EUA Amendment Review Memorandum

Date:	**September 20, 2022**
To:	**The File**
From:	**Peter Marks, MD, PhD (CBER/OD)**
EUA Application Number:	**27073**
Product:	**Moderna COVID-19 Vaccine, Bivalent (Original + Omicron BA.4/BA.5) (mRNA-1273.222)**
Subject:	**Assessment of certain Moderna COVID-19 Vaccine, Bivalent Batches**

The purpose of this memorandum is to document the Food and Drug Administration's (FDA, the Agency, or we) determination regarding the disposition of certain Moderna COVID-19 Vaccine, Bivalent drug product (DP) batches.

Brief Background

On August 31, 2022, the Agency amended the emergency use authorization (EUA) of the Moderna COVID-19 Vaccine to authorize the use of the Moderna COVID-19 Vaccine, Bivalent as a single booster dose in individuals 18 years of age and older. Due to an ongoing FDA inspection of the Catalent Indiana LLC (Catalent), Bloomington, IN facility (the Catalent facility) (FEI 3005949964), the Catalent facility was not included in the amended EUA. Specifically, because of the ongoing inspection, the Agency was unable to assess the adequacy of the manufacturing process for the Moderna COVID-19 Vaccine, Bivalent at the Catalent facility, and therefore did not include the facility in the EUA for the manufacturing of the Moderna COVID-19 Vaccine, Bivalent at that time. FDA intends to further consider the inclusion of the Catalent facility in the Moderna COVID-19 Vaccine EUA following completion of its review of the inspectional information and any other pertinent information.

The Agency inspection of the Catalent facility occurred from August 1, 2022, to September 1, 2022. FDA investigators issued a Form FDA 483, Inspectional Observations (Form 483) on September 1, 2022.[1] Observations in a Form 483 are not a final decision by the Agency about a facility's compliance with current Good Manufacturing Practice (cGMP) requirements.

Moderna responded to the Form 483 on September 2, 2022, and submitted a second, more comprehensive response to its EUA file (EUA 27073) on September 16, 2022.[2] Catalent has not yet submitted its response to the Form 483, but has indicated it will do so soon. The FDA investigators are in the process of drafting

[1] See FDA's Form 483 for Catalent Indiana, LLC, issued on September 1, 2022.
[2] See Moderna's response to Form 483, entitled "Response to Form 483 issued to Catalent Indiana, LLC., FEI #3005949964 Issued September 1, 2022;" see also Moderna's response entitled "Update to September 2, 2022, Moderna Response to FDA 483 issued to Catalent Indiana, LLC., FEI #3005949964 on September 1, 2022."

the Establishment Inspection Report (EIR) for the inspection. Per the Agency's routine procedures, relevant components of the Office of Regulatory Affairs (ORA) and CBER will review the EIR along with any attachments and exhibits, the Form 483 responses, and other pertinent information, to evaluate the facility's compliance with cGMP requirements.

Disposition of certain Moderna COVID-19 Vaccine, Bivalent DPs

In light of concerns about potential supply limitations, Moderna requested that FDA review and authorize under the EUA certain batches of Moderna bivalent final DP produced at the Catalent facility.[3] Although FDA does not intend to determine whether to add Catalent as an authorized manufacturing facility for the Moderna COVID-19 Vaccine, Bivalent until the Agency's evaluation of the inspection is complete, in the interim, FDA can authorize batches of Moderna bivalent DP produced at this facility provided that FDA has sufficient data and information to conclude these batches are suitable for use.

On September 16, 2022, Moderna submitted data and information supporting the quality of ten bivalent booster final DP batches—057F22A, 059F22A, 060F22A, 062F22A, 053D22A, 027E22A, 050D22A, 051D22A, 055F22B, and 030G22B—manufactured at the Catalent facility. Specifically, Moderna provided the results of its comprehensive batch review, which included, for example, data and analysis covering, environmental monitoring, media fills, and particle characterization. CBER's Office of Vaccine Research and Review (OVRR) has carefully reviewed this information and determined that all applicable specifications were met for these batches. Thus, OVRR does not have safety, effectiveness, or quality concerns with these batches, and has concluded that they are suitable for use.

Further, ORA informed CBER that it has no direct evidence or information indicating that these vaccine batches were manufactured in a manner that would impact their safety, efficacy, or quality.

Recommendation

For the reasons outlined above, regardless of any assessment FDA makes regarding the Catalent facility's cGMP compliance at the time these batches were manufactured, Moderna has provided sufficient data and information for FDA to determine that these batches are suitable for use and that their known and potential benefits outweigh their known and potential risks for the use described in the Moderna COVID-19 EUA for bivalent boosters. Thus, the Agency has determined it is appropriate to amend the EUA for the Moderna COVID-19 Vaccine, Bivalent to include Moderna bivalent DP batches 057F22A, 059F22A, 060F22A, 062F22A, 053D22A, 027E22A, 050D22A, 051D22A, 055F22B, and 030G22B. Additionally, in the event that FDA ultimately determines that the Catalent facility was not operating in compliance with cGMP requirements at the time these batches were manufactured, Condition I in the Moderna COVID-19 Vaccine Letter of Authorization will be waived as to these batches.

[3] Moderna has indicated that it intends to submit similar requests for additional batches on a rolling basis. FDA intends to review these requests once Moderna provides the necessary information for review and evaluation.