CONSTRUCTION OWNERS ASSOCIATION OF ALBERTA

FULL COMPANY NAME: **Jacobs Industrial**

CEO/COO OR DESIGNEE:

Sandy MacElheron _____
(Print/Type Full Name) (Signature)

Date: **April 3, 2008**

Address: 400S, 8500 Macleod Trail South Calgary T5J-3S4

Telephone: 780 660 2872 Fax: 403 258 68

PREPARER:

Jason Nixon _____
Print/Type Full Name (Signature)

Date: **April 3, 2008**

Address: Petro Canada RCP_SRU Project

Telephone: 780 410 5031 Fax: _____

Email: sandy.macelheron@jacobs.com

This submission is for (please check one):

Use Separate Form for Each Submission

Award Category	**Check**
Safety Best Practices Implementation and Performance Improvement Award – **LARGE** COMPANY OR ORGANIZATION (see next page)	✓
Safety Best Practices Implementation and Performance Improvement Award – **SMALL** COMPANY OR ORGANIZATION (see next page)	
Safety Leadership and Innovation Award	
Best Practice Implementation Award:	
Best Practice Innovation Award	

Lloyd Dick, Communications and Research Specialist

Construction Owners Association of Alberta
Suite 1940, Manulife Place
10180 -101 Street
Edmonton, AB T5J 3S4

Phone: 780-420-1145
Email: lloyd@coaa.ab.ca
Fax: 780-425-4623

Members of the Committee,

Please accept our application for the COAA Best Practice award for the; "Best Implementation" of the COAA Best Practice in the area of Workforce Development, specifically Workface Planning.

Jacobs has taken the best practice of COAA and embraced the concept of Workface Planning. We have implemented the process on two of its current projects with vigor and determination to give our clients the best value added service.

Thank you in advance for your time and consideration.

In September 2005, Jacobs set out to practically implement the ideology of COAA's Workface Planning on a major project. Jacobs brought on Workface Planning champions and beginning to set in motion what soon became a corporate policy of Jacobs over North America.

Jacobs has been actively engaged in Workface Planning from its participation in COAA's Workface Planning Committee to using the concept on now four projects. Jacobs used its lessons learned to boost itself to an eighty seven percent (Gold Status) by a audit ordered by client. We have succeeded in producing work packages and having them completed by the field, reviewed and handed in complete. We have progressed, monitored and used these packages to monitor performance to improve our internal practices and share our knowledge with our industry partners.

Regardless of the board's decision we would like to thank COAA, the Workface Planning Committee and our industry peers for the support and advice in making the Workface Planning concept a reality.

Sandy MacElheron.
Workface Planning Manager, Jacobs

Question #1

Clearly describe which COAA Best Practices or other best practices you have effectively implemented. Include evidence (data) that illustrates and supports the level of performance and degree of program implementation. The evidence should indicate both the degree of best practice implementation and the impact that this has had on improving project execution. For example, if you have implemented a program to improve workface planning, the submission should include data on the training and systems used and the effect this has had on the effectiveness of construction execution at the workface and/or productivity.

1. **COAA Best Practices recommends hiring dedicated Workface Planners who have a minimum of five to seven years experience and at least three to five years supervisory experience with a basic understanding of scheduling and estimating**.

   Jacobs has hired a total of fourteen dedicated Workface Planners who easily qualify for the suggested skill set. All of our planners have taken the COAA endorsed Workface Planning fundamentals SAIT training, we have also invested heavily in our own training programs to further educate our Workface Planners and ensure we have developed the best workface planners in the industry. Please see attachment 1

2. **COAA best practices recommend that the project schedule be incorporated in Workface Planning initiatives. Work Packages should be able to roll up into scheduled activities for the project to allow for proper planning and tracking of necessary project activities.**

   Jacobs has incorporated a five week look ahead where specific Work Packages are recorded as they are coming for execution. By placing Work Packages on the five week look ahead we can prepare for any material constraints, scaffold installation, and equipment allocation and track a project from a high level by analyzing work packages. Please see attachment 2

3. **COAA Best Practices recommend the development of Workface Planning packages that make up about one shifts worth of work for a crew, about 1000 hours work. Packages are to be developed from a field perspective building experience and lessons learned worked into every package.**

   Jacobs Workface Planning group has created Foreman Installation Work Packages (FIWP) that are field smart packages of about six hundred to twelve hundred hours in duration. All packages must clear a multi level sign off including; Superintendant, General Foreman, QAQC, and Safety to ensure that information remains accurate and does not become static. Each package created has earned hour values that are reflective of the budget and estimate, these packages are also coded and field actual hours tabulated so we have a micro project with every package that reflects productivity to a crew level, this enables supervisors to make informed decisions about staffing decisions. Every package is progressed to great detail on a component task level allowing management to clearly see issues affecting progress and schedule. Please see attachment 3

Jacobs field supervision has facilitated daily progress meetings with general foreman where they review the progress on released packages with a tool called Pack Track, all setbacks are addressed with representatives from engineering, QAQC and safety at these meetings. With all parties meeting daily we address and resolve all issues quickly.

With this detail we can easily monitor overall progress and head of negative trend before they become costly mistakes leading to cost and schedule overruns.

4. **COAA Best Practices recommend that Workface Planners utilize specific coordinators for Scaffold and Equipment.**

Jacobs has developed a data base that tracks all scaffolds requests that are initiated by Workface Planners when they build their packages, all needed information on the specific scaffold is held both in the package and the database. When a package comes up in the five week look ahead, this triggers the scaffold request to be released to the field with "needed by date". The scaffold is erected a week before the work in this work package commences. The scaffold stays active in the system for the duration of one week then a automated notice requires the scaffold coordinator to check the scaffold for possible dismantle. If the scaffold is not required the coordinator can check the coordinator can check the coordinates in the database for other submitted requests. All scaffold requests and material are closely monitored.

Jacobs is currently developing an equipment management database system that allows Workface Planners to allocate equipment for the individual Work Packages.

5. **COAA Best Practices recommend that Workface Planning be written into all construction contracts including roles and responsibilities of both Contractor and Owners.**

Jacobs has made it a standard practice to write in the obligations of itself, the client and subcontractors hold in the effort to have a successful implementation of Workface Planning on projects where the client has supported the Workface Planning concept. The expectations are modeled as to COAA's Best Practices and the Best Practices are the measure of the performance.

6. **COAA Best Practices recommend that Contractors initiate and coordinate Workface Planning independent audits to ensure that the Workface Planning efforts are consistent to industry expectations.**

Jacobs have arranged and participated in client ordered Work Planning audits and given full and unbarred access to auditors to write full and complete evaluations of Jacobs Workface Planning initiatives and will continue to adhere to this practice. In the last client ordered Workface Planning audit earned a gold status in its implementation of COAA's Workface Planning Best Practice. Please see attachment 4.

Question #2

Clearly describe any improvements your company or organization made to the best practices during or after implementation of the best practice. How have these improvements been incorporated into the COAA Best Practice documents or shared with the industry?

1. The improvements that Jacobs has made to COAA's Best Practices are outlined below;

- We have developed standard work package formats which have been passed onto SAIT for support of their Workface Planning training program.

- We have had extensive experience in the practical implementation of Workface Planning and have accumulated large amounts of lessons learned. We have shared our experiences freely with the Workface Planning Committee and our industry peers.

- We have used Workface Planning specific software; (Construct Sim) extensively on three projects and shared all of our challenges and victories with COAA's Workface Planning committee and any others who ask or will listen.

- We have developed Databases specifically to address progressing of Workface Planning packages; we have used these on our projects to date and shared our experiences with work package specific performance with members of COAA.

- We have developed an intensive scaffold database that has specifically designed to control scaffold in a Workface Planning environment. This database's principals have been shared with many industry peers and with members from COAA's Workface Planning Committee.

- Jacobs believes in collaboration and sharing our experiences with the industry we are proudly a part of. We have taken a COAA Best Practice and developed it within the COAA framework to be working and growing part of our business.

Attachments and Other Demonstrations

Attachment 1

- Exert taken from the April 4, 2007 Petro Canada Ordered Audit;
"Jacobs Sulfur Block Workface Planning Assessment"

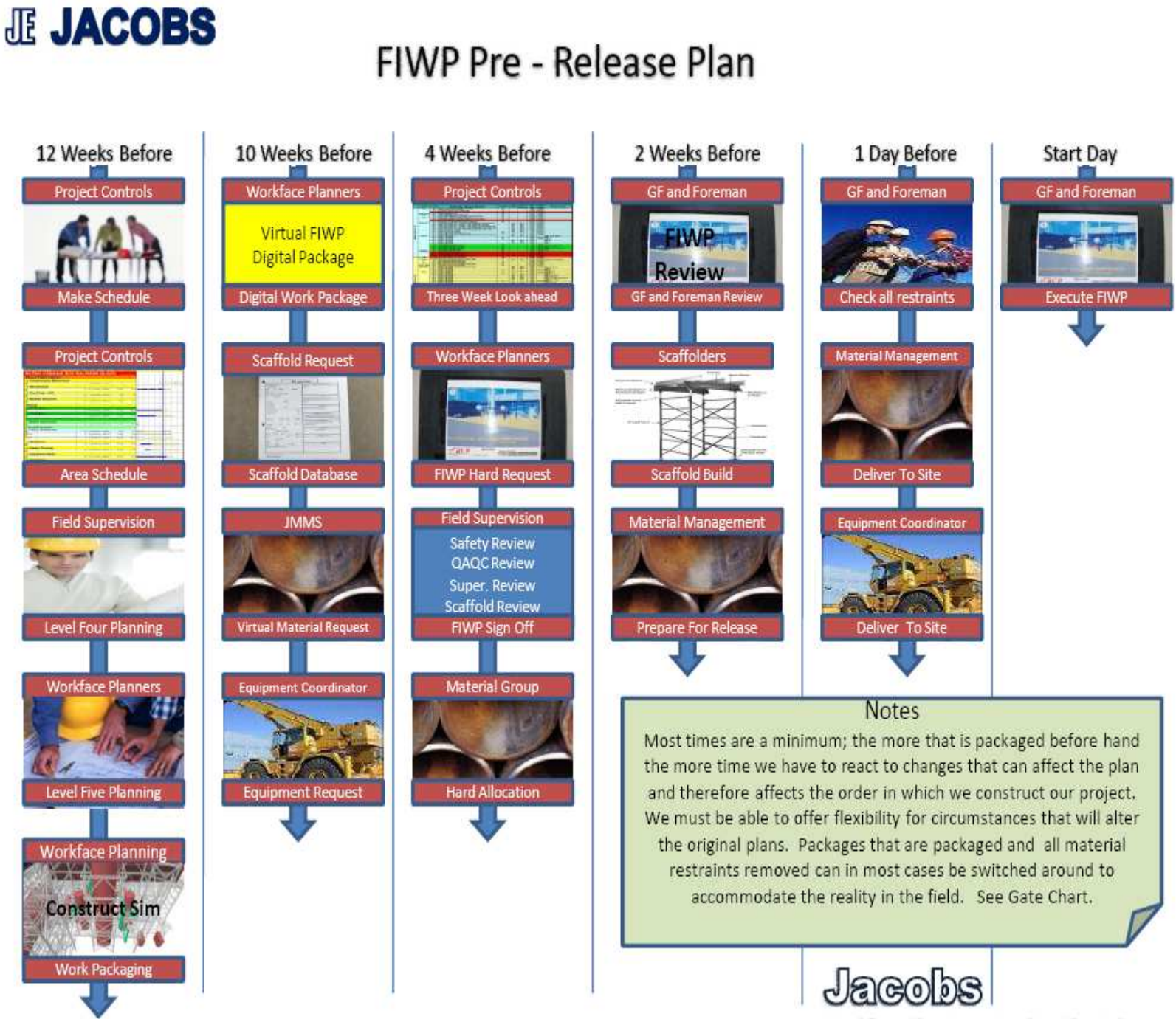
"Regarding training their workface planners, Jacobs should be commended. Jacobs has trained 8 of the 13 workface planners that will be working for Jacob and Chemco by the end of June and the remainder is scheduled to complete training by the middle of July." Lloyd Rankin

Jacobs went on to train over fourteen Workface Planners at SAIT's; "Workface Fundamentals Course" over the last year and continues to enroll students regularly.

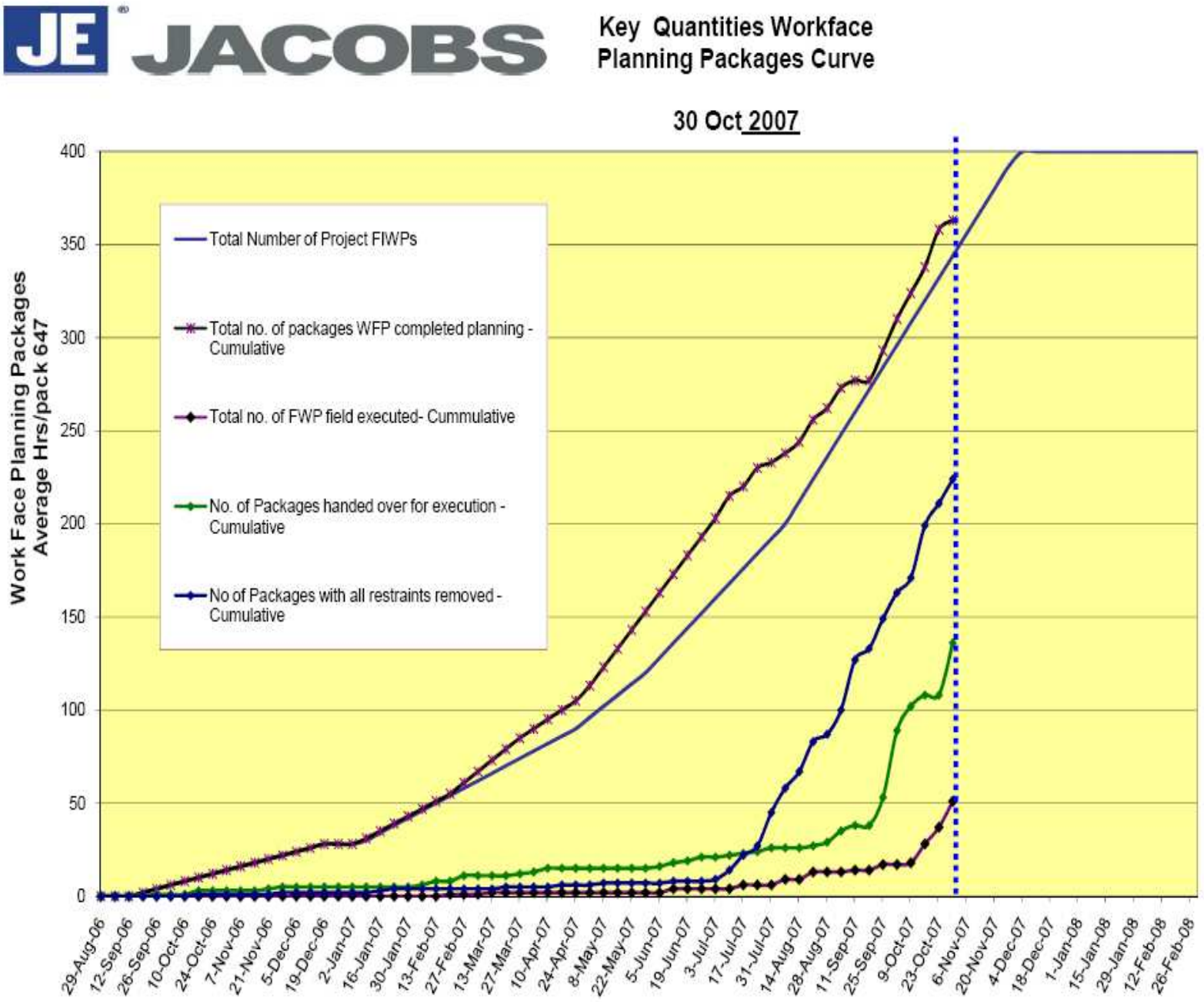
Attachment 2

Work Package Schedule Tools

Below is the Pre release plan for work packages, this is a gate system Jacobs uses for control of FIWP's.



Below is an example of Jacobs; "Key Quantities Workface Planning Curve". This curve demonstrates how many work packages have been created to date, how many have no material restraints, how many have been released to the field and how many have been completed to date.



Below is sample of Jacobs; "Five Week Schedule Attainment". This contains information on current and upcoming Work Packages; mainly a tool used to identify which Packages are upcoming on the project schedule. Armed with this information we can prepare scaffold, equipment and any material restraints for upcoming work packages.

5 Week Schedule Attainment : Oct 9 - Nov 8, 2007

	Crew	CWA	Activity Description	Complete	Started	Work In Progress	Start Date	Finish Date	Remarks
Week 1 (Oct 9 - 13)	Civil	88-4	General Architeotural work @ IO Building	Yes			7-Aug	30-Oct	
		88-4	Install Central Vac @ I/O Bldg.	Yes			4-Sep	29-Oct	
		87-8	Complete Sulphur Tank Containment	Yes			13-Aug	29-Oct	
		Fire Water	Backfill - Fire Water FW T.P 1 (North)	Yes			1-Oct	23-Oct	
	Comp. Floor	88-4	Install Computer Floor	Yes			9-Oct	13-Oct	
	NWS	88-4	Install Claddings @ Sub Station # 9	Yes			17-Aug	3-Nov	
		87-4	Install Wall Cladding @ Combustion Air Blower Bldg.	Yes			13-Aug	3-Nov	
	Steel	88-2	Install Misc. Steel In Amine Pump house	Yes			22-Sep	10-Oct	
		87-6	Complete Convertor Struotural Steel #18 South ereotion	Yes			13-Sep	12-Oct	
		87-1	Ereot upper WHB # 1 Struotural Steel	Yes			9-Oct	13-Oct	
		87-8	Complete N-S Piperack Steel work & Pathways	Yes			13-Oct	31-Oct	
	Elec./Inst.	85-1	Install Eng. Cable Tray / Conduit / Light Fittings @ S.W.Stripper (N)		Yes	W.I.P	23-Jul	30-Nov	
		85-2	Install Eng. Cable Tray / Conduit / Light Fittings @ S.W.Bldg.		Yes	W.I.P	17-Sep	30-Nov	
		85-3	Install Eng.Cable Tray / Conduit / Light Fittings @ S.W.Stripper (S)		Yes	W.I.P	23-Jul	30-Nov	
		86-1	Install Eng. Cable Tray / Conduit / Light Fittings @ Amine Regen. Area		Yes	W.I.P	23-Jul	30-Nov	
		86-2	Install Eng. Cable Tray / Conduit / Light Fittings @ Amine Pump Bldg.		Yes	W.I.P	4-Sep	30-Nov	
		86-3	Install Cable Tray / Conduit / Light Fittings @ Carbon Filter Area		Yes	W.I.P	24-Sep	30-Nov	
		88-4	Cable pull - Below ceiling		Yes	W.I.P	1-Oct	30-Nov	
		88-4	Install Lighting @ I/O Bldg.	96%	Yes	W.I.P	1-Oct	30-Nov	
		88-4	Install Cable Tray below Computer floor	Yes			9-Oct	13-Oct	
		87-1	Install Eng. Cable Tray / Conduit / Light Fittings @ Furnace Area North		Yes	W.I.P	23-Jul	30-Nov	
	Piping	85-1	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs. 16,28, 6508-2
		86-1	Install L.B Piping	Yes			9-Oct	20-Oct	Pkgs. 11
		86-1	Install L.B Piping	Yes			13-Oct	7-Nov	Pkg. 20
		86-2	Install L.B Piping		Yes	W.I.P	9-Oct		Pkg. 1
		87-1	Install L.B Piping		Yes	W.I.P	9-Oct		Pkg. 4
		87-2	Install L.B Piping		Yes	W.I.P	9-Oct		Pkg. 4
		87-2	Install Bubble Colls	Yes			9-Oct	13-Oct	
		88-1	Completed Packages Area 88-1	Yes			1-Oct	13-Oct	Pkgs 2, 23, 25, 28, 29
		85-2	Completed Packages Area 85-2	Yes			1-Oct	13-Oct	Pkgs 11, 12, 15
		87-7	Completed Packages Area 87-7	Yes			1-Oct	13-Oct	Pkgs 1, 6, 12, 13, 14, 40
		88-8	Completed Packages Area 88-8	Yes			1-Oct	13-Oct	Pkg 3
	Painting	85-2	Paint Amine Storage Tank	Yes			8-Oct	26-Oct	
	Refractory	87-6	Install Refractory @ 87C12 / 13 / 23 - Cat. Converters	70%	Yes	W.I.P	9-Oct	16-Nov	C12 & C13 Complete
		87-8	Install Refractory @ Incinerator 87-F2	Yes			6-Sep	22-Oct	
		87-8	Install Refractory @ Stack 87-F3	Yes			10-Sep	22-Oct	
		87-8	Install Refractory @ Reaction Furnace 87-F12	15%	Yes	W.I.P	6-Sep	19-Nov	
Week 2 (Oct 14 - 20)	Civil	Fire H2O	Excavate / Hydrovac Tie Points 4	Yes			15-Oct	19-Oct	
		Fire H2O	Install Pipe & Weld out joints for Tie Points 4	Yes			20-Oct	20-Oct	
	Steel	87-4	Ereot Blower Building Interior Platform Steel		Yes	W.I.P	16-Oct	16-Nov	Grating to be installed
	NWS	87-4	Ereot East Wall Blower Building	Yes			15-Oct	21-Oct	
		87-4	Ereot West Wall Blower Building	Yes			15-Oct	21-Oct	
		86-6	Ereot North (Small) Wall Substation Building	Yes			15-Oct	21-Oct	
	HVAC - ARPI	88-4	Complete Ductwork IO Building	Yes			15-Oct	2-Nov	
	Elec./Inst.	88-4	Cable pull - Below computer floor @ I/O Bldg.		Yes	W.I.P	14-Oct	22-Dec	
	Piping	85-1	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs 16, 20, 29
		85-1	Install S.B Piping		Yes	W.I.P	9-Oct		Pkg 21
		85-2	Install L.B Piping	Yes			9-Oct	20-Oct	Pkg 19
		85-3	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs 3, 5,14
		85-3	Install L.B Piping	Yes			9-Oct	20-Oct	Pkgs 5,11
		85-8	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs. 1, 2, 3, 4
		86-1	Install L.B Piping		Yes	W.I.P	9-Oct		Pkg. 4, 15, 18, 42
		86-1	Install S.B Piping		Yes	W.I.P	9-Oct		Pkg. 22, 38, 57
		86-2	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs 1, 12, 15, 16, 21, 30, 31
		86-2	Install S.B Piping		Yes	W.I.P	9-Oct		Pkg's 20, 21, 29
		86-2	Install S.B Piping	Yes			9-Oct	20-Oct	Pkg 20
		87-1	Install L.B Piping		Yes	W.I.P	9-Oct		Pkg's 4, 31, 33
		87-1	Install S.B Piping		Yes	W.I.P	9-Oct		Pkg 32
		87-2	Install L.B Piping		Yes	W.I.P	9-Oct		Pkgs 4, 8
		87-2	Install L.B Piping	Yes			9-Oct	20-Oct	Pkg 2
		85-1	Install SB Piping	Yes			9-Oct	20-Oct	Pkg 3
		86-1	Install LB Piping	Yes			9-Oct	20-Oct	Pkg 6,7,19,24,27,30,31,40
		86-2	Install LB Piping	Yes			9-Oct	20-Oct	Pkg 15
		86-8	Install LB Piping	Yes			9-Oct	20-Oct	Pkg 1,3
		87-7	Install LB Piping	Yes			9-Oct	20-Oct	Pkg 2,4,7,8,10,99
		87-4	Set 87Y-1A Combustion Air Blower Filter (By Piping Crew)	Yes			12-Oct	14-Oct	
		87-4	Set 87Y-1B Combustion Air Blower Filter (By Piping Crew)	Yes			12-Oct	14-Oct	
		87-4	Set 87Y-2A Combustion Air Blower Filter (By Piping Crew)	Yes			12-Oct	14-Oct	
		87-4	Set 87Y-2B Combustion Air Blower Filter (By Piping Crew)	Yes			12-Oct	14-Oct	
	Painting	Area 85	Start Painting work Area 85		Yes	W.I.P	22-Oct	18-Mar	
		Area 86	Start Painting work Area 86		Yes	W.I.P	9-Oct	18-Mar	
		Area 87	Start Painting work Area 87		Yes	W.I.P	22-Oct	18-Mar	
	Refractory	87-1	Install Refractory @ 87E12 WHB	30%	Yes	W.I.P	22-Oct	18-Dec	
		87-1	Install Refractory @ 87F11Main Acid Gas Burner	50%	Yes	W.I.P	14-Oct	19-Nov	
		87-6	Install Refractory @ Superclaus Reactor 87C-3	Yes			15-Oct	8-Nov	
		87-8	Install Refractory - WHB 87E-12	30%	Yes	W.I.P	22-Oct	18-Dec	

Attachment 3

"Pack Track FIWP Status Report ;(database report)"

Below is Jacobs; "Pack Track" which reports the status of every released work package released to the field for execution. Pack Track enables construction management to track percentage complete in both quantities and earned man hours. Pack Track tracks actual hours and compares them to earned hours for each and every work package which rolls up into the budget base line; this in turn gives us a performance factor for every work package.

Work Pack	Start Date	Compl Date	ISO (Lf)					Equiv Man Hours					Budgeted Man Hours					Weld (inc)					Actual Hrs	Eq PF	Bud PF
			Total	Compl	(%)	Week	(%)	Total	Compl	(%)	Week	(%)	Budget	Earned	(%)	Week	(%)	Total	Compl	(%)	Week	(%)			
ER-L-6501-022-65230 65C-8 Condensate Station Large Bore Piping	05-Jun-07		226	114	50			387	204	53			485	370	76			52	47	91			574	0.36	0.65
ER-L-6501-023-65230 65E-2 & 65C-2 Large Bore Piping	25-Aug-07	10-Dec-07	165	165	100			522	522	100			470	470	100			89	89	100			796	0.66	0.59
ER-L-6501-024-65246 65E-2 & 65C-2 Trim & Small Bore Piping	05-Jun-07		91	42	46			100	45	45			291	135	46			20	5	23			263	0.17	0.51
ER-L-6501-025-65230 65C-1 Blow Down & Potable Water Lg Bore Piping	05-Jun-07		158	55	35	24	15	445	148	33			463	259	56	107	23	239	151	63	63	26			
ER-L-6501-026-65230 Large Bore Piping to South of Vessel 65C-2	05-Jun-07		216	120	56	6	3	733	429	58			475	316	67	8	2	0	0		0		584	0.73	0.54
ER-L-6501-027-65246 Small Bore Low Pressure Condensate to 65C-1	05-Jun-07		353	47	13			386	58	15			526	77	15			56	25	45					
ER-L-6501-028-65246 Small Bore Utility Lines for Station North of 65C-	14-Nov-07	20-Dec-07	202	202	100			192	192	100			417	417	100			82	82	100			482	0.40	0.87
ER-L-6501-029-65230 65E-2 Module Tie-In Large Bore Piping	10-Jun-07		227	173	77			566	438	77			436	436	100			181	181	100			1231	0.36	0.35
ER-L-6501-030-65230 65C-8B Steam, Condensate & Blow Down Lg Bore	04-Sep-07	08-Jan-08	184	184	100			302	302	100			428	428	100			40	40	100			499	0.61	0.86
ER-L-6501-031-65230 Large Bore Process Piping to Vessel 65C-2	09-Oct-07	06-Dec-07	114	114	100			145	145	100			365	365	100			122	122	100			772	0.19	0.47
ER-L-6501-032-65230 Large Bore Piping to Condensate Flash Drum 67C-	05-Aug-07		276	193	70	11	4	557	410	74			741	426	57	28	4	295	104	35	0	0	527	0.78	0.81
ER-L-6501-033-65246 Sm Bore Low Pressure Piping Around Vessel 67C-	08-Mar-07		537	364	68	51	9	510	346	68			1004	929	93	119	12	96	80	84	14	15	1058	0.33	0.88
ER-L-6501-034-65246 67C-8 Sight Glasses & Small Bore Piping	21-Nov-07	29-Nov-07	31	31	100			30	30	100			60	60	100			0	0				74	0.40	0.81
ER-L-6501-035-65246 Small Bore Chemical Piping South of Vessel 67C-8	05-Aug-07		91	29	32			67	27	32			310	133	43			25	14	56			66	0.41	2.02
ER-L-6501-036-65230 North of Sour Water Pump Building Piping to Stripp	05-Jun-07		173	102	59			474	282	60			400	360	90			201	201	100			766	0.37	0.47
ER-L-6502-001-65230 PW Piping to 65E-4 & 14 Outlets	24-Sep-07	10-Dec-07	180	180	100			368	368	100			349	349	100			80	80	100			1098	0.34	0.32
ER-L-6502-002-65230 65E-4 & 14 Cooler Inlet	02-Oct-07	29-Nov-07	270	270	100			458	458	100			417	417	100			94	94	100			488	0.94	0.85
ER-L-6502-003-65230 PW Piping to 65E-3 Cooler	10-Jun-07		161	19	12	3	2	297	36	12			337	24	7	2	1	100	0	0	0	0			
ER-L-6502-004-65230 PW Piping to 65E-13 Cooler	05-Jun-07		175	20	11	3	1	331	39	12			394	30	8	4	1	82	0	0	0	0			
ER-L-6502-005-65246 Sour Water Small Bore	19-Apr-07	13-Nov-07	745	745	100			845	845	100			1321	1321	100			201	201	100			445	1.90	2.97
ER-L-6502-006-65246 Sour Water Pump Building Small Bore	01-May-07		598	292	49			639	312	49			1376	861	63			169	96	57			364	0.86	2.37
ER-L-6502-007-65230 Sour Water Building Large Bore South #1	22-Aug-07	14-Nov-07	111	111	100			190	190	100			290	290	100			30	30	100			166	1.14	1.74
ER-L-6502-008-65230 Sour Water Building Large Bore South #2	10-Jul-07	10-Dec-07	113	113	100			250	250	100			423	423	100			57	57	100			454	0.55	0.93

Attachment 4

Excerpt taken from the April 6, 2007 Petro Canada Ordered Audit;

"Jacobs Sulfur Block Workface Planning Assessment"

The workface planning system Jacob has developed is consistent with the COAA model. The first assessment was conducted prior to significant execution of work packages but the system itself was considered effective. There has been a significant increase in the number of workface planners since the last assessment and the workface planning system appears to have progressed since that assessment

Lloyd Rankin

Below is excerpts taken from the June 6, 2007 Workface Planning client ordered audit, where Jacobs qualified for a gold rating for its implementation of Workface Planning.

COAA WORKFACE PLANNING SCORECARD
PROJECT DEMOGRAPHICS

Total Project Description:	**Sulphur Block RCP 1.1 Petro Canada**		
Type of Facility, e.g. Mining, in situ:	**De-sulphurizing**		
Areas covered by Assessment, e.g. discipline, CWP:	**Pipe, Steel, Equipment**		
Owner:	**Petro Canada**	**Location:**	**Sherwood Park**
Project Budget:	**$300 million**	**Field Peak Manpower:**	**400**
Construction Start Date:	**November 1 2006**	**Project Completion Date:**	**March 30 2008**
Prime Contractors:	**Jacobs**		
Audit Date:	**June 6 2007**		
Auditors:	**Lloyd Rankin**		

b) If condition a) is met then Gold is awarded for an average score of 120 or greater,

Scorecard Summary

Field Work Package:	**Score: 58 /70 = 83 %**
Planners:	**Score: 22 /25 = 88 %**
CWP Release Plan and Approvals:	**Score: 10 /10 = 100 %**
FWP Release Plan and Approvals:	**Score: 13 /15 = 87 %**
Integration and Coordination of FWP:	**Score: 27 /30 = 90 %**
Total Score:	**130 /150 = 87 %**