Drill pipe purchasers will often order their new string of drill pipe to be inspected to “DS-1® Category 5” as a way to ensure that the string is high-quality and fit for use. Standard DS-1® does cover the manufacturing process in Volume 1, but specifying a “Cat. 5” inspection on new drill pipe has little impact on quality and will increase short- and long-term expense for the pipe owner.

Category 5 inspections (and other categories) are fully defined in DS-1® Volume 3, an inspection standard devoted to used equipment. The most important type of flaw that might be found in a used inspection is a fatigue crack, so all flaw indications are assumed to be fatigue cracks and are immediately rejected. No grinding or rework is allowed, because the steel will simply crack again.

A Cat. 5 inspection on new pipe is superfluous as it is certain to not have fatigue cracking—it has not been loaded yet. Any flaw indications are manufacturing defects, like seams and laps, which are generally harmless as long as the amount of solid metal in that area is adequate.

Receiving Inspection

The Receiving Inspections defined by DS-1® Volume 1 are designed to find those repairable manufacturing flaws which would be rejected according to Volume 3. Since the inspector knows that those flaws are not related to fatigue, they are ground or machined out.

There are mandatory mill inspections in Volume 1 and API specifications. These mill inspections find imperfections that often exist in formed pipe, and reject those that are large enough to significantly affect the load-carrying capacity of the string. Smaller imperfections are correctly considered harmless.

A Receiving Inspection does not replace the mill inspection; it is a way to remove those harmless manufacturing defects before the pipe is put in service to prevent the pipe from being rejected in future inspections.

This is the heart of the problem: defects that are acceptable in the new inspections are unacceptable in used inspections. After use, any imperfection is assumed to result from fatigue, and the conservative approach is the correct one. However, this leads to pipe being rejected for manufacturing imperfections (which would not cause a failure) because it might be a fatigue crack (which could cause a failure).

Receiving inspections simply allow us to remove those small manufacturing flaws at a time when we know that they are not fatigue cracks.
### DS-1® Receiving Inspection

**Receiving Inspection (Volume 1)**

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### Imperfections

**Removed**

A Receiving Inspection, then, consists of taking already-mill-inspected pipe and inspecting it again. This time inspection procedures designed for *used* equipment are applied, and any indications are highlighted. Those indications are removed, either by grinding or machining, and the repaired pipe must be inspected in exactly the same way *yet again*.

Receiving Inspections are time-consuming and expensive.

But that cost has a purpose. If small manufacturing imperfections are found during the Receiving Inspection, and those flaws are removed, then that joint of pipe will not be scrapped in future inspections for manufacturing flaws. Given the cost and rental rates for drill pipe, removing this risk is worth the money and effort for many pipe buyers.

It’s also useful to remember that Receiving Inspections are entirely optional. Mill inspections are required by DS-1® Volume 1 and API specifications, so the pipe that a buyer receives is controlled to a certain level of quality already. The additional inspection may be skipped if the buyer is willing to accept the additional risk that there may be joints that are unnecessarily rejected later.

Pipe buyers have a problem, one that directly or indirectly affects every user of drill stem equipment: it is possible to manufacture brand new pipe that will then be unacceptable when inspected after use. But a Receiving Inspection can fix that problem, leading to longer-lasting drill pipe strings and reduced waste.

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