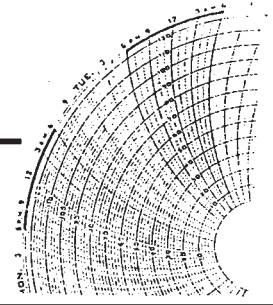




ORANGE COUNTY SECTION
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CHART

JUNE 2000

BYPASS CONTROLS IN COMBINED CYCLE POWER PLANTS

by

William Harrison

Senior Specialty Engineer at Duke Fluor Daniel Inc. in Aliso Viejo Office

PROGRAM:

High thermal efficiency and low capital costs of gas-fired combined cycle units has led to strong demand for these units in today's merchant market. A dual cycle is more complicated than a single cycle, either gas or steam, since the dynamics of one cycle are coupled with that of the other. It is possible to decouple the gas and steam cycles of a combined cycle plant by using a diverter damper to isolate the heat recovery steam generator (HRSG) from the gas turbine exhaust path. But because of the additional expense and maintenance of such a system, many combined cycle plants have no diverter damper and have tightly coupled gas/steam cycles. This leads to operational complications, especially when starting and shutting down the plant automatically. The steam bypass system accommodates this complexity by allowing sufficient steam flow through the HRSG even when the steam turbine is not capable of taking that flow. This presentation describes the control strategy of the steam bypass circuit on the Duke/Fluor Daniel 500 MW combined cycle Reference Plant. Plants derived from this core plant typically are designed for the merchant market. They experience multiple starts/stops in regular operation. The steam bypass circuit is thus crucial to their capability of meeting market-driven need for electric power.

SPEAKER:

William Harrison is a senior Process and Specialty Engineer with Duke Fluor Daniel and has over 18 years of power plant experience in the USA, Europe and middle east. Extensive engineering background in design and services in power generation, plant operation, start-up, and project management of combined cycle, cogeneration, fossil fueled power plants.

Senior process/specialty engineer for power block system design for proposals, projects and standardization. This includes preparing economic optimizations for best engineering design of systems and components as internal corporate design guidelines.

Recent experience include creating piping and instrumentation diagrams of various systems such as gas turbine generator, heat recovery steam generator, steam systems, steam turbine generator, condensate - feedwater systems and miscellaneous balance of plant (BOP) systems on several projects. Performed system and component layout, design for sizing pipelines, pumps, condensers, steam bypass systems and various control valves, writing system design descriptions and the overall plant startup system description.

MEETING NOTES:

Check out our Web site at www.isa.org/~oranc/

Date: Wednesday, June 14th, 2000.

Place: Park Place, Room CN-10 (37-10), 3353 Michelson Dr., Irvine.

Times: Social Hour 5:00 PM. Technical Program - 5:45 PM

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ORANGE COUNTY SECTION

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From The President's Desk



I'm sure you've all been anxiously awaiting the results of our District 11 Student competition that was held on April 28, 2000 at the Placentia Linda Hospital. And the winners are . . . the Cal Poly Pomona team! The competition was fierce and the display of brainpower was awe-inspiring, but the Cal Poly Pomona students were ultimately victorious. This talented group of students will now travel to the International Student Competition at ISA EXPO/2000 New Orleans to represent our District. Thanks again to 3D Instruments, Inc who sponsored the event and provided us with a charming and skillful MC.

During our May 10th meeting an election was held at Park Place 3353 Michelson Drive Irvine, CA; for Fiscal year 2000-2001 officers and the following members were elected.

Christine Tachdjian - President Elect, Katherine Dam - Treasurer, Meenakshi Govil - Secretary, and John C. Querido - Society Delegate, Historian, & Section Division Liaison. They will be under the excellent leadership of the new Section President, Terry Sellers.

I look forward to seeing you at the next monthly meeting. This will be my last column, as I will be handing the reins to Mr. Sellers in July. I want to thank all of you for allowing me the opportunity to serve the Orange County Section and for your input during my term as President. I especially want to thank the ISA OC board for their collective hard work and support throughout the last year.

Troy A. Johnson, PE
President, ISA Orange County Section

ISA - The International Society for Measurement & Control/ORANGCOUNTY SECTION

Budget Report 7-1-99 through 6-30-00

INCOME

Arrangement Inc	\$5,000.00	\$6,000.00	(\$1,000.00)
Christmas Event	\$4,420.00	\$5,000.00	(\$580.00)
Dues Refund	\$5,072.85	\$6,000.00	(\$927.15)
Education Inc	\$430.00	\$3,000.00	(\$2,570.00)
Honorariums	\$711.76	\$500.00	\$211.76
Interest Income	\$1,346.47	\$1,000.00	\$346.47
Other Income	\$0.00	\$1,900.00	(\$1,900.00)
Student Competition Income	\$3,075.00	\$3,000.00	\$75.00
TOTAL INCOME	\$20,056.08	\$26,400.00	(\$6,343.92)

EXPENSES

Arrangements	\$3,658.86	\$5,000.00	\$1,341.14
Christmas	\$3,932.63	\$5,000.00	\$1,067.37
Education	\$1,301.38	\$2,500.00	\$1,198.62
Honors & Awards	\$1,002.01	\$2,000.00	\$997.99
Insurance	\$220.00	\$200.00	(\$20.00)
Membership	(\$10.00)	\$500.00	\$510.00
Pres Summer Mtg	\$0.00	\$1,200.00	\$1,200.00
Pres Winter Mtg	\$1,061.38	\$1,200.00	\$138.62
PresElect Train	\$0.00	\$700.00	\$700.00
President	\$120.75	\$500.00	\$379.25
Programs	\$332.64	\$300.00	(\$32.64)
Publicity	\$0.00	\$150.00	\$150.00
Secretary	\$0.00	\$25.00	\$25.00
Soc'ty Delegate	\$1,479.22	\$1,500.00	\$20.78
Student Competition	\$4,371.81	\$3,500.00	(\$871.81)
Student Section	\$168.11	\$500.00	\$331.89
Supplies	\$0.00	\$25.00	\$25.00
Treasurer	\$120.84	\$100.00	(\$20.84)
Workshop, Distr	\$0.00	\$1,000.00	\$1,000.00
Workshops, Sect"	\$0.00	\$500.00	\$500.00
TOTAL EXPENSES	\$17,759.63	\$26,400.00	\$8,640.37

TOTAL INCOME - EXPENSES	\$2,296.45	\$0.00	\$2,296.45
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ASSETS

CD	\$37301.17
Checking	\$5698.68
Savings	\$4304.86
TOTAL Cash and Bank Accounts	\$47,304.71