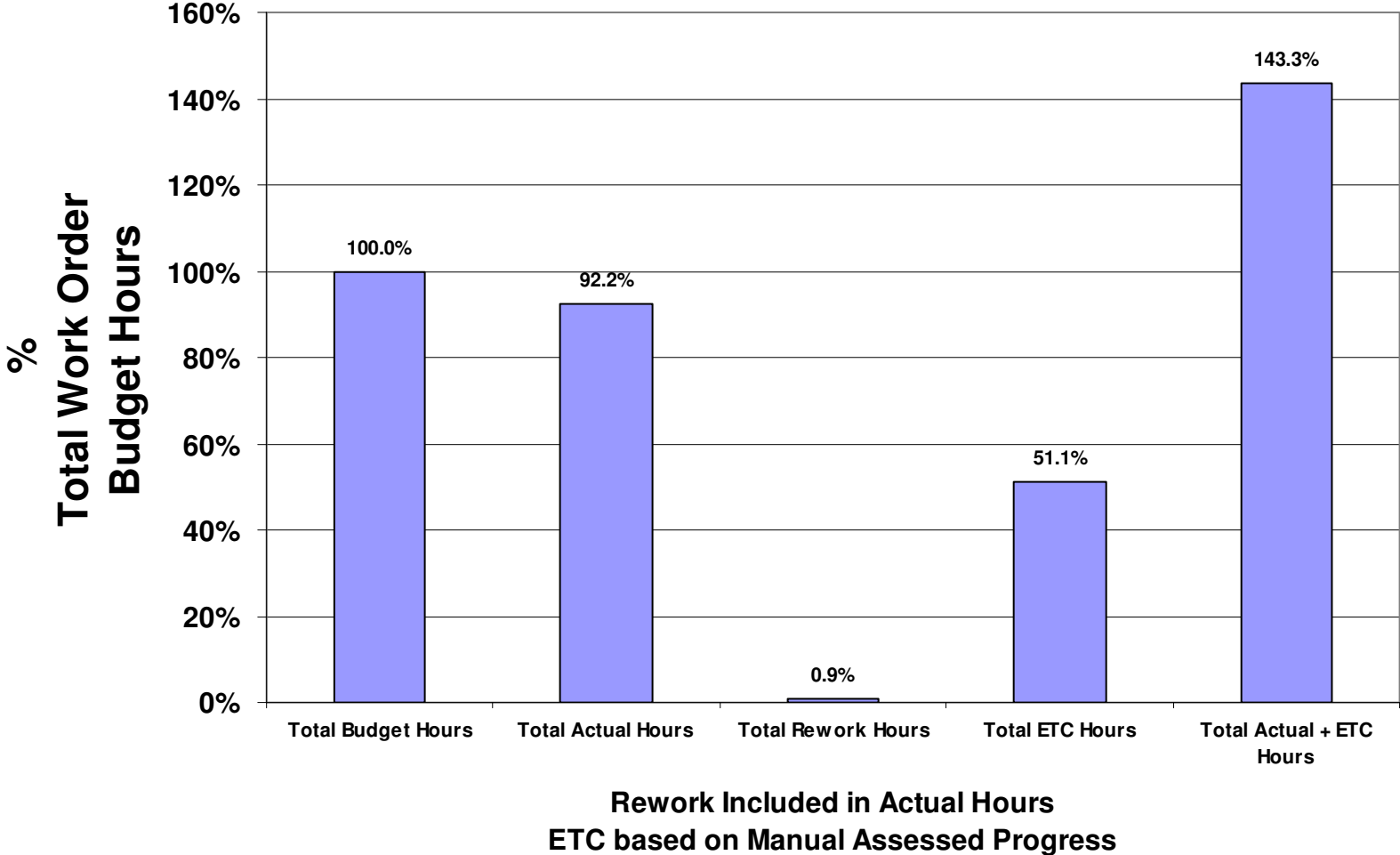
Overall Work Order Performance Status



Overall Work Order Performance Status



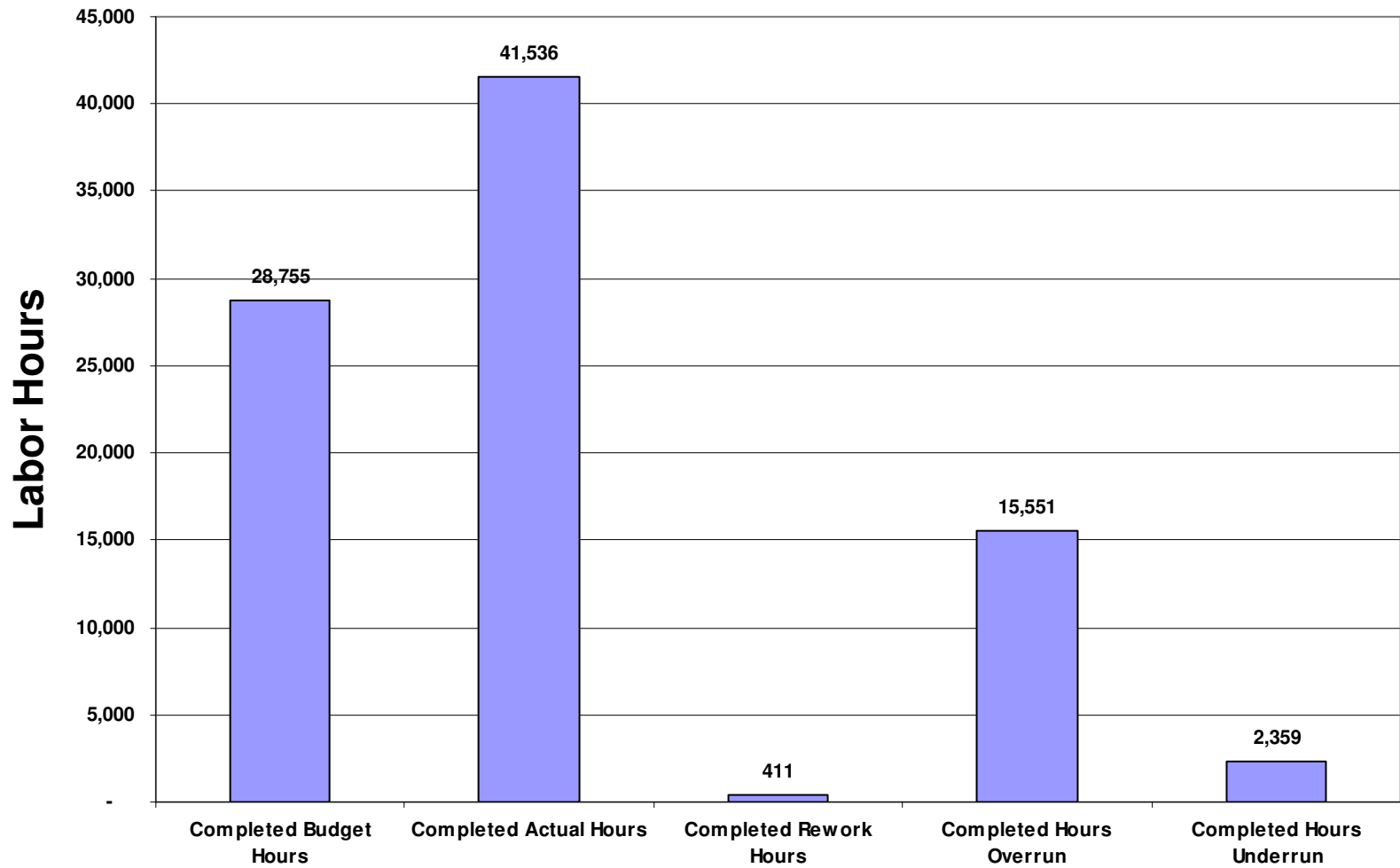
Overall Work Order Performance Status



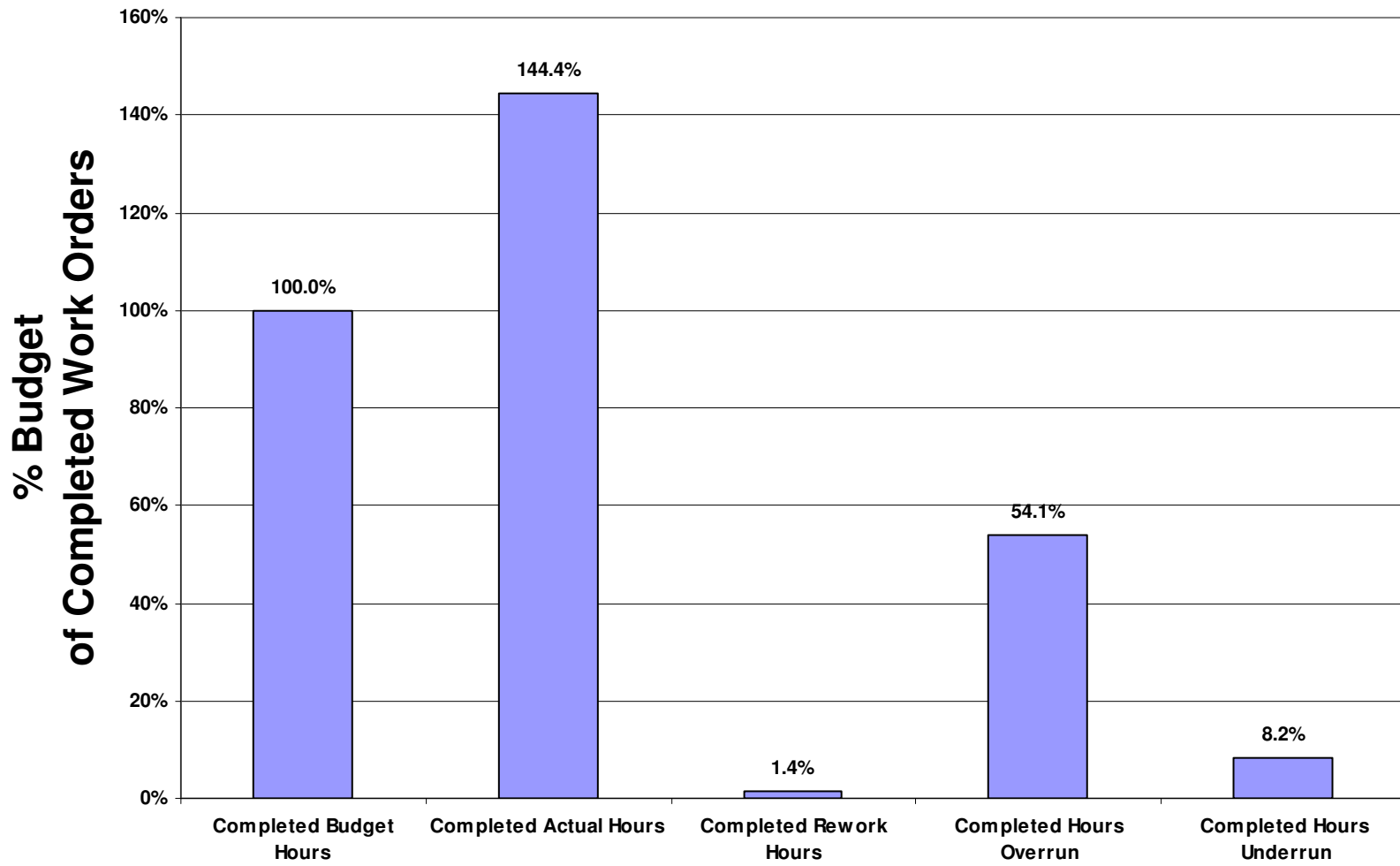
Completed Work Order Performance

As a special subset of work orders, the following graphics summarize performance of completed (closed) work orders.

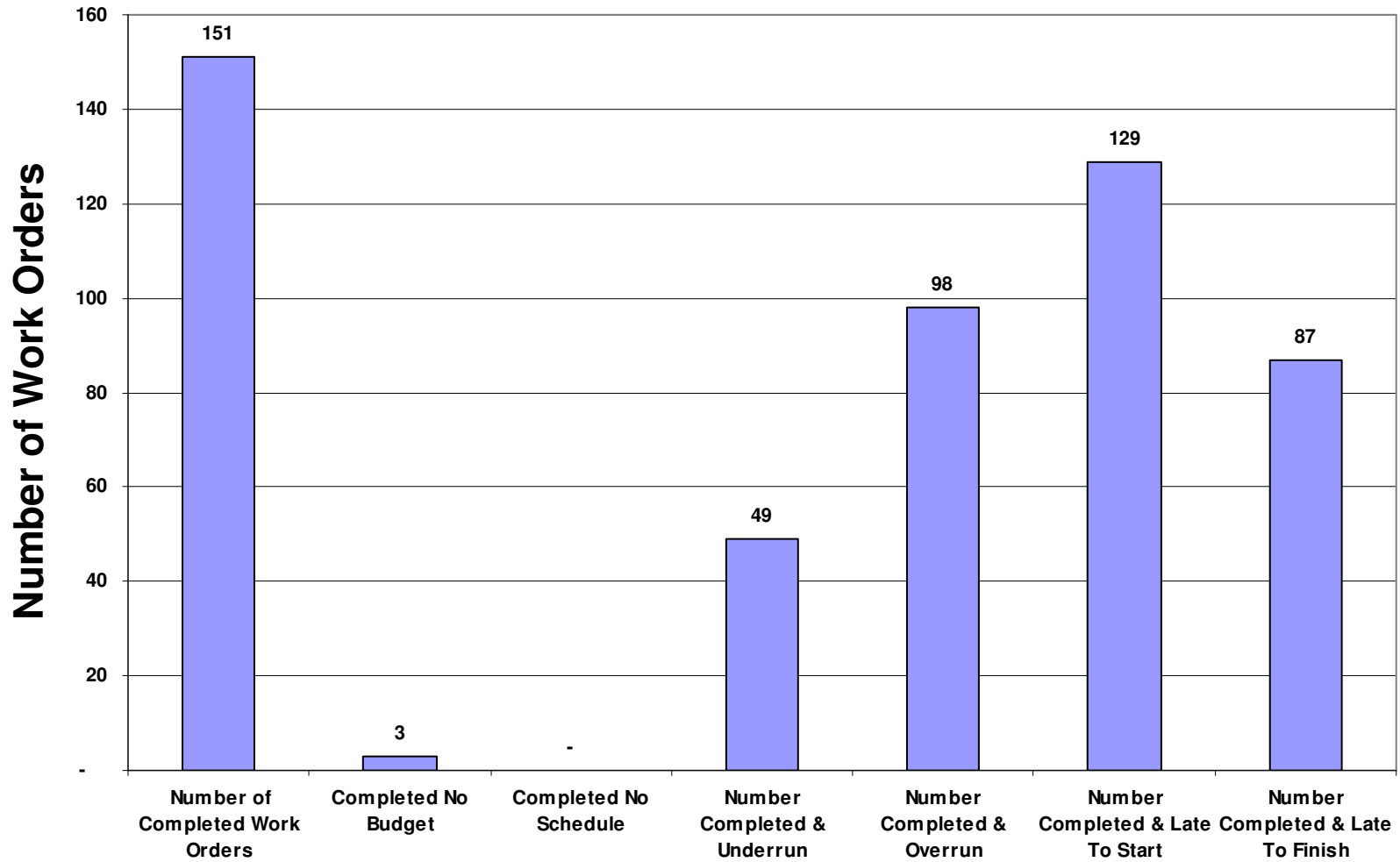
Completed Work Order Performance Status



Completed Work Order Performance Status



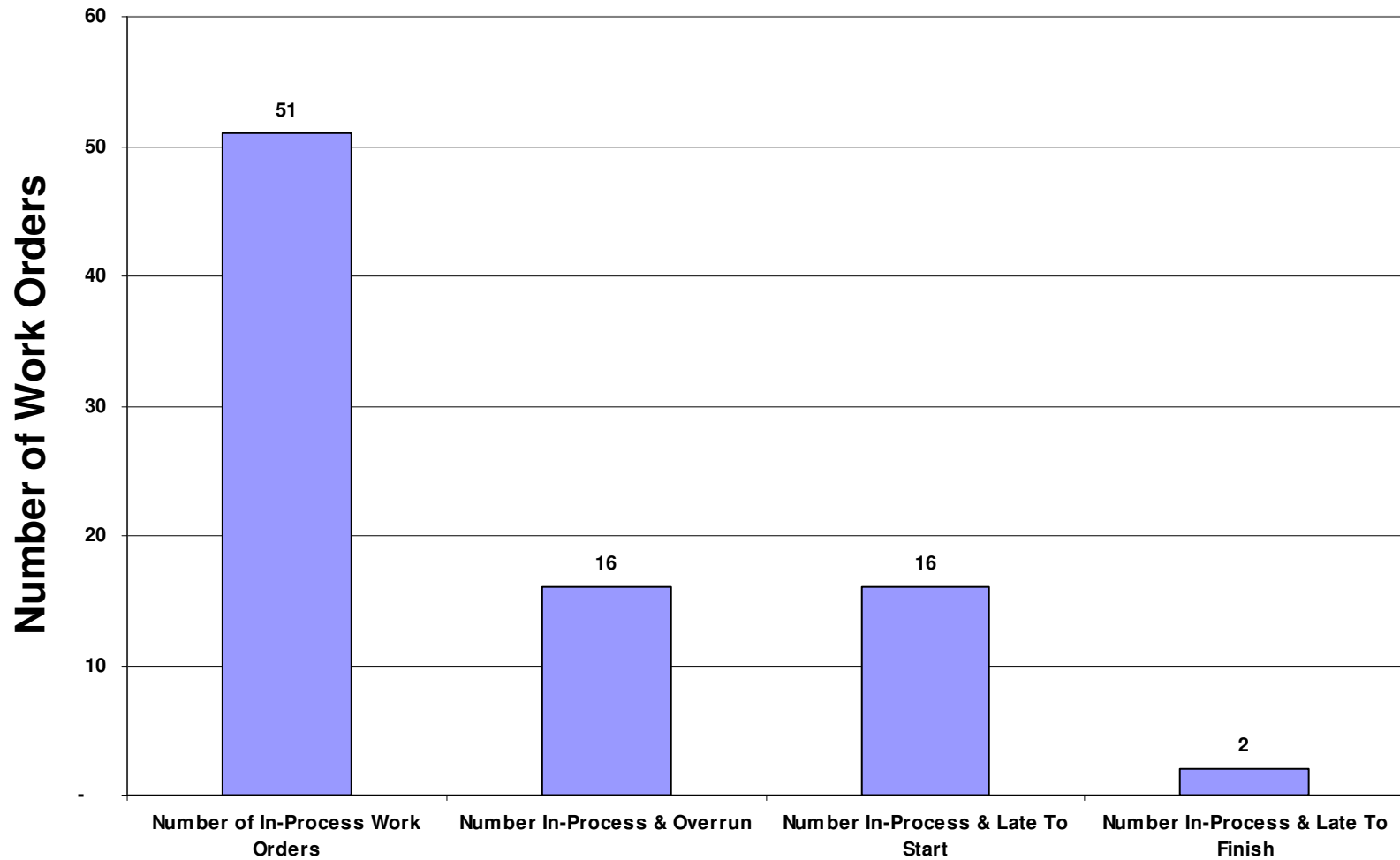
Completed Work Order Performance Status



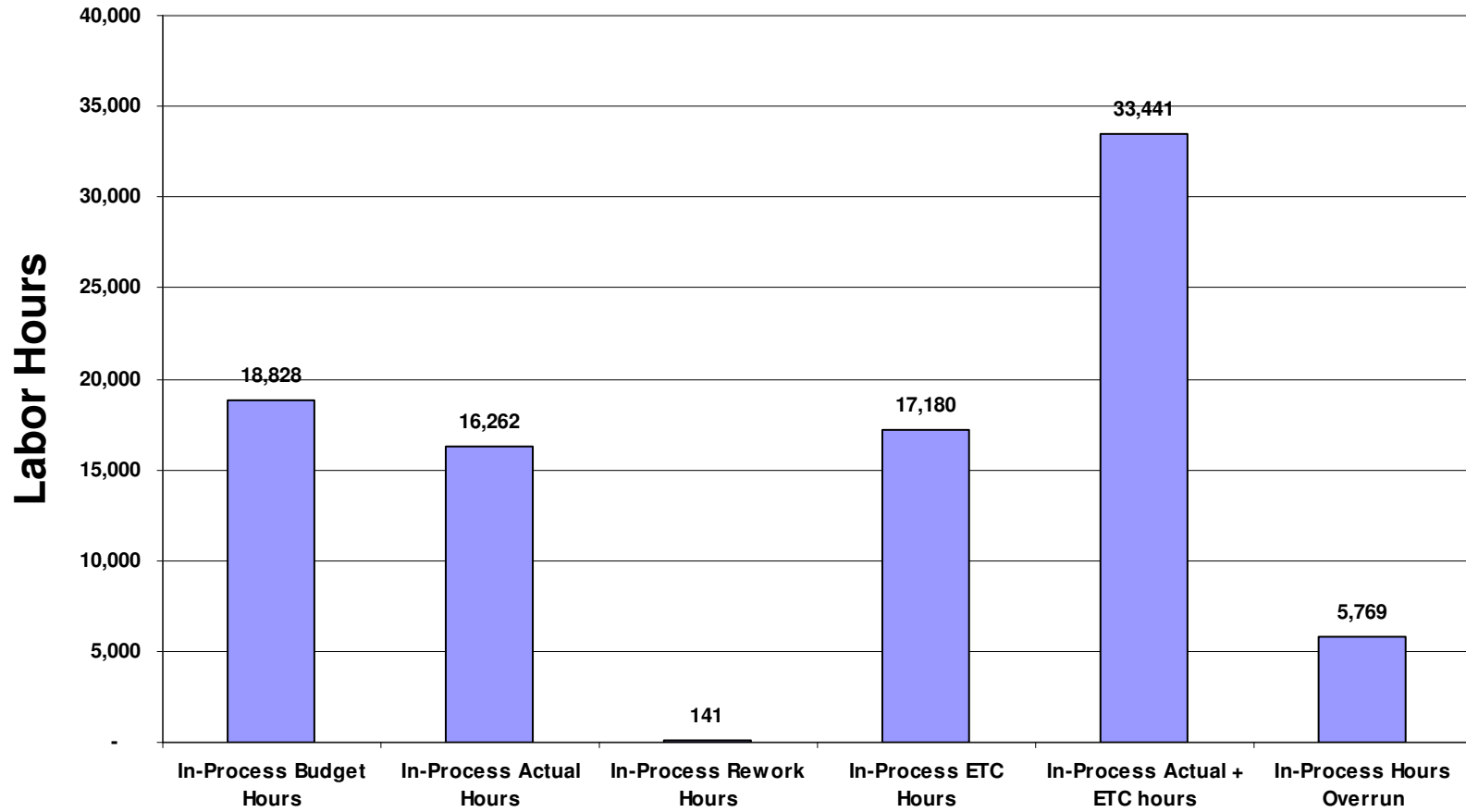
In-Process Work Order Performance

As a special subset of work orders, the following graphics summarize performance of in-process (started, not completed) work orders.

In-Process Work Order Performance Status

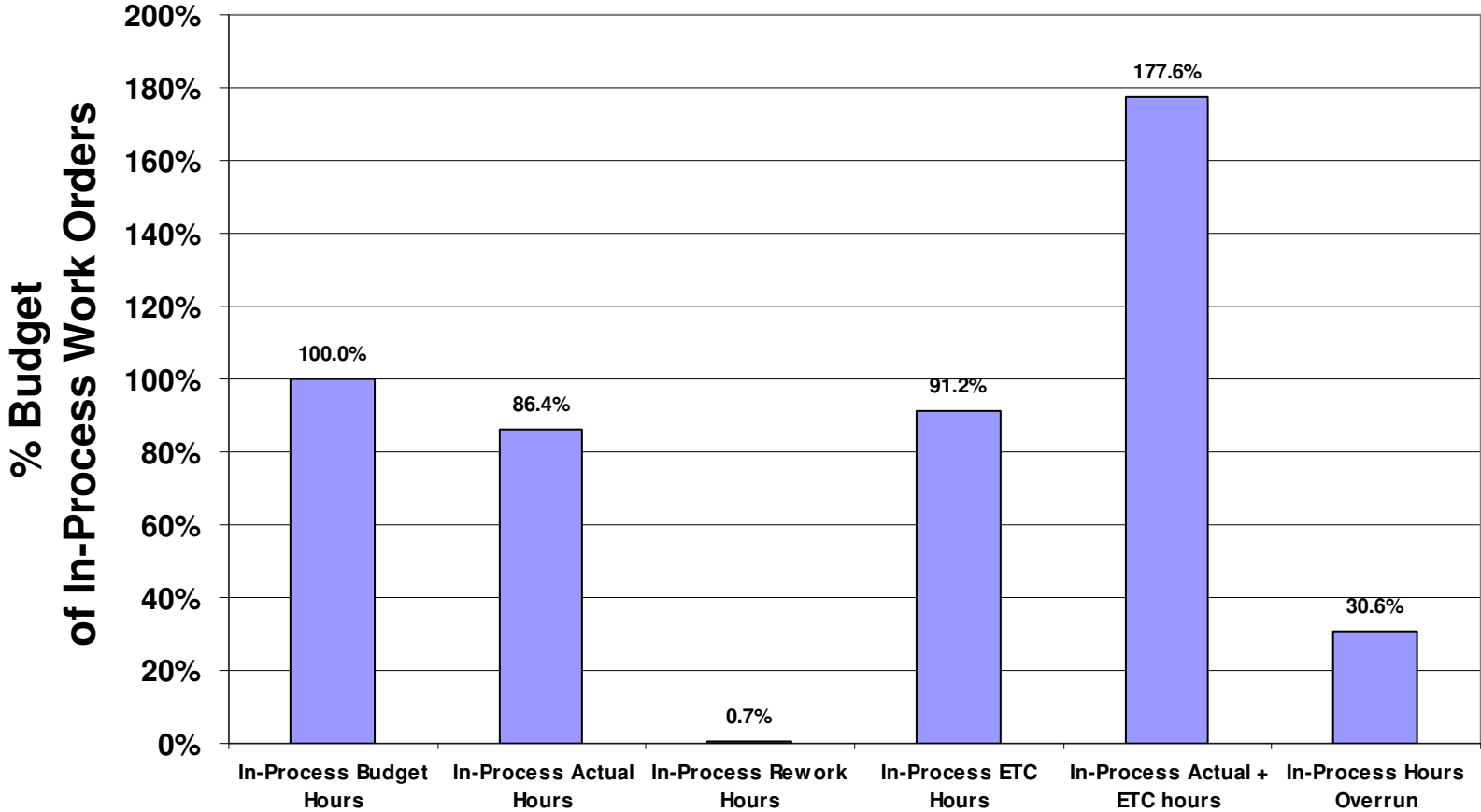


In-Process Work Order Performance Status



Rework Included in Actual Hours
ETC based on Manual Assessed Progress

In-Process Work Orders Performance Status

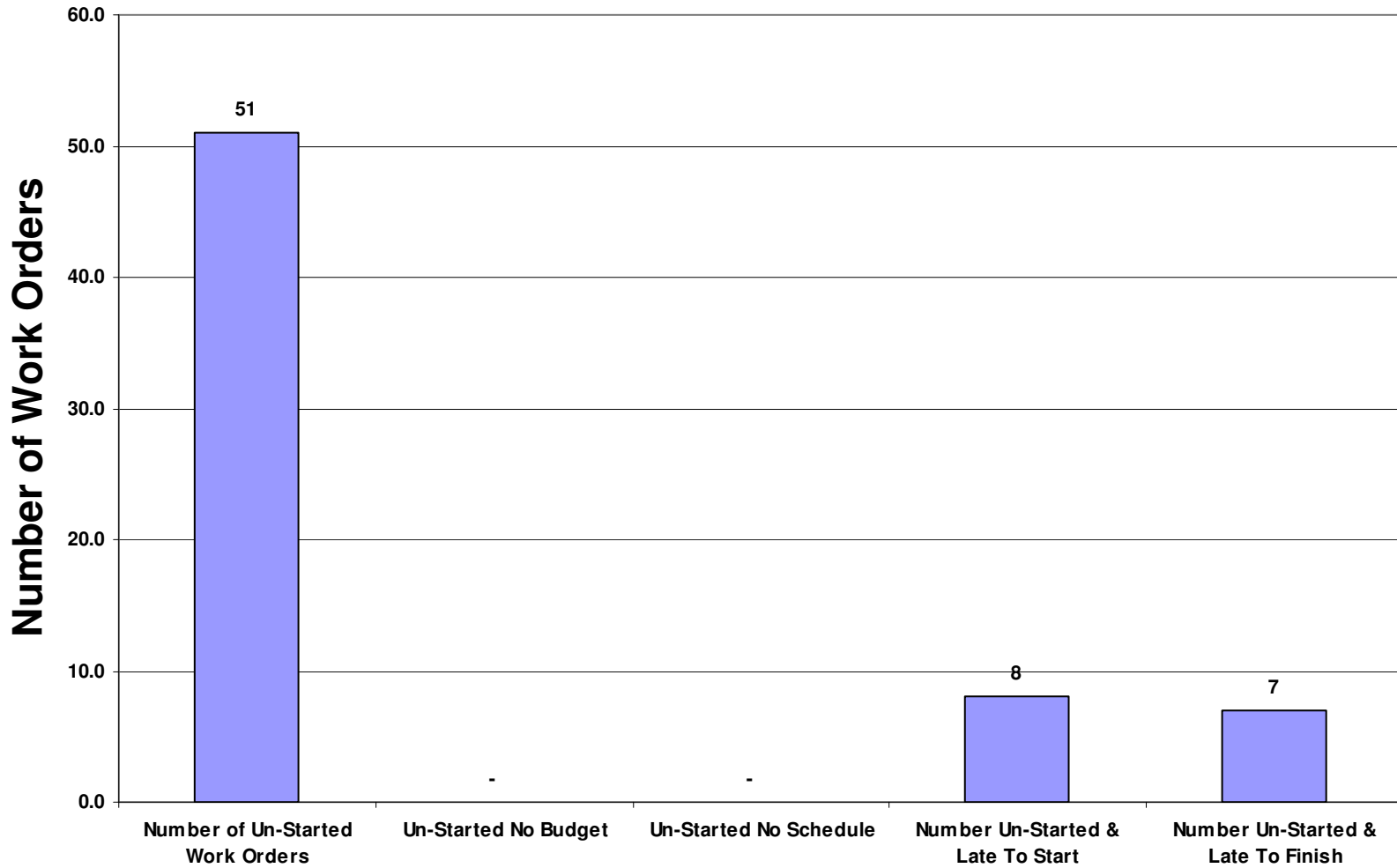


**Rework included in actual Hours
ETC based on manual assessed progress**

Un-Started Work Order Performance

As a special subset of work orders, the following graphics summarize the status of work orders not yet started.

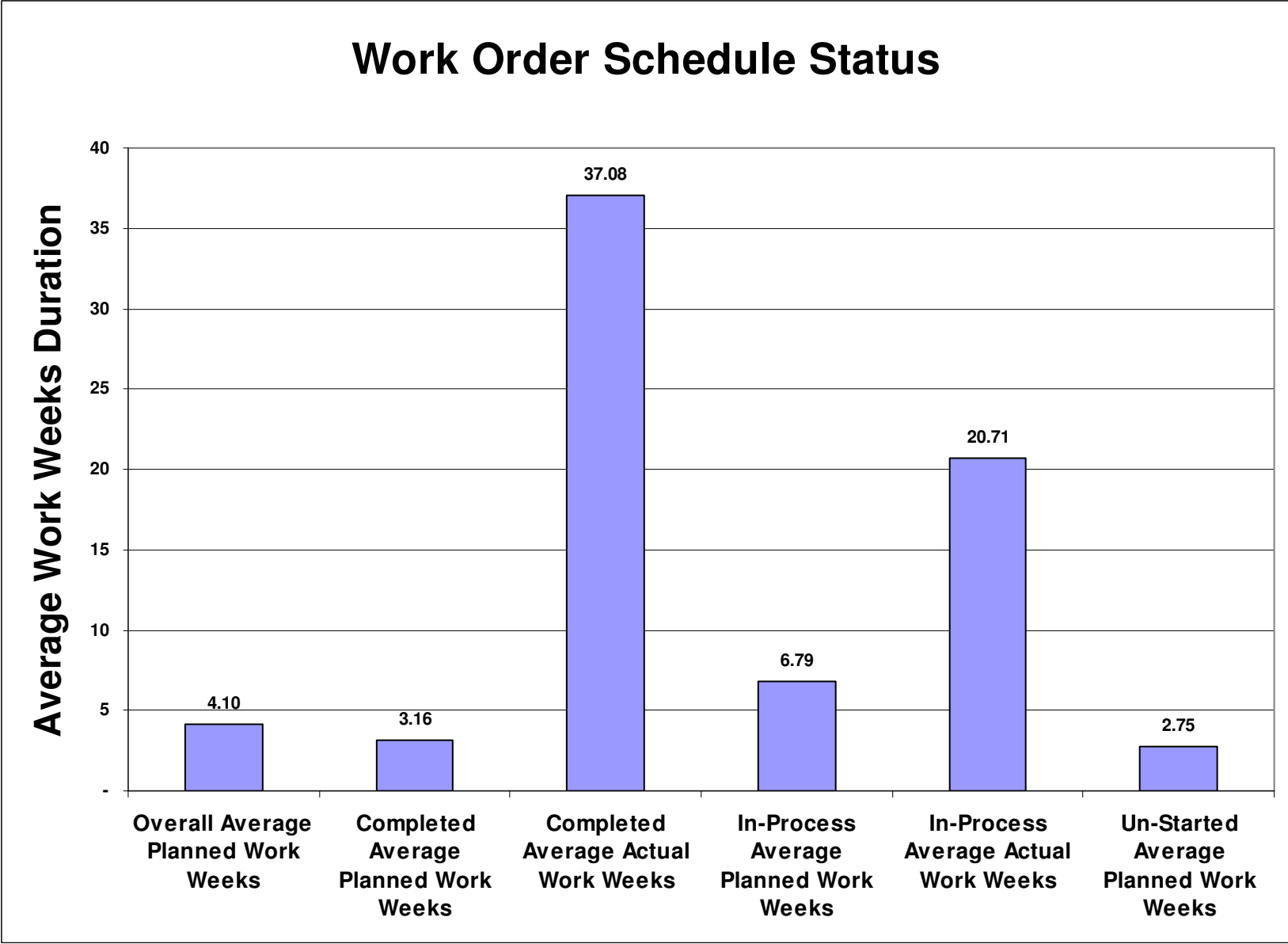
Un-Started Work Orders



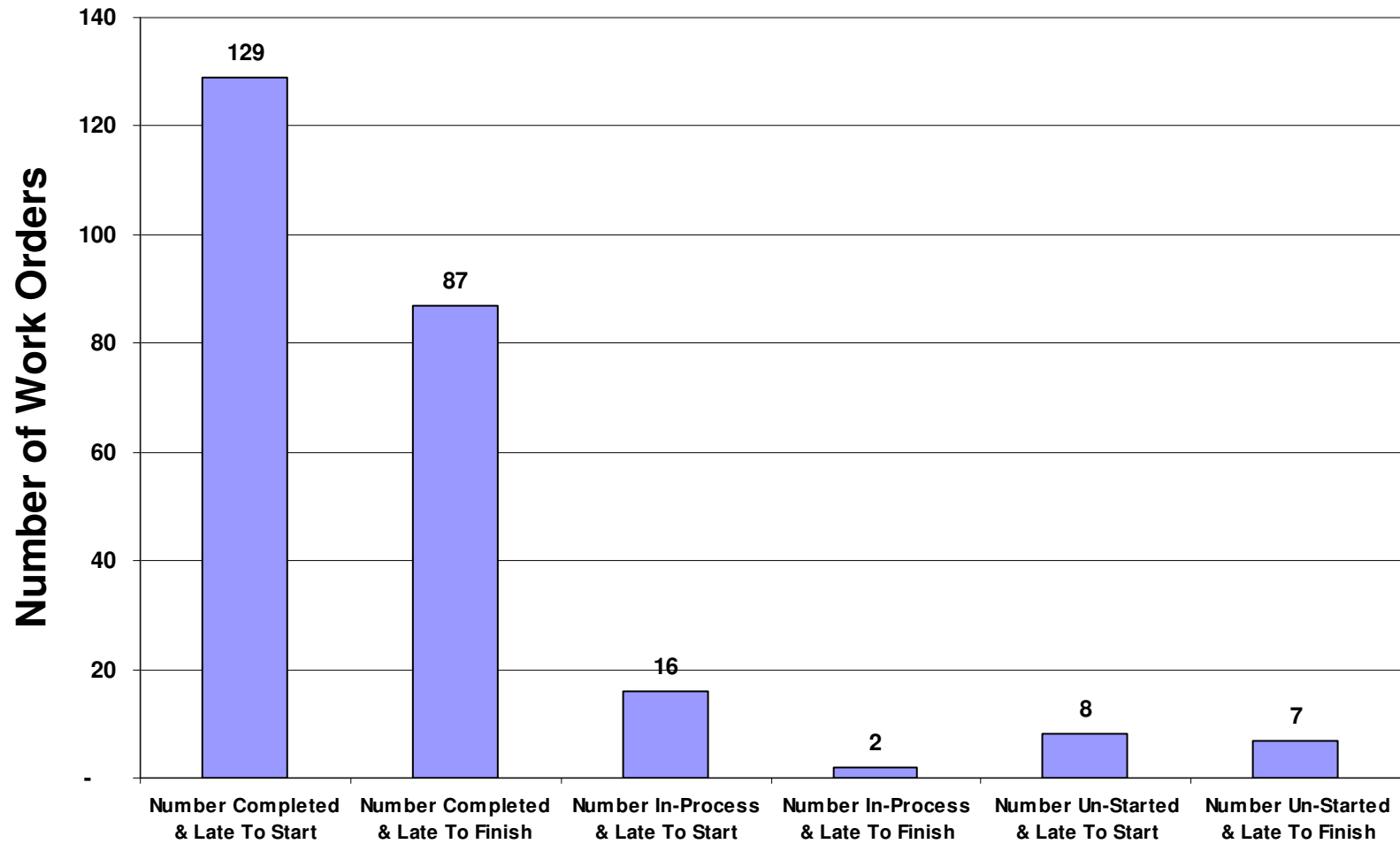
Work Order Schedule Performance

An important part of the analysis is the schedule performance of the work orders.

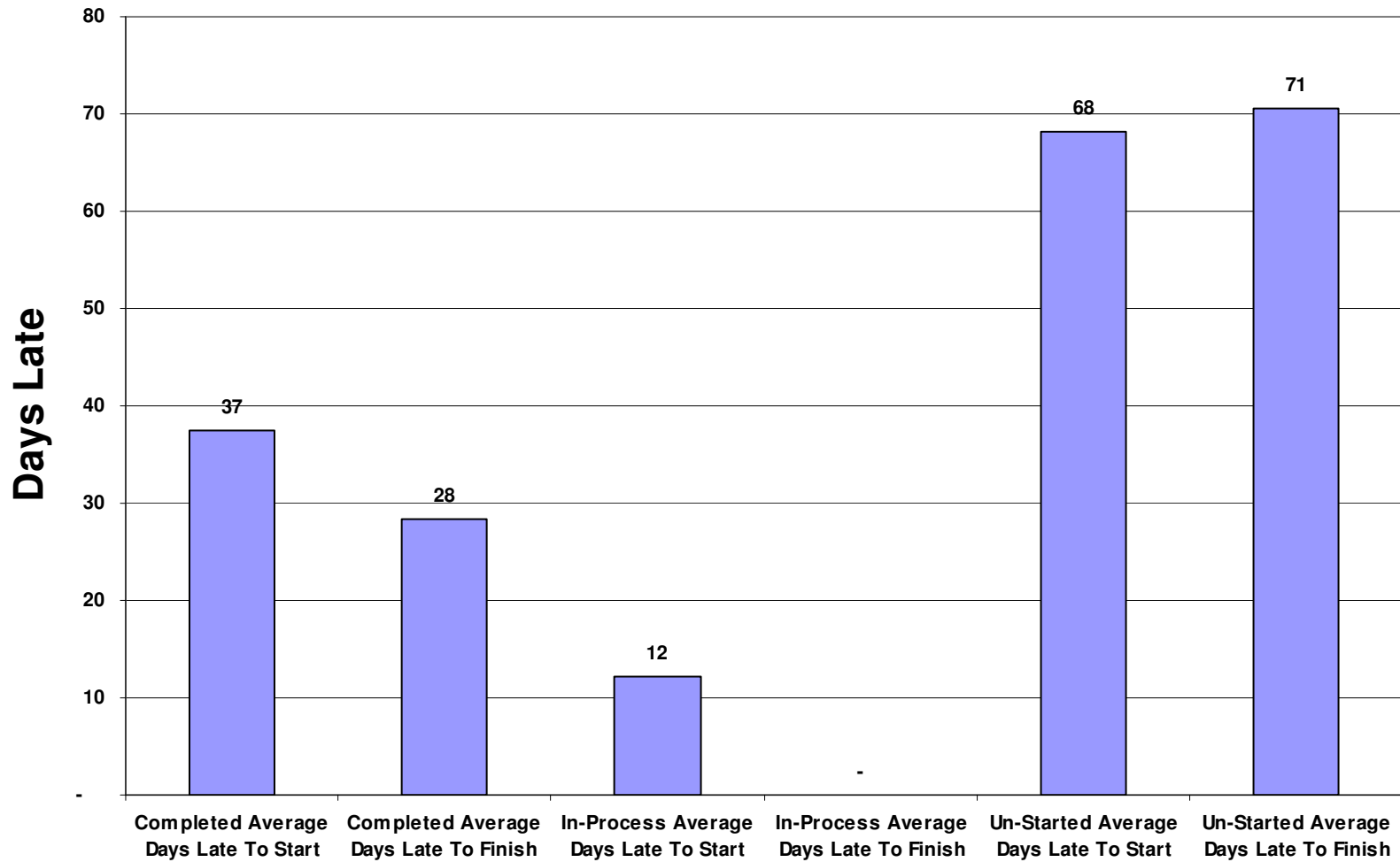
Work Order Schedule Status



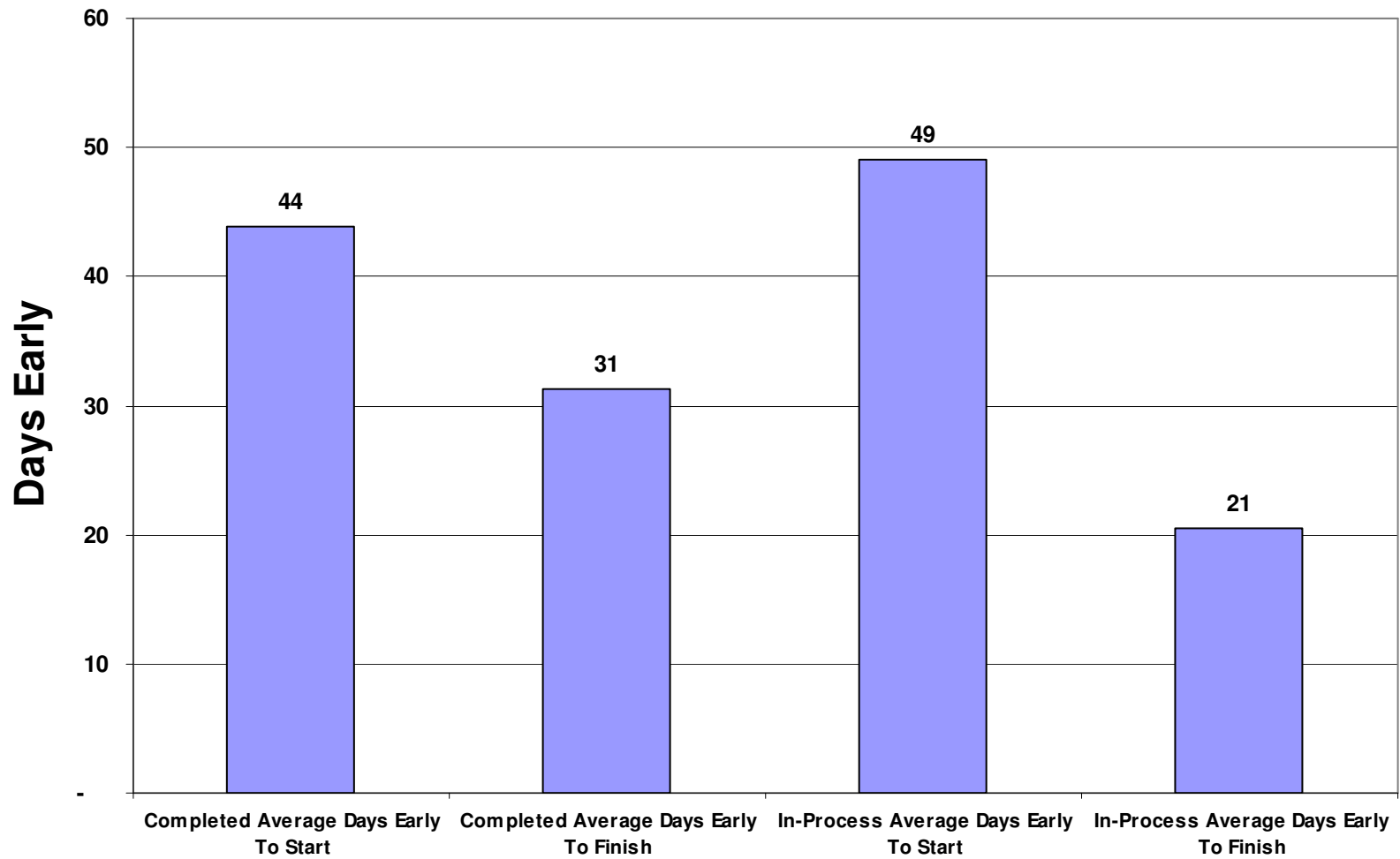
Work Order Late Schedule Status



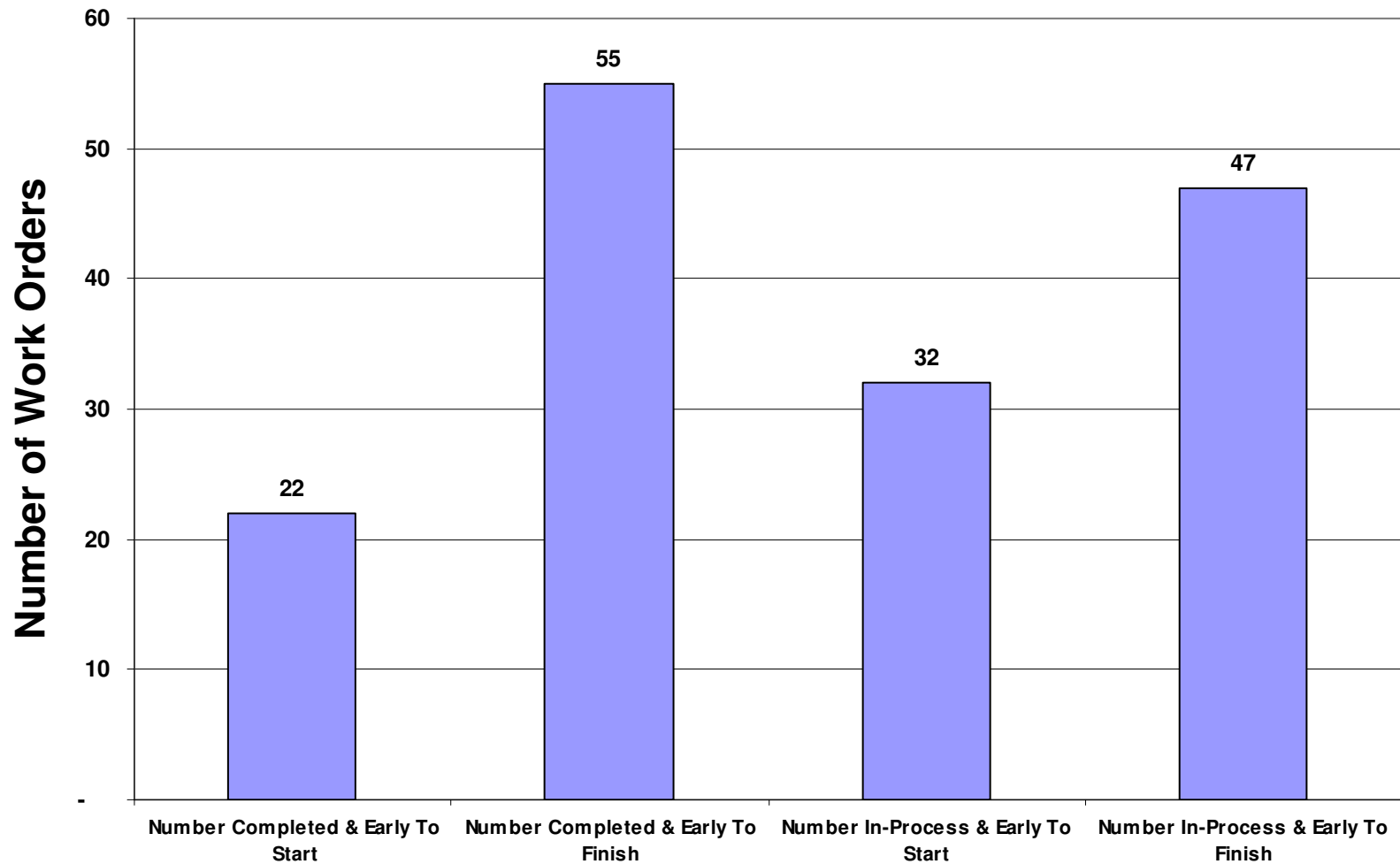
Work Order Late Schedule Status



Work Order Early Schedule Status



Work Orders Early Schedule Status



Training Sections



Descriptions Of Work Order Analysis Reports



Initial Set Up of *PERCEPTION* Work Order Database Query.



Initiating A Work Order Performance Analysis

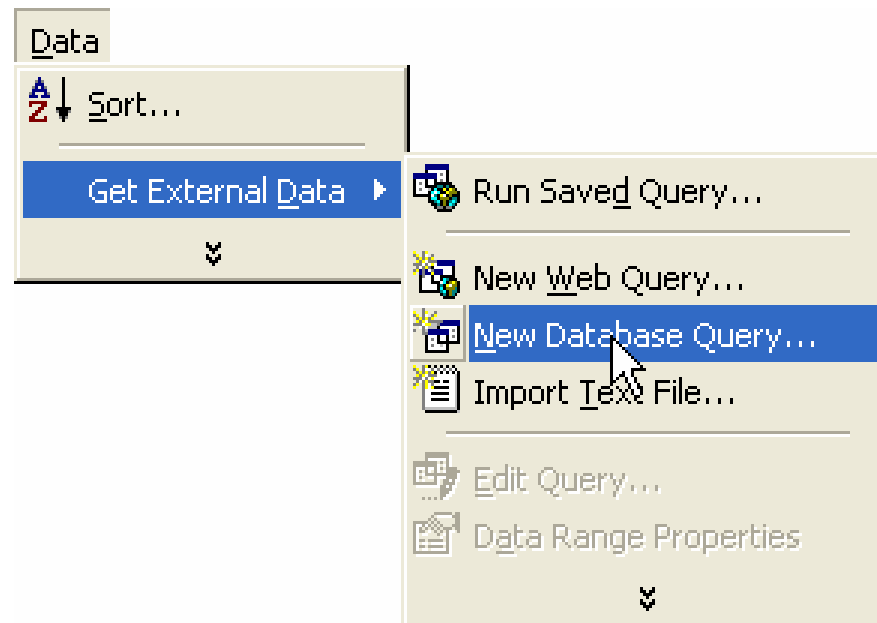
Setting Up A *PERCEPTION* Database Query For Work Order Data

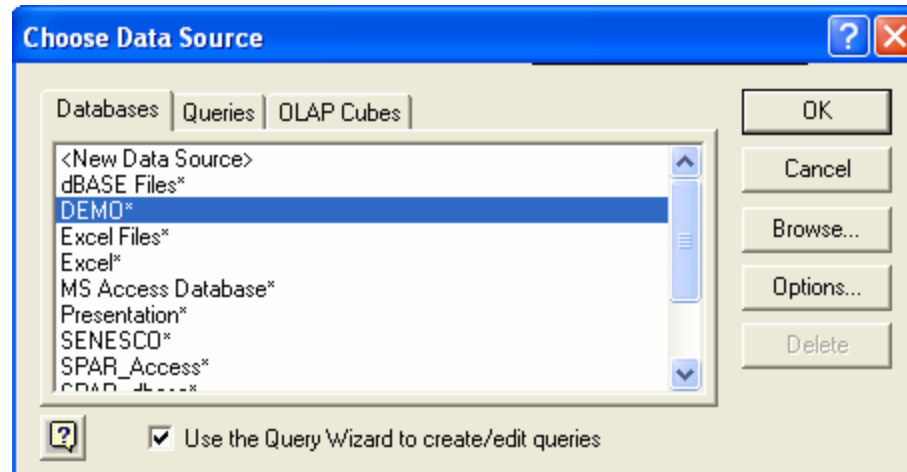
Open the Excel Work Order Performance Analysis workbook named “WorkOrderAnalysis.xls”.

Open the “WO Data” worksheet (next figure).

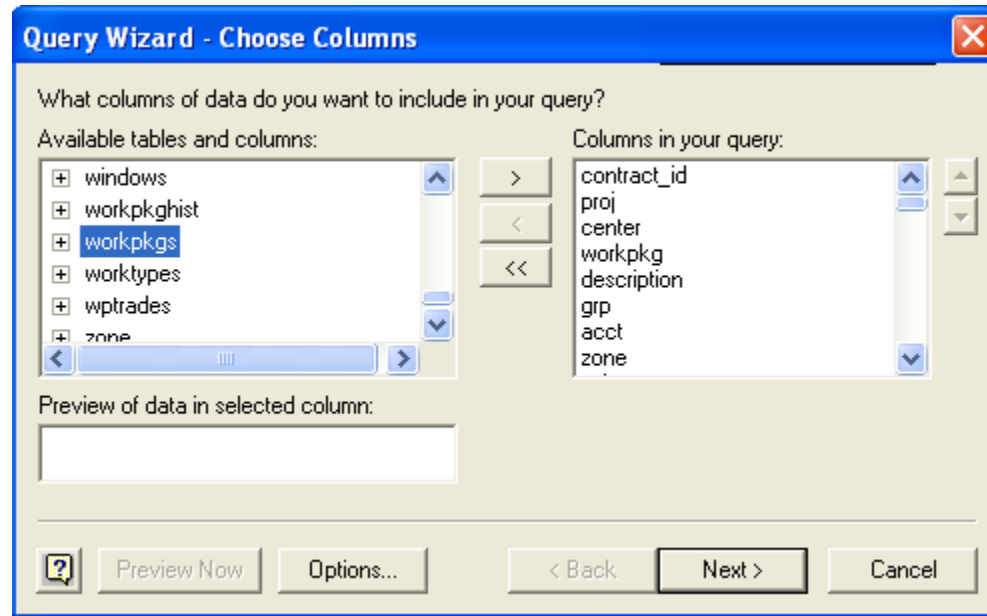
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	contract_id	proj	center	workpkg	description	grp	acct	zone	sub_zone	unit	assembly	sub_assembly	part	coa_item	coa_sgrp	coa_grp
2	TSHIP CONTRACT	2002	T25	51725	FAB FURNACE	5	517	27								
3	TSHIP CONTRACT	2002	T25	51735	FIT FURNACE E	5	517	27								
4	TSHIP CONTRACT	2002	T25	51921	ASSEMBLE IND	5	519	20								
5	TSHIP CONTRACT	2002	T25	52385	DRAFT INDICAT	5	523	00								
6	TSHIP CONTRACT	2002	T25	53005	PRELIM MACH	5	530	22								
7	TSHIP CONTRACT	2002	T25	53009	STERN TUBE GF	5	530	13								
8	TSHIP CONTRACT	2002	T25	53011	BORE+FIT STEP	5	530	13								
9	TSHIP CONTRACT	2002	T25	53021	ALIGN SHAFT P	5	530	22								
10	TSHIP CONTRACT	2002	T25	53023	SHAFTS SHIPW	5	530	22								
11	TSHIP CONTRACT	2002	T25	53025	ROPE GUARD	5	530	13								
12	TSHIP CONTRACT	2002	T25	53071	BOW THRUST F	5	530	70								
13	TSHIP CONTRACT	2002	T25	53073	TEST BOWTHRU	5	530	70								
14	TSHIP CONTRACT	2002	T25	53111	FIT RUDDER AT	5	532	10								
15	TSHIP CONTRACT	2002	T25	53121	GEARBOX TO H	5	531	22								
16	TSHIP CONTRACT	2002	T25	53123	MACHINE ME/G	5	531	23								
17	TSHIP CONTRACT	2002	T25	53125	ALIGN+CHOCK	5	531	22								
18	TSHIP CONTRACT	2002	T25	53127	RUN+TEST MAI	5	531	22								
19	TSHIP CONTRACT	2002	T25	53129	COLLISION CHC	5	531	22								
20	TSHIP CONTRACT	2002	T25	53313	START UP CPP	5	533	22								
21	TSHIP CONTRACT	2002	T25	53315	START UP HP A	5	533	23								
22	TSHIP CONTRACT	2002	T25	53317	START UP FUEL	5	533	22								
23	TSHIP CONTRACT	2002	T25	53319	GENERATOR TF	5	533	24								
24	TSHIP CONTRACT	2002	T25	53321	FIT MONORAIL	5	533	20								
25	TSHIP CONTRACT	2002	T25	53323	BALLAST MANIF	5	533	22								
26	TSHIP CONTRACT	2002	T25	53325	BALLAST CONT	5	533	22								
27	TSHIP CONTRACT	2002	T25	53327	BILGE+GEN SE	5	533	22								
28	TSHIP CONTRACT	2002	T25	53329	ME LUB OIL AU	5	533	22								
29	TSHIP CONTRACT	2002	T25	53331	RED GEAR LUB	5	533	22								
30	TSHIP CONTRACT	2002	T25	53333	PURIFIERS	5	533	22								
31	TSHIP CONTRACT	2002	T25	53341	WORKBENCHE	5	533	23								
32	TSHIP CONTRACT	2002	T25	53345	HP AIR AUXILLA	5	533	23								

In the main menu of the “WO Data” worksheet, click on “New Database Query.”



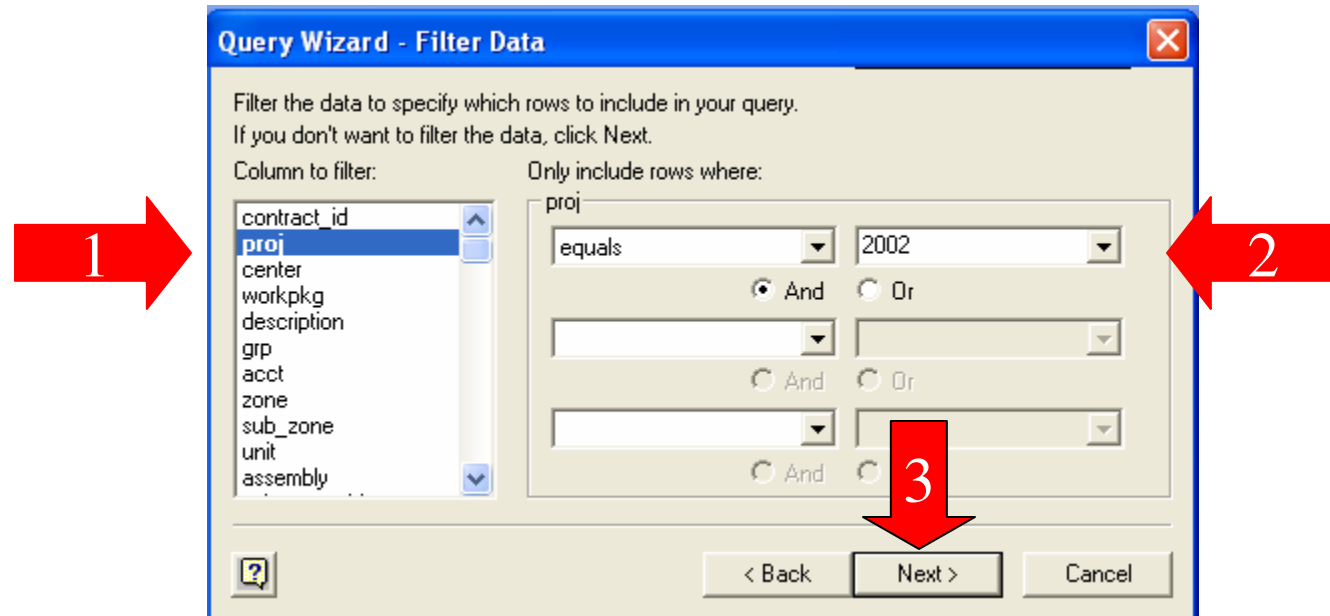


Choose the desired *PERCEPTION* database. Then, click on the “OK” button.



1. Select the “workpkgs” table from the drop down list.
2. Then, click on the transfer “>” button that will copy all columns of this table for the query.
3. Click on the “Next” button to continue.

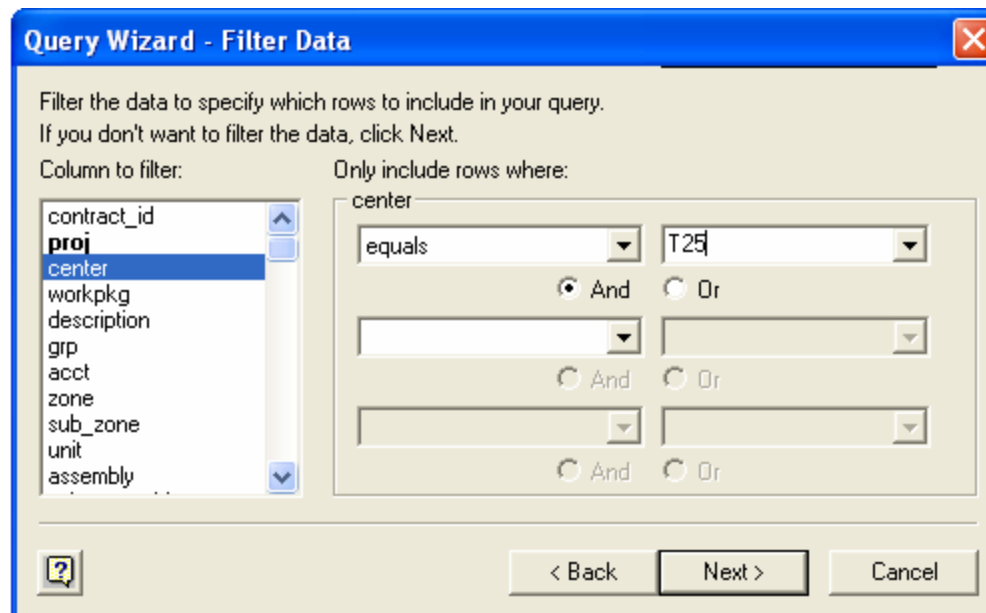
1. Select the column named “proj” to filter.



2. To the right, “only include rows where...” enter “equals”, then the desired project number for analysis.

3. If work orders from more than one project are to be selected, utilize the various filtering specifications available.

If additional filtering is required, such as focusing on a selected work center, click on the next appropriate column to filter.



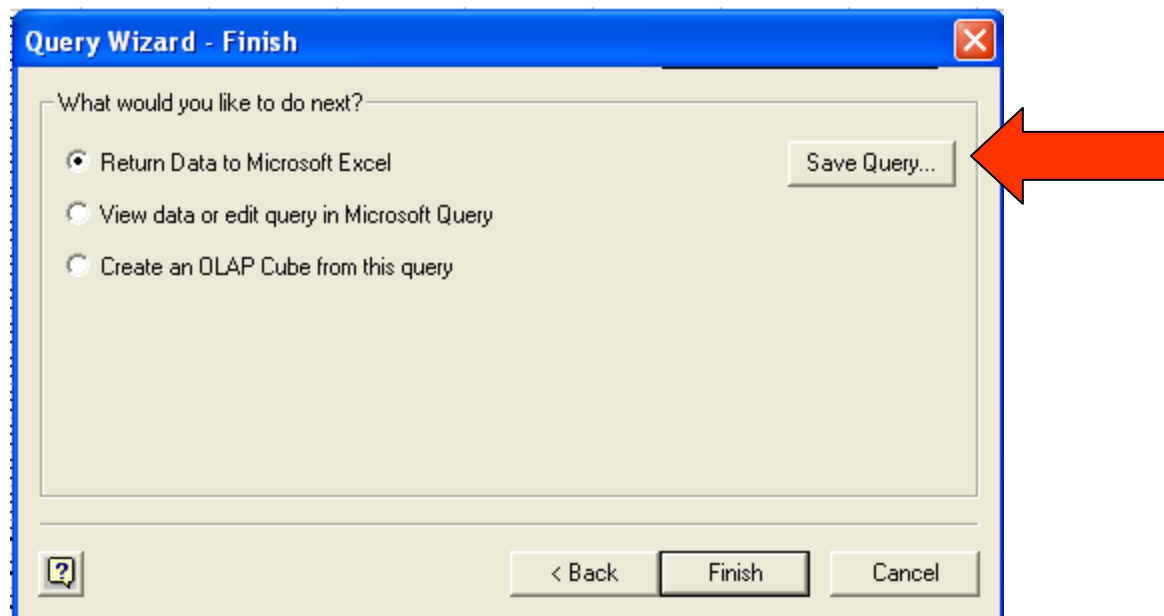
When the filtering specifications are complete, click on the “Next” button.

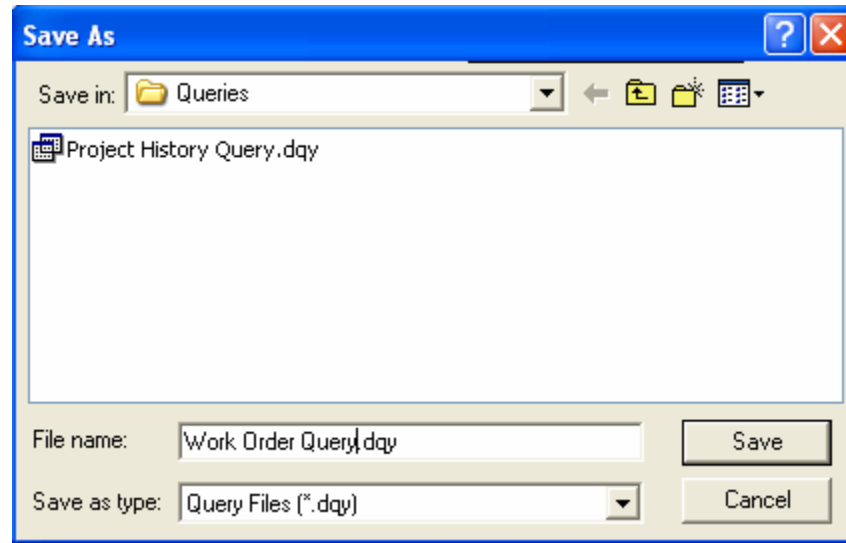
1. Select the sort order. Many options are available. However, the sort order is not important to these particular work order performance reports.



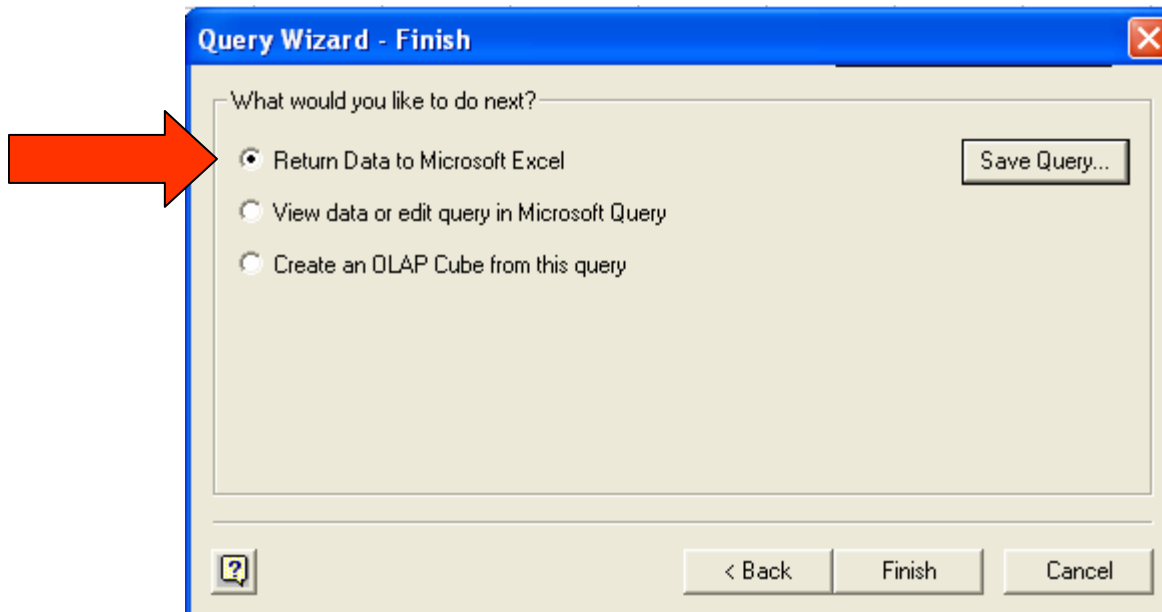
2. Then, click on the “Next” button.

Click on the “Save Query” button to save this setup for future use

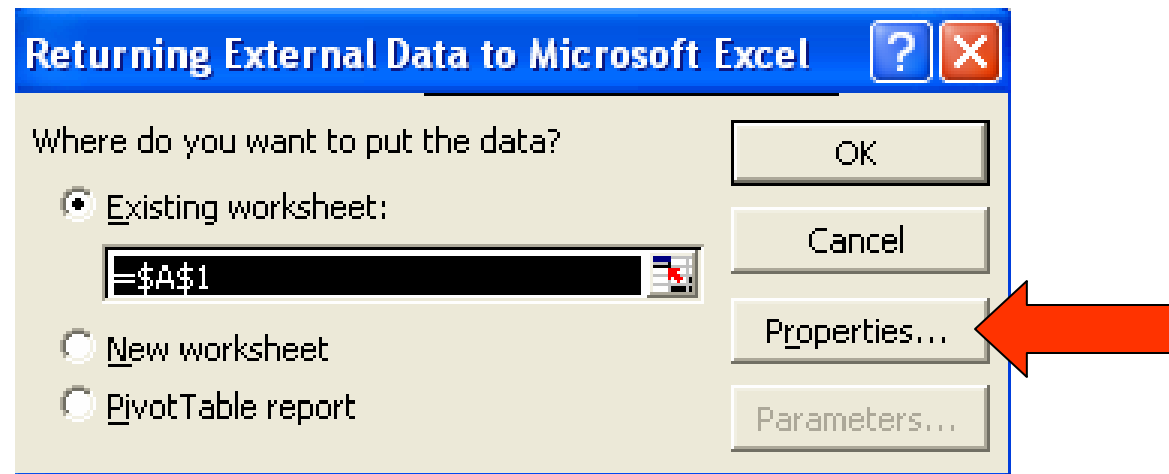




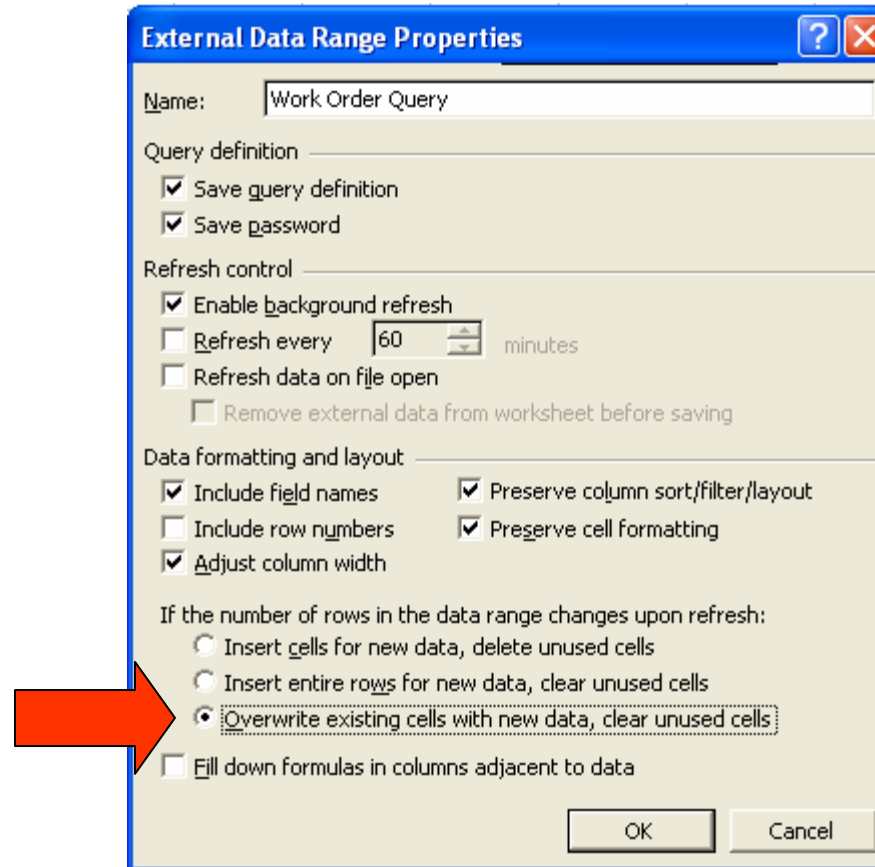
1. Enter a name (“Work Order Query.dqy”) for this query.
2. Then click on the “Save” button.



Turn on the option to “Return Data to Microsoft Excel.”



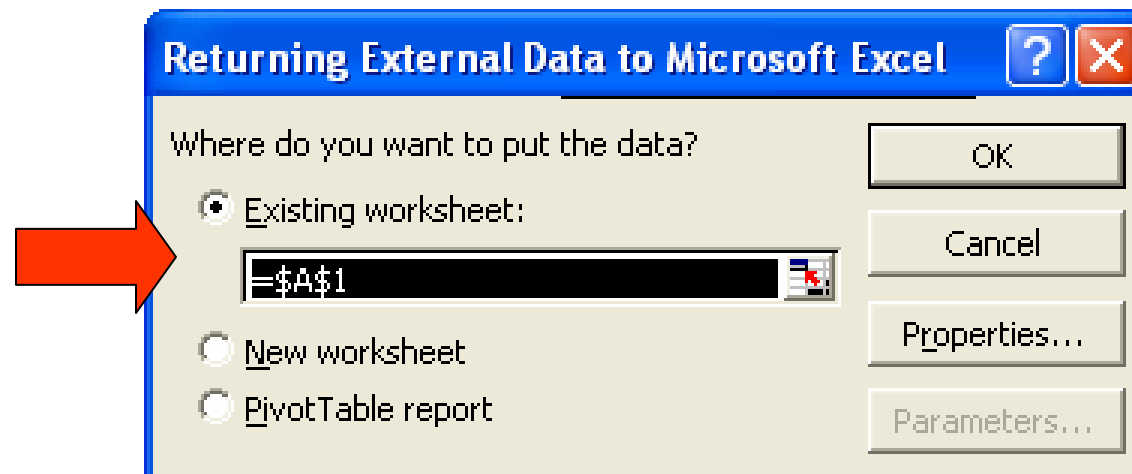
Click on the “Properties” button to set required data transfer options.



1. Turn on the option to “Overwrite existing cells with new data, clear unused cells.”

2. Click on the OK button.

1. Turn on the option to put the data in the “Existing worksheet (“History Table” worksheet)
2. Ensure that the queried data will be inserted into the worksheet, starting at \$A\$1.



3. Click on the OK button to complete the query setup.

End Of Query Set Up

Training Sections



Descriptions Of Work Order Analysis Reports



Initial Set Up of *PERCEPTION* Work Order Database Query.



Initiating A Work Order Performance Analysis

Execute A Work Order Performance Analysis

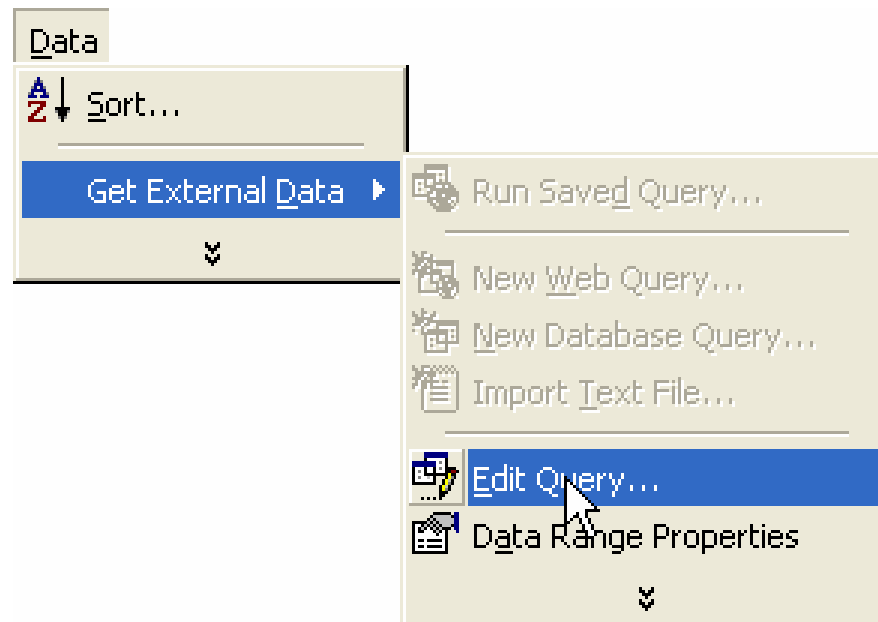
Once the query setup has been completed, the following procedure can be followed for selecting and reporting on any set of work orders managed in the *PERCEPTION* Database.

1. Open the Excel workbook named “WorkOrderAnalysis.xls”.

2. Open the “WO Data” worksheet.

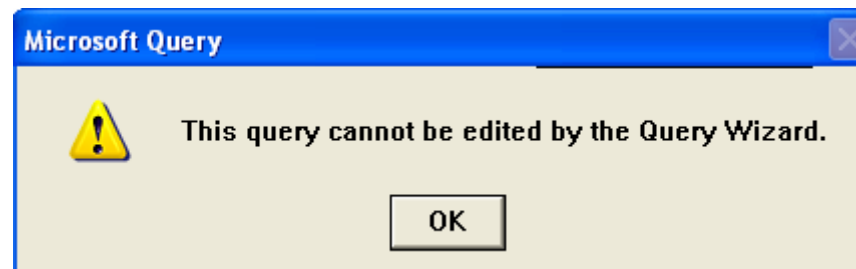
Note: The query set up requires that you have the “WO Data” worksheet opened.

**Click on main menu of the worksheet selection to
“Edit Query.”**



Ignore error message.

Click OK.



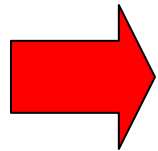
If a new query is required to access another database and/or to re-structure the range of work order selection, click on the new Query button on the toolbar.



Then, follow the same procedures as described for the initial query set up.

However, if the user only requires to change the specification values of the existing query set up, then proceed as follows:

System will display the previously-loaded project history table with “Criteria Field” and “Value” displayed.



Work Order Query

workpkgs

- *
- acct
- activity_center
- afdate
- ahours
- aldols

Criteria Field: proj center

Value: '2002' 'T25'

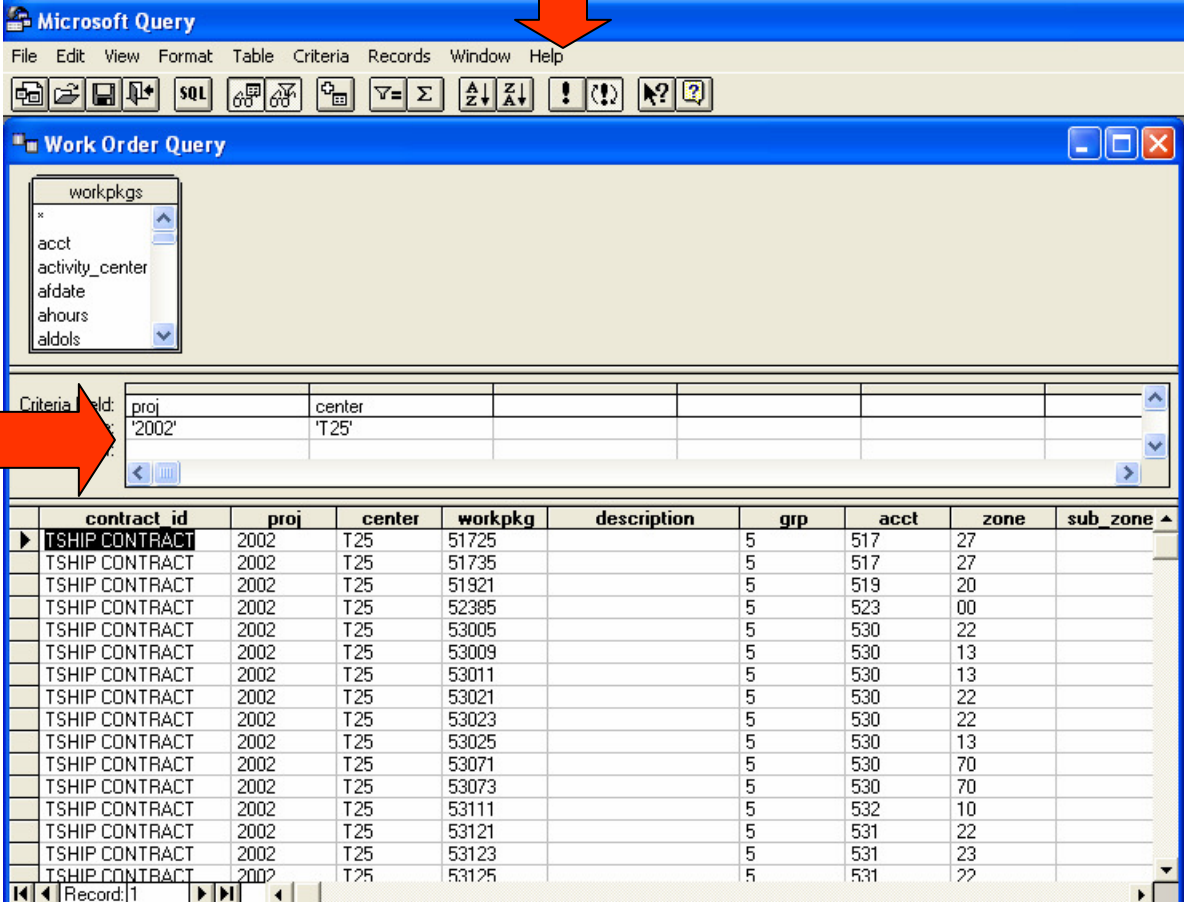
or:

contract id	proj	center	workpkg	description	grp	acct	zone	sub_zone
TSHIP CONTRACT	2002	T25	51725		5	517	27	
TSHIP CONTRACT	2002	T25	51735		5	517	27	
TSHIP CONTRACT	2002	T25	51921		5	519	20	
TSHIP CONTRACT	2002	T25	52385		5	523	00	
TSHIP CONTRACT	2002	T25	53005		5	530	22	
TSHIP CONTRACT	2002	T25	53009		5	530	13	
TSHIP CONTRACT	2002	T25	53011		5	530	13	
TSHIP CONTRACT	2002	T25	53021		5	530	22	
TSHIP CONTRACT	2002	T25	53023		5	530	22	
TSHIP CONTRACT	2002	T25	53025		5	530	13	
TSHIP CONTRACT	2002	T25	53071		5	530	70	
TSHIP CONTRACT	2002	T25	53073		5	530	70	
TSHIP CONTRACT	2002	T25	53111		5	532	10	
TSHIP CONTRACT	2002	T25	53121		5	531	22	
TSHIP CONTRACT	2002	T25	53123		5	531	23	
TSHIP CONTRACT	2002	T25	53125		5	531	22	

Record: 1

2. Then, click the “Query Now” button. 

1. Change the “Value” of the project number and any other selection specifications, to the one required for the desired work order analysis.



The screenshot shows the Microsoft Query interface. The 'Criteria' field is set to 'proj: 2002' and 'center: T25'. The table below shows the results of the query.

contract_id	proj	center	workpkg	description	grp	acct	zone	sub_zone
TSHIP CONTRACT	2002	T25	51725		5	517	27	
TSHIP CONTRACT	2002	T25	51735		5	517	27	
TSHIP CONTRACT	2002	T25	51921		5	519	20	
TSHIP CONTRACT	2002	T25	52385		5	523	00	
TSHIP CONTRACT	2002	T25	53005		5	530	22	
TSHIP CONTRACT	2002	T25	53009		5	530	13	
TSHIP CONTRACT	2002	T25	53011		5	530	13	
TSHIP CONTRACT	2002	T25	53021		5	530	22	
TSHIP CONTRACT	2002	T25	53023		5	530	22	
TSHIP CONTRACT	2002	T25	53025		5	530	13	
TSHIP CONTRACT	2002	T25	53071		5	530	70	
TSHIP CONTRACT	2002	T25	53073		5	530	70	
TSHIP CONTRACT	2002	T25	53111		5	532	10	
TSHIP CONTRACT	2002	T25	53121		5	531	22	
TSHIP CONTRACT	2002	T25	53123		5	531	23	
TSHIP CONTRACT	2002	T25	53125		5	531	22	

2. Click the “Return Data” button



1. The system will then retrieve the new selection of work orders.

The screenshot shows the Microsoft Query application window titled "Work Order Query". The interface includes a menu bar (File, Edit, View, Format, Table, Criteria, Records, Window, Help) and a toolbar with various icons. A red arrow points to the "Return Data" button in the toolbar. Below the toolbar, there is a list of fields from the "workpkgs" table: acct, activity_center, afddate, ahours, and alddols. The "Criteria Field" section shows a table with columns for field names and values. The "proj" field has a value of '2002' and the "center" field has a value of 'T25'. Below this is a data table with the following columns: contract_id, proj, center, workpkg, description, grp, acct, zone, and sub_zone. The data table contains 18 rows of work order records.

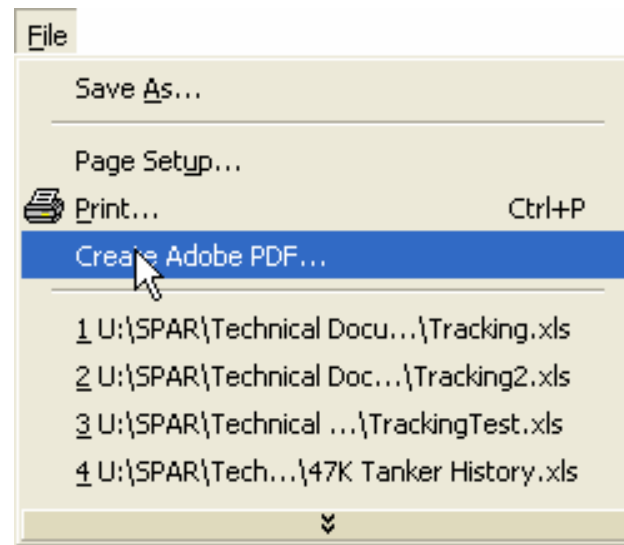
contract_id	proj	center	workpkg	description	grp	acct	zone	sub_zone
TSHIP CONTRACT	2002	T25	51725		5	517	27	
TSHIP CONTRACT	2002	T25	51735		5	517	27	
TSHIP CONTRACT	2002	T25	51921		5	519	20	
TSHIP CONTRACT	2002	T25	52385		5	523	00	
TSHIP CONTRACT	2002	T25	53005		5	530	22	
TSHIP CONTRACT	2002	T25	53009		5	530	13	
TSHIP CONTRACT	2002	T25	53011		5	530	13	
TSHIP CONTRACT	2002	T25	53021		5	530	22	
TSHIP CONTRACT	2002	T25	53023		5	530	22	
TSHIP CONTRACT	2002	T25	53025		5	530	13	
TSHIP CONTRACT	2002	T25	53071		5	530	70	
TSHIP CONTRACT	2002	T25	53073		5	530	70	
TSHIP CONTRACT	2002	T25	53111		5	532	10	
TSHIP CONTRACT	2002	T25	53121		5	531	22	
TSHIP CONTRACT	2002	T25	53123		5	531	23	
TSHIP CONTRACT	2002	T25	53125		5	531	22	

The resulting reports are found in the “Graphs” worksheet:

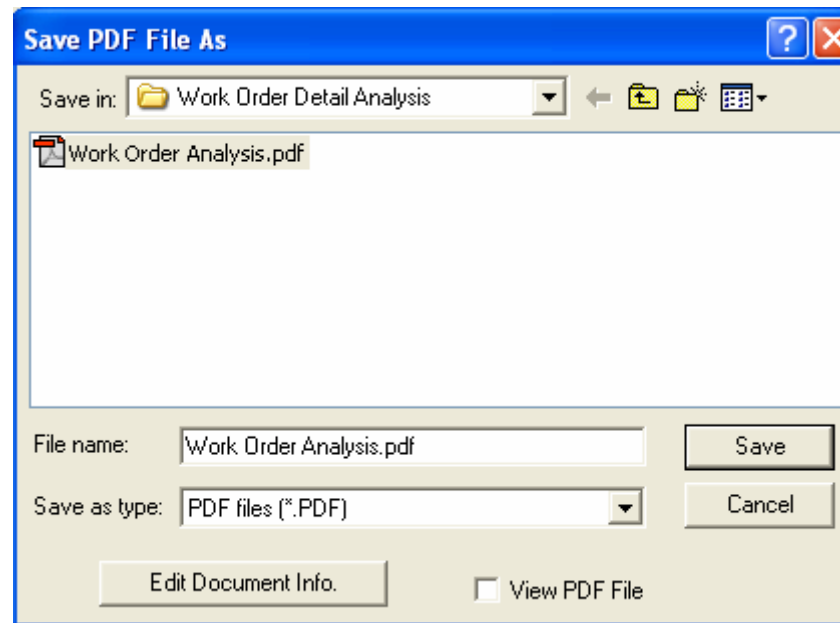
1. Overall Work Order Planning Status - Number of Work Orders
2. Overall Work Order Performance Status - Number of Work Orders
3. Overall Work Order Performance Status – Labor Hours
4. Overall Work Order Performance Status - Percentages
5. Completed Work Order Performance Status - Number of Work Orders
6. Completed Work Order Performance Status - Labor Hours
7. Completed Work Order Performance Status - Percentages
8. In-Process Work Order Performance Status - Number of Work Orders
9. In-Process Work Order Performance Status - Labor Hours
10. In-Process Work Order Performance Status - Percentages
11. Un-Started Work Orders - Number of Work Orders
12. Work Order Schedule Status – Average Weeks Duration
13. Work Order Late & Early Schedule Status

To email these reports, output them to Acrobat PDF Writer:

Open a report worksheet and click on *File/Create Adobe PDF*



**Identify a PDF file name and directory to store it.
Then click on *Save*.**



This file then can be emailed and/or printed directly.

End Of Tutorial