



## COAA Industry Benchmarking

If you are not keeping score you  
are just practicing





## COAA Industry Benchmarking Committee Members

- Don Mousseau                      Suncor Energy Inc.
- Steve Revay                        Revay and Associates
- Lea Chambers                      Golder Associates Ltd.
- Bob Montgomery                 Colt Engineering
- Larry Sondrol                      Suncor Energy Inc.
- Dave Williams                     Bantrel
- Patricia Armitage                 Alberta Employment





# COAA Industry Benchmarking

## Committee Members (con't)

- Richard Haack                      Shell Canada
- Warren Rogers                     Flint Energy
- Lubo Iliev                            Bantrel
- Greg Taylor                         Nexen
- Korey Jackson                      Stantec





## OBJECTIVES

- Identification of COAA **metric** requirements
- Development of a **custom benchmarking questionnaire**, and **tailored** to the characteristics and environment of the COAA projects
- Establishment of a **set of benchmarks for the Alberta** projects using this questionnaire
- Documentation of COAA project performance against the **Alberta benchmarks**
- Identification and documentation of **factors and practices impacting project performance**





## Project Phases

- Phase I: Metric and report definition.
- Phase II: Program data collection instrument and report.
- Phase III: Conduct onsite training and commence data collection.
- **Phase IV: Collect and validate data, perform analysis, develop an Alberta data set for benchmarking, and prepare project and company reports.**
- Phase V: Prepare Alberta Report documenting performance and quantifying the impacts of local factors on productivity and performance metrics.

Current





## COAA Industry Benchmarking

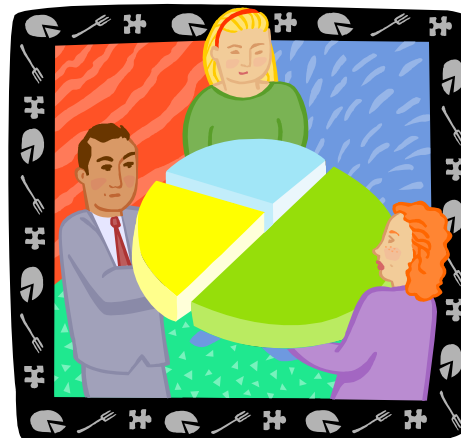
The following companies registered for the training:

- Shell
- Suncor Energy
- Opti Canada Inc.
- Imperial Oil Resources
- Petro-Canada (Oil Sands)
- Flint Energy Services
- Jacobs Canada Inc.
- Bantrel Inc.
- Canadian Natural Resources Ltd.
- Husky Energy
- Nexen
- Enbridge Pipelines
- Tri- Ocean Engineering
- Colt





# Benefits of Benchmarking







## Using Benchmarking to Improve Project Performance

- Review **project drivers** early on.
- Identify **Best Practices** to support goals.
- **Initiate questionnaire** at project sanction:
  - Enter general info, participant data, budget, target schedule and planned use of practices.
- Enter project closeout data and **submit project**.
- Use **reports** as part of project post mortem exercise for continuous improvement.







## Monitor Project Performance

- The Confidential Online Key Report:
  - Is a “tool for self analysis”
  - **Assesses your performance** against
  - the database.
- Is pre-programmed to **compare** with similar projects.
- Can assist you in **identifying performance problems.**
- Can help you **locate sources of problems.**

**Benchmarking & Metrics**  
Clear Small Project Key Report  
WSPC - Auto 104 Colour Rotation

**Project General Information**

Company Name	Intico	Industry Group	Buildings
Project Name	Energy 2007 Database Extension	Project Type	Lowrise Office
CII Project I.D.	07346	Cost Category	- SEMM
Project Budget	\$2,989,490.00	Project Nature	Green Roofs
Project Cost	\$2,866,078.00	Location	TX
Overall Project Duration	26 Weeks	Country Class	Domestic
Design - Startup Duration	16 Weeks	Country	USA

**Performance Metric NORMS**

Cost Performance			
Metric	Project Score	Database Mean	Percent Spending More
Project Cost Growth	-0.038	-0.078	37
Delta Cost Growth	0.038	0.108	30
Design Cost Growth	-0.174	-0.049	24
Procurement Cost Growth	0.000	-0.110	11
Construction Cost Growth	-0.078	-0.024	30

Phase Cost Factors			
Metric	Project Score	Database Mean	Percent Spending More
Pre-Project Planning Phase Cost Factor	0.035	0.041	16
Design Phase Cost Factor	0.039	0.059	20
Procurement Phase Cost Factor	0.080	0.052	12
Construction Phase Cost Factor	0.804	0.882	31
Startup Phase Cost Factor	0.042	0.029	30





## The Value of Benchmarking

- **Improves** project & company **performance** when used as an ongoing measure.
- **Establishes** improvement goals based on **external/competitive benchmarks.**
- **Enables** your company to understand & achieve **“best in class” performance.**



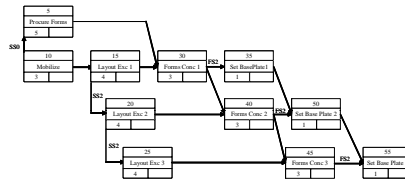


## Performance Metrics

➤ Cost



➤ Schedule



➤ Safety



➤ Change

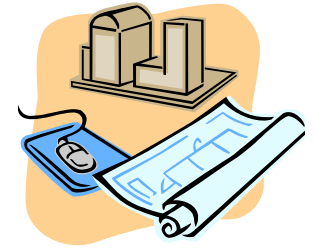


➤ Rework



➤ Engineering  
Productivity

(Design Hours/IFC Quantities)



➤ Construction  
Productivity

(Work-Hours/Installed Quantity)



➤ Estimating  
Performance

(Actual / Estimated Productivity)

(Actual / Estimated Total Installed Unit Cost)





## Benchmarking Associate Training





## Join Us Now!

### COAA Benchmarking Associate Training

**Next session: Web-based Training**

**→ June 20, 2007 @1pm - 5pm Mountain  
Daylight Savings Time**

To register, please send an e-mail to

**Deborah DeGezelle** [[debdeg@mail.utexas.edu](mailto:debdeg@mail.utexas.edu)]





# Online Benchmarking System



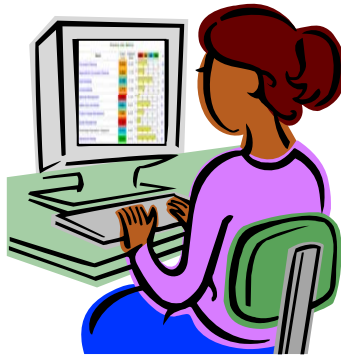
Remote Data Entry



COAA Database



Project Reports



Industry Analysis





## COAA Industry Benchmarking

- Projects will be Benchmarked twice in the life cycle:
  - At Project Sanction or AFE
  - At Mechanical Completion
  
- The Questionnaire has been adapted to Alberta Projects to reflect our standards and typical metrics.
  
- Questionnaires are on web site







# BM&M Project Central

<http://www.cii-benchmarking.org>

Construction Industry Institute  
**CII**<sup>TM</sup>  
benchmarking and metrics

Measure...  
Assess...  
Improve...  
Repeat...



[Home](#)

[Mission Statement](#)

[About CII BM & M](#)

[Log in to Project Central](#)

[Benchmarking Bytes](#)

[Downloads](#)

[Training - March 25 + 26, 2003](#)

[Benchmarking Products](#)

[How Can My Company Get Involved?](#)

[Benchmarking Participants Program](#)

[Metrics](#)

[Benchmarking Staff](#)

The CII Benchmarking & Metrics program is a user friendly, resource efficient, statistically credible benchmarking system that provides quantitative data essential for the support of cost/benefit analyses.

Participants input their capital facilities project data into the Benchmarking online system, Project Central, and then assess their projects and company performance in real-time. Once data is entered, project performance is compared against a large sample of projects from some of the industry's most reputable firms.

Potential for improvement and actual cost savings can be quantified supporting further company self-analysis and improvement programs.

[How can my company get involved in CII Benchmarking?](#)

[Benchmarking Participants Only](#)

Log in to [Project Central](#)







# Key Results



Benchmarking & Metrics

## Owner Project Key Report

Testco

**COMPANY CONFIDENTIAL**

12-Feb-06



COAA

**SAMPLE**

### Project General Information

Company Name	Testco	Imperial / Metric	Metric
Project Name	Test1	Industry Group	Heavy Industrial
Project I.D.	AO1001	Project Type	Oil Refining
Project Budget	\$ 527,000,000	Cost Category	> \$100MM
Project Total Installed Cost	\$ 546,000,000	Project Nature	Grass Root
Overall Project Duration	240 Weeks	Project Driver	Schedule
Design-Startup Duration	160 Weeks	Product Capacity	50,000 BOE / Day
Total Project Work-Hours	2,500,000	Project Location:	
Total Installed Cost / Major Equipment Cost	2.35	City	Ft. McMurray
Project Completion Date	N/A	Province	Alberta
Currency	CAD	Country	Canada
Historical Cost Index	N/A		





# Key Results

Testco

**COMPANY CONFIDENTIAL**

AO1001

## Actual Construction Productivity

Concrete						
Metric	Wk-Hrs	Installed Quantity	Unit Rate	Database Mean	4Q 3Q 2Q 1Q	n
<b>Slabs</b>						
On-Grade (CM)	0	0	N/A	DS	N/A	N/A
Elevated Slabs/ On Deck (CM)	25,117	5,791	4.34	6.80		16*
Area Paving (CM)	0	0	N/A	DS	N/A	N/A
Total Slabs (CM)	25,117	5,791	4.34	6.28		11*
Total Installed Unit Cost (\$/ CM)	<b>Actual</b>	<b>Estimated</b>	<b>Act/Est</b>	<b>DB Mean</b>		
	520	500	1.04	1.30		11
<b>Foundations</b>						





## Key Milestones

- COAA and the Construction Industry Institute reached agreement to develop a “Made in Alberta” Benchmarking Program
- Government of Alberta agreed to fund 50% of the \$300,000 project cost
- Data has been or is being entered on 30 projects
- Training of 16 companies
  - 9 Owners
  - 7 Contractors
  - 69 Individuals





## How to Participate?

Contact The Benchmarking Committee

- Steve Revay (Chair) [sorevay@revay.com](mailto:sorevay@revay.com)
- Don Mousseau (Chair) [dmousseau@suncor.com](mailto:dmousseau@suncor.com)





## Benchmarking Workshops

12:45 – 2:00 Salon 8

2:30 - 4:00 Salon 8

- Larry Sondrol will be discussing the practical aspects of completing the questionnaire including the tools that have been developed to make the process simpler
- Dr. Steve Thomas of CII will be discussing the output from Benchmarking and current trends in benchmarking

Visit our Booth to Learn More!



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# BENCHMARKING – LESSON'S LEARNED

IF YOU'RE NOT KEEPING SCORE, YOU'RE JUST  
PRACTICING





## What is Benchmarking & Metrics?

- The CII Benchmarking & Metrics program provides the means for members and subscribers to compare their capital and maintenance projects with the “best in class.”
- 6 Sections of Qualitative & Quantitative ?’s
- 111 Pages of information to be populated
- Approx. 80 hours of effort per project

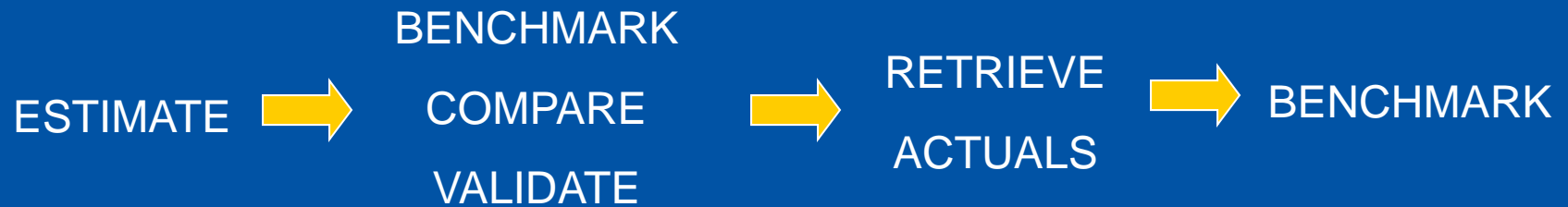
General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
100% General Info & Characteristics	100% Cost	33% Concrete	33%  17% Concrete	CII Best Practices - Front End Planning 100% : Proj. Definition Rating Index 33% - Project Risk Assessment 100% - Team Building 100% - Alignment 100% - Design for Maintainability 100% - Constructability 100% - Materials Management 100% - Other.....	100% Achieving Facility Capacity
100% Engineering Standards and Deliverables	100% Schedule	100% Structural Steel	100%  83% Structural Steel		86% Work-hours and Accidents
100% Project Scope	100% Changes	86% Electrical	100%  83% Electrical		100% Project Impacts
100% Project Functions & Contract Types	86% Rework	100% Piping	86%  67% Piping		86% Workforce Conditions
100% % Union Workforce		86% Instrumentation	86%  67% Instrumentation		
		86% Equipment	86%   67% Equipment		
			100%  83% Insulation		
			50%  33% Modules Installation		
			100%  83% Scaffolding	COAA- Workface Planning?	
			100%  83% Const. Wk-hrs		



## Why do Benchmarking?

### Short Term

- *Alberta Report 2008*
- *Set the stage for measurement within the company*

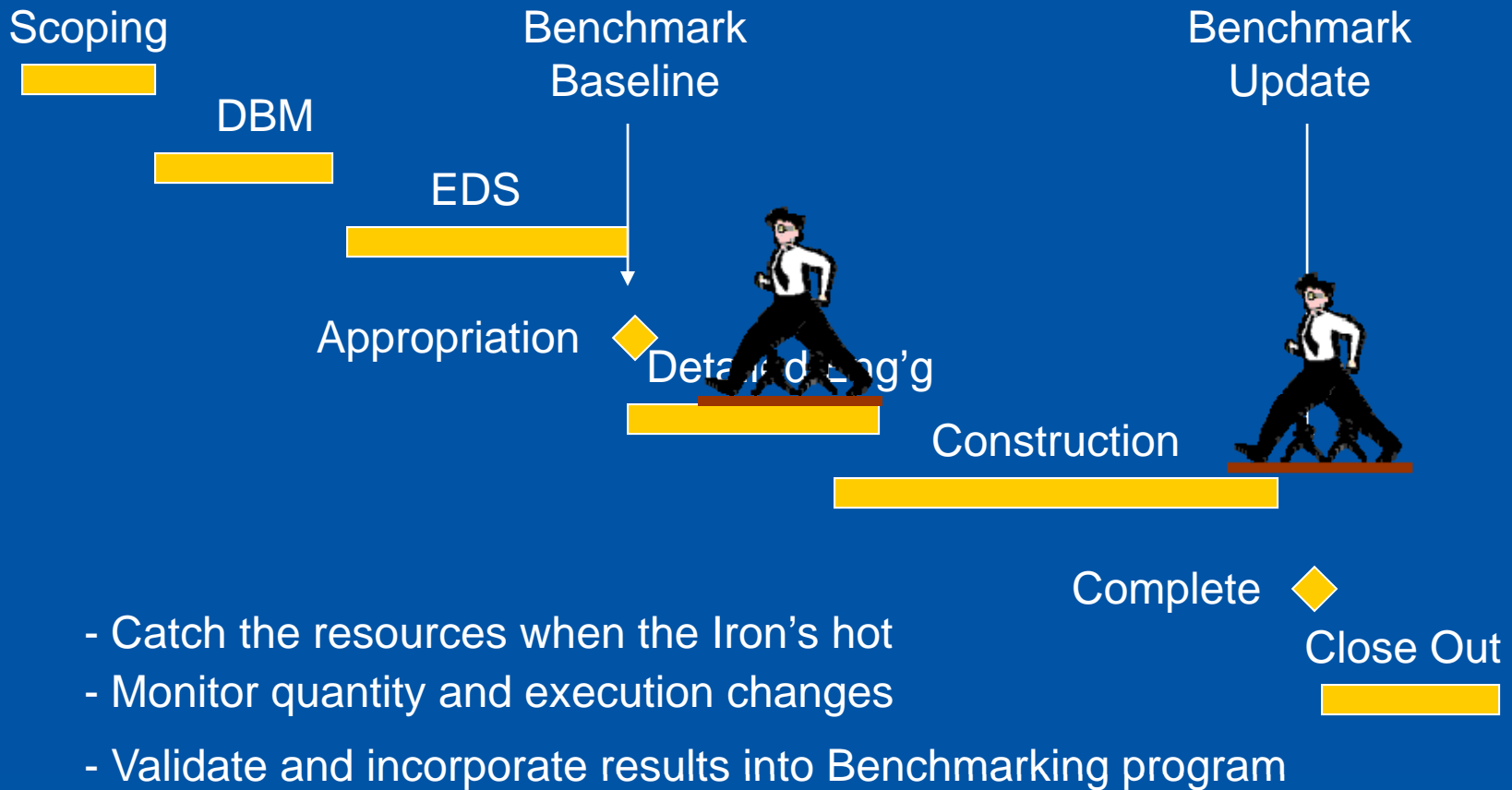


## Why do Benchmarking?

### Long Term

- *Improve Project Execution with QUANTIFIABLE learning's*
  - *Is Modularization beneficial, and is there a trade-off?*
  - *Did projects with Workface Planning produce lower cost metrics?*
  - *Compare results against database mean*

# Project Lifecycle



OPTIONAL TEXT

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# Who fills out the Questionnaire?



Microsoft Excel  
Worksheet

## How to make data “Collection” effective?

- Divide and conquer
- Schedule Interviews
- Issue appropriate section of the questionnaire ahead of meeting
- Be prepared – Have questionnaire in hand
- Definitions can be misinterpreted,
- Lay out expectations

**THE FIRST “GUT” SELECTION IS PROBABLY THE MOST CORRECT!**



## How to make data “Collection” effective?

Industrial PDRI Business Elements	Definition Level at Authorization (1) Complete <----->Poor (5)
Reliability Philosophy (A1)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Products (B1)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Market Strategy (B2)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Project Strategy (B3)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Capacities (B5)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Technology (C1)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Processes (C2)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Project Objectives Statement (D1)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Project Design Criteria (D2)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> Not Applicable <input type="radio"/> Unknown
Site Characteristics Available vs. Required (D3)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable <input type="radio"/> Unknown

**I DON'T CARE WHY YOU CHOSE THAT EXECUTION STRATEGY,...**

**JUST SELECT THE APPROPRIATE ANSWER!**

## Challenges



- Accurate Trended Quantities
- Historical data captured with the appropriate level of detail
- Timely Completion (after the project is completed)
- Resource Availability / Focus

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**IF YOU'RE NOT KEEPING SCORE,  
YOUR JUST PRACTICING**

QUESTIONS?

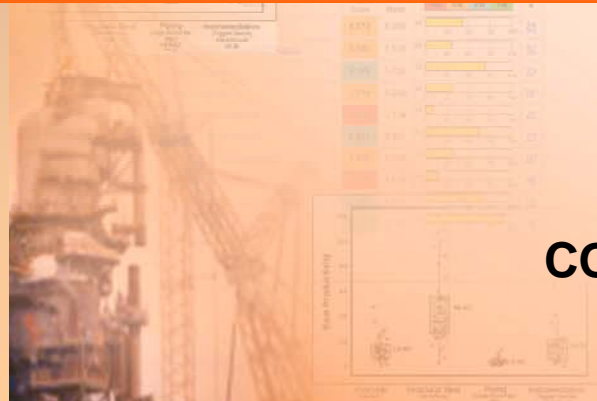




# Construction Owners Association of Alberta (COAA)

## Data & Reports: An Update

### COAA Alberta Major Projects Benchmarking Program



COAA Best Practices XV Conference

May 16-17, 2007



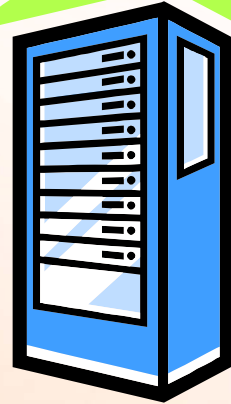
# COAA/CII Benchmarking System



**Remote Data Entry**



**Database**



**Project Reports**



**Alberta Report**



# Total Projects Submitted & In Progress

(as of May 8, 2007)

Project Type	Total
Oil Sands SAGD	8
Oil Sands Upgrading	9
Natural Gas Processing	5
Oil Sands Mining/Extraction	4
Heavy Industrial	2
Cogeneration	1
Oil Refining	1
Pipeline	1
<b>Total</b>	<b>31</b>



# Projects Submitted

(as of May 8, 2007)

Project Type	Total
Oil Sands SAGD	4
Oil Sands Upgrading	1
Natural Gas Processing	1
Pipeline	1
<b>Grand Total</b>	<b>7</b>





# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
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# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
<u>General Project Information</u>					
<u>Engineering Standards and Specifications</u>					
<u>Project Scope</u>					
<u>Project Participation</u>					
<u>% Union Workforce</u>					



# COAA Questionnaire

## Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
<u>General Project Information</u>	100%				
<u>Engineering Standards and Specifications</u>	100%				
<u>Project Scope</u>	100%				
<u>Project Participation</u>	100%				
<u>% Union Workforce</u>	100%				

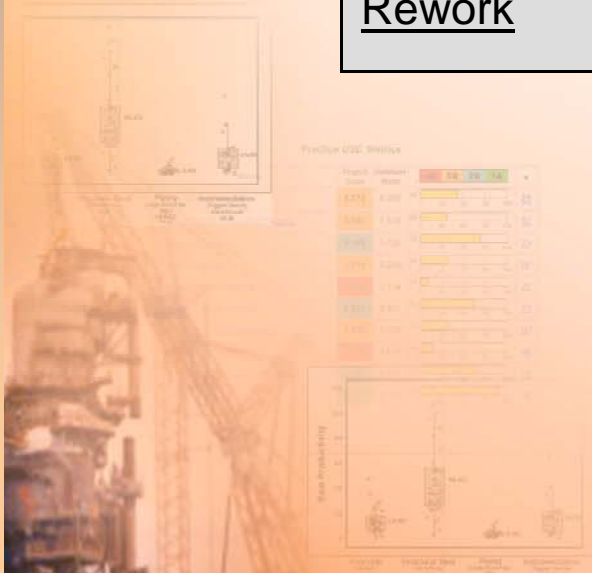
\* Of Projects Currently Submitted





# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
	<u>Cost</u>				
	<u>Schedule</u>				
	<u>Changes</u>				
	<u>Rework</u>				



# COAA Questionnaire

## Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
	<u>Cost</u>	100%			
	<u>Schedule</u>	100%			
	<u>Changes</u>	100%			
	<u>Rework</u>	86%			

\* Of Projects Currently Submitted





# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
		<u>Concrete</u>			
		<u>Structural Steel</u>			
		<u>Electrical</u>			
		<u>Piping</u>			
		<u>Instrumentation</u>			
		<u>Equipment</u>			



# COAA Questionnaire

## Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
		<u>Concrete</u>	33%		
		<u>Structural Steel</u>	100%		
		<u>Electrical</u>	86%		
		<u>Piping</u>	100%		
		<u>Instrumentation</u>	86%		
		<u>Equipment</u>	86%		

\* Of Projects Currently Submitted





# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
			<u>Concrete</u>		
			<u>Structural Steel</u>		
			<u>Electrical</u>		
			<u>Piping</u>		
			<u>Instrumentation</u>		
			<u>Equipment</u>		
			<u>Insulation</u>		
			<u>Offsite Modules</u>		
			<u>Scaffolding</u>		



# COAA Questionnaire

## Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
			<u>Concrete</u>	33% 17%	
			<u>Structural Steel</u>	100% 83%	
			<u>Electrical</u>	100% 83%	
			<u>Piping</u>	86% 67%	
			<u>Instrumentation</u>	86% 67%	
			<u>Equipment</u>	86% 67%	
			<u>Insulation</u>	100% 83%	
			<u>Offsite Modules</u>	50% 33%	
			<u>Scaffolding</u>	100% 83%	

%|% Est. Productivity | Actual Productivity

\* Of Projects Currently Submitted







# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
				<u>CII Best Practices</u> <u>Front End Planning</u> <ul style="list-style-type: none"><li>• Proj. Definition Rating Index.</li></ul> <u>Project Risk Assessment</u> <u>Team Building Alignment</u> <u>Design for Maintainability</u> <u>Constructability</u> <u>Materials Management</u> <u>Other...</u>	
				<u>COAA – WorkFace Planning?</u>	



# COAA Questionnaire

## Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
				<u>CII Best Practices</u> <u>Front End Planning</u> • Proj. Definition Rating Index. <u>Project Risk Assessment</u> <u>Team Building</u> <u>Alignment</u> <u>Design for Maintainability</u> <u>Constructability</u> <u>Materials Management</u> <u>Other...</u>	100%
				<u>COAA – Workface Planning?</u>	

\* Of Projects Currently Submitted





# COAA Questionnaire

General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
					<u>Achieving Facility Capacity</u>
					<u>Work-Hrs &amp; Accidents</u>
					<u>Project Impacts</u>
					<u>Workforce Conditions</u>



# COAA Questionnaire Percent Submitting Data\*



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
				100%	<u>Achieving Facility Capacity</u>
				86%	<u>Work-Hrs &amp; Accidents</u>
				100%	<u>Project Impacts</u>
				86%	<u>Workforce Conditions</u>

\* Of Projects Currently Submitted



General	Performance	Engineering Productivity	Construction Productivity	Practices	Closeout
100% General Info & Characteristics	100% Cost	33% Concrete	33%  17% Concrete	<b>CII Best Practices</b>  - Front End Planning <b>100%</b> : Proj. Definition Rating Index <b>33%</b>  - Project Risk Assessment <b>100%</b>  - Team Building <b>100%</b>  - Alignment <b>100%</b>  - Design for Maintainability <b>100%</b>  - Constructability <b>100%</b>  - Materials Management <b>100%</b>  - Other.....	100% Achieving Facility Capacity
100% Engineering Standards and Deliverables	100% Schedule	100% Structural Steel	100%  83% Structural Steel		86% Work-hours and Accidents
100% Project Scope	100% Changes	86% Electrical	100%  83% Electrical		100% Project Impacts
100% Project Functions & Contract Types	86% Rework	100% Piping	86%  67% Piping		86% Workforce Conditions
100% % Union Workforce		86% Instrumentation	86%  67% Instrumentation		
		86% Equipment	86%   67% Equipment		
			100%  83% Insulation		
			50%  33% Modules Installation		
			100%  83% Scaffolding		
			100%  83% Const. Wk-hrs		
				<b>COAA- Workforce Planning?</b>	

## Percentage of Projects that Submitted Data

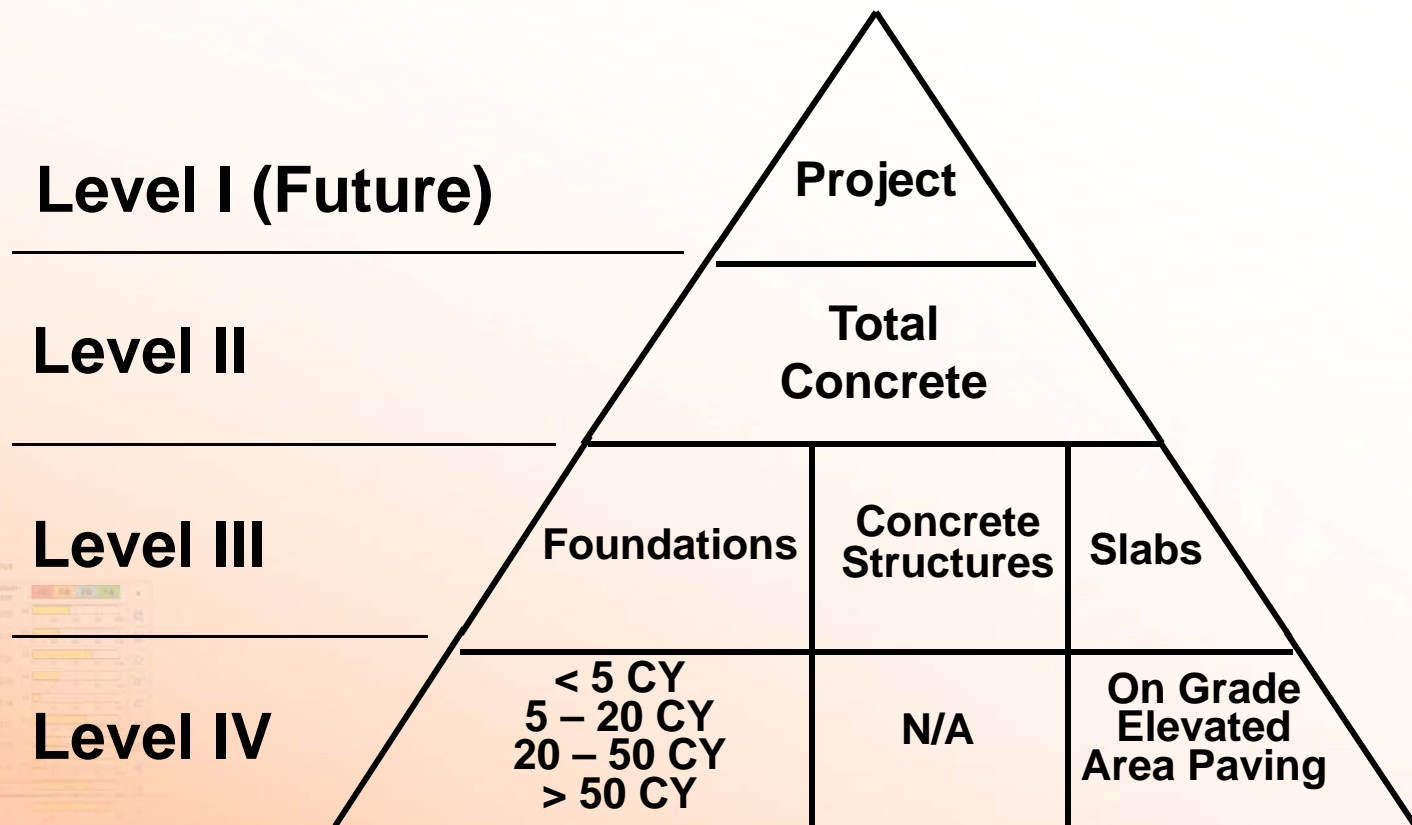
%| % Est. Productivity | Actual Productivity





# Levels of Detail

## Construction Example for Concrete



# Project Reports





# Project Reports



## Key Reports

- Confidential
- Online
- Available After Entry

**COMPANY CONFIDENTIAL** A01001  
Performance Metrics in CRMS

Cost Performance							
Metric	Project Score	Database Mean	Target	30	20	10	n
Project Cost Growth	-0.036	-0.040					33
Detail Cost Growth	-0.038	-0.092					34
Project Budget Factor	0.966	0.929					34
Detail Budget Factor	0.924	0.897					34
Detail Design Cost Growth	0.018	0.018					33
Procurement Cost Growth	-0.029	-0.123					33
Construction Cost Growth	-0.091	0.028					33

Phase Cost Factors					
Metric	Project Score	Database Mean	Median	Percent Spending More Money	n
Pre-Project Planning Phase Cost Factor	0.068	0.063	0.063		38
Detail Design Phase Cost Factor	0.188	0.190	0.184		19
Procurement Phase Cost Factor	0.425	0.295	0.280		38
Construction Phase Cost Factor	0.334	0.448	0.405		38
Startup Phase Cost Factor	N/A	DB	DB	N/A	N/A

Schedule Performance							
Metric	Project Score	Database Mean	Target	30	20	10	n
Project Schedule Growth	-0.128	0.071					31
Detail Schedule Growth	-0.128	0.132					24

Schedule Performance					
Metric	Project Score	Database Mean	Median	Percent Doing Less	n
% Design Complete at Execution	60%	22%	12%		13
% Design Complete at Construction Start	80%	77%	58%		13
% Mobilization	66%	60%	40%		15


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# Key Reports

- The Confidential Key Report
- Is a “tool for self analysis”.
- Assesses your performance against the database.
- Is pre-programmed to compare with similar projects.
- Can assist you in identifying performance problems.
- Can help you locate sources of problems.
- Will be available online during and after data entry.

 COMPANY CONFIDENTIAL A01001  
Performance Metric NORMS

Cost Performance							
Metric	Project Score	Database Mean	DB	3Q	2Q	1Q	n
Project Cost Growth	0.038	-0.040	94	95	96	97	35
Delta Cost Growth	0.036	0.092	94	95	96	97	36
Project Budget Factor	0.395	0.929	94	95	96	97	36
Delta Budget Factor	0.024	0.097	94	95	96	97	36
Detail Design Cost Growth	0.015	0.018	94	95	96	97	33
Procurement Cost Growth	0.104	-0.103	94	95	96	97	33
Construction Cost Growth	-0.091	0.028	94	95	96	97	33

Phase Cost Factors					
Metric	Project Score	Database Mean	Median	Percent Spending More	n
Pre-Project Planning Phase Cost Factor	0.066	0.053	0.053	94	35
Detail Design Phase Cost Factor	0.188	0.150	0.184	94	19
Procurement Phase Cost Factor	0.425	0.295	0.280	94	38
Construction Phase Cost Factor	0.334	0.448	0.405	94	38
Startup Phase Cost Factor	N/A	DB	DB	N/A	N/A

Schedule Performance							
Metric	Project Score	Database Mean	DB	3Q	2Q	1Q	n
Project Schedule Growth	0.126	0.071	94	95	96	97	31
Delta Schedule Growth	0.126	0.102	94	95	96	97	34

Percent Doing Less					
Metric	Project Score	Database Mean	Median	Percent Doing Less	n
% Design Complete at Sanction	69%	22%	12%	94	13
% Design Complete at Construction Start	86%	77%	83%	94	13
% Modularization	66%	50%	40%	94	15

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# Sample Progress Key Report



## Owner Project Key Report

Testcompany

COMPANY CONFIDENTIAL

4-May-07

Project Key Report V.2: 4-May-07



SAMPLE

### Project General Information: Project Sanction

Company Name	Testco	Project Name	Grass Root
Project ID	AO1001	Project Driver	Schedule
Project Name	Test1	Project Complexity (1to 10)	8
Budgeted Cost	Project Budget	Industry Group	Heavy Industrial
	Construction Cost	Project Type	Oil Sand Upgrading
	Currency	Cost Category	> \$500MM
Planned Duration	Overall Project Duration	Project Capacity	50,000 BOE/Day
	Design-Startup	Part of a Larger Project	No
	Total Const. Work-Hours	Date of Project Sanction	
Project Location	City	Planned Completion Date	1 Sept 06
	Province	Unit of Quantity	Metric
	Country	Canada	

#### Notes:

- Overall Project Duration consider as start of Front End Planning to project turn over to user.
- For Project Complexity, The higher value indicates the higher level of complexity of the project.

#### Explanation of Notations:

- Asterisk (\*) on the n value denotes a small sample of projects (10n<20)
- For phase cost & duration factors, the percentile bar indicates the percent of the projects with equal to or higher metric values. (For these metrics, low scores are not necessary better.)
- For performance & practice use metrics, the percentile bar indicates the percent of the projects for which you scored equal to or better than within the comparison data.
- Quartiles are indicated on the left of the percentile score bar; U0 indicates an Upper Outlier, L0 indicates a Lower Outlier.
- For percent design complete metrics and modularization, the percentile bar indicates the percent of the projects with equal to or lower metric values.
- For PDR, lower numbers are better and its minimum and maximum scores are 0 and 1000, respectively.
- The Appendix page contains summary information indicating the exact slice of data used for comparison in each metric.

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### COMPANY CONFIDENTIAL

AO1001

#### Performance Metric NORMS

##### Cost Performance

Project	Project Score	Database Mean	4Q	3Q	2Q	1Q	n
Cost Factor	0.236	-0.040					35
Factor	0.236	0.082					36
ctor	0.365	0.929					36
ctor	0.034	0.097					36
ctor	0.015	0.018					35
ctor	-0.200	-0.123					33
ctor	-0.091	0.028					33

##### Phase Cost Factors

Project	Project Score	Database Mean	Median	Percent Spending More Money	n
Cost Factor	0.308	0.083	0.043		35
Factor	0.181	0.160	0.184		19
ctor	0.428	0.288	0.280		36
ctor	0.336	0.448	0.405		36
ctor	N/A	0.0	0.0	N/A	N/A

##### Schedule Performance

Project	Project Score	Database Mean	4Q	3Q	2Q	1Q	n
Factor	0.128	0.071					31
ctor	0.126	0.132					34

Project	Project Score	Database Mean	Median	Percent Doing Less	n
Factor	60%	22%	12%		13
Factor	60%	77%	88%		13
Factor	68%	60%	40%		15

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### COMPANY CONFIDENTIAL

AO1001

#### Performance Metric NORMS (cont'd)

##### Phase Duration Factors

Project	Project Score	Database Mean	Median	Percent Spending More Time	n
Factor	0.327	0.367	0.313		34
Factor	0.346	0.430	0.412		36
ctor	N/A	0.0	0.0	N/A	N/A
ctor	0.489	0.369	0.341		36
ctor	N/A	0.0	0.0	N/A	N/A

##### Change Performance

Project	Project Score	Database Mean	4Q	3Q	2Q	1Q	n
Factor	0.205	0.075					28
ctor	N/A	0.0	0.0	N/A	N/A	N/A	N/A

##### Network Performance

Project	Project Score	Database Mean	4Q	3Q	2Q	1Q	n
Factor	N/A	0.0	0.0	N/A	N/A	N/A	N/A

##### Safety Performance

Project	Project Score	Database Mean	4Q	3Q	2Q	1Q	n
Factor (TRIF)	N/A	N/A	N/A	N/A	N/A	N/A	078
Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Factor	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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# Sample Key Report



**Owner Project Key Report**  
 Testcompany  
**COMPANY CONFIDENTIAL**  
 4-May-07



**SAMPLE**

Project Key Report V.2: 4-May-07

## Project General Information: Project Completion

Company Name		Testco	Project Name		Grass Root
Project ID		AO1001	Project Driver		Schedule
Project Name		Test1	Project Complexity (1 to 10)		5
Actual Cost	Total Installed Cost	\$575,000,000	Industry Group	Heavy Industrial	
	Construction Cost	\$488,000,000		Oil Sand Upgrading	
	Category	SCAD	Project Type	> \$500MM	
Project Duration	Overall Project	260 Weeks	Project Capacity	50,000 BOE/Day	
	Detailed Eng. through Startup	210 Weeks	Project Completion Date	1 Nov. 06	
	Total Const. Work-Hours	2,600,000	Midpoint of Construction	2002	
Project Location	City	Ft. McMurray	Historical Cost Index Adjustment (2002 to 2006)	1.10	
	Province	Alberta	Unit of Quantity	Metric	
	Country	Canada			

### Notes:

- Overall Project Duration consider as start of Front End Planning to project turn over to user.
- The historical cost index adjustment is the index at year of midpoint of construction/ the index at the present time.
- For Project Complexity, The higher value indicates the higher level of complexity of the project.

### Explanation of Notations

- Asterisk (\*) on the n value denotes a small sample of projects (10 or < 20).
- For performance & practice use metrics, the percentile bar indicates the percent of the projects for which you scored equal to or better than within the comparison data.
- For phase cost & duration factors, the percentile bar indicates the percent of the projects with equal to or higher metric values. (For these metrics, low scores are not necessary better.)
- Quartiles are indicated on the left of the percentile score bar; Uo indicates an Upper Outlier, Lo indicates a Lower Outlier.
- For percent design complete metrics and modularization, the percentile bar indicates the percent of the projects with equal to or lower metric values.
- For PDR, lower numbers are better and its minimum and maximum scores are 0 and 1000, respectively.
- The Appendix page contains summary information indicating the exact slice of data used for comparison in each metric.

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AO1001

## Performance Metric NORMS

### Cost Performance

Project Score	Database Mean	100	75	50	25	10	n
0.036	-0.040	[Bar chart]					33
0.036	0.012	[Bar chart]					36
0.395	0.929	[Bar chart]					36
0.036	0.017	[Bar chart]					36
0.019	0.019	[Bar chart]					33
0.008	-0.123	[Bar chart]					33
-0.081	0.028	[Bar chart]					33

### Phase Cost Factors

Project Score	Database Mean	Median	Percent Spending More Money	n
0.386	0.083	0.063	[Bar chart]	36
0.188	-0.190	0.184	[Bar chart]	19
0.425	0.205	0.200	[Bar chart]	36
0.006	0.448	0.405	[Bar chart]	36
N/A	DO	DO	N/A	N/A

### Schedule Performance

Project Score	Database Mean	100	75	50	25	10	n
0.128	0.071	[Bar chart]					31
0.128	0.132	[Bar chart]					34

Project Score	Database Mean	Median	Percent Doing Less	n
60%	22%	12%	[Bar chart]	13
60%	77%	88%	[Bar chart]	13
66%	60%	40%	[Bar chart]	18

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AO1001

## Performance Metric NORMS (cont'd)

### Phase Duration Factors

Project Score	Database Mean	Median	Percent Spending More Time	n
0.327	0.387	0.313	[Bar chart]	34
0.346	0.430	0.412	[Bar chart]	36
N/A	DO	DO	N/A	N/A
0.488	0.388	0.341	[Bar chart]	36
N/A	DO	DO	N/A	N/A

### Change Performance

Project Score	Database Mean	Median	100	75	50	25	10	n
0.266	0.075	[Bar chart]					28	
N/A	DO	N/A					N/A	

### Network Performance

Project Score	Database Mean	100	75	50	25	10	n
N/A	DO	N/A					N/A

### Safety Performance

Project Score	Database Mean	100	75	50	25	10	n
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A
N/A	N/A	N/A					N/A

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# Online Reports

## Concrete Productivity

Metric	Wk-Hrs	Installed Quantity	Unit Rate	Database Mean	4Q 3Q 2Q 1Q	n
<b>Foundations</b>						
< 4 CM	10,833	1,212	8.94	17.33	1Q	13
4-15 CM	19,330	1,635	11.82	19.42	1Q	13*
16-38 CM	21,031	2,539	8.28	7.50	4Q	16*
≥ 38 CM	9,829	1,714	5.73	5.30	3Q	17*
Total Foundations (CM)	61,023	7,102	8.59	10.30	2Q	16
Total Installed Unit Cost (\$/ CM)	Actual	Estimated	Act/Est	DB Mean		
	550	430	1.28	1.10	3Q	14

- Productivity Unit Rates (Project vs. Database)
- Performance Quartiles
- Total Installed Unit Cost
- Actual vs. Estimated Productivity



# Online Reports

## Piping Productivity

Piping						
Metric	Wk_Hrs	Estimated Quantity	Est. Unit Rate	Database Mean	<span style="color:red">4Q</span> <span style="color:orange">3Q</span> <span style="color:blue">2Q</span> <span style="color:green">1Q</span>	n
Carbon Steel	50,156	3,821	13.13	9.07		10
Stainless Steel	1,211	180	6.73	13.63		11
Chrome	1,117	64	17.45	28.20		10
Other Alloys	13,941	799	17.45	27.27		14
Non Metallic	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Large Bore (ISBL)</b>	<b>66,425</b>	<b>4,863</b>	<b>11.40</b>	<b>13.50</b>		<b>24</b>
Total Installed Unit Cost (\$/ LM)	<b>Actual</b>	<b>Estimated</b>	<b>Act/Est</b>	<b>DB Mean</b>		
	780	700	1.11	1.21		24
Large Bore (ISBL) Productivity Unit Rates	11.40	10.96	1.04	1.25		24

- Productivity Unit Rates (Project vs. Database)
- Performance Quartiles
- Total Installed Unit Cost
- Actual vs. Estimated Productivity





# Confidentiality

- Confidentiality was a primary concern during system development.
- All data are held **strictly confidential**.
- Each benchmarking participant has a **User Profile to Log in**.
- When the user is **validated**, access to is granted.



# Join Us Now!

## COAA Benchmarking Associate Training

**Next session:** Web-based Training

→ June 20, 2007 @1pm - 5pm Mountain  
Daylight Savings Time

To register, please send an e-mail to

**Deborah DeGezelle** [[debdeg@mail.utexas.edu](mailto:debdeg@mail.utexas.edu)]





Questions?

