

LIGO PROJECT

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FACSIMILE COVER SHEET

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TO Marty Tellalian
CBITSC

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Rai's summary of the plan for your activity. I'd like to discuss this with you early Monday morning. Some of my points of interest include:

1. What do you expect to be best way to apply the foam? Do you have an idea of a design for the fixture? Are we taking a risk that the foam will dry before we get it rinsed off? Do you plan to use steam or water (hot?) for rinsing?
2. How do you plan to seal the ends during solvent cleaning? Will solvent cleaning include one or two applications? Will the applications be rolling/soak and rolling/drain? How much surface width do you plan for soak? Has anyone looked at how much evaporation will change this width during the process?
3. What do you think of the solvent reference FTIR measurement technique? How do you plan to hold the witness coupons?
4. What do you expect the man-hours and expenses for this particular task (including earlier, ancillary items) to be? What does it look like, schedule-wise?

Please call me when you've had a chance to look this over, even if you don't have all the answers. I'll be in at 7:30 AM.

From weiss@tristan.mit.edu Fri Nov 4 15:34:12 1994
To: gerry@ligo.caltech.edu, lazz@ligo.caltech.edu, lazzarini-cos1@kaman.com,
ljones@ligo.caltech.edu, sanders@ligo.caltech.edu
Cc: weiss@ligo.caltech.edu
Subject: Fixed error in procedure delete prior message

file:clnpro110494.txt
to: L. Jones, Al Lazzarini, Gary Sanders, Gerry Stapfer
from: R. Weiss November 4, 1994
concerning: Near term procedure to modify and test beamtube cleaning

Results of this morning discussions:

On a test section of uncleaned tubing (best to use the 8ft circumferential weld test tube):

- 1) Evaluate Mirachem cleaning with the prescription given by the Mirachem Corporation and evaluate the result by FTIR and surface analysis of witness pieces as well as the on line techniques of fluorescence and water break test..
- 2) In the same section of tube after step 1 evaluate the additional improvement that comes from a (field applicable) solvent clean followed by a solvent flush. Evaluate the results by FTIR and surface analysis of witness pieces as well as the on line techniques of fluorescence and water break test.

Procedure:

- a) From one end of the uncleaned tube pour a standard amount of propanol (proportional to the tube length) into the tube to form a longitudinal strip about 1 inch wide from end to end. Mark the tube orientation. Leave the propanol in the tube for 1 minute and drain into a clean vessel. Put an equal amount of propanol from the original container into another vessel and give both to the FTIR analysis lab. Tell the analysis lab to concentrate the evaporated sample so that a good signal is seen in the contaminated sample (subsequent tests should have much smaller signals). Measure the amount of sample evaporated and make this a standard for all subsequent measurements. Do the same with the uncontaminated sample of propanol and use this spectrum as a reference for subtraction.

Look at the uncleaned tube with fluorescence and the water break test.

- b) Clean tube with Mirachem by the technique chosen and flush with the recommended time and flow. Place two witness pieces (A and B) of the steel in the tube to experience the cleaning and keep another piece from the same sheet for comparison without cleaning. Send the witness piece A and the reference piece to MIT for surface analysis. Look at the cleaned surface by fluorescence and water break test.
- 3) Rotate the tube by enough of an angle so that another longitudinal strip of propanol can be placed as by the procedure of step a). Carry out step a) again.
- 4) Apply the solvent cleaning step to the tube by the procedure decided on. Send the witness piece B to MIT for surface analysis. Look at the cleaned surface by fluorescence and water break test.
- 5) Rotate the tube again and carry out step a).