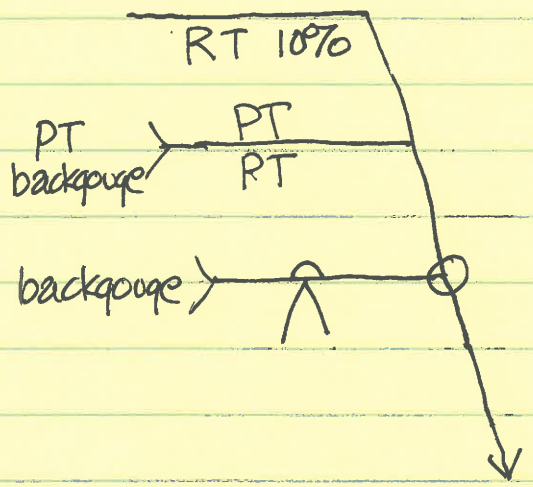
Review of dwg of Spare Reboiler for 242-A

15 June 16
Weld Engr.

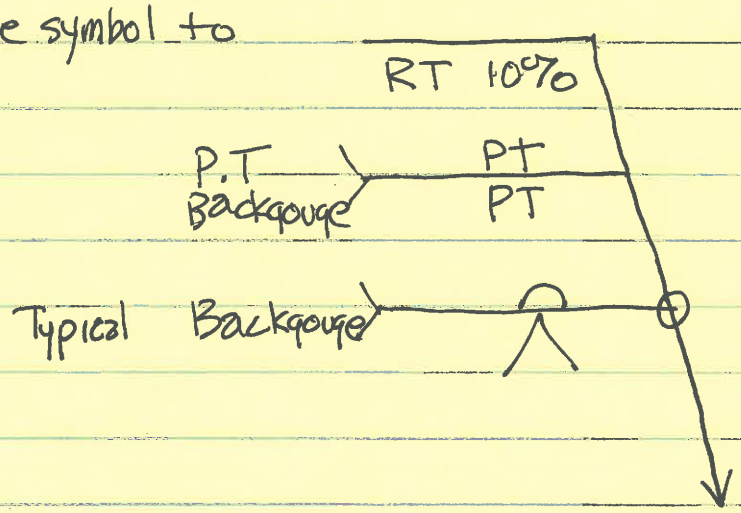
Welds on "Vapor Belt Detail" are not defined
the welds are infered to be full thickness because of the required spot R.T.

add weld symbol and correct WDE callouts



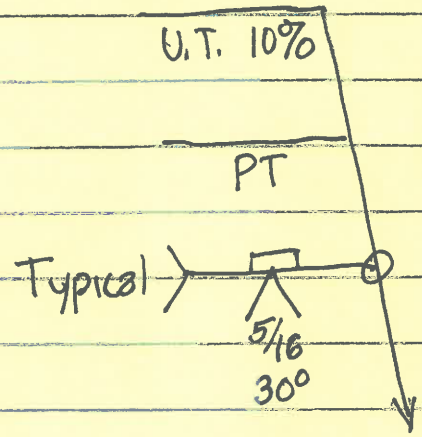
Welds on "Details of Long Seams" are not defined correctly
Weld groove shows backchip & weld but no reference to weld of groove side. The view also shows the R.T being done prior to the P.T.

change symbol to



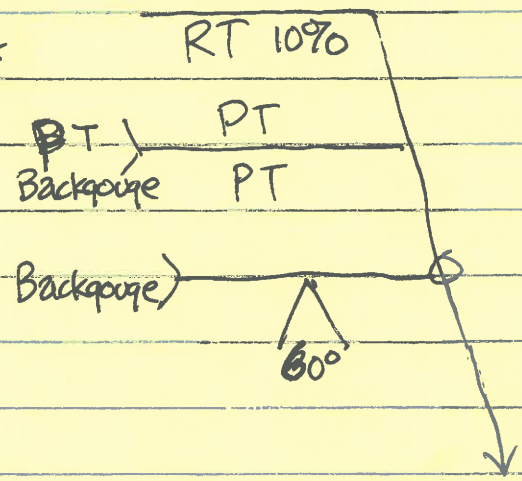
Detail A shows the weld groove configuration but only references the weld and NDE by notes & does not use AWS A2.4 Standard Symbols for Welding & NDE.

add weld symbol



The remainder of the circumferential weld seams are not defined. It is infered they are full thickness because of the required spot R.T. This is shown in the "Vapor Belt Detail"

add weld to symbol & correct NDE callouts



dB

The tube to tubesheet welds are very specific for a weld that references an old Hanford Weld Specification (HWS 8838). I can not find a copy of this. We need this to determine if this is how the weld should be. This design puts all of the stresses on the weld which is very small. Commonly there is an expanded ring or 2 on the ends of the tube into the tubesheet. These swagged rings take the expansion/contraction stresses & the welds are for sealing only. I do not feel comfortable with an autogenous weld (no filler material) when the chemistries of the tube & the tube sheet are not controlled to aid welding & the resultant weld is as small as this one.

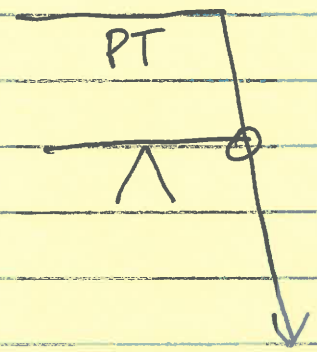
Recommendation

get a copy of HWS 8838 for evaluation
have selected fabricator design this weld including the swagging/expanding tube into tube-sheet.

qB

The 2" weld cap on N48 does not define the effective depth of the final weld. The groove is fully detailed to a way a fabricator might like or might not like.

Change weld symbol to generic full thickness (fabricator will determine the joint design to achieve this)



Nessel support backing plates item 13 do not show a weep hole. These are required to show if there is a leak in the shell under this plate. With out the hole we could not tell if there is a leak under the plate.

add the required weep hole to item 13

qB

The detail E for nozzles have the fillet welds on the ends of the 2" & 4" pipe larger than the configuration will allow. Both are shown as 1/4" but the 2" is only .218" wall thickness & the 4" is .237" wall thickness. these welds need to be changed to these respective values.

The detail E fillet welds on the outside of the shell do not have welds as strong as the pipes or the shell. Increase these fillet sizes as shown below

Mark No	A	B	C
N47	18"	1/4	5/16
N48	2" shed 80	3/16	1/4
N49	4" shed 40	1/4	1/4

larger than can fill configuration.

B	C
3/8	5/16
5/16	.218"
3/8	.237"

increase size these welds are as strong as base materials with these new values

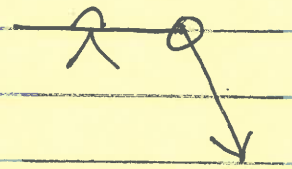
change to these values

the welds on N48 & N47 are shown in 2 places delete the weld symbols on the main dwg. Use the table for all nozzle weld to shell welds.

dB

We have a lot of details of weld grooves. We show angles, land size, depth of bevel and root gap. these are fabrication details not design details. We should only be concerned with the size of the resultant weld & let the fabricator do their job & decide how to detail the groove to give us what we need.

suggest all full thickness welds are shown as



we are actually tieing their hands by telling them how to weld. all we should care about is thickness of weld (effective depth).

the tie rods ~~are~~ item 22 & 23 are tack welded to baffles items 16 & 17. the size & quantity of tacks is not defined and is needed.

the tie rods item 22 are connected to the tube sheets items 1 & 2. the method of connecting is not defined. is it threaded & screwed or welded. if threaded define threads, lock nuts; tack weld ect. if it is welded define weld size.

cB

It is shown that all holes except N49 are covered with welded on covers for testing. Add cap to N49.

Note 2 removes the test covers on the main shell upon erection in the field. There is no provision to remove the same covers on N47, N48 & N49. Add note to remove all covers used in testing during the erection/installation.

The size of the weld on the test cover for N47 is defined. The size of the welds on test covers item 31 are not defined. Add weld sizes. These welds are shown as commercial welds. These need to be welded with the same pedigree as the vessel if there is any chance that any weld metal or heat affected zone will remain.

the test covers item 31 do not show the radius of curvature. add this detail.

There are no details on the welding of the couplings item 34 and the test covers items 31. add these weld details.