

May 7, 2012

VIA EDGAR

Securities and Exchange Commission
100 F. Street, N.E.
Washington, D.C. 20549-3628

Attention: Vince DiStefano, Esq. – Division of Investment Management
Jeff Long – Division of Investment Management

Re: Horizon Technology Finance Corporation
Post-Effective Amendment No. 3 to Registration Statement on Form N-2 (the
“Registration Statement”), Filed April 19, 2012 (the “Post-Effective Amendment”)
File Nos. 333-178516 and 814-00802

Dear Messrs. DiStefano and Long:

On behalf of Horizon Technology Finance Corporation, a Delaware corporation (the “Company”), we are responding to the oral comments of the staff (the “Staff”) of the Securities and Exchange Commission (the “Commission”) as communicated to us by telephone on May 4, 2012 and May 2, 2012, with respect to the above-referenced Post-Effective Amendment.

To facilitate the Staff’s review, this letter includes each of the Staff’s comments in italics followed by a response to the Staff’s comments. Capitalized terms used in the Post-Effective Amendment and used in the following responses without definition have the meanings specified in the Post-Effective Amendment. All references to page numbers in the responses to the Staff’s comments are to page numbers in the Post-Effective Amendment.

1. *Under the section heading “Loan Portfolio Asset Quality” on page 49 of the Post-Effective Amendment, we note the increase of approximately \$16.4 million of loans with a 2 credit rating as of December 31, 2011 as compared to December 31, 2010, yet the weighted average credit rating changed to 3.1 from 3.2. Please confirm this change in the weighted average credit rating is accurate.*

Response: The Company confirms that the change in the weighted average credit rating to 3.1 as of December 31, 2011 from 3.2 as of December 31, 2010 is accurate.

2. Under the section heading “Consolidated Results of Operations – Investment Income” on page 50 of the Post-Effective Amendment, the Company notes that interest receivable as of December 31, 2011 increased to \$3 million from \$1.9 million as of December 31, 2010. Please confirm the change of approximately \$1.1 million was not as a result of increased delinquencies in loans.

Response: The Company confirms the change of approximately \$1.1 million was not as a result of increased delinquencies in loans, but instead as a result of a larger loan portfolio relative to 2010.

3. In the Consolidated Schedule of Investments beginning on pages 69 and F-9 of the Post-Effective Amendment, include the amount of shares/units for each warrant.

Response: The Company has advised us that it will, in its future filings with the Commission (beginning with its Quarterly Report on Form 10-Q for the quarter ended June 30, 2012), include the amount of shares/units for each warrant listed in the Consolidated Schedule of Investments.

4. In the Consolidated Schedule of Investments beginning on pages 69 and F-9 of the Post-Effective Amendment, indicate whether any of the investments listed are not “qualified investments” for the purposes of section 55(a) of the Investment Company Act of 1940, as amended (the “1940 Act”).

Response: The Company has advised us that all investments listed in the Consolidated Schedule of Investments beginning on pages 69 and F-9 of the Post-Effective Amendment are “qualifying investments” for purposes of Section 55(a) of the 1940 Act, except for the Pharmasset, Inc. investment, a debt investment in the amount of \$1.1 million, as Pharmasset, Inc. has a public market capitalization greater than \$250 million. The Pharmasset, Inc. investment was paid-off in early January 2012 and is no longer an investment of the Company.

5. In Note 3 to the Notes to Consolidated Financial Statements on page F-22 of the Post-Effective Amendment, please explain what amounts were reclassified and why.

Response: The Company has advised us that it reclassified the following in its Consolidated Statements of Assets and Liabilities beginning on page F-5 of the Post-Effective Amendment:

a. For the year ended December 31, 2011, the Company listed as a separate line item “Investments in money market funds”, which it did not do for the year ended December 31, 2010. As such, the Company reclassified approximately \$39 million from “Cash” in 2010 to the separate line item for “Investments in money market funds”.

b. The Company’s “Debt issuance costs” as of December 31, 2011 were immaterial and therefore reported in “Other assets.” As a result, the Company reclassified “Debt issuance costs” for 2010 as “Other assets.”

c. The Company's "Interest rate swap liability" as of December 31, 2011 was immaterial and therefore reported in "Other accrued expenses". As a result, the Company reclassified amounts with respect to the "Interest rate swap liability" for 2010 in "Other accrued expenses."

6. *In the Consolidated Statements of Cash Flows on page F-8 of the Post-Effective Amendment, please explain the rationale for recording warrants as unearned income. Additionally, for the amounts of the warrants recorded as unearned income, disclose whether such amounts are included in the incentive fee calculation. If such amounts are included in the incentive fee calculation, disclose the amounts for 2011 and 2010.*

Response: As discussed on pages 55 and F-20 of the Post-Effective Amendment, the warrants are considered loan origination fees and, pursuant to ASC 310.20, these fees are deferred and accreted into income over the life of the related loan. The Company, therefore, records the warrants as assets at estimated fair value on the grant date and as unearned loan income on the grant date. The Company has advised us that approximately \$1 million and \$0.9 million in unearned income related to warrants for 2011 and 2010, respectively, was included in the calculation of the incentive fee.

7. *In Note 12 to Consolidated Financial Statements on page F-33 of the Post-Effective Amendment, please provide the portfolio turnover rates as required by Item 4 of Form N-2.*

Response: The Company confirms that it will, in its future filings with the Commission (beginning with its Quarterly Report on Form 10-Q for the quarter ended June 30, 2012), include the portfolio turnover rate in its notes to financial statements.

8. *In Note 12 to Consolidated Financial Statements on page F-33 of the Post-Effective Amendment, please confirm whether the excise tax was included in the expense ratio calculation.*

Response: The Company has advised us that an amount for an excise tax was not included in the expense ratio calculation. For the year ended December 31, 2011, the Company incurred excise taxes of approximately \$129,000 in connection with net realized gains on investments and an additional \$211,000 in connection with net investment income, for a total of \$340,000. If this amount had been included in the expense ratio calculation, the "Expenses without incentive fees" line item would have increased to 8.2% from 7.9% and the "Total expenses" line item would have increased to 10.5% from 10.2%. The Company has advised us that it will, in its future filings with the Commission, include an amount for an excise tax, if applicable.

9. *In Note 12 to Consolidated Financial Statements on page F-33 of the Post-Effective Amendment, please explain why two investment income ratios are included.*

Response: The Company has advised us that it will, in its future filings with the Commission (beginning with its Quarterly Report on Form 10-Q for the quarter ended March 31, 2012), remove the ratio calculation on page F-33 of the Post-Effective Amendment that addresses "Net investment income without incentive fees."

10. *In the Fees and Expenses table beginning on page 16 of the Post-Effective Amendment, please move the expense example to be immediately after the table and prior to any footnotes.*

Response: The Company has advised us that it will, in its future filings with the Commission that require a Fees and Expenses table, include the example required by Item 3 of Form N-2 immediately after the Fees and Expenses table and prior to any footnotes.

11. *In the Fees and Expenses table beginning on page 16 of the Post-Effective Amendment, please disclose whether the expense ratio includes an estimate for excise taxes.*

Response: The Company has advised us that it has not included any amounts for excise taxes as an expense in the Fees and Expenses table because it does not expect to pay excise taxes in the current fiscal year. To the extent the Company expects to pay excise taxes in the future, it will, in its filings with the Commission that require a Fees and Expenses table, include an estimated amount for excise taxes.

12. *Please provide separate line items for each of the \$273,000 of net unrealized appreciation and the \$283,000 of net realized losses from the Company's interest rate swap agreements with WestLB that are described in Note 10 to Consolidated Financial Statements on page F-32 of the Post-Effective Amendment.*

Response: The Company has advised us that the \$273,000 of net unrealized appreciation and the \$283,000 of net realized losses from the Company's interest rate swap agreements with WestLB are reflected in the Company's Consolidated Statements of Operations on page F-6 of the Post-Effective Amendment under the line items "Net realized gain on investments" and "Net unrealized (depreciation) appreciation on investments," respectively. The Company did not reflect these amounts as separate line items because they are immaterial.

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We appreciate the efforts of the Staff and look forward to resolving the above comments as soon as possible. In response to the above comments, the Company has also executed a written statement acknowledging certain items requested by you, which is attached hereto as Appendix A. Please contact the undersigned at the above number if you have any questions regarding the responses set forth above.

Very truly yours,

/s/ Toby D. Merchant

Toby D. Merchant

cc: Mr. Stephen C. Mahon

Appendix A

In conjunction with the responses to the comments from the staff of the Securities and Exchange Commission (the "Staff") received on May 2, 2012 and May 4, 2012 in respect of the Post-Effective Amendment No. 3 to the Registration Statement on Form N-2, Horizon Technology Finance Corporation (the "Company") acknowledges that:

- should the Commission or the Staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the Staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the Company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the Company may not assert this action as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

HORIZON TECHNOLOGY FINANCE CORPORATION

By: /s/ Robert D. Pomeroy, Jr.
Robert D. Pomeroy, Jr.
Chief Executive Officer