Note: This document contains observations covering the manufacturing and control operations related to the production of the API Tysabri (natalizumab) and Avonex (Interferon Beta 1a). For this reason the document is issued as a non-Turbo FDA-483.

1) There is no assurance that the firm always challenges the validity of all testing results provided in container-supplier’s certificates of analysis as part of supplier qualification procedures. Blank[4] bulk bags, used as the container closure system of Tysabri API, are received with certificate of analyses indicating that the bags are sterile and endotoxin free; however, these results have never been challenged and/or verified by the firm.

2) The firm fails to adequately and/or completely document, in equipment logbooks and/or in production records, the execution of control procedures to demonstrate that these procedures are followed. At least in one instance, the information entered in one logbook was found questionable. The following are examples showing these conditions:

   a) Logbooks used to document the use and cleaning/sanitization of the biosafety hoods located in the inoculation rooms of Avonex Production Building (12) – Room # blank[4] and Tysabri Production Building (E) – Room # blank[4] do not include documentation about the cleaning/sanitizing agents used and the times the agents are in contact with treated surfaces when these agents (i.e., blank[3]) are used as part of the hood’s cleaning and/or sanitization procedures.

   b) The logbook used to document the use and cleaning of the blank[4] Bio-Reactor # blank[4] used in the production of Tysabri API (i.e., at the LMS facility) does not include documentation on the buffers used to standardize the pH-measuring probes prior to equipment use production.

   c) The logbook of the skid used to control the operation of the blank[4] chromatography column used during the
purification phase in the production of Tysabri API does not include documentation about the values obtained during the standardization of the UV and conductivity probes, which is done prior to the equipment use in chromatographic separation procedures.

d) The value obtained (as per procedure PRCD-19494 – “Cleaning and Operation of the [redacted] System # [redacted] and which is used to determine that the UV meter of the [redacted] System # [redacted] (used during the purification phase in the production of Tysabri API), is standardized, is not documented. The Tysabri API batch production record only documents that the meter was standardized.

e) Entry # 205 to logbook [redacted] (i.e., corresponding to biosafety hood [redacted] on 02/11/12 was done to document a post-use cleaning of the biosafety hood when the hood was, as per the logbook, used for cell culture split (lot # [redacted]) and as documented under entry # 204. However, entries 204 and 205 were crossed out as “N/A”, reportedly because the use of the hood entered under entry 204 did not occur at the time the entry was made. Review of the logbook showed both operations later entered in the logbook as entries 208 and 209, after a [redacted] cleaning of the hood (entry 206) and a pre-use use cleaning of the hood (entry 207) were done. There is no assurance that entries in the logbook are always made when the operations documented actually occur.