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TECHNICAL PROGRESS REPORT

MOLTEN-CAUSTIC-LEACHING SYSTEM INTEGRATION PROJECT
TRW APPLIED TECHNOLOGY DIVISION

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TECHNICAL PROGRESS REPORT

The overall strategy for the project Tasks 1 through 6 is to allow for the earliest startup of the Task 6 integrated operations with a minimum of up front costs attributed to plant modifications. The plan is to implement only those modifications that are required in order that the plant can be operated in an integrated continuous manner and defer other modifications that will improve plant operation until needed. The necessary modifications are those affecting the operation of the vacuum filters and the evaporator which are critical for integrated operation. Those modifications have been completed and, after a series of off-line tests were performed to verify the operation of the vacuum filters and the evaporator, a week of continuous around-the-clock shakedown test operations was conducted starting on June 3, 1991.

Problems with filtration during the June test run (high level of coal fines) indicated that the Pittsburgh coal in our inventory might be weathered. Coal sample analysis showed an increase in sulfate sulfur and a decrease in heating value, also indicative of weathering.

Although TRW had more than enough coal in inventory to complete the planned test matrix, TRW is obtaining fresh coal to avoid the problems associated with weathering. TRW has disposed of the weathered coal in inventory. TRW is also making plans to dispose of the remaining liquids and coal/caustic solids from the previous program.

Repairs to centrifuges and minor plant modifications required to resume test operations have been started. Off-line testing of plant component equipment will commence in April. Continuous integrated operation will resume in May.

TASK 3 MCL CIRCUIT COMPONENT TESTING

Coal Sample Procurement

In December, TRW requested that Tra-Det crush, dry, and ship five tons of fresh coal to TRW for testing. It was agreed that Tra-Det would arrange with CONSOL for delivery of this coal to their facility. While these arrangements were underway in January, CONSOL requested information about the history of the coal they delivered in June. In direct discussions with CONSOL, TRW described the current status of the MCL program, particularly the impact of weathered coal (i.e. high level of coal fines) on the process.

During February, CONSOL delivered five tons of fresh, mine-cleaned coal from their BV2 mine to Tra-Det. The CONSOL coal is free to the MCL program. During February and March, Tra-Det crushed, dried, and drummed the coal. Tra-Det divided the coal into four lots. Each processed lot was sampled and analyzed as to short prox (moisture, Btu, ash, sulfur) and sulfur forms. Each individual drum was identified with the lot number and a drum sequence number. The coal will be shipped to TRW at the end of March and should arrive during the first week of April.

Tra-Det submitted an invoice in mid-March for crushing, drying, and shipping five tons of coal. A purchase order was prepared and submitted to TRW's purchasing organization for processing.

TASK 5 FINAL CIRCUIT MODIFICATIONS FOR INTEGRATED OPERATION

Cleanup and maintenance tasks in the MCL plant were started in March in preparation for off-line testing of plant component equipment in mid-April and continuous integrated operation in May-June. Centrifuges were checked and sealed, and the progressive cavity pumps are being calibrated. New transition chutes were fabricated and installed between the centrifuges and reslurry tanks in the water washing section.

The DOE Project Manager, Michael Nowak, and a DOE consultant from SAIC, Edward Wan, visited the MCL plant on March 24. At the meeting, goals for the continuous integrated operation scheduled for May and June were defined. It was decided that the broad definition of success is to operate the plant in an integrated mode while producing compliance coal. It was agreed that integrated operation means each plant section produces product (liquid, coal or slurry) in amounts and in a time-frame that will maintain continuous operation of all connected units. The target length for test runs will be five days beyond the point of steady-state. The tests will be conducted continuously on a 24-hour day basis using two shifts. Since operation crews will be working 12-hour shifts to minimize costs, test duration will be limited to seven consecutive days by operator fatigue and operator safety factors.

It is hoped that the results from the May-June operational period will indicate a further reduction in the estimated full scale process cost. TRW and SAIC will work together to define an engineering case and testing that would support a decrease in the process cost estimate.

TASK 7 COAL PRODUCT HANDLING/WASTE DISPOSAL

Coal Inventory Disposal

TRW had 166 drums (about 27 tons) of Pittsburgh No. 8 coal and Kentucky No. 9 coal on-site. The coal inventory has been shown to be weathered and aged to the extent that it is no longer useful for MCL testing. In January, TRW received a quote from Bio-Gen Power in Nipton, CA for burning the coal in their power plant. Altogether, TRW had been investigating four options for removal of the coal from the test site: 1) landfilling by Rollins, 2) having Tra-Det arrange with a mine operator in their area (West Virginia) to take the coal, 3) having Bio-Gen Power in Nipton, CA burn the coal, and 4) having a utility found by Chem Sources burn to coal.

Since the Bio-Gen Power quote was the lowest and involved the shortest transportation distance, TRW prepared a purchase order with Bio-Gen Power for the transportation and burning of our coal inventory. The Bio-Gen proposal was approved, and the entire 27 tons of coal inventory was shipped to Bio-Gen Power during February and March.

MCL Solid Waste Disposal

In addition to the weathered coal, TRW has been making plans to dispose of all MCL solid waste material stored at the test site. Rollins is TRW's site contractor for waste disposal. TRW has 84 drums of material (mostly coal/caustic kiln discharge plus drummed filter bags, sample bottles, and gypsum). This material is suitable for landfill after stabilization (neutralization) and encapsulation. Since the current program calls for some off-line testing requiring coal/caustic feed material, TRW has chosen 24 of the drums for this testing, leaving 60 drums of waste material to be hauled away. The waste material is scheduled for removal in early April following repackaging to consolidate the waste into a minimum number of drums.

TASK 9 PROJECT MANAGEMENT AND CONTROL

Based on the results of the one-week shakedown testing in June, the Management Plan (including the project work plan) was revised and was submitted to the DOE in January. A no-cost extension to September 30, 1992 was requested and was granted in February. A revised manpower plan and cost plan was submitted reflecting the extension of the period of performance to September 30, 1992. The plans reflect an approach to complete the project with a minimum of equipment replacements and with a maximum of operating time at integrated steady-state conditions.

TRW plans to perform additional off-line plant testing in April before resuming continuous operation in May.

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