

**MEETING MINUTES**  
**PROJECT NO. 9529**  
**Purchase Order No. 95-19544**

Meetings were held at the offices of TMCi Padovan in Conegliano, Italy to discuss engineering and design effort for cast sheet dryers. Meetings were held November 29-30, 1995.

**November 29, 1995**

**Attendees:**

Nick Hall Taylor - TMCi Ltd.

Hasu Patel - TMCi Ltd.

Renzo Meneghini - TMCi Padovan

E. O. Sagmanli - TMCi AG

Keith Smith - RJRT Tobacco Processes Instrumentation and Controls

Neil McClanahan - RJRT Tobacco Processes Engineering

Debbie Easter - RJRT Project Management

**Summary:**

1. Nick stated that he had been advised by RJRT's Mr. Bruce Phillips regarding the delay in schedule for purchase of equipment and agreed with RJRT's request that engineering and design be completed at this time in preparation for future purchase.
2. Nick questioned the requirement in Section 3.3 of the technical specification of the Contract Documents that topside drying have the capability of removing water vapor at a maximum dry bulb temperature of 150 degrees C (Reference correspondence of October 13, 1995). Neil stated that technicians working with RJRT's pilot line have observed a more uniform sheet, with no mottled effect on the backside, at temperatures of approximately 250 degrees F, and it was from these observations that the 150 degrees C requirement was set. Nick stated his concerns, e.g., impact on sizes of air coils, design of TMCi dryer and drying control, two-stage heating required in each zone to accommodate turndown and, in response to Neil's query, advised that a retrofit would not be easy, i.e., verification of this requirement is needed now. Accordingly, it was agreed that Neil would investigate further with RJRT R & D personnel a lower temperature; meanwhile, TMCi will proceed with design based on 150 degrees C with two-stage heating but also check on steam reducing as means of meeting turndown requirements.
3. Nick discussed the requirement of a minimum dewpoint temperature of 45 degrees C throughout the dryer, indicated that he cannot meet this under all conditions, and questioned the wisdom of designing equipment to meet conditions which occur infrequently. He distributed a handout describing his interpretation of requirements, conditions, calculations, and Neil stated that he would review and advise.

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4. Nick referred to the water removal rates in various sections of the dryer length included in Section 3.3 of the technical specification and indicated that the drying curve for the TMCi dryers might not be the same. Neil advised that these rates are based on tests conducted at RJRTI's Trier facility and represent the parameters required for obtaining 5% exit moisture; it is understood that TMCi's equipment might vary from this. Moreover, this ties into the question of operating air temperature as discussed in Item 1 above. Regarding that matter, Nick asked if any baking or roasting of the sheet occurs at the 250 degrees F operating temperature of the pilot unit; Neil advised that the only effect is a possible glycerin fog about which he will provide more information. He will also furnish information pertaining to air velocity if available.
5. RJRT needs to provide TMCi with information regarding the area in which dryers are to be installed, e.g., load bearing and other characteristics of floor so TMCi can provide base design at terminals, ceiling heights which impact design and installation, etc. and proposed layout so TMCi can verify dimensions and spacing between units.
6. TMCi advised that RJRT also needs to consider the question of curbing and particulate flow into the sanitary sewer. Electrical equipment at terminals, which are open, is waterproof.
7. Nick advised that a hood is included at the wet end of the equipment as a result of both sheet 2 requirements and air leakage from the dryer. Neil said that TMCi should design for the hood though it may not be used initially. Nick stated that exhausts for the wet and dry ends of the dryer are not tied into the main exhaust because of balancing problems and also for comfort of operators.
8. Neil advised that, for environmental reasons, RJRT will require rotoclones (combination fan/scrubber) in lieu of exhaust fans proposed and gave TMCi copies of the preferred equipment. TMCi will provide flow rates at exhaust points, RJRT will locate rotoclones (possibly on roof) and size ductwork, and TMCi will provide rotoclones. RJRT will handle discussions with environmental personnel. Neil noted that should sheet 2 be implemented, all dryers may ultimately be tied together for final discharge through a common scrubber.
9. Renzo stated that RJRT's required casting box height of 300mm will necessitate the use of extensions since TMCi's standard is 150mm.

10. Nick advised that their belt supplier (Berndorf) has indicated the belt price will go up in 1996.
11. With regard to sheet 2, Neil stated that no buildup has been detected on the belt of the pilot unit, and he does not consider it an issue. (He noted that there has been some buildup on the casting box and knife.)
12. Nick stated that Schilling's quote for the top loader has been revised both in terms of price and design; it perhaps reflects rework they've developed for Trier's equipment? Neil will look into this issue.
13. Nick advised that venting of steam pans is accomplished via the condensate system, i.e., the condensate takeaway line of each module branches into a condensate discharge line and a line for venting air. He noted that a condensate tank must be located at the dryer itself.
14. Renzo stated that all stainless steel piping is specified except for the steam supply piping which is carbon steel.
15. Nick stated that the seals are ultrahigh molecular weight polyethylene.
16. The heating element (there is no fan) at the doctor is used during startup to evaporate any water remaining from previous washing.
17. Nick stated that hydraulic systems for belt tensioning and tracking are being used because they are easier to control than pneumatic systems, because of the length of the machine itself and the fact that a pneumatic system would probably have required large components. This will be TMCI's first hydraulic unit. He stated that hydraulic drives (two systems with dry end set up to do belt drive) are being used primarily because of economics, i.e., hydraulics are being used for tensioning and tracking, and again for the compactness. The drive system being specified is provided by Rexroth, and TMCI will not consider an alternate since the drive system is part of the overall package being furnished by Rexroth, i.e., tensioning, tracking, drive. He will advise of their American agent, if any. A brochure describing the systems was provided RJRT. Nick advised that belt speed specification requirement of 8-80m per minute can be met with the hydraulic system.
18. Neil stated that he would like to observe operation of the proposed redryer at Nuway in January 1996 if possible. Nick

advised that air flow for redryer is cocurrent, not countercurrent, since countercurrent flow produces a wave effect which backs up the sheet.

19. It was agreed that the chopper and waste treatment system quoted by TMCI would be incorporated into the scope of work. Particle size provided by chopper can be adjusted without changeout of parts.
20. Hasu advised that drawings are being completed to provide supply parameters for utilities, and development of assembly drawings is in progress. He agreed that completed drawings would identify each dryer component and list its material of construction as requested by RJRT Design; in addition, all equipment required for proper operation of the equipment but not furnished by TMCI will be so indicated in the design manual. The material listing required by the Contract Documents is also being developed. Attempts will be made to issue forthcoming drawings in a medium importable into the RJRT CADD system. Mr. Sagmanli advised that TMCI would not be issuing their manufacturing drawings to RJRT.
21. In response to RJRT's request, Nick stated that TMCI would provide a sample of the panel insulation for analysis by RJRT.
22. Nick asked for a relaxation of the requirement in Section 3.3 of the technical specification that a maximum underbelt steam load of 6000 kg/hr is required. He disagrees based on his review and stated that to design for such only adds components, e.g., additional nozzles, etc. which are not needed. Neil agreed that the specified requirement could be reduced to 4000 kg/hr pending further review.
23. Renzo reviewed and provided a copy of drawing of top loading system that he is designing. He will develop pricing information which TMCI will forward to RJRT. He also requested a dust sample which Neil will provide; Neil will also furnish information pertaining to feed rate.
24. TMCI will provide openings with 1" NPT sockets every three meters for sprinkler heads. RJRT may furnish sprinkler heads to TMCI for installation by them during assembly of modules.
25. Hasu confirmed that instrument specifications will be issued with the next package. The control logic or descriptive narrative will come later, as a final item.
26. Keith confirmed that local disconnects are not required nor are overload inputs to the PLC system for motor protection.

27. ZSC's are required only on on/off valves, not modulating valves.
28. Keith reviewed his preliminary P&ID along with the AB MCC design and I/O system loading document. He confirmed that Hasu had received legible copies of faxed information.
29. Keith advised that Eurodrive gear motors built to NEMA standards (NEMA protected or equivalent) should be used. Hasu will provide equivalents of IP and NEMA standards. Keith stated that RJRT will require specifications for all motors. He also noted that internal thermal overload switches shall be provided on all drives, hardwired not I/O.
30. Keith requested that a more definitive break between TMCI and RJRT furnished items be included on drawings.
31. Hasu stated that he is unaware as of yet of any problem procuring RJRT preferred instruments and controls.
32. Keith stated that RJRT prefers Skinner solenoid valves; TMCI prefers FESTO. Keith will check on FESTO which has been used previously at RJRT.
33. Keith noted that RJRT will provide equipment numbers and instrument numbers for all items furnished by TMCI; TMCI will be required to furnish such items with tags bearing those numbers. Due to the anticipated schedule for completion of drawings, review of drawings, development of tag numbers, etc., it does not appear that such RJRT numbers will appear on TMCI drawings. Regarding instruments, however, Hasu indicated that an additional column can be added to TMCI's Control Instrumentation Symbols and Identification listing in which the RJRT instrument number will be included plus the number will be indicated on individual specification sheets.
34. Keith requested that information on controls of hydraulic systems be provided; RJRT does not want independent, stand alone control systems. RJRT will either elect to provide controls itself for these systems or, at a minimum, tie the vendor-furnished control systems into the RJRT system to allow operator interface at terminals.
35. Referring to Dwg. T13-01-A013, Sheet 4, Keith noted that positions of CV04 and CV05 are to be reversed, and this is typical of all such arrangements.
36. Nick stated that the air inlet dampers are air actuated; the remaining are manual. Dampers are used for balancing,

not control. TMCI has designed for both room air and outside air in the past; the use of room air is anticipated here. TMCI needs to confirm inlet air for RJRT review; more information on damper control is also required.

37. TM55 is be used regarding moisture meters. It was agreed that the final moisture meter would be relocated from the end of the redryer to a location after the chopper and would be non-traversing; the moisture meter at the end of the dryer will be traversing. A cooling head (with cooling water) will be provided at the dryer moisture meter per manufacturer recommendation (because of the heat); it will not be required at the meter after the chopper. Keith needs vendor information for these items.
38. The transfer conveyor from the dryer to the redryer is operated via mechanical gear motor, FVR. Keith stated that this motor needs to be shown on the drawings.
39. Nick recommended a dimpled belt as opposed to a flat belt for the takeaway conveyor from the choppers. This is a material handling issue for RJRT to resolve.
40. TMCI will forward information regarding the proposed Vega ultrasonic unit at the casting box; Lundahl unit was included in the specifications Keith previously faxed.
41. TMCI will delete E-stops; RJRT will cover. TMCI generally hardwires stops as does RJRT.
42. TMCI will furnish tension limits, etc. for tracking.
43. Movement of casting box is pneumatically controlled, fully up or fully down, with switch on cylinder. Knives are adjusted via screws though dials have been used. Wet end scavenger knife is pneumatically operated but not with cylinder; Renzo reviewed the tubing arrangement with Keith. Design will be changed to energize up/energize down. Switch functions (casting box, scavenger) will be incorporated into CRT. A position switch will be added to indicate scavenger position. Guards enclose this arrangement as at dry end and at primary knife, both of which operate similarly to wet end scavenger; access doors will be incorporated. Though drawings indicate two DO's for dry end scavenger, it's actually only one with deletion of cylinder. New design is being developed for primary knife which includes a heating element (TMCI will size element and Keith will make recommendation regarding vendor) but no air lift. Normal spool size is 315m; equipment will be installed (proximity switch, counter) to

let operator know when spool is running low and will be tied into CRT.

44. Reject product drops straight from scavenger into waste system, all components of which are enclosed by guards and covers. During this discussion, the question arose as to whether opening the muncher door should shut down the muncher only or the main dryer or whether only a secondary guard is required. It was agreed that a screen would be used as the secondary guard. This highlighted the need to identify and make provisions for all points where observation of moving parts is required and danger is present which TMCI will do.
45. TMCI needs to advise of kw requirements.
46. Information needs to be exchanged and interface developed for infeed of slurry into casting box.
47. Keith requested a list of I/O's; Hasu will revise existing sheets.
48. TMCI shall proceed per quote with regard to painting, including color. Motors, however, shall not be painted.
49. In response to Mr. Sagmanli's question, Debbie advised that no formal reporting system is anticipated during the installation phase of equipment. Rather, TMCI's Site Resident Engineer will be in daily contact with RJRT's Construction Manager.
50. Maximum steam pressure at heat exchangers is 10 BAR.

November 30, 1995

Attendees:

Nick Hall Taylor - TMCI Ltd.

Hasu Patel - TMCI Ltd.

Renzo Meneghini - TMCI Padovan

Keith Smith - RJRT Tobacco Processes Instrumentation and Controls

Neil McClanahan - RJRT Tobacco Processes Engineering

Debbie Easter - RJRT Project Management

Summary:

1. Nick reiterated his concerns about the 45 degrees C wet bulb temperature requirement of the technical specification, noting that his comments in the handout are based on actual ambient conditions. He again stated that designing for the

worst case conditions leads to the addition of more components not frequently required and a general redesign of the TMCi dryer. Neil will advise after discussions with RJRT R & D personnel.

2. Debbie inquired again as to piping materials, noting the purchase order requirement that all piping be stainless steel. Nick advised that TMCi interpreted the requirement as all piping in contact with the drying process, i.e., inside pans, shall be stainless steel; carbon steel infeed piping, with rubber or neoprene from carbon steel header to stainless steel piping, is proposed. Neil noted that concerns regarding piping materials have been raised by RJRT construction personnel, e.g., material gauges, and Nick indicated that TMCi is open to discussion in this area. RJRT will advise.
3. Nick will forward a revised schedule to RJRT after review of meeting discussions and impact upon engineering/design effort. It was tentatively agreed that the final invoice amount would be divided evenly between the months of December 1995 and January 1996 pending confirmation of revised schedule. It is anticipated that another meeting will be required between RJRT and TMCi personnel upon completion of design package.
4. Nick stated that TMCi will develop and forward a proposal for heat recovery; inclusion of such a system will affect location of the rotoclones.
5. Concern was expressed over top load particles and their adherence to sheet, escape through exhaust, etc. In response to Keith's question, TMCi advised that the dimension from the top of the belt to the hood is approximately 210mm at wet end. Neil advised that test(s) can be performed on RJRT's pilot unit to determine tackability of dust to sheet, how long it takes dust to adhere to sheet, etc. He also stated that RJRT plans on installing a cyclone or tangential separator at top loader and requested that space be designed in for such equipment. Nick stated that TMCi is exploring the use of an air curtain to provide just enough pressure to pack the dust particles into the sheet plus design of exhaust flume to minimize pickup of top load. Hasu suggested the use of a fine mist in zone 1 in lieu of the air jets. Further investigation by both RJRT and TMCi will be performed.
6. Information to be provided by RJRT was reviewed, and TMCi confirmed that they will obtain additional information from Rexroth for RJRT's review, concerning hydraulic controls,



afterwhich it will be determined if a meeting with Rexroth and RJRT is needed.

7. In Hasu's absence (he will be in China throughout December), correspondence, transmittals, questions, and comments should be directed to Nick.

Attendees are requested by means of copies of these minutes to advise of errors and/or omissions in the above.

*D. A. Easter*

D. A. Easter

DAE:tmci

xc: Attendees  
G. J. Simmons  
Bruce Phillips  
Gary Branon  
Ken Parrish  
Gray Flinchum

Mike Williams  
Larry Agee  
Joe Chucci  
Bud Lewis  
Bill Smith  
Tim Flinchum