

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S1**  
**December 12, 2013**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes X No \_\_\_\_\_. If yes, identify these wells.

138RI-MW1, 179RI-MW-1, 186RI-MW2, 187RI-MW1, 66RI-MW1, 66RI-MW2, 66RI-MW8, ART-MW5, MW-105A, MW-108A, MW-129, MW-157, MW-16, MW-209A, MW-29, MW-33B, MW-39-1, MW-5G, MW-62, MW-64, MW-65, MW-68, MW-72, MW-90, and MW-92.

3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X No \_\_\_\_\_. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

Monitoring Wells: MW-5AW, MW-4A, MW-18W, MW-256B, MW-33, MW-19A, MW-15A, MW-12, MW-38, MW-189A, MW-60J, and PZ-01 were omitted from the contour maps because the groundwater measurements were anomalous compared to surrounding wells. In addition, no data was available for wells MW-36W, MW-35W, MW-6A and RW-96 (due to access issues), and monitoring wells MW-97 and MW-213A (were dry).

Surface water locations: No data was available for SPB450, SPB050, SPG1125 and SPB1250. Locations VD-US1, VD1875, VD1870, SPB 1875 were not included in the contours because the groundwater measurements were anomalous compared with surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes \_\_\_\_ No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes No X. If yes, show the formula used to correct the water table elevation.
5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes \_\_\_\_ No X. If yes, discuss the reasons for the change.

6. Has groundwater mounding and/or depressions been identified in the groundwater contour map?

Yes X No \_\_\_\_\_. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.

Mounding in IA-3 is most likely due to insufficient well points to sufficiently define; IA-4 shows a depression and is most likely a local anomaly; Upstream of St. Paul's Brook at Nichols Park is most likely due to the spillway located in the stream.

7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No \_\_\_\_\_. If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

8. Were the groundwater contours computer generated \_\_\_\_, computer aided \_\_\_\_, or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S2**  
**December 12, 2013**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No X. If yes, identify these wells.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-2 and MW-115 due to access issues. The following Monitoring wells MW-9W, MW-112B, MW-125A, PW-37 Port 1, and PW-37 Port 2 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells. MW-258B was dry.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones. All wells within each zone are comparable except for Zone S2 monitoring wells at the former Nova facility (MW-12N, MW-17N, MW-18N, MW-19N, MW-1N, MW-20N, MW-2N, MW-3N, MW-5N, MW-6N, MW-7N, MW-8N,

and MW-9N) were compared with monitoring wells at Zone S1 at the Roche facility.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S3**  
**December 12, 2013**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for monitoring wells MW-20W-3, RW-51, and MW-16N due to access issues. Wells MW-233C and MW-140, were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes X No   . Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence. Unknown
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D1**  
**December 12, 2013**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for DW-12B and DW-8B due to access issues. Monitoring wells MW-20W-4, and MW-20W-5 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D2**  
**December 12, 2013**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X    No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-6, MW-20W-7 and PW-37 Port 9 due to access issues. Monitoring well DW-15B was not included in the contours because or the groundwater measurements were anomalous compared to surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
6. Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
8. Were the groundwater contours computer generated   , computer aided   , or hand-drawn X   ? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D3**  
**December 12, 2013**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes \_\_\_\_\_ No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X \_\_\_\_\_ No \_\_\_\_\_. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

The following wells were not used for contours due to access issues: DW-13D, DW-19D, and DW-12C.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes \_\_\_\_\_ No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes \_\_\_\_\_ No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes \_\_\_\_\_ No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X \_\_\_\_\_ No \_\_\_\_\_. If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated \_\_\_\_\_, computer aided \_\_\_\_\_, or hand-drawn X \_\_\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S1**  
**March 17, 2014**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes X No \_\_\_\_\_. If yes, identify these wells.

138RI-MW1, 179RI-MW-1, 186RI-MW1, 186RI-MW2, 187RI-MW1, 53RI-MW3, 66RI-MW1, 66RI-MW2, 66RI-MW3, 66RI-MW4, 66RI-MW5, 66RI-MW6, 66RI-MW7, 66RI-MW8, ART-MW5, MW-1, MW-105A, MW-108A, MW-129, MW-136, MW-138, MW-144A, MW-157, MW-16, MW-207A, MW-209A, MW-210, MW-259A, MW-29, MW-2G, MW-33B, MW-39-1, MW-3G, MW-5G, MW-60C, MW-60E, MW-60K, MW-60L, MW-62, MW-64, MW-65, MW-68, MW-72, MW-90, and MW-92

3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X No \_\_\_\_\_. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

Monitoring Wells: MW-154, MW-262A, MW-254B, MW-256B, MW-199, MW-12; MW-24, MW-60J were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells. No data was available for wells MW-20W-1, MW-220 and RW-96 due to access issues. MW-97 and MW-25W were dry. MW-195A and MW-170 were abandoned.

Surface water locations: No data was available for SPB050, IA-14 and SPG1125. Locations VD-US1 and SPB 4300 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes X No \_\_\_\_\_. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes X No \_\_\_\_\_. If yes, show the formula used to correct the water table elevation. Only monitoring well MW-237A reported LNAPL– no adjustment was made due to the minuscule amount of product (0.01 ft).

5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
6. Has groundwater mounding and/or depressions been identified in the groundwater contour map?  
Yes X No   . Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.  
Mounding in IA-3 is most likely due to insufficient well points to sufficiently define; IA-4 shows a depression and is most likely a local anomaly; Upstream of St. Paul's Brook at Nichols Park is most likely due to the spillway located in the stream.
7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

8. Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S2**  
**March 17, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No X. If yes, identify these wells.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-2 and MW-115 due to access issues. The following monitoring wells MW-9W, MW-106B, and MW-231B were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the

Zone 2 Nova wells screen the first occurrence of groundwater.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S3**  
**March 17, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No X. If yes, identify these wells.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for monitoring wells MW-20W-3, RW-13N, MW-10N and MW-14N due to access issues. Wells MW-259C, MW-140, MW-56, and MW-79-D, were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes X No   . Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence. Unknown
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D1**  
**March 17, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for DW-12B and DW-8B due to access issues. Monitoring wells MW-20W-4, and MW-20W-5 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D2**  
**March 17, 2014**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No X. If yes, identify these wells.
3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-6, MW-20W-7 and PW-37 Port 9 due to access issues. Monitoring well DW-15B was not included in the contours because or the groundwater measurements were anomalous compared to surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
6. Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.
8. Were the groundwater contours computer generated   , computer aided   , or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D3**  
**March 17, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes \_\_\_\_\_ No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes \_\_\_\_\_ No X. If yes, identify these wells.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X \_\_\_\_\_ No \_\_\_\_\_. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

The following wells were not included in the contours due to access issues: DW-13D, DW-19D, and DW-12C.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes \_\_\_\_\_ No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes \_\_\_\_\_ No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes \_\_\_\_\_ No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X \_\_\_\_\_ No \_\_\_\_\_. If no, justify inclusion of those wells.
- 8 Were the groundwater contours computer generated \_\_\_\_, computer aided \_\_\_\_, or hand-drawn X \_\_\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S1**  
**June 2, 2014**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes X No \_\_\_\_\_. If yes, identify these wells.

138RI-MW1, 179RI-MW-1, 186RI-MW1, 186RI-MW2, 187RI-MW1, 190RI-MW1, 23RI-MW1, 53RI-MW1, 53RI-MW2, 53RI-MW3, 53RI-MW4, 53RI-MW5, 66RI-MW1, 66RI-MW2, 66RI-MW3, 66RI-MW4, 66RI-MW5, 66RI-MW6, 66RI-MW7, 66RI-MW8, ART-MW5, MW-1, MW-105A, MW-108A, MW-111, MW-112, MW-129, MW-136, MW-138, MW-144A, MW-157, MW-16, MW-196, MW-197, MW-207A, MW-209A, MW-210, MW-242, MW-248A MW-249A, MW-253A, MW-259A, MW-274A, MW-289A, MW-29, MW-290A, MW-291A, MW-292A, MW-2G, MW-33B, MW-39-1, MW-3G, MW-5G, MW-60C, MW-60E, MW-60G, MW-60K, MW-60L, MW-62, MW-64, MW-65, MW-68, MW-72, MW-90, MW-92, and PZ-03.

3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X No \_\_\_\_\_. Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

Monitoring Wells: MW-5AW, MW-4A, MW-18W, MW-256B, MW-33, MW-19A, MW-15A; MW-12, MW-38, MW-189A, MW-60J, PZ-01 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells. No data was available for wells MW-36W, MW-35W, MW-6A and RW-96 due to access issues. MW-97 and MW-213A were dry.

Surface water locations: No data was available for SPB450, SPB050, IA-14 SPG1125 and SPB1250. Locations VD-US1, VD1875, VD1870, SPB 1875 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes X No \_\_\_\_\_. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes No X. If yes, show the formula used to correct the water

table elevation. No calculation due to minimal product.

5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes \_\_\_\_ No X. If yes, discuss the reasons for the change.
6. Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes \_\_\_\_ No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence. Mounding in IA-3 is most likely due to insufficient well points to sufficiently define; IA-4 shows a depression and is most likely a local anomaly; Upstream of St. Paul's Brook at Nichols Park is most likely due to the spillway located in the stream.
7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No \_\_\_\_\_. If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

8. Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S2**  
**June 2, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No X. If yes, identify these wells.
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-2 and MW-115 due to access issues. The following monitoring wells MW-9W, MW-112B, MW-125A, PW-37 Port 1, and PW-37 Port 2 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells. MW-258B was dry.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes X No   . If yes, discuss the reasons for the change.

There is a change in groundwater flow direction in the northeast corner of IA-12 most probably due to new wells installed to better define the Zone 2 movement.

- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X \_\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone S3**  
**June 2, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for monitoring wells MW-20W-3, RW-51, and MW-16N due to access issues. Wells MW-233C and MW-140, were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes X No   . Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.

Unknown

- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells

within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D1**  
**June 2, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for DW-12B and DW-8B due to access issues. Monitoring wells MW-20W-4, and MW-20W-5 were not included in the contours because the groundwater measurements were anomalous compared to surrounding wells.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the

Zone 2 Nova wells screen the first occurrence of groundwater.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D2**  
**June 2, 2014**

1. Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

2. Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
3. Are there any monitoring wells present at the site but omitted from the contour map? Yes X    No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

No data was available for MW-20W-6, MW-20W-7 and PW-37 Port 9 due to access issues. Monitoring well DW-15B was not included in the contours because or the groundwater measurements were anomalous compared to surrounding wells.

4. Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
5. Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
6. Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
7. Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the

Zone 2 Nova wells screen the first occurrence of groundwater.

8. Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_\_? If computer aided or generated, identify the interpolation method(s) used.

**Appendix E**  
**NJDEP Contour Map Reporting Form**  
**Groundwater Progress Report**  
**Hoffmann-La Roche Inc.- Nutley, New Jersey**  
**Zone D3**  
**June 2, 2014**

- 1 Did any surveyed well casing elevations change from the previous sampling event? Yes No X. If yes, attach new "Well Certification - Form B – Location Certification" as found in the "Guide for the Submission of Remedial Action Workplans" (NJDEP, March 1995) and identify the reason for the elevation change (damage to casing, installation of recovery system in monitoring well, etc.).

All on-Site wells have been surveyed and elevations and surveyor Form Bs for any new monitoring wells installed after the submission of Site Wide Groundwater RIR (April 2014) are included in Appendix B of the Groundwater Progress Report.

- 2 Are there any monitor wells in unconfined aquifers in which the water table elevation is higher than the top of the well screen? Yes    No   . If yes, identify these wells. Not Applicable
- 3 Are there any monitoring wells present at the site but omitted from the contour map? Yes X No   . Unless the omission of the well(s) has been previously approved by the Department, justify the omissions.

The following wells were not used for the contours due to access issues: DW-13D, DW-19D, and DW-12C.

- 4 Are there any monitoring wells containing separate phase product during this measuring event? Yes    No X. Were any of the monitor wells with separate phase product included in the groundwater contour map? Yes    No   . If yes, show the formula used to correct the water table elevation.
- 5 Has the groundwater flow direction changed more than 45 degrees from the previous groundwater contour map? Yes    No X. If yes, discuss the reasons for the change.
- 6 Has groundwater mounding and/or depressions been identified in the groundwater contour map? Yes    No X. Unless the groundwater mounds and/or depressions are caused by the groundwater remediation system, discuss the reasons for this occurrence.
- 7 Are all the wells used in the contour map screened in the same water-bearing zone? Yes X No   . If no, justify inclusion of those wells.

Groundwater is divided into 7 elevation zones (Zones S1 through S3 and D1 through D4, although no contour map is generated for Zone D4 because there are so few points). All wells within each zone represent the first occurrence of groundwater except for off-Site Zone 2 wells located at the Nova Facility which are compared to Roche's Zone 1 monitoring wells since the Zone 2 Nova wells screen the first occurrence of groundwater.

- 8 Were the groundwater contours computer generated \_\_\_, computer aided \_\_\_, or hand-drawn X\_\_? If computer aided or generated, identify the interpolation method(s) used.