August 1, 2005

Doug to answer your questions.

What did you do to fix the Zero Problem?

The Government did the following: In the PLC, an additional rung was added to the existing ladder logic in a language the Government currently uses. This additional rung ignores perturbation values of zero being sent to the PLC from the ITB.

Or was there really a Zero Problem in the first place?

Yes, The Government took the following action to address this question. The zero problem was demonstrated and witnessed by Rod Wittinger, Lee Sheldon and Ed Miska to confirm that a Zero was appearing in four locations: the ITB set point screen, the OPC monitor screen, the OPC log and in the PLC.

To further explain:

When was the zero issue found? After ATEC delivered the ITB to the Government during functional testing of the ITB at the Hydroelectric Design Center on the GMT control system mockup. The zero was first noted after the installation of a version of the software provided by ATEC with a perturbation function added.

How was it isolated? The Government carefully examined and tested the subject PLC with other GMT PLC's electronically isolated from the subject PLC and ATEC equipment. The zero problems persisted. The final PLC was physically removed from the ATEC equipment isolating the ATEC equipment as a stand-alone system. The zero problem persisted.

What was done to correct? An additional rung was added to the existing Government PLC ladder logic to ignore zero values.

Who did what and when? The Government identified the zero problem when the perturbation version of the program was provided by ATEC and subsequently tested by the Government. This information was provided to ATEC in June-July. The Government added the ladder logic to the Government PLC in July.

Clarification of our July 29, 2005 meeting: There appears to be a misunderstanding that two unrelated Government efforts to assist ATEC are related.

Repeating your reason for the questions:

> "In our meeting Friday, Ed's answer didn't ring true when I asked him, 'Did you modify the C-code to fix it?' Ed said 'No, I modified the relay ladder logic coding.' He had earlier said it was compiling it in the ITB there that made the problem go away."

To reiterate, the Government has modified no C-code. What was done in the PLC is to add a rung in the ladder logic to check for a zero perturbation value. If a zero perturbation value is encountered the value is ignored. This was done outside the ATEC realm of responsibility in the Government PLC by the Government.

The ITB compiling being referred to that made the zero problem go away is for a test case to prove the section of ATEC code being tested is not the source of the observed zero anomaly. What was done, as a test case, was to modify an initialization constant that was zero in the Visual Basic file provided by ATEC to another value and determine if there was a difference. The source code for the perturbation setting software was recompiled and run indicating there was a difference: that neither the zero value nor the revised initialization value shows up intermittently.

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