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Job Traveler Training	This Document expires one day after printing Last Printed: October 4, 2015	

Date	*Description Of Change*	*Signature*	*Rev. Level*
06/03/14	*Initial Release*	*Joseph Ravitsky*	*A*

Procedure Approval:	**Company Title:**	**Date:**
	Quality Manager	6/8/15
		6/8/15

1. Scope

The scope of this procedure is to provide a standardized procedure for the training of all new employees on the job traveler.

2. Documents

2.1 Equipment Forms Model (excel)

2.2 Job Traveler

3. Example of a Traveler

JOB TRAVELLER

Date: 4-Oct-15

Customer	ENERGY & PROCESS CORPORATION	TAG #	3657

Standard	Alloy	OD	Wall	Length	Heat Number	Purchase Order	Sales Order
SB-111	C70600	0.75	0.049	340		L256-5903	5215-3657

Failure to properly complete information on the Travelers may result in disciplinary measures such as dismissal for 42 hrs without pay for each occurrence.

Schedule of Operations & Target Sizes — Min. Starting Length: 3

	Operation	Apply?	OD/Die	Wall	ID/Plug	Lbs./Ft.	Length	Min. Length	Qty.	Employee Responsible	Date
1	Starting Size	Yes	2.560	0.236	2.088	6.654	(19 ft 1.2 in)	(3 ft 0 in)			
2	Pointing	No									
3	Annealing	No									
4	Draw pass #1	Yes	1.500	0.088	1.324	1.508	(82 ft 1.201 in)	(11 ft 0 in)			
5	Remove Points	No									
6	Inter Cut	Yes	1.500	0.088	1.324	1.508	(17 ft 6 in)	(11 ft 0 in)			
7	Annealing	Yes	1.500	0.088	1.324	1.508					
8	Pointing	Yes	1.500	0.088	1.324	1.508					
9	Draw pass #2	Yes	1.187	0.072	1.043	0.974	(26 ft 3.748 in)	(16 ft 3 in)			
10	Remove Points	No									
11	Inter Cut	No									
12	Annealing	No									
13	Pointing	Yes	1.187	0.072	1.043	0.974					
14	Draw pass #3	Yes	0.950	0.060	0.830	0.648	(38 ft 9.666 in)	(23 ft 9 in)			
15	Remove Points	No									
16	Inter Cut	No									
17	Annealing	Yes	0.950	0.060	0.830	0.648	(38 ft 9.666 in)				
18	Pointing	No									
19	Draw pass #4	Yes	0.750	0.047	0.656	0.401	(61 ft 10.9 in)	(37 ft 7 in)			
20	Remove Points	No									
21	Inter Cut	No									
22	Annealing	No									
23	Pointing	No									
24	Draw pass #5	No									
25	Inter Cut	No									
26	Annealing	No									
27	Pointing	No									
28	Draw pass #6	No									
29	Inter Cut final	Yes	0.750	0.049	0.652	0.417	(58 ft 0 in)	(28 ft 4 in)			

Finishing Operations — Sample Y / N

	Operation	Apply?	OD min	Wall min	ID	Lbs./Ft.	Length	Min. Length	QTY	Employee Responsible	Date
	Final Anneal	Yes	0.750	0.049	0.652	0.417	(58 ft 0 in)	(28 ft 4 in)			
	Straightening	Yes	0.750	0.049	0.652	0.417	(58 ft 0 in)	(28 ft 4 in)			
	NDT Passed	Yes	0.750	0.049	0.652	0.417	(58 ft 0 in)	(28 ft 4 in)			
	Final Cut	Yes	0.750	0.049	0.652	0.417	(5 ft 0 in)	(28 ft 4 in)			
	Hydro test	Yes	0.750	0.045	0.661	0.417	(5 ft 0 in)	(28 ft 3 in)			

Splits & Nonconforming Drops

NCMR #	Line#	Outside Diameter	Wall Thickness	Length	Repoint y/n	Description of Non Conformance	Employee Responsible	QTY

4. Procedure

a. Print out a copy of a blank job traveler and remove a previously completed job packet from the quality office including the job traveler that has been properly filled out.

b. Walk the new employee through the entire traveler carefully pointing out each line, from the address and other header information all the way to the bottom NCMR area.

c. Explain the centrality of the job traveler to the entire process, how it is the key document in the processing of every order, it must be filled out completely and accurately, and failure to do so could result in disciplinary action to be taken, including but not limited to suspension.

d. Highlight these elements of the Job Traveler

i. *Customer Name & Requirement* – This area of the traveler identifies the customer and the alloy, size, length and standard of what they are purchasing. This is the finished size and standard that will be delivered to the customer.

ii. *Tag #, Purchase Order #, Sales Order #* - The tag # serves as the main unique identifier in the process. The tag# also identifies the bundle as it moves through the plant. Doing so allows Ameritube to control that Tag of inventory through the process and use that number to generate an MTR for each tag if necessary. Further, if Ameritube's customer requires identification of each heat treating batch or lot, or further identification based on testing, a new tag and traveler will be generated to identify that specific group of tubing. Using this process, Ameritube can trace a specific group of tubing and every unique process that was done to that group of tubing. **THIS IS THE MAIN WAY AMERITUBE ENSURES TRACEABILITY OF MATERIAL IN THE PLANT**. The purchase order and sales order numbers are further identifying numbers that connect the material in the plant with the customer and sales process. The purchase order is customer provided, while the sales order is generated by Ameritube.

iii. *Heat Number* – the heat number is the melt provided by the supplier. This heat number is directly connected to the actual melt at the time of casting. This is the most important number and references an exact chemical composition. Ameritube does not permit mixing of material from different heats and uses this tag and tag# to control the heat throughout the process.

iv. *Minimum Start Length, Standard, and Finished Size* – The traveler shows the finished size to show the goal of the traveler, what will the end result be and according to what standard. This also includes the minimum starting length which is the minimum length required of starting material to produce the proper final length. This avoids staging tubes into production that will not produce the intended final product.

v. *Schedule of Operations and Target Sizes* – Copper tube drawing follows a series of steps that involve both the cold working and stress relieving the material. During this process the material undergoes significant change such that the physical and mechanical properties are changed several times. This has many components as the tube is pilgered, drawn, annealed, cut, drawn etc. The most important thing to stress in this area is the accurate recording of the quantity resulting from each step in the process, the employee responsible (the initials of the employee), and the date. The recording of this information informs the next operator or next step in the chain what is the current status of the tube. Without that information properly filled out, the job traveler must be stopped and the information completed. Incomplete information can result in disciplinary actions.

vi. *Finishing Operations, Samples, Testing* – The finishing of the tube includes the final annealing, straightening, testing and final cutting of the product. At this point in time there is not much change to the product itself, however the product must be accurately counted and recorded so that the final count can be established. This final count will then be placed on the tag which will calculate the yield from production. This last step allows Ameritube to connect the amount of raw material put it into the process and the resulting yield and loss which is a metric that is tracked in our quality system.

vii. *Non-Compliant Material Reports (NCMR)* – This section is where tubes that did not get properly processed are recorded. Whether the tube will be subsequently processed at a later time or not, any tube that falls out of the process for any reason must be recorded. This way Ameritube can track the tube that

was non-compliant and measure the success of our process. The non-compliant tube must be described, its diameter, wall thickness, length, quantity, employee responsible, whether it needs repointing etc.

viii. *Employee Responsible* – Each line item in the process has an employee responsible initialing area which is not a way to punish or discipline people but rather to create ownership over that part of the process. The responsible party can also be called in to resolve issues or find solutions when large amounts of non-compliant tubes are found from a certain step in the process.

e. Print out a new traveler and ask the new employee to explain how the traveler works back to you. It is important that the new employee can name each part and line item of the traveler explaining why it's there.