D000 13520

RA Libby V CAROTENUTO

CHRON [redacted]

US Spent Fuel Team

#53

M40

[redacted]

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Friday, November 10, 1995

Today started with NAC moving and organizing boxes and equipment in the spent fuel area and ConTec changing the water treatment system prefilters. NAC also worked on the baskets in pool #1 which were laying on their sides where they could not be grappled by the tipped basket grapple. All of these baskets were moved in the morning to where the tipped basket grapple will be able to grapple them. Before they are moved to pool #2, the DPRK will tell us how many rods are missing from each so that as the loose rods are picked up, we will know how many of them to put into each basket.

Once preparations were complete, the 8 prefilter bags were changed out in less than an hour and Roger and Gordon each took only about 10 mr of dose even though the filters were 100 mr/hr @ contact.

In the morning, NAC was able to move all of the baskets into position so they could be uprighted. Two were uprighted in the afternoon. Poor visibility due to cloudy water was the main hindrance. In the afternoon, when I was in the pool area, George Jackson was leading the operation with about five DPRK helpers. We have developed excellent cooperation at the working level.

In the afternoon, Roger, Gordon, and I gave the sludge pump one more try, but while we could pump water through the priming line, we could not get any flow to the skid. This probably means there's a blockage in the hose from the sludge pump to the filter skid. My guess is that when we were pumping sludge out through the priming line, heavy sludge particles went straight at the tee instead of making the 90° turn and going out the priming line. With less velocity and a 45 foot long hose that snakes along the bottom of the pool, these particles could have found a place to stop and block the hose.

We decided that the only way to clear such a blockage is to pump water the other [illegible]

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CHRON

US Spent Fuel Team

To: Cherie Fitzgerald, US DOE NN-42
From: Ken Ames, DOE Onsite Monitor
Date: Saturday, November 11, 1995 — 2 pg

During the morning meeting, the Chief Engineer said he had a matter to discuss with me after the meeting. He wanted to know what the schedule is on the boiler. I told him that the latest information I'd seen before leaving was that the boiler would be shipped in late December. I told him Winston should have the latest information when he arrives tomorrow. He reminded me that we'd promised it by November 20 and requested to be given updated information on the shipping date as it was available. Next he suggested that we talk about how the building could be heated before the delivery of the boiler. We had been expecting this and had already done some calculations and perusing of the McMaster-Carr and Grainger catalogs. Our recommendation to the Chief Engineer was that four of the 350,000 btu/hr units in the Grainger catalog would be enough to heat the spent fuel pool area even on the coldest days. We believe they'll also fit in the baggage compartments on the Air Koryo planes. The Chief Engineer raised the issue of paying for the kerosene which would be required, up to 10,000 liters for a really cold month. I told him that I was not authorized to offer to pay for anything, but that I believed Washington might authorize spending the money for the heaters and the kerosene if the DPRK would pay the cost of transporting the heaters from Beijing to the site. The Chief Engineer promised to tell me on Monday morning what the cost per liter would be for the kerosene. His preliminary estimate was about $.50 per liter, although he thought that kerosene would probably cost more than diesel fuel. He also said that before the bigger heaters are delivered, he would like to start using the heaters that were brought in January, two 110,000 btu/hr units and that he would like the U.S. to pay for the kerosene those heaters will use. I agreed to pass this request along as well.

My recommendation is that we agree to pay for the heaters and kerosene because the loss in productivity from working in the cold conditions will cost more than the heaters and the kerosene to run them. I estimate that the cost to buy and ship the heaters will be about $15000 and the kerosene to run them will be $6000 per month.

On the sludge front, Roger and Gordon performed a number of tests. The first thing they discovered when they tried to reverse the flow through the discharge hose from the vacuuming pump is that there had indeed been a blockage. They were able to dislodge it. However, by late afternoon they had been unable to confirm flow from the vacuuming pump to the filter housings. This was very puzzling, because they had verified that the pump was working and had been able to get flow in the opposite direction through the same flow path using the other pump.

I had decided in the morning that we really needed a complete and accurate schematic of the vacuuming system in order to troubleshoot it properly, so I got Gordon to sketch all of the control lines and used George Von Nieda's valve layout plus the skid schematic I had done a couple days before and made a complete system flow diagram that shows the actual orientation and relative position of the valves on the skids. As we were puzzling out by the pool over the confusing results we'd achieved, Roger remarked that it would really help to have a good schematic. I was glad to be able to tell him that we do now. I'm attaching it as page two.

We are having problems with low voltage on the DPRK-supplied power. Today it was only 310 volts instead of 380. We have told the Chief Engineer we need more.

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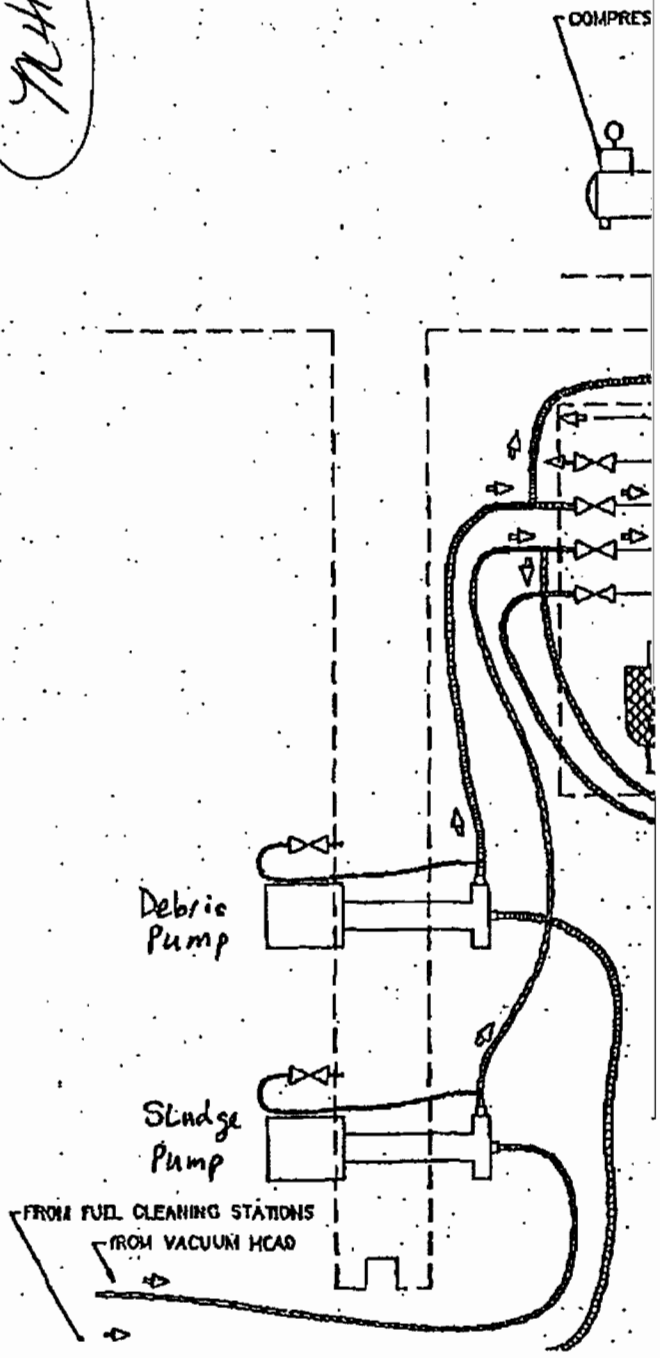

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11/13/95 08:38 ☎202 586 2323 RA Libby →→→ V CAROTENUTO 004/004
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M42

CHRON

US SPENT FUEL TEAM

TO: CHERIE FITZGERALD, US DOE NN-42
202 586 8525, FAX 202 586 2323
FROM: WINSTON LITTLE, DOE ONSITE MONITOR
850 2 381 4423, FAX 850 2 381 2473
DATE: MONDAY, NOVEMBER 13, 1995

Zen Yamamoto and I arrived at the site on Sunday. Ken Ames:

D000 13524

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spent fuel

M43

#56

CHRON

US SPENT FUEL TEAM

TO: CHERIE FITZGERALD, US DOE NN-42
202 586 8525, FAX 202 586 2323
FROM: WINSTON LITTLE, DOE ONSITE MONITOR
850 2 381 4423, FAX 850 2 381 2473
DATE: TUESDAY, NOVEMBER 14, 1995

Both the NAC ISO shipment and the CenTec shipment arrived late last night. George, Neal, and Chris spent most of the day unloading the NAC container.

I informed Engineer Li that DOE would pay for kerosene for the 110,000 BTU/hr heaters at the rate of .5$/kg beginning November 20.

Engineer Li asked for payment for diesel fuel for the 31 day period October 13 to November 13. The requested total was 31 * 70 = 2170$. We had understood that the rate was 57$/day, not 70$/day. DPRK claimed that someone (Grim? Quinones? Ames?) had agreed to the higher rate. Actually, the higher rate appears reasonable since it is based on 140 liters/day (about right) and .5$/kg. We tried to pay in Korean money, but engineer Li would only accept US dollars. Thus, we postponed payment pending verification of higher rate (Chris Miller will call Ken Quinones tonight). DPRK maintains that all kerosene and diesel payments must be in US dollars.

In yesterday's report, I noted that pre-filter Bank A had been valved out due to high pressure drop (and Bank B valved in). Several people noted that Bank A had just been changed on Friday, 11/10. The explanation is that the pool was very dirty last Friday due to fuel movement and sludge system testing, and the 1-micron pre-filter was highly effective in cleaning the pool by Monday morning. Indeed, engineer Li did not believe the high pressure drop, so Roger valved Bank A back in to demonstrate the high value. The demonstration convinced engineer Li to valve Bank A out again.

Neal and Roger successfully repaired the underwater camera!

Gordon and Zen spent the day working on the sludge vacuum system. Several hours were spent closing the lids on the filter canisters. At the end of the day, the system was tested by vacuuming sludge off the bottom of the pool. The flow was initially about 12 gpm, but after about 10-15 minutes, the flow dropped to essentially zero. The cause and location of the blockage is unclear. Roughly 1 meter square, or 1% of the total area, was vacuumed. Although there are a few additional modifications that will be tried during the next several days (e.g., use of fuel cleaning pump for vacuuming, addition of sump pump to vacuum head), it is becoming more and more clear that the system, as currently designed, is seriously flawed.

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