



Norbert Holtkamp  
Accelerator Systems Division  
Division Director

PHONE: (865) 241-6945  
FAX: (865) 241-6739  
Cell Phone: (865) 919 1070  
E-MAIL: [holtkamp@sns.gov](mailto:holtkamp@sns.gov)

PO, DO, Procurement, DCC

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## Weekly update on DTL #1+ #3 ; week 03

Weld repairs were completed on all tank-3 drift tubes water channels. DTL-3 waveguide iris transition finish machining completed (Milestone). Rebuilt DTL-1 drift tubes, 1<sup>st</sup> ten diverters machined (Milestone). Machining of a "fast prototype" tank-1 drift tube progressed into the cavity and cap stages; unit will include a PMQ for full process emulation. Water channel welds for tank-1EMD dummy DT's were completed. Diverter braze qualification was completed with satisfactory results. LANSCE-2 hydrogen brazing furnace came on line on schedule with a successful test run. Initial plating of the Iris/RL wave guide for tank-1 was completed; unit is currently undergoing stress relief combined with the first hydrogen furnace brazing operation. Machining continues on replacement tank 3 and 1 drift tube mounts ("top hats"). Valves are being included in Iris/RL wave guide NEG pump spool. Layout is underway. If no problems are incurred, we will order first required valve (for tank 3) to keep schedule. Gentzlinger and Fox visited Hanford and negotiated a reduced cost estimate for e-beam welding. Hanford appears to have plenty of e-beam welding capacity; we will not keep them busy.

Concerns & Actions: On 1/17/03 during post machining inspection of a group of drift tube linac (DTL) tank three drift tube water channel repair welds it was discovered that there is little or no cap joint weld present in these units. Additional tank three drift tubes were inspected and the problem appeared to be systematic due the original welding and machining process used to produce these drift tubes. These flawed processes have already been abandoned and therefore subsequent groups of drift tubes currently being built or rebuilt are not subject to this problem. Cognizant project engineers discussed the problem and after consultation with the DTL chief scientist elected to begin an additional repair process to restore these flawed tank three drift tubes. A proven ring weld repair process will be used. An engineering change notice was issued and transmitted to the fabrication vendor at close of business on 1/17/03. Repairs are commencing immediately; presently it is believed that the repairs may be effected and still permit delivery of the required tank three drift tubes according to the required schedule. Aster informed us that of a two-week delivery delay for replacement PMQs due to a

Milestone description	Due Date	Number total	Number or % complete	Delta last week
DTL 3 DT's repair	Feb 28 <sup>th</sup> '03	33	4	+4
DTL 3 DT's rebuilt	Feb 28 <sup>th</sup> '03	0	0	-4
DTL 3 DT's new built	Feb 28 <sup>th</sup> '03	0	0	0
DTL 3 other parts	Feb 28 <sup>th</sup> '03	100 %	91%	+2%
All DTL 3 parts shipped	Feb 28 <sup>th</sup> '03	100 %	25% / IPS marker DTLINK51	0
DTL 3 installation	April 16 <sup>st</sup> '03	100 %	? /IPS marker DTL045	0
DTL 1 DT's repair	April 1 <sup>st</sup> '03	7	7	0
DTL 1 DT's rebuilt	April 1 <sup>st</sup> '03	48	0	0
DTL 1 DT's new built	April 1 <sup>st</sup> '03	4	0	
DTL 1 other parts	April 1 <sup>st</sup> '03	100 %	78%	1%
All DTL 1 parts shipped	April 1 <sup>st</sup> '03	100 %	23%/ IPS marker DTL055	0
DTL 1 installation	May 21 <sup>th</sup> '03	100 %	? / IPS marker DTLINK31	?

subcontractor error (permanent magnet material magnetized in the wrong direction); at this time, there is no impact on schedule as we will be using spares and/or magnets originally slated for installation in other DT's. Schedule analyses revealed that we need to accelerate the tank-1 brazing operations to meet the Apr 1 delivery schedule. Negotiations are underway to accelerate schedule. Redesign of the intertank region to accept vacuum valves with bellows-sealed stems is underway; beam box machining and modification are required. End wall o-ring modifications are not possible for first few tanks. We need to proceed soon with the vacuum valve order. We are preparing leaking tank-3 BPM drift tubes with silver solder and/or copper plating. The production of a "dummy" tank-3 BPM drift tube was initiated in case the repair is not successful.

In Oak Ridge the DTL-3 cooling manifolds are reinstalled in the tunnel in preparation for the test of the water-cooling system. Following guidance from the external review water cooling channel will be glued on the tanks and the epoxy has been selected after extensive testing. Activity will begin next week. In preparation for DT installation in the tunnel a movable plastic enclosure will be installed in the tunnel. The activity is 25 % complete.

Table 16 of the recovery plan. Tank 3 milestones

<b>MS</b>	<b>Activity</b>	<b>Complete</b>	<b>Actual</b>
1	Repaired drift tubes, repair welds complete	13-Jan-03	
2	Post-couplers, tips welded to stems	27-Jan-03	3-Jan-03
3	Waveguide-iris transition, finish machining complete	27-Jan-03	21-Jan-03
4	Top hat finish machining complete	31-Jan-03	
5	EMD drift tube repair complete	5-Feb-03	
6	Post-couplers, finish machining complete	18-Feb-03	
7	Drift tubes, field, vacuum, flow & pressure tests complete	21-Feb-03	
8	All DTL components delivered to ORNL	28-Feb-03	

Table 17 of the recovery plan. Tank 1 milestones

<b>MS</b>	<b>Activity</b>	<b>Complete</b>	<b>Actual</b>
1	Rebuilt drift tubes, 1st 10 diverters machined	7-Jan-03	19-Jan-03
2	Repaired drift tubes, finish machining complete	14-Jan-03	6-Jan-03
3	Post-coupler tips welded to stems	3-Feb-03	
4	Waveguide-iris transition assembly braze complete	7-Feb-03	
5	Top hat finish machining complete	7-Feb-03	
6	Rebuilt drift tubes, all stems welded	11-Feb-03	
7	Repaired drift tubes, final unit delivered to ORNL	17-Feb-03	
8	Low-energy end-wall tuning-ring weld complete	5-Mar-03	
9	All DTL components delivered to ORNL	1-Apr-03	