

Mr. SMITH. It's a characteristic of brittle-type material, and this combination of metal is subject to precipitation of hydrides along the interface of the two. They don't want to mix.

Mr. ABLE. Ted, I think it is interesting to point out there remains quite a technical argument whether you could use, or should use, pure titanium—and there are definitely some differences of opinion. There is a group agreeing you can use pure titanium wire under certain circumstances if your processes are right, such as if it's thin walled and under different pressure conditions.

Mr. SMITH. There is still a technical argument going on, but this happens to be a very thick walled, high-pressure vessel. Many of the titanium containers in the Apollo program are welded with alloy sheet and pure titanium wire, but always in thin gages. They are welded from both sides, so that there is mixing in the weld nugget with the parent metal. The metal near the weld is purposely thickened so that the stress levels in the weld are way down compared to the parent metal. In our designs the weld thickness and the parent metal are equal.

Mr. TEAGUE. What was your wait, Ted, before you came out of the blockhouse?

Mr. SMITH. It was probably 45 minutes before the stand was secured. I might mention that the NASA investigating board was extremely complimentary, and I think it was very well justified. I think our crew performed in exemplary fashion. Our test conductor had the deluge system on within 30 seconds. In every part of the countdown, the institution of the emergency backout procedures was really something to behold.

Mr. DOUGLAS. Didn't you also do something else, Ted, that was to immediately tape-record all the people?

Mr. SMITH. Everyone who was connected with that countdown, Don, had a nondirected interview by Sunday morning. This was Friday, at 4:30 p.m. By Sunday morning, at 8 a.m., the 68 people who were involved in that countdown had had a nondirected interview, and had had their observations recorded on tape for Dr. Debus.

Mr. DOUGLAS. Well, in that one week, we were 99 percent sure we had the answer.

Mr. SMITH. Since that time, every scrap of data has been correlated and has fallen right into line.

Mr. WINN. What do you do to somebody like the inspector, or to the vendor that supplied the bad wire?

Mr. SMITH. We've had the vendor's records impounded ever since the day of the accident. We've just had our first meeting with him on Thursday. The Marshall legal people asked us to hold off until the official accident report was issued. We don't know what happens to him yet; we know of no situation where any punitive action was taken in a case like this. Whether or not there will be in this case, I do not know.

Mr. WINN. Do you plan to continue to use the same vendor, or will you look for someone else to do the job? That's what I'm trying to get at.

Mr. SMITH. I don't know yet. We will have to use him for a certain length of time. There is nothing wrong with his technical process,