DEPARTMENT OF HEALTH AND HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION

DISTRICT ADDRESS AND PHONE NUMBER	DATE(S) OF INSPECTION
1201 Main Street, Suite 7200 Dallas, TX 75202 (214)253-5200 Fax:(214)253-5314 orabioinspectionalcorrespondence@fda.hhs.gov	12/3/2020-12/10/2020* FEI NUMBER 3013629214

NAME AND TITLE OF INDIVIDUAL TO WHOM REPORT ISSUED
Frank B. Bugg, Site Head

FIRM NAME	STREET ADDRESS
Lonza Houston, Inc	14905 Kirby Dr
CITY, STATE, ZIP CODE, COUNTRY	TYPE ESTABLISHMENT INSPECTED
Houston, TX 77047-2588	Manufacturer- Viral Vector

This document lists observations made by the FDA representative(s) during the inspection of your facility. They are inspectional observations, and do not represent a final Agency determination regarding your compliance. If you have an objection regarding an observation, or have implemented, or plan to implement, corrective action in response to an observation, you may discuss the objection or action with the FDA representative(s) during the inspection or submit this information to FDA at the address above. If you have any questions, please contact FDA at the phone number and address above.

DURING AN INSPECTION OF YOUR FIRM WE OBSERVED:

OBSERVATION 1

Physical and electronic control of material storage areas is not adequate. Specifically:

a) There is no separate storage area for different (b) (4) products to prevent mix-ups. Bottles of (b) (4) intended for the U.S. market, EU market, and material derived from engineering runs are stored together in the same bin within freezer (b) (4). This bin is also used to store (b) (4) material that has been rejected by the Quality Unit but is being released to the client for non-clinical use. Of note, there are differences between the U.S. and EU (b) (4) manufacturing processes.

b) Bottles of different status materials are stored immediately adjacent to one another and primary bottle labels for the (b) (4) are not adequately designed to prevent mix-ups. Master U.S. label (#02-00263 v1), Master EU label (#02-00318 v1), and Master Engineering label (#02-00316 v1) are the same dimensions (~2inch x 3inch), font, and colors (black text on white background). There is no barcode present for direct electronic control. Bottles of both accepted and rejected material are designated by a "RELEASED" label that has green background and black text with identical font.

c) Freezer unit (b) (4) in room (b) (4), which is used to store the (b) (4) and (b) (4) (b) (4) is poorly maintained and organized. During inspection of the freezer on December 3, 2020, it was noted that the bottom of the freezer was filled with bottles of (b) (4), many of which were overturned. The bin containing the (b) (4) was stored directly on top of the (b) (4) bottles. There was substantial frost build-up on the (b) (4) bottles at the bottom of the unit and on the shelves.

SEE REVERSE OF THIS PAGE	EMPLOYEE(S) SIGNATURE	DATE ISSUED
	Steven E Bowen, Investigator - Team Biologics Scott T Ballard, National Expert Lauren M Lilly, Investigator X Scott T Ballard National Expert Signed By: Scott T. Ballard -S Date Signed: 12-10-2020 16:23:43	12/10/2020

DISTRICT ADDRESS AND PHONE NUMBER	DATE(S) OF INSPECTION
1201 Main Street, Suite 7200 Dallas, TX 75202 (214)253-5200 Fax:(214)253-5314 orabioinspectionalcorrespondence@fda.hhs.gov	12/3/2020-12/10/2020* FEI NUMBER 3013629214

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d) On December 3, 2020, we observed materials including (b) (4) bags of media, bottles of (b) (4), and samples located in 15mL conical tubes stored on a metal rack (marked with location code (b) (4)) in the (b) (4) °C storage room #(b) (4) used for incoming materials storage.

The metal rack does not have locations allocated in SAP material inventory management software and there is no physical control such as labels to indicate the status of materials stored on the rack. Your QC Project Lead stated these materials are samples under test, including material acceptance and stability protocol samples, but there is no visual or physical indication of this.

e) On December 3, 2020 we observed freezer (b) (4) in the warehouse storage room (b) (4) to be unlocked. This freezer is used to store quarantined materials and contained several quarantined items at the time of inspection. Procedure USWV-16230, "Receiving and Release of Materials, Supplies and Equipment for GMP Use" states "Freezers and refrigerators that can be locked will be kept locked."

f) During review of the SAP materials management system on December 9, 2020, we noted that there were five expired batches of (b) (4) (part number (b) (4)) that had not been discarded. Batches (b) (4) expired on April 30, 2020. Batches (b) (4) and (b) (4) expired on September 30, 2020. Procedure USWV-27862, "Disposition of Expired and Recalled Materials from GMP Inventory" states that materials should be disposed of within (b) (4) of expiration.

OBSERVATION 2

The identity of each incoming batch of certain raw materials is not verified. Specifically, (b) (4) used in the production of (b) (4) are not tested to confirm identity prior to release for manufacturing. The (b) (4) (b) (4)

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	Steven E Bowen, Investigator - Team Biologics Scott T Ballard, National Expert Lauren M Lilly, Investigator	X Scott T Ballard National Expert Signed By: Scott T. Ballard -S Date Signed: 12-10-2020 16:23:43	12/10/2020

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OBSERVATION 3

Written procedures are not always followed. Specifically:

a) During performance of the (b) (4) operation for (b) (4) batch (b) (4) in Clean Room (b) (4) on December 4, 2020, an operator was observed transferring (b) (4) from the (b) (4) into the (b) (4) without performing a visual inspection of the (b) (4) (b) (4) The procedure USHT-168, "Visual Inspection of Material used for Manufacturing Process within the Cleanroom and (b) (4) " states "(b) (4) "

b) During performance of the (b) (4) operation for (b) (4) batch (b) (4) in Cleanroom (b) (4) on December 4, 2020, the (b) (4) was placed in the (b) (4) parallel to direction of the (b) (4) . Procedure USWV-30403, "Central Environmental Monitoring Procedure" states "The manufacturing operator will set the (b) (4) (b) (4)

OBSERVATION 4

Microbial contamination controls are not adequate. Specifically:

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On December 8, 2020, we observed manufacturing of (b) (4) product (batch #(b) (4)) steps including (b) (4) identified in master batch documents for part #(b) (4) (b) (4). At the end of the (b) (4) operations in the biological safety cabinet aseptic core, operator (b) (6) (b) (4) (b) (4) The written procedures #USWV-30403 v 4.0 and USWV16240 v 2.0 related to microbial monitoring do not give specific instructions for how to collect (b) (4) samples.

***DATES OF INSPECTION**
12/03/2020(Thu), 12/04/2020(Fri), 12/07/2020(Mon), 12/08/2020(Tue), 12/09/2020(Wed), 12/10/2020(Thu)

X Steven E Bowen
Investigator - Team Biologics
Signed By: Steven E. Bowen -S
Date Signed: 12-10-2020 16:24:23

X Lauren M Lilly
Investigator
Signed By: Lauren M. Lilly -S
Date Signed: 12-10-2020 16:25:45

SEE REVERSE OF THIS PAGE	EMPLOYEE(S) SIGNATURE		DATE ISSUED
	Steven E Bowen, Investigator - Team Biologics Scott T Ballard, National Expert Lauren M Lilly, Investigator	X Scott T Ballard National Expert Signed By: Scott T. Ballard -S Date Signed: 12-10-2020 16:23:43	12/10/2020

The observations of objectionable conditions and practices listed on the front of this form are reported:

1. Pursuant to Section 704(b) of the Federal Food, Drug and Cosmetic Act, or
2. To assist firms inspected in complying with the Acts and regulations enforced by the Food and Drug Administration.

Section 704(b) of the Federal Food, Drug, and Cosmetic Act (21 USC 374(b)) provides:

"Upon completion of any such inspection of a factory, warehouse, consulting laboratory, or other establishment, and prior to leaving the premises, the officer or employee making the inspection shall give to the owner, operator, or agent in charge a report in writing setting forth any conditions or practices observed by him which, in his judgment, indicate that any food, drug, device, or cosmetic in such establishment (1) consists in whole or in part of any filthy, putrid, or decomposed substance, or (2) has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health. A copy of such report shall be sent promptly to the Secretary."

DEPARTMENT OF HEALTH AND HUMAN SERVICES
FOOD AND DRUG ADMINISTRATION

1. DISTRICT OFFICE ADDRESS & PHONE NO.
1201 Main Street, Suite 7200
One Main Place
Dallas, TX 75202-3908

TO

2. NAME AND TITLE OF INDIVIDUAL
Frank B. Bugg, Site Head

3. DATE
12/03/2020

4. FIRM NAME
Lonza Houston Inc.

5. HOUR
8:51 a.m.
p.m.

6. NUMBER AND STREET
14905 Kirby Drive

7. CITY AND STATE & ZIP CODE
Houston, TX 77047

8. PHONE NO. & AREA CODE
346-299-4000

Notice of Inspection is hereby given pursuant to Section 704(a)(1) of the Federal Food, Drug, and Cosmetics Act [21 U.S.C. 374(a)][1] and/or Part F or G, Title III of the Public Health Service Act [42 U.S.C. 262-264][2]

As a small business that is subject to FDA regulation, you have the right to seek assistance from the U.S. Small Business Administration (SBA). This assistance includes a mechanism to address the enforcement actions of Federal agencies. SBA has a National Ombudsman's Office that receives comments from small businesses about Federal agency enforcement actions. If you wish to comment on the enforcement actions of FDA, CALL (888) 734-3247. The website address is www.sba.gov/ombudsman.

FDA has an Office of the Ombudsman that can directly assist small business with complaints or disputes about actions of the FDA. That office can be reached by calling (301) 796-8530 or by email at ombuds@oc.fda.gov.

For industry information, go to www.fda.gov/oc/industry.

9. SIGNATURE(S) *(Food and Drug Administration Employee(s))*	10. TYPE OR PRINT NAME(S) AND TITLE(S) *(FDA Employee(s))*
Steven Bowen	Steven Bowen, CSO
Scott Bilyeu	Scott Bilyeu, CSO
Lauren Lilly	Lauren Lilly, CSO

[1] Applicable portions of Section 704 and other Sections of the Federal Food, Drug, and Cosmetic Act [21 U.S.C. 374] are quoted below:

Sec. 704(a)(1) For purposes of enforcement of this Act, officers or employees duly designated by the Secretary, upon presenting appropriate credentials and a written notice to the owner, operator, or agent in charge, are authorized (A) to enter, at reasonable times, any factory, warehouse, or establishment in which food, drugs, devices, tobacco products, or cosmetics are manufactured, processed, packed, or held, for introduction into interstate commerce or after such introduction, or to enter any vehicle being used to transport or hold such food, drugs, devices, tobacco products, or cosmetics in interstate commerce; and (B) to inspect, at reasonable times and within reasonable limits and in a reasonable manner, such factory, warehouse, establishment, or vehicle and all pertinent equipment, finished and unfinished materials, containers, and labeling therein. In the case of any person (excluding farms and restaurants) who manufactures, processes, packs, transports, distributes, holds, or imports foods, the inspection shall extend to all records and other information described in section 414, when the standard for records inspection under paragraph (1) or (2) of section 414(a) applies, subject to the limitations established in section 414(d). In the case of any factory, warehouse, establishment, or consulting laboratory in which prescription drugs, nonprescription drugs intended for human use, restricted devices, or tobacco products are manufactured, processed, packed, or held, inspection shall extend to all things therein (including records, files, papers, processes, controls, and facilities) bearing on whether prescription drugs, nonprescription drugs intended for human use, restricted devices, or tobacco products which are adulterated or misbranded within the meaning of this Act, or which may not be manufactured, introduced into interstate commerce, or sold, or offered for sale by reason of any provision of this Act, have been or are being manufactured, processed, packed, transported, or held in any such place, or otherwise bearing on violation of this Act. No inspection authorized by the preceding sentence or by paragraph (3) shall extend to financial data, sales data other than shipment data, pricing data, personnel data (other than data as to qualifications of technical and professional personnel performing functions subject to this

(Continued on Reverse)

Act), and research data (other than data relating to new drugs, antibiotic drugs, devices, and tobacco products and subject to reporting and inspection under regulations lawfully issued pursuant to section 505 (i) or (k), section 519, section 520(g), or chapter IX and data relating to other drugs, devices, or tobacco products, which in the case of a new drug would be subject to reporting or inspection under lawful regulations issued pursuant to section 505(j)). A separate notice shall be given for each such inspection, but a notice shall not be required for each entry made during the period covered by the inspection. Each such inspection shall be commenced and completed with reasonable promptness.

Sec. 704. (a)(2) The provisions of the third sentence of paragraph (1) shall not apply to (A) pharmacies which maintain establishments in conformance with any applicable local laws regulating the practice of pharmacy and medicine and which are regularly engaged in dispensing prescription drugs or devices, upon prescriptions of practitioners licensed to administer such drugs or devices to patients under the care of such practitioners in the course of their professional practice, and which do not, either through a subsidiary or otherwise, manufacture, prepare, propagate, compound, or process drugs or devices for sale other than in the regular course of their business of dispensing or selling drugs or devices at retail; (B) practitioners licensed by law to prescribe or administer drugs, or prescribe or use devices, as the case may be, and who manufacture, prepare, propagate, compound, or process drugs, or manufacture or process devices solely for use in the course of their professional practice; (C) persons who manufacture, prepare, propagate, compound, or process drugs, or manufacture or process devices solely for use in research, teaching, or chemical analysis and not for sale; (D) such other classes of persons as the Secretary may by regulation exempt from the application of this section upon a finding that inspection as applied to such classes of persons in accordance with this section is not necessary for the protection of the public health.

Sec. 704. (a)(3) An officer or employee making an inspection under paragraph (1) for purposes of enforcing the requirements of section 412 applicable to infant formulas shall be permitted, at all reasonable times, to have access to and to copy and verify any records (A) bearing on whether the infant formula manufactured or held in the facility inspected meets the requirements of section 412, or (B) required to be maintained under section 412.

Sec. 704(b) Upon completion of any such inspection of a factory, warehouse, consulting laboratory, or other establishment, and prior to leaving the premises, the officer or employee making the inspection shall give to the owner, operator, or agent in charge a report in writing setting forth any conditions or practices observed by him which, in his judgment, indicate that any food, drug, device, tobacco product, or cosmetic in such establishment (1) consists in whole or in part of any filthy, putrid, or decomposed substance, or (2) has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health. A copy of such report shall be sent promptly to the Secretary.

Sec. 704. (c) If the officer or employee making any such inspection of a factory, warehouse, or other establishment has obtained any sample in the course of the inspection, upon completion of the inspection and prior to leaving the premises he shall give to the owner, operator, or agent in charge a receipt describing the samples obtained.

Sec. 704. (d) Whenever in the course of any such inspection of a factory or other establishment where food is manufactured, processed, or packed, the officer or employee making the inspection obtains a sample of any such food, and an analysis is made of such sample for the purpose of ascertaining whether such food consists in whole or in part of any filthy, putrid, or decomposed substance, or is otherwise unfit for food, a copy of the results of such analysis shall be furnished promptly to the owner, operator, or agent in charge.

Sec. 704(e) Every person required under section 519 or 520(g) to maintain records and every person who is in charge or custody of such records shall, upon request of an officer or employee designated by the Secretary, permit such officer or employee at all reasonable times to have access to and to copy and verify, such records.

Section 704 (f)(1) An accredited person described in paragraph (3) shall maintain records documenting the training qualifications of the person and the employees of the person, the procedures used by the person for handling confidential information, the compensation arrangements made by the person, and the procedures used by the person to identify and avoid conflicts of interest. Upon the request of an officer or employee designated by the Secretary, the person shall permit the officer or employee, at all reasonable times, to have access to, to copy, and to verify, the records.

Section 512 (l)(1) In the case of any new animal drug for which an approval of an application filed pursuant to subsection (b) is in effect, the applicant shall establish and maintain such records, and make such reports to the Secretary, of data relating to experience, including experience with uses authorized under subsection (a)(4)(A), and other data or information, received or otherwise obtained by such applicant with respect to such drug, or with respect to animal feeds bearing or containing such drug, as the Secretary may by general regulation, or by order with respect to such application, prescribe on the basis of a finding that such records and reports are necessary in order to enable the Secretary to determine, or facilitate a determination, whether there is or may be ground for invoking subsection (e) or subsection (m) (4) of this section. Such regulation or order shall provide, where the Secretary deems it to be appropriate, for the examination, upon request, by the persons to whom such regulation or order is applicable, of similar information received or otherwise obtained by the Secretary.

(2) Every person required under this subsection to maintain records, and every person in charge or custody thereof, shall, upon request of an officer or employee designated by the Secretary, permit such officer or employee at all reasonable times to have access to and copy and verify such records.

[2] Applicable sections of Parts F and G of Title III Public Health Service Act [42 U.S.C. 262-264] are quoted below:

Part F – Licensing -- Biological Products and Clinical Laboratories and* * * * * *

Sec. 351(c) "Any officer, agent, or employee of the Department of Health and Human Services, authorized by the Secretary for the purpose, may during all reasonable hours enter and inspect any establishment for the propagation or manufacture and preparation

(Continued on Page 3)

of any virus, serum, toxin, antitoxin, vaccine, blood, blood component or derivative, allergenic product, or other product aforesaid for sale, barter, or exchange in the District of Columbia, or to be sent, carried, or brought from any State or possession into any other State or possession or into any foreign country, or from any foreign country into any State or possession."

Part F – * * * * * *Control of Radiation.

Sec. 360 A (a) "If the Secretary finds for good cause that the methods, tests, or programs related to electronic product radiation safety in a particular factory, warehouse, or establishment in which electronic products are manufactured or held, may not be adequate or reliable, officers or employees duly designated by the Secretary, upon presenting appropriate credentials and a written notice to the owner, operator, or agent in charge, are thereafter authorized (1) to enter, at reasonable times any area in such factory, warehouse, or establishment in which the manufacturer's tests (or testing programs) required by section 358(h) are carried out, and (2) to inspect, at reasonable times and within reasonable limits and in a reasonable manner, the facilities and procedures within such area which are related to electronic product radiation safety. Each such inspection shall be commenced and completed with reasonable promptness. In addition to other grounds upon which good cause may be found for purposes of this subsection, good cause will be considered to exist in any case where the manufacturer has introduced into commerce any electronic product which does not comply with an applicable standard prescribed under this subpart and with respect to which no exemption from the notification requirements has been granted by the Secretary under section 359(a)(2) or 359(e)."

(b) "Every manufacturer of electronic products shall establish and maintain such records (including testing records), make such reports, and provide such information, as the Secretary may reasonably require to enable him to determine whether such manufacturer has acted or is acting in compliance with this subpart and standards prescribed pursuant to this subpart and shall, upon request of an officer or employee duly designated by the Secretary, permit such officer or employee to inspect appropriate books, papers, records, and documents relevant to determining whether such manufacturer has acted or is acting in compliance with standards prescribed pursuant to section 359(a)."

* * * * * *

(f) "The Secretary may by regulation (1) require dealers and distributors of electronic products, to which there are applicable standards prescribed under this subpart and the retail prices of which is not less than $50, to furnish manufacturers of such products such information as may be necessary to identify and locate, for purposes of section 359, the first purchasers of such products for purposes other than resale, and (2) require manufacturers to preserve such information. Any regulation establishing a requirement pursuant to clause (1) of the preceding sentence shall (A) authorize such dealers and distributors to elect, in lieu of immediately furnishing such information to the manufacturer to hold and preserve such information until advised by the manufacturer or Secretary that such information is needed by the manufacturer for purposes of section 359, and (B) provide that the dealer or distributor shall, upon making such election, give prompt notice of such election (together with information identifying the notifier and the product) to the manufacturer and shall, when advised by the manufacturer or Secretary, of the need therefore for the purposes of Section 359, immediately furnish the manufacturer with the required information. If a dealer or distributor discontinues the dealing in or distribution of electronic products, he shall turn the information over to the manufacturer. Any manufacturer receiving information pursuant to this subsection concerning first purchasers of products for purposes other than resale shall treat it as confidential and may use it only if necessary for the purpose of notifying persons pursuant to section 359(a)."

* * * * * *

Sec. 360 B.(a) It shall be unlawful–

(1) * * *

(2) * * *

(3) "for any person to fail or to refuse to establish or maintain records required by this subpart or to permit access by the Secretary or any of his duly authorized representatives to, or the copying of, such records, or to permit entry or inspection, as required or pursuant to section 360A."

* * * * * *

Part G - Quarantine and Inspection

Sec. 361(a) "The Surgeon General, with the approval of the Secretary, is authorized to make and enforce such regulations as in his judgment are necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the States or possessions, or from one State or possession into any other State or possession. For purposes of carrying out and enforcing such regulations, the Surgeon General may provide for such inspection, fumigation, disinfection, sanitation, pest extermination, destruction of animals or articles found to be so infected or contaminated as to be sources of dangerous infection to human beings, and other measures, as in his judgment may be necessary."