BRAUSCH ENVIRONMENTAL, LLC

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Via Electronic and First-Class Mail

November 11, 2016

Ms. Shari Lynn Kolak
Remedial Project Manager
Superfund Division
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard, SRF-5J
Chicago, IL 60604-3507

Re: Monthly Progress Report for October 2016
Remedial Investigation and Feasibility Study
Lake Calumet Cluster Site, Operable Unit 2, Chicago, Illinois

Dear Ms. Kolak:

The Respondents respectfully submit this monthly progress report to the U.S. Environmental Protection Agency (USEPA), Region 5, pursuant to Paragraph 46 of the Administrative Settlement Agreement and Order on Consent (AOC) for the Operable Unit 2 (OU2) Remedial Investigation and Feasibility Study (RI/FS) at the Lake Calumet Cluster Site in Chicago, Illinois (the Site). This progress report summarizes efforts by the Respondents to fulfill the requirements of the AOC during the October 2016 reporting period.

1. Activities Completed During This Reporting Period

A. From October 3 through October 6, 2016, Arcadis U.S., Inc. (Arcadis) completed sampling of the Phase 3 groundwater monitoring wells and gauging of the Phase 1 piezometers.

B. On October 14, 2016, the Respondents submitted the September 2016 monthly progress report to USEPA with copies to the Illinois Environmental Protection Agency (IEPA).

2. Results of Sampling and Tests and Other Data

A. Results of the slug tests are included as Attachment A.

B. Results of the second quarter of groundwater monitoring are being submitted under separate cover.[1]

3. Work Plans, Procedures, and Deliverables

A. The Group did not submit any work plans, procedures, or other technical deliverables during the October 2016 reporting period.

4. Actions Projected for the Next Reporting Period

A. Arcadis will prepare a Quality Assurance Project Plan (QAPP) addendum covering procedures for sampling light non-aqueous phase liquid (LNAPL). Once that QAPP addendum is approved, Arcadis will sample the LNAPL encountered at MW-12 to characterize the LNAPL found in that well. USEPA and IDEM will be notified of that sampling once it is scheduled.

B. Arcadis will continue monthly gauging of the Phase 1 piezometers.

C. Arcadis will inspect the eastern Site boundary to identify and locate any seeps. If found, seeps will be sampled and analyzed for a full suite of organic and inorganic analytes.

5. Progress and Schedule Report

A. Completion of the Remedial Investigation is generally progressing in accordance with the schedule submitted with the RI/FS Work Plan. Arcadis has completed the Phase 1 piezometer investigation, Phase 2 hydraulic profiling tool and vertical aquifer profiling investigations, and installation of the Phase 3 groundwater monitoring wells. The first two rounds of sampling of the Phase 3 groundwater monitoring wells and slug tests have also been completed.

B. The scheduled date for completion of the RI will be extended as needed to accommodate four rounds of quarterly groundwater sampling rather than the one round envisioned in the schedule submitted with the RI/FS Work Plan. The Group will work with USEPA to update the schedule after review of the third round of quarterly groundwater monitoring data.

* * * *

[1] The second quarter groundwater monitoring data were submitted by electronic mail on November 4, 2016.

We trust that this submittal satisfies your requirements at this time. If you have questions regarding this monthly progress report or related project matters, please do not hesitate to contact me.

Respectfully submitted,

Leo M. Brausch
Project Coordinator

LMB:

cc: P. Lake, IEPA (2 copies)

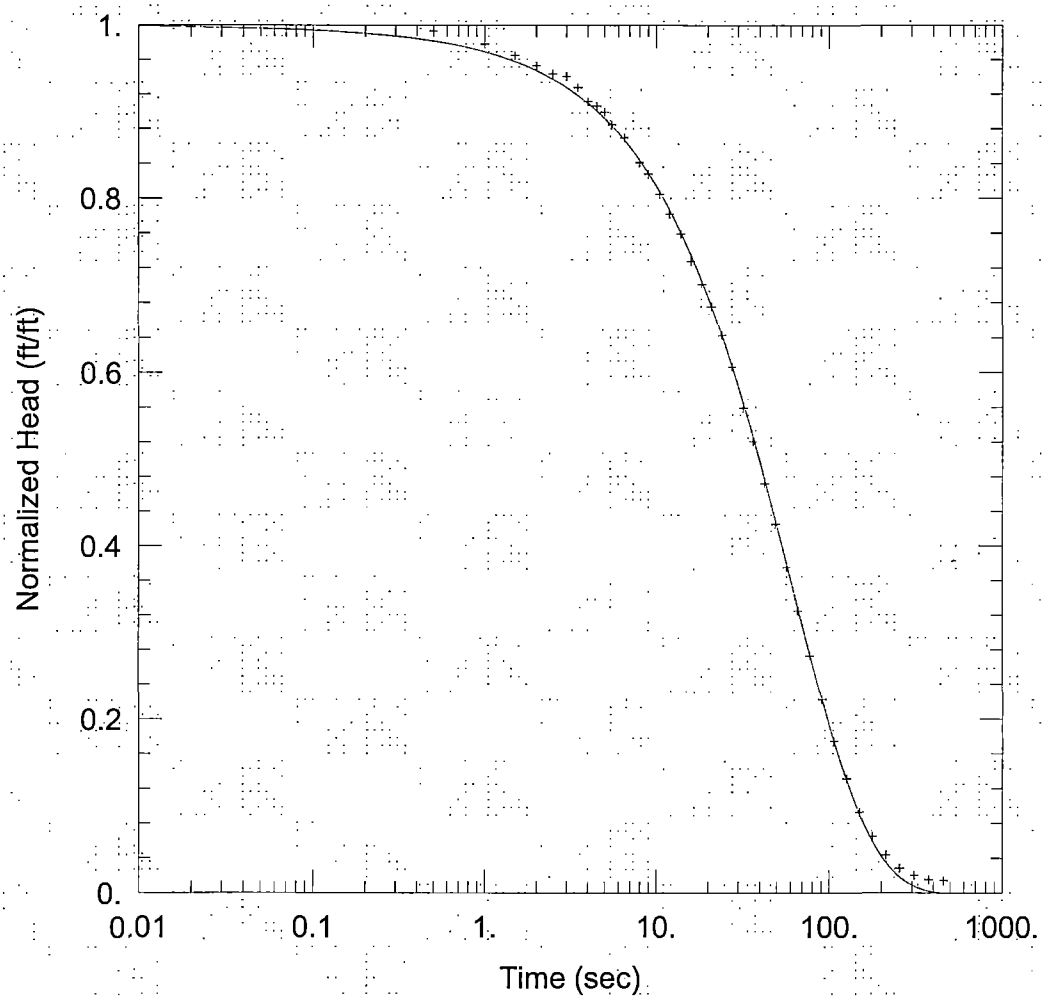
cc (via email):
S. M. Franzetti, Esq.
J. Kratzmeyer, Arcadis
P. Lake, IEPA
LCCS Technical Committee

ATTACHMENT A

SLUG TEST RESULTS

MW-1, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 1.7 ft/day Ss = 5.7E-6 ft^{-1}
Kz/Kr = 1.

AQUIFER DATA

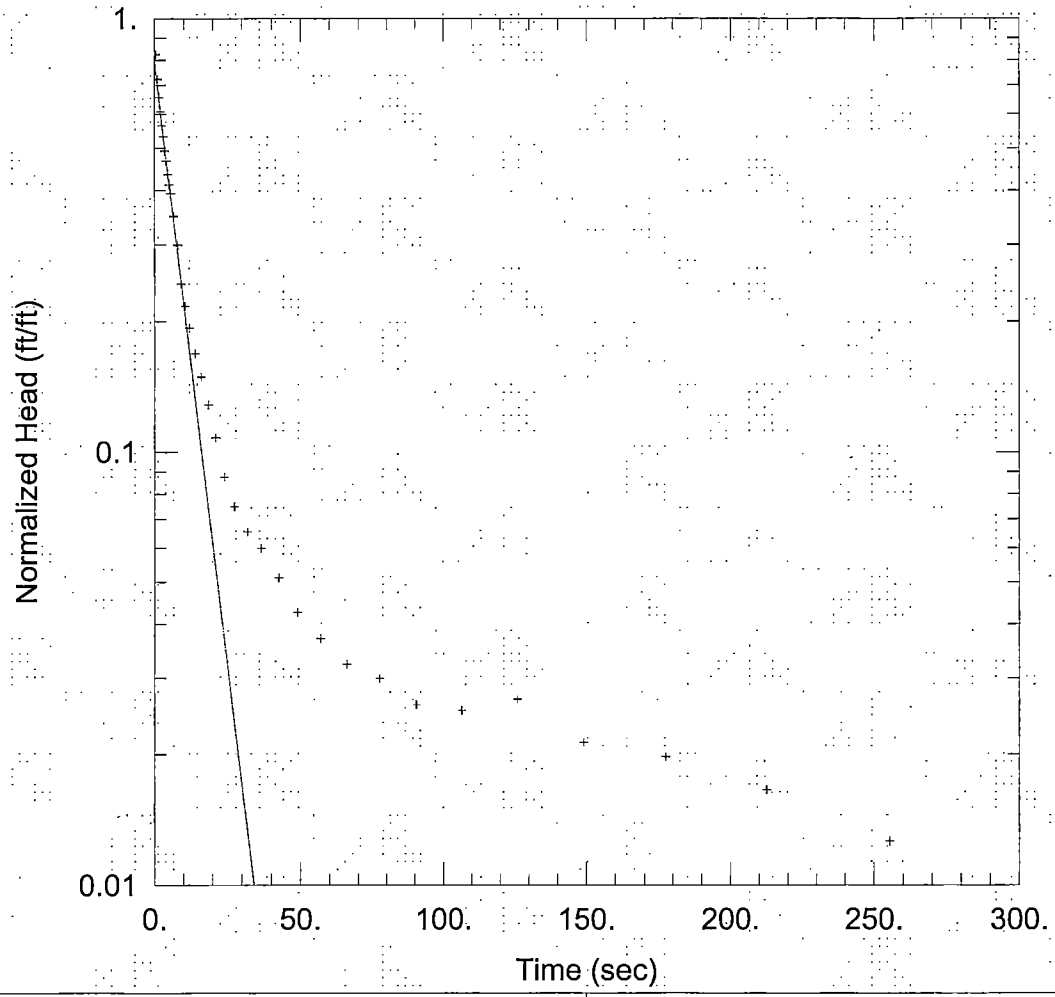
Saturated Thickness: 14.42 ft

WELL DATA (MW-1)

Initial Displacement: 1.627 ft
Static Water Column Height: 14.42 ft
Total Well Penetration Depth: 14.42 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-2, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 16. ft/day y0 = 1. ft

AQUIFER DATA

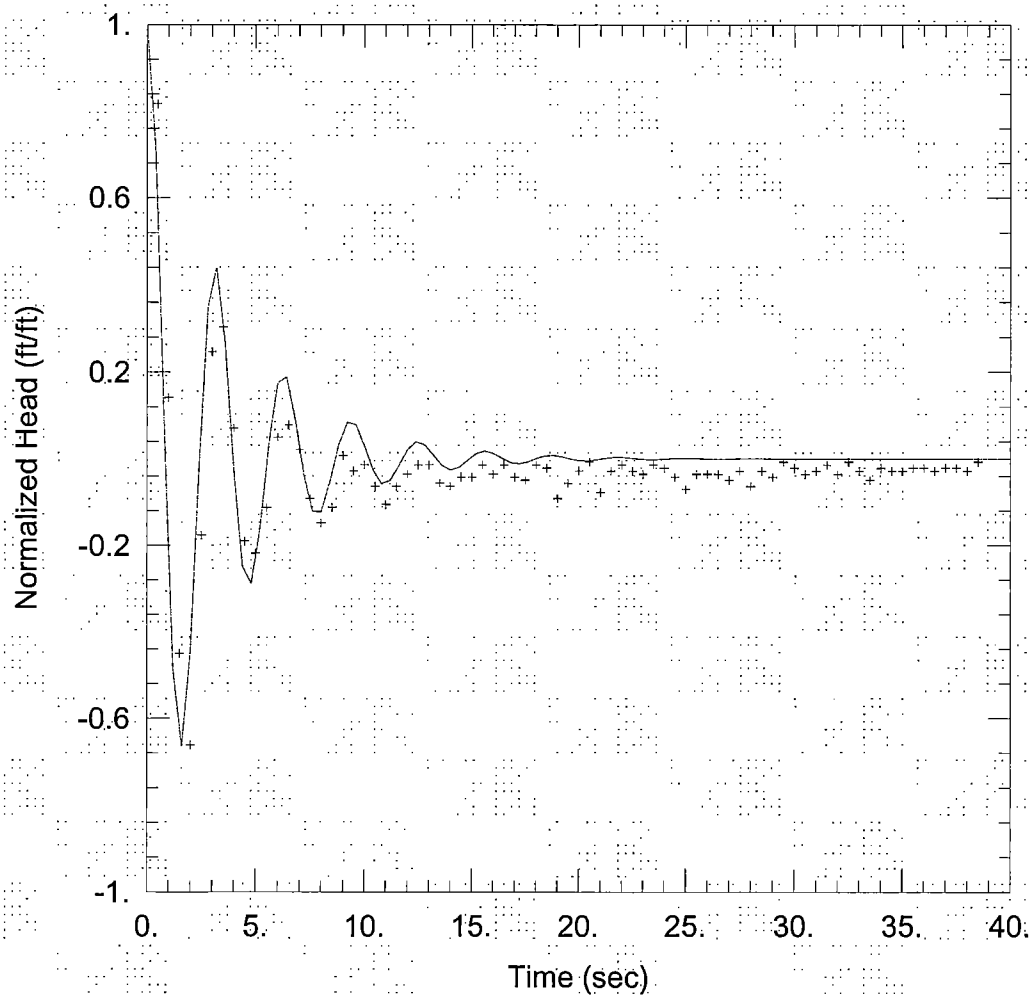
Saturated Thickness: 14.73 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-2)

Initial Displacement: 1.268 ft
Static Water Column Height: 14.73 ft
Total Well Penetration Depth: 14.73 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-3, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar

K = 700. ft/day Le = 7.8 ft

AQUIFER DATA

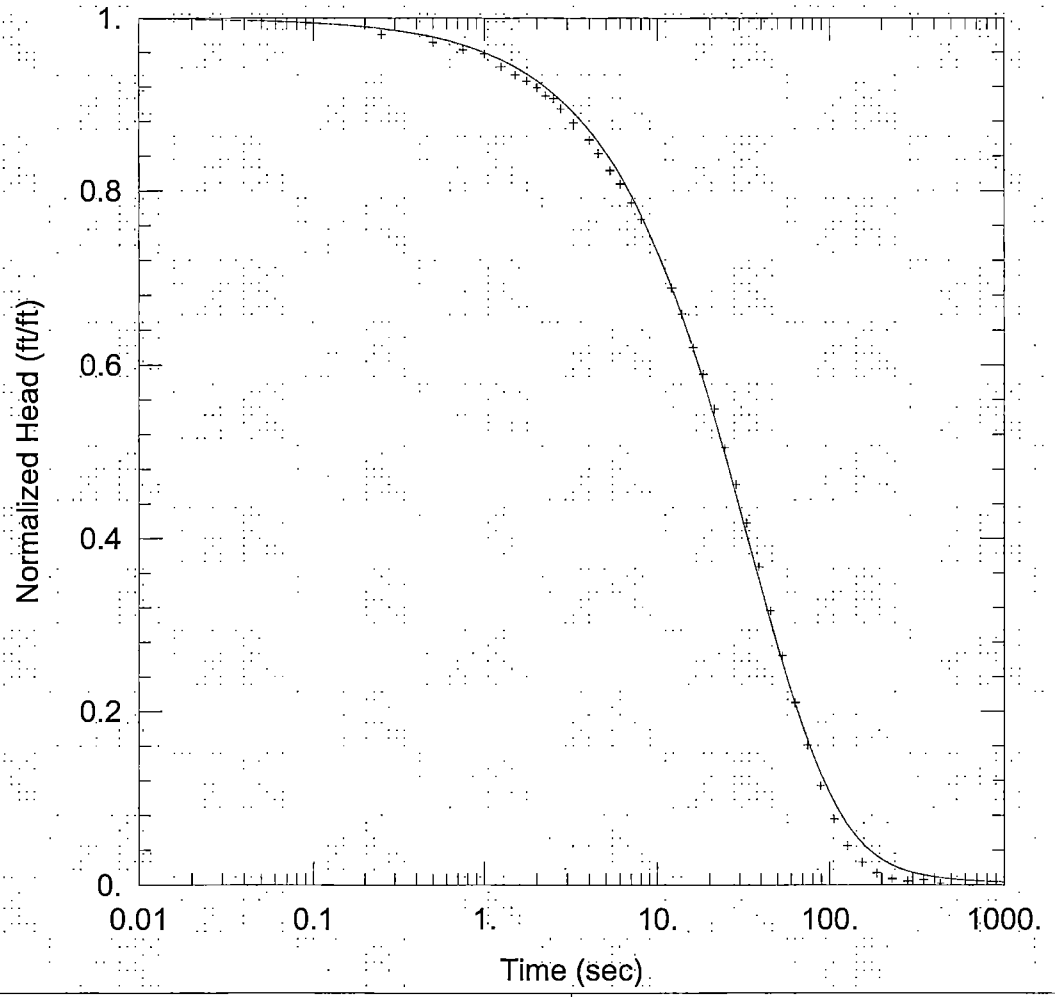
Saturated Thickness: 14.5 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 0.142 ft
Static Water Column Height: 14.5 ft
Total Well Penetration Depth: 14.5 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-4, Test 1

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos

T = 52. ft^2/day S = 1.5E-6

AQUIFER DATA

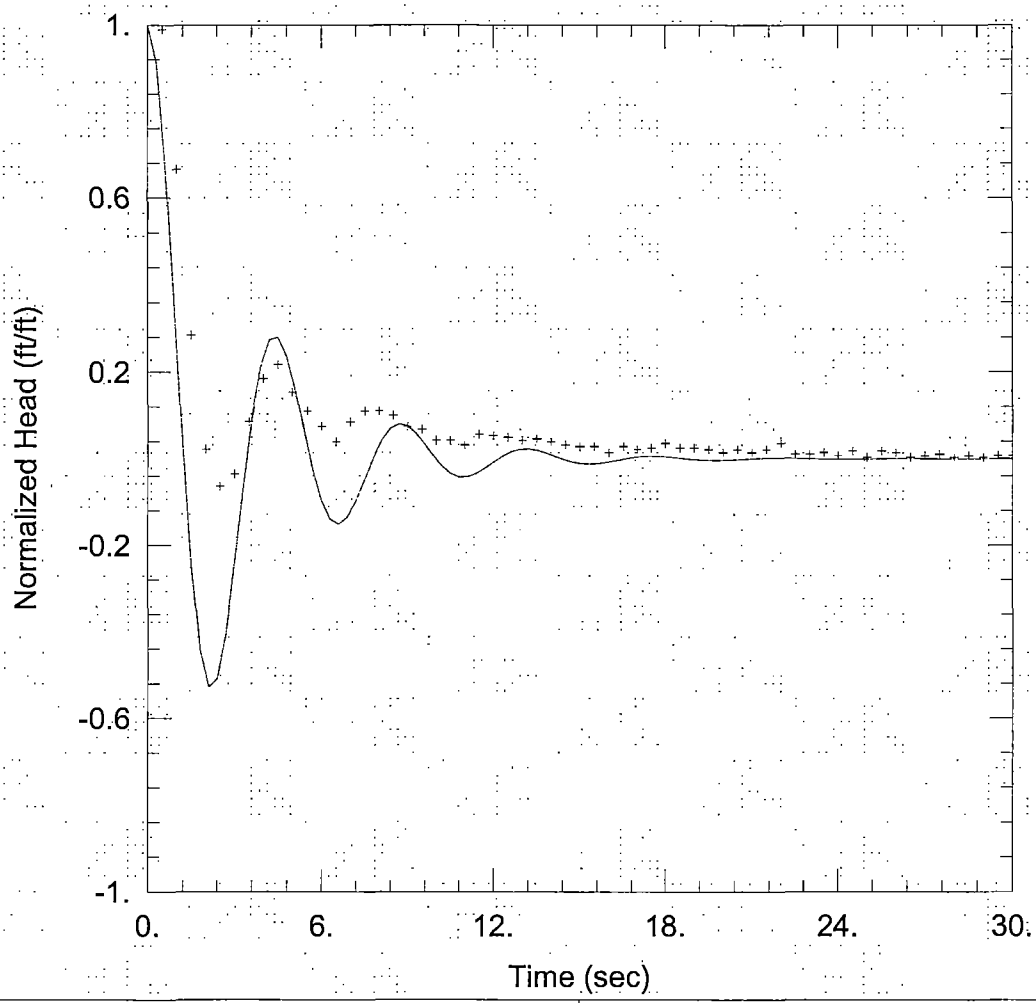
Saturated Thickness: 8.99 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 1.676 ft
Static Water Column Height: 8.99 ft
Total Well Penetration Depth: 8.99 ft
Screen Length: 8.99 ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-5, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 480. ft/day Le = 15. ft

AQUIFER DATA

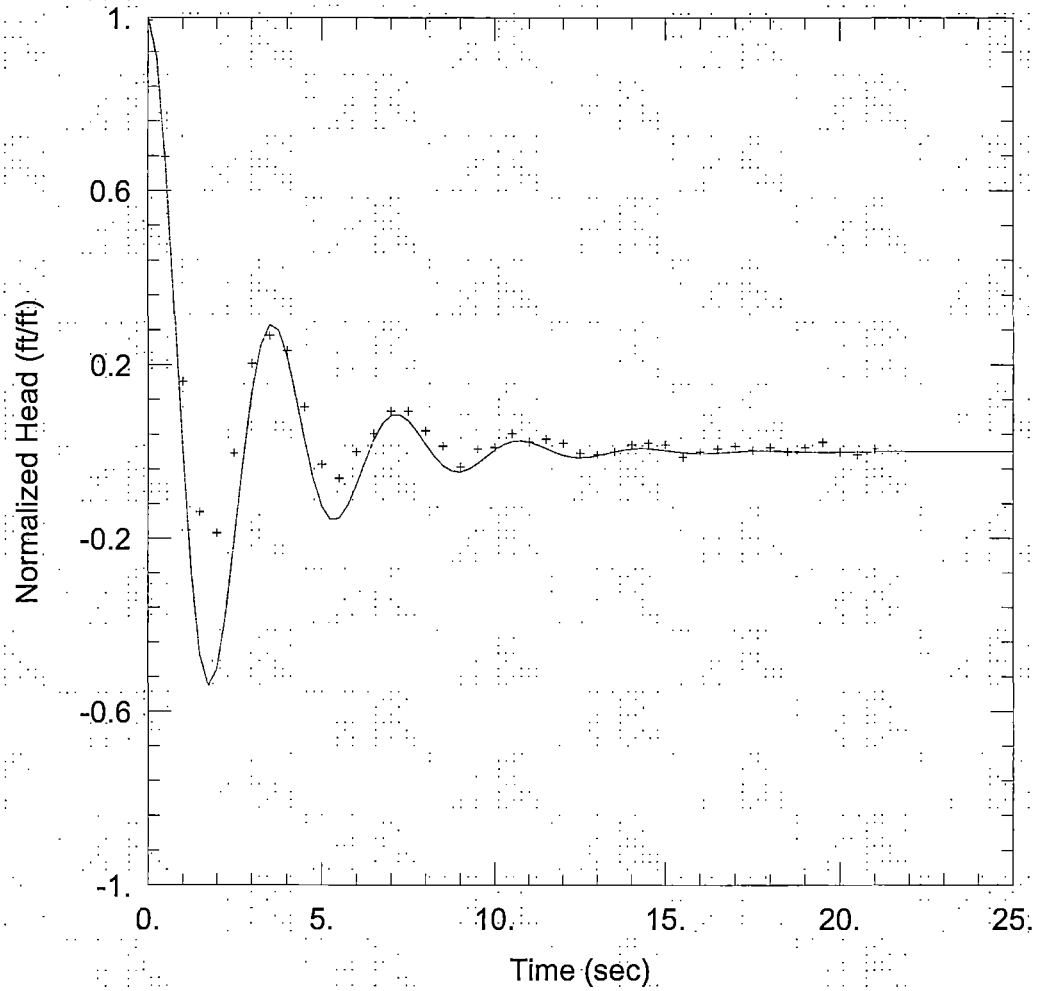
Saturated Thickness: 18.46 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-5)

Initial Displacement: 0.281 ft
Static Water Column Height: 18.46 ft
Total Well Penetration Depth: 18.46 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-6, Test 1

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Springer-Gelhar

K = 400. ft/day Le = 10. ft

AQUIFER DATA

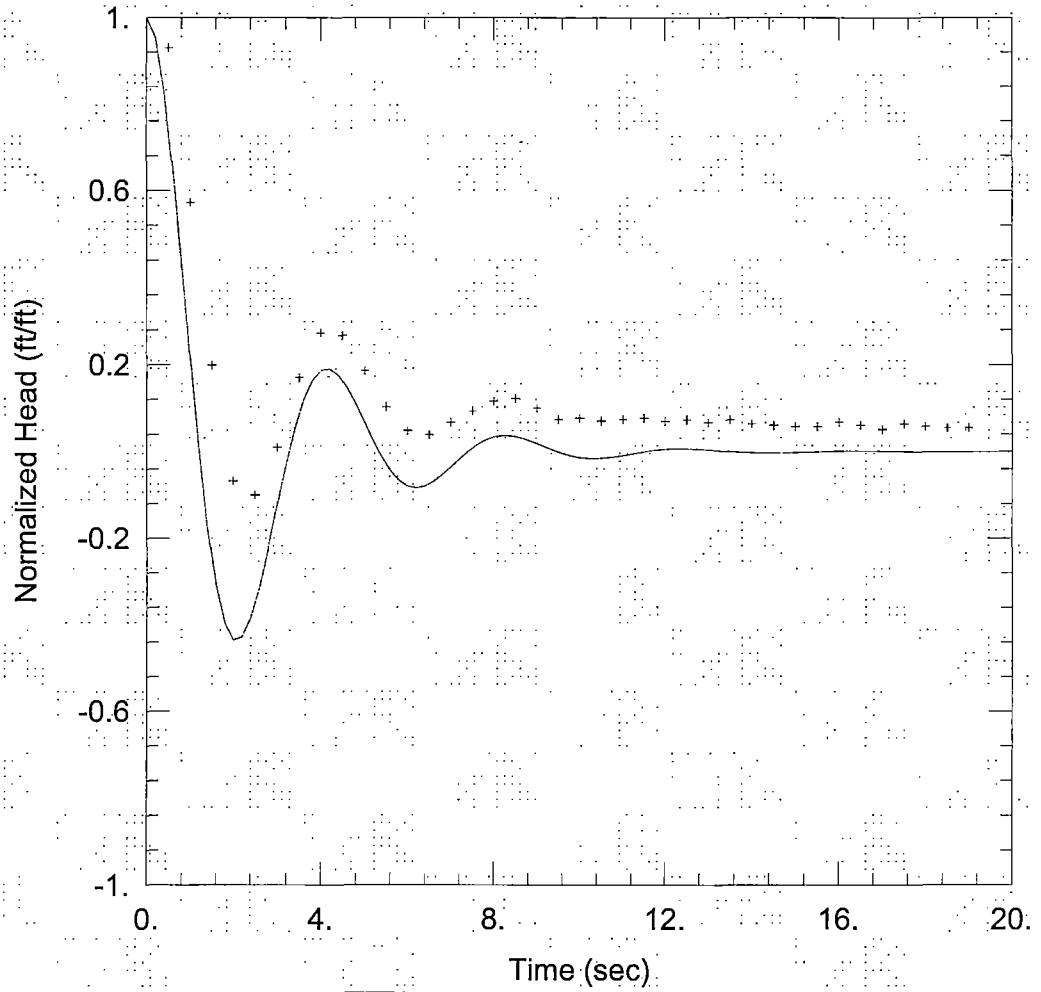
Saturated Thickness: 13.2 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-6)

Initial Displacement: 0.31 ft
Static Water Column Height: 13.2 ft
Total Well Penetration Depth: 13.2 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-7, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 330. ft/day Le = 13. ft

AQUIFER DATA

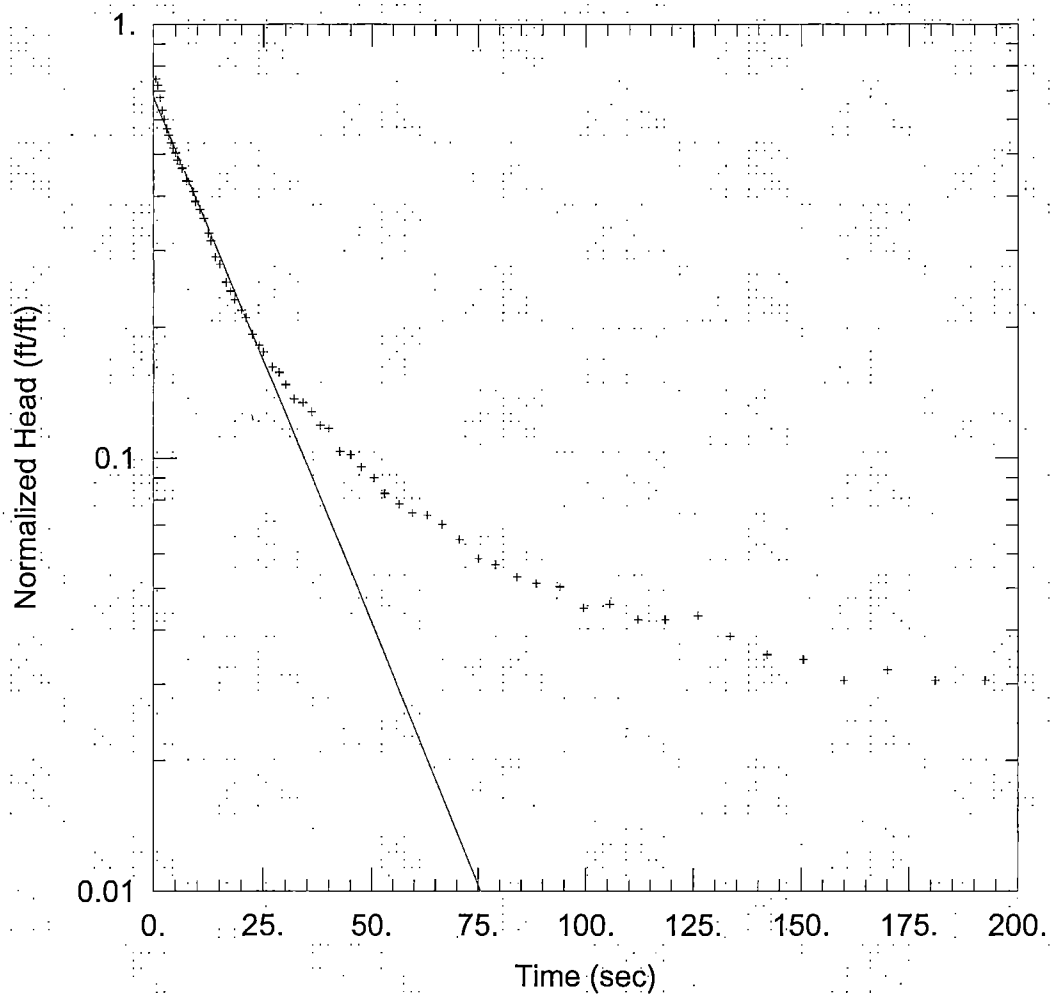
Saturated Thickness: 19.94 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-7)

Initial Displacement: 0.311 ft
Static Water Column Height: 19.94 ft
Total Well Penetration Depth: 19.94 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-8, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 11. ft/day y0 = 0.75 ft

AQUIFER DATA

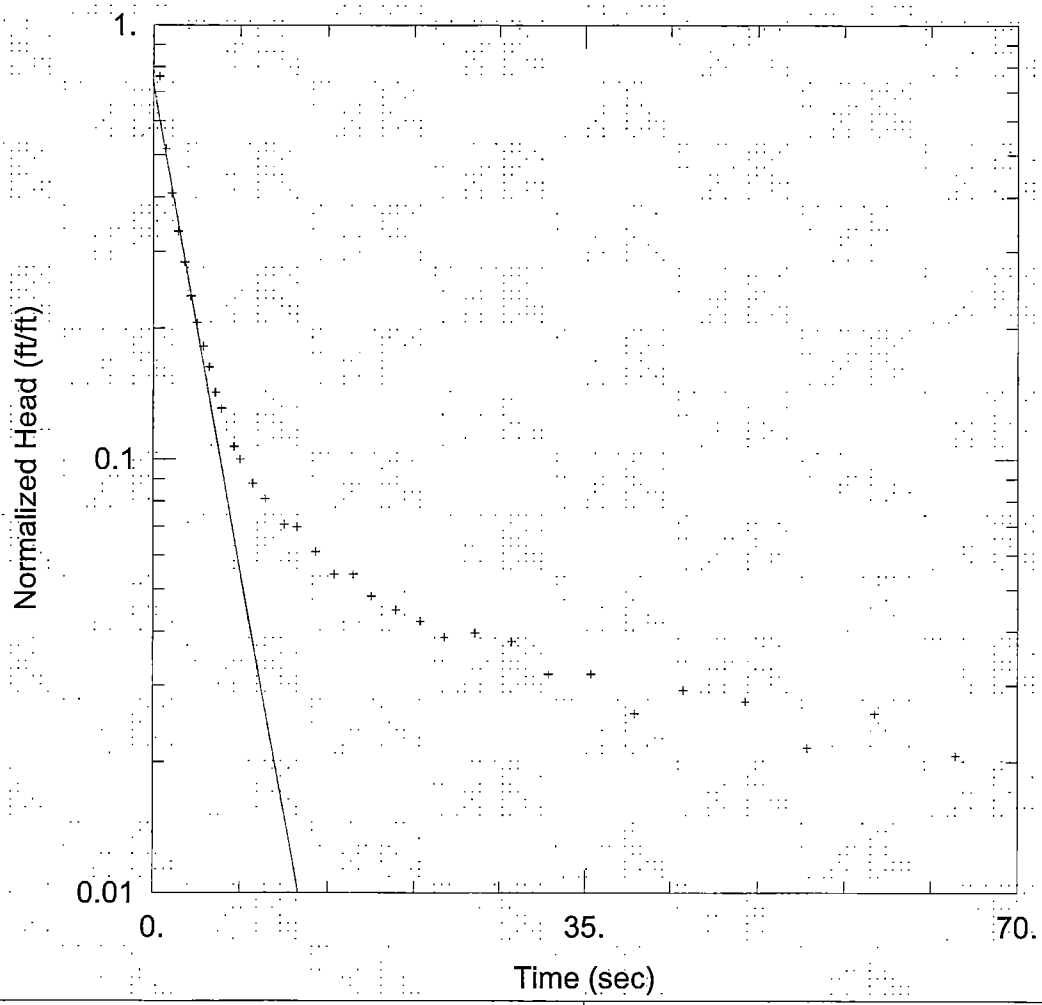
Saturated Thickness: 10.88 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-8)

Initial Displacement: 1.111 ft
Static Water Column Height: 10.88 ft
Total Well Penetration Depth: 10.88 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-9, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 66. ft/day y0 = 0.84 ft

AQUIFER DATA

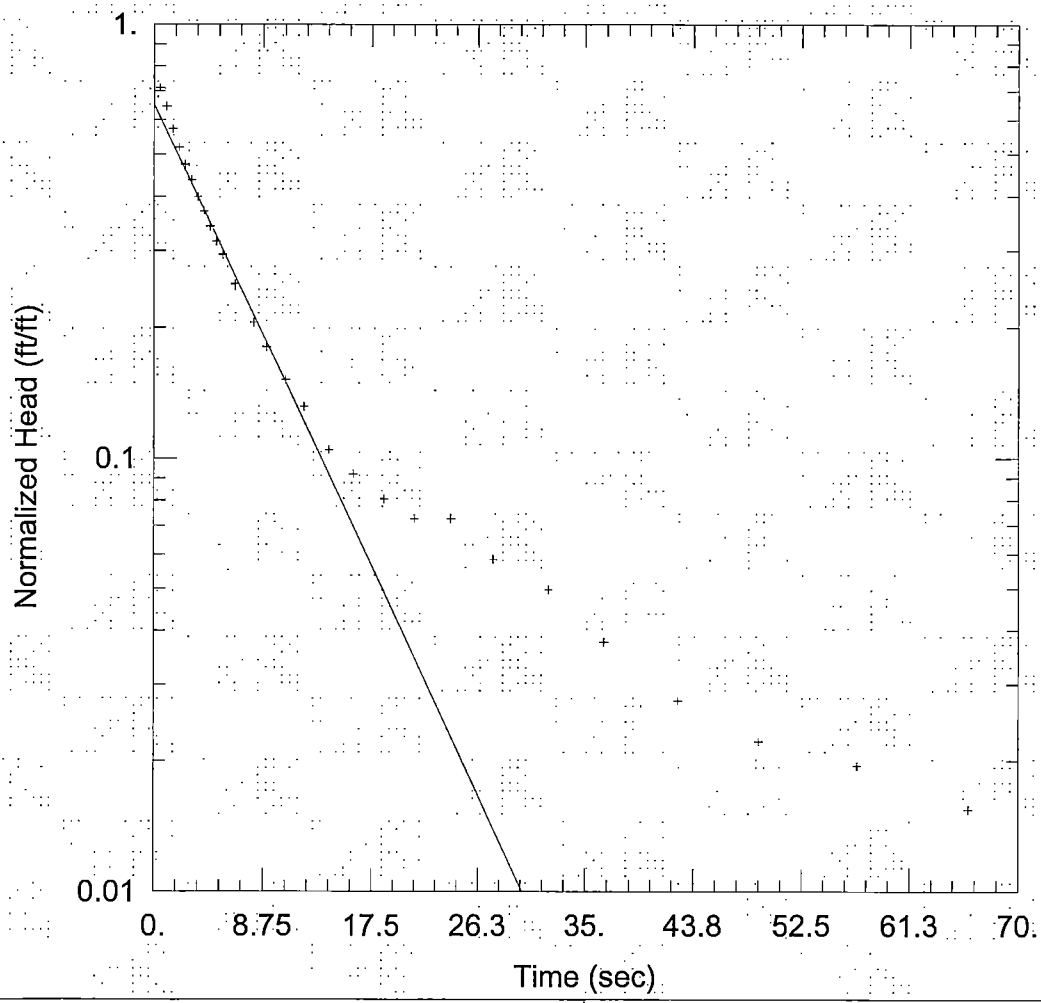
Saturated Thickness: 11.69 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-9)

Initial Displacement: 1.16 ft
Static Water Column Height: 11.69 ft
Total Well Penetration Depth: 11.69 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-10, Test 1

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 22. ft/day y0 = 0.97 ft

AQUIFER DATA

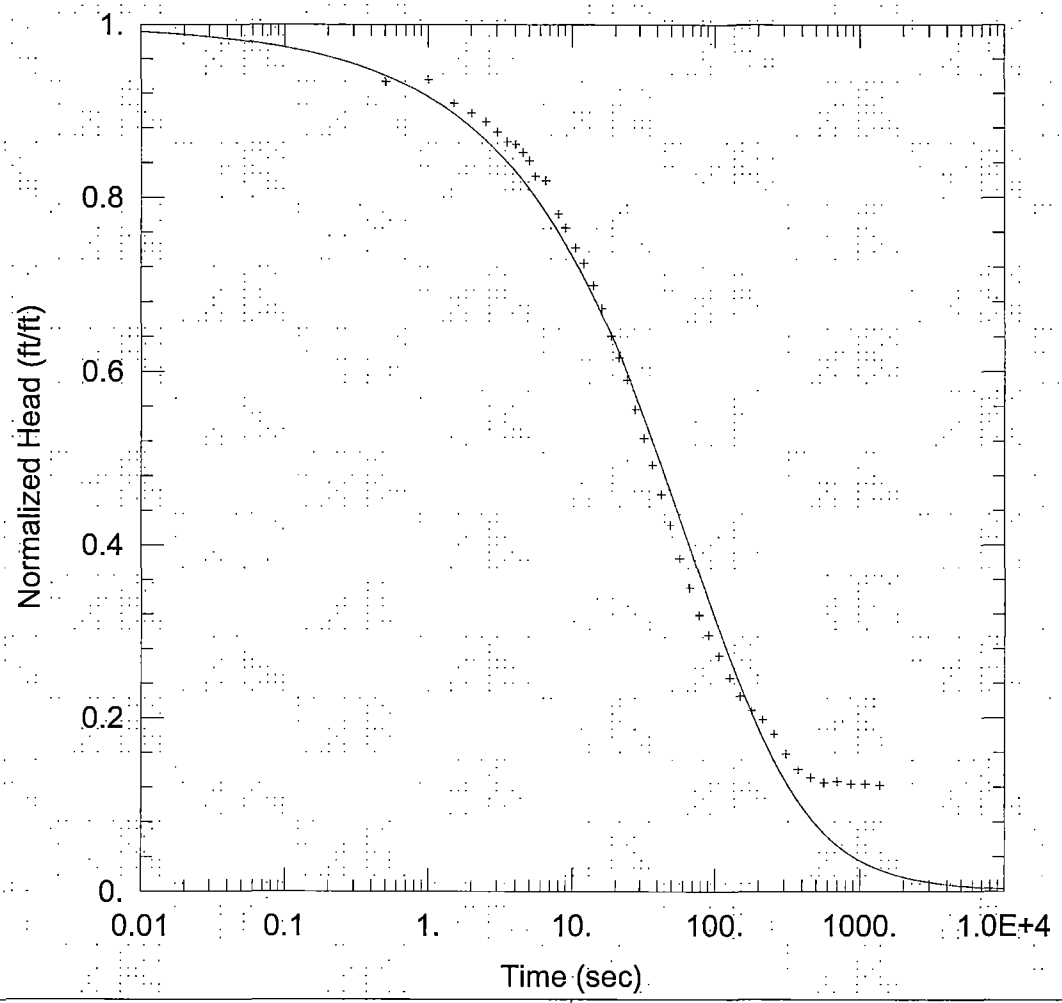
Saturated Thickness: 9.24 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-10)

Initial Displacement: 1.49 ft
Static Water Column Height: 9.24 ft
Total Well Penetration Depth: 9.24 ft
Screen Length: 9.24 ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-11, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos

T = 7. ft^2/day S = 0.012

AQUIFER DATA

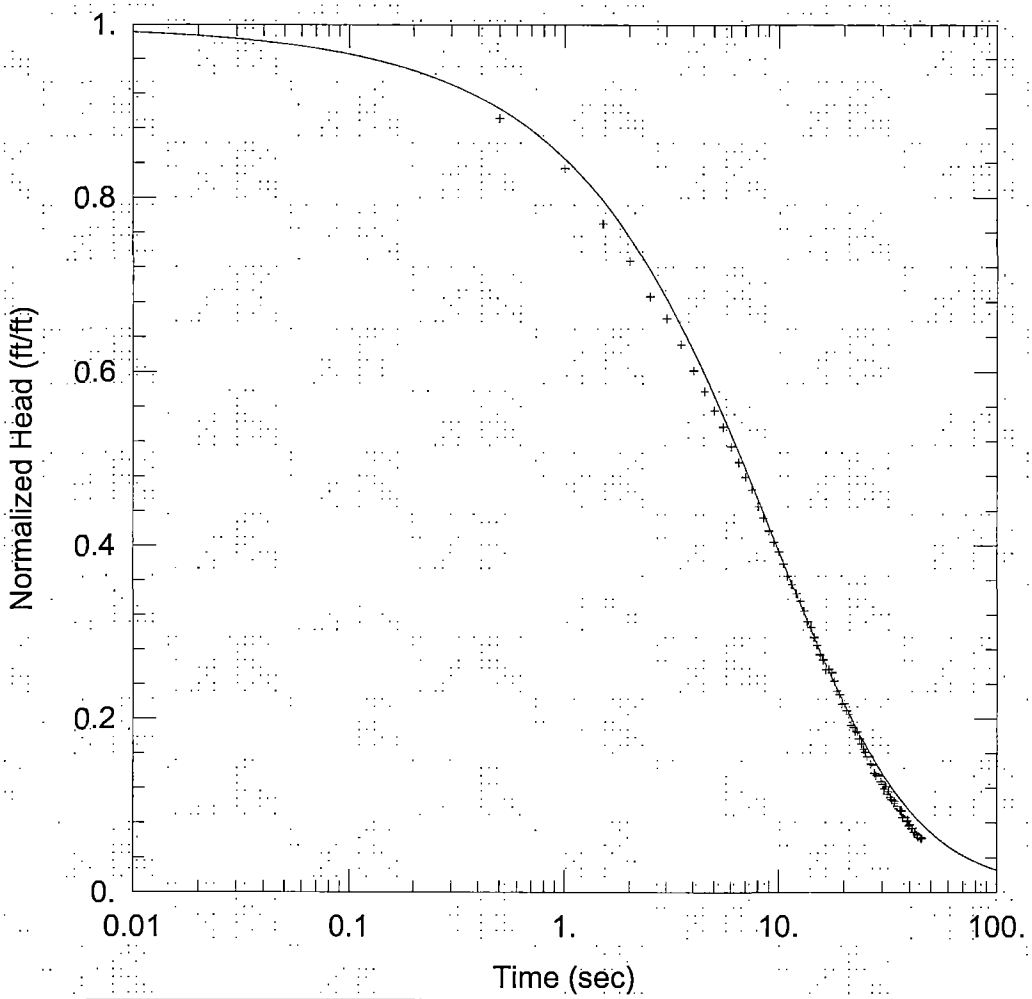
Saturated Thickness: 11.56 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-11)

Initial Displacement: 1.389 ft
Static Water Column Height: 11.56 ft
Total Well Penetration Depth: 11.56 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft

MW-13, Test 2

Prepared By:	Prepared For:
Arcadis	Lake Calumet Cluster Site
Project:	Location:
CI001805.0002	Chicago, Illinois



SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos

T = 100. ft^2/day S = 0.00056

AQUIFER DATA

Saturated Thickness: 15.44 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-13)

Initial Displacement: 1.545 ft
Static Water Column Height: 15.44 ft
Total Well Penetration Depth: 15.44 ft
Screen Length: 10. ft
Casing Radius: 0.0861 ft
Well Radius: 0.354 ft