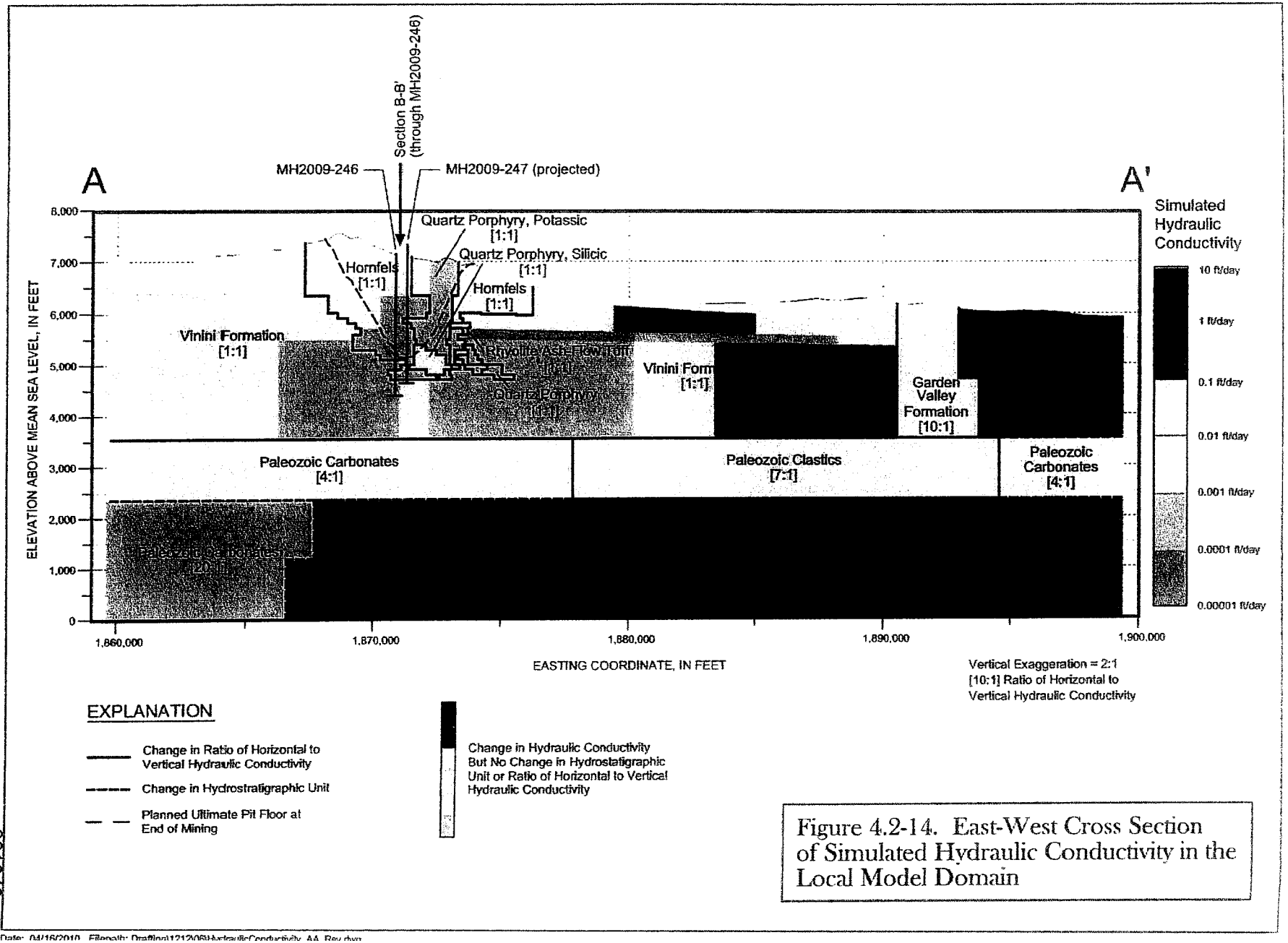


Figure 4.2-14. East-West Cross Section of Simulated Hydraulic Conductivity in the Local Model Domain

001646

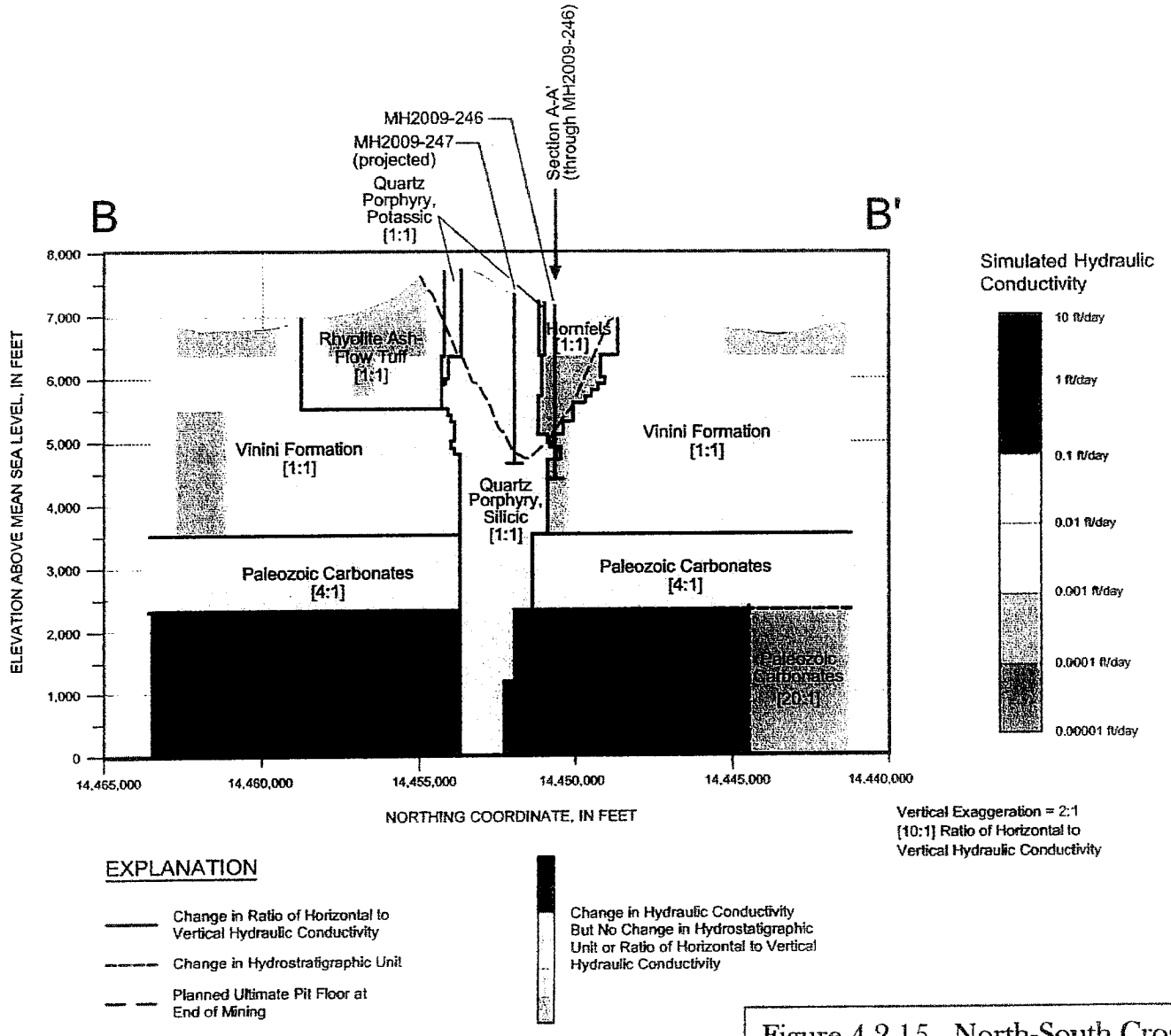


Figure 4.2-15. North-South Cross Section of Simulated Hydraulic Conductivity in the Local Model Domain

Date: 04/16/2010 Filepath: Drafting\1212\06\HydraulicConductivity_BB_Rev.dwg

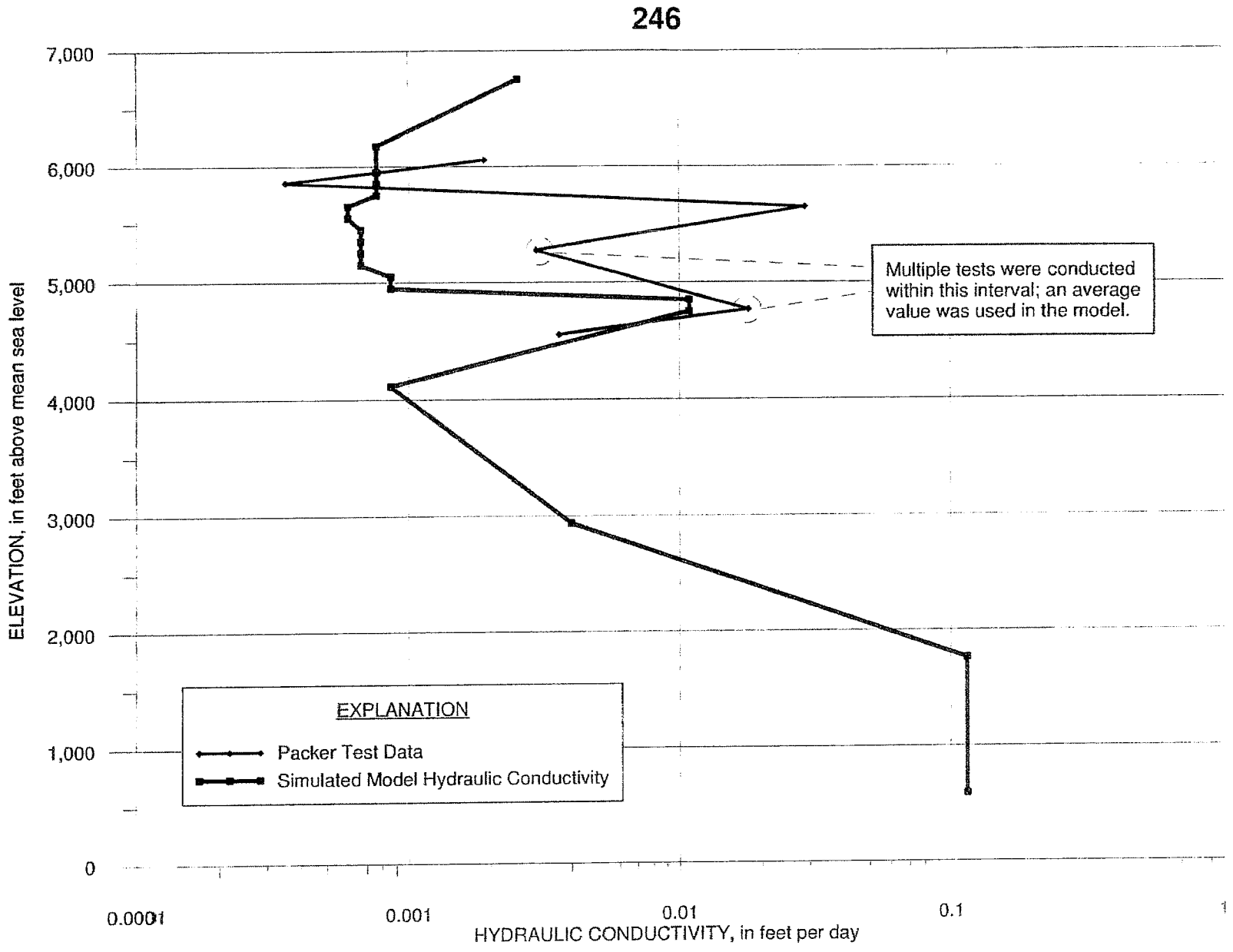


Figure 4.2-16. Computed and Simulated Hydraulic Conductivities for Packer-Tested Borehole 246

001648

S:\1212\1\Figures\Stone_Packer\Figure4.2-16_KforPackerTest_246.grf 07Apr2010

JA1815

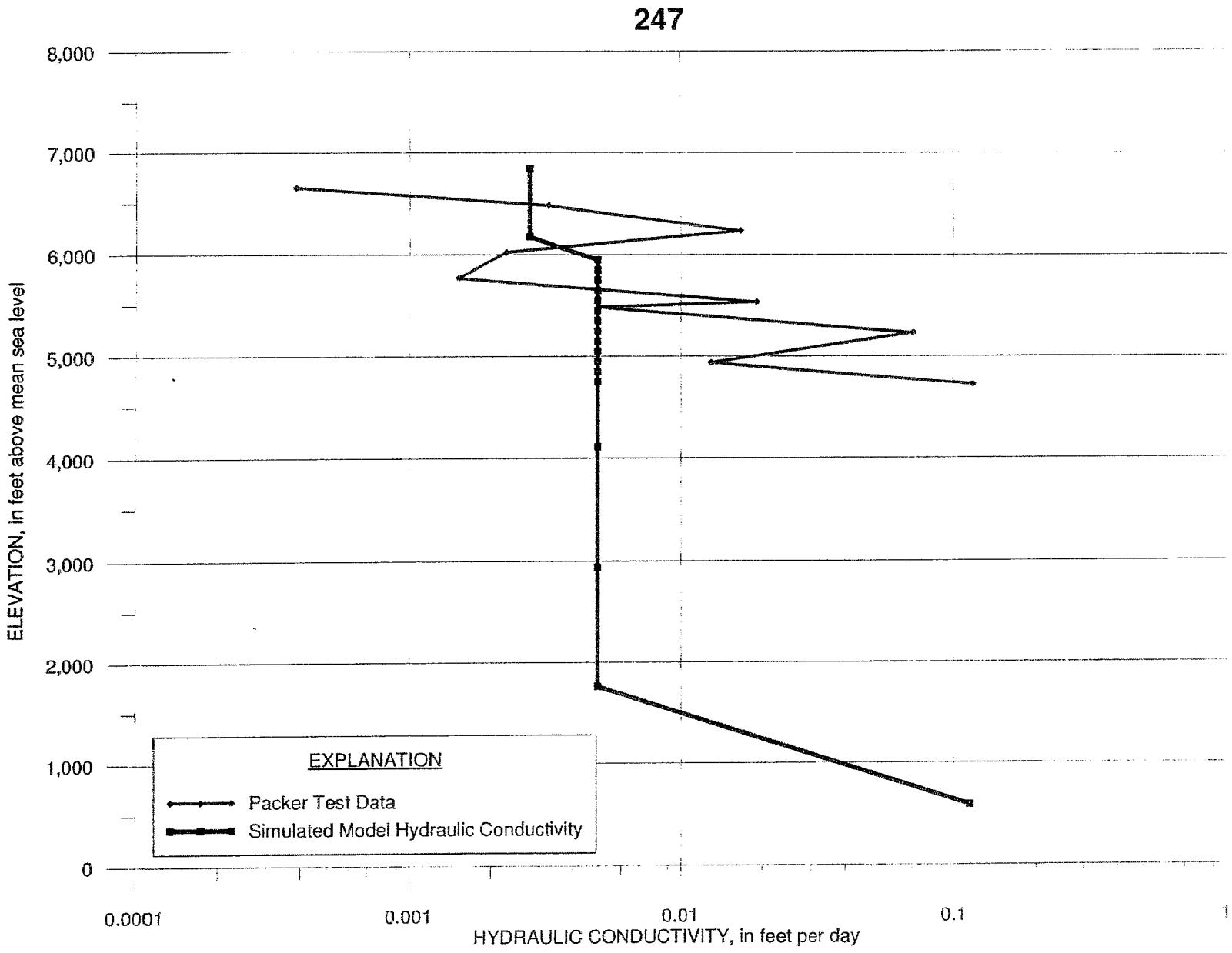


Figure 4.2-17. Computed and Simulated Hydraulic Conductivities for Packer-Tested Borehole 247

001649

S:\1212\1\Figures\Slone_packer\Figure4.2-17_KforPackerTest_247.grf 07Apr2010

JA1816

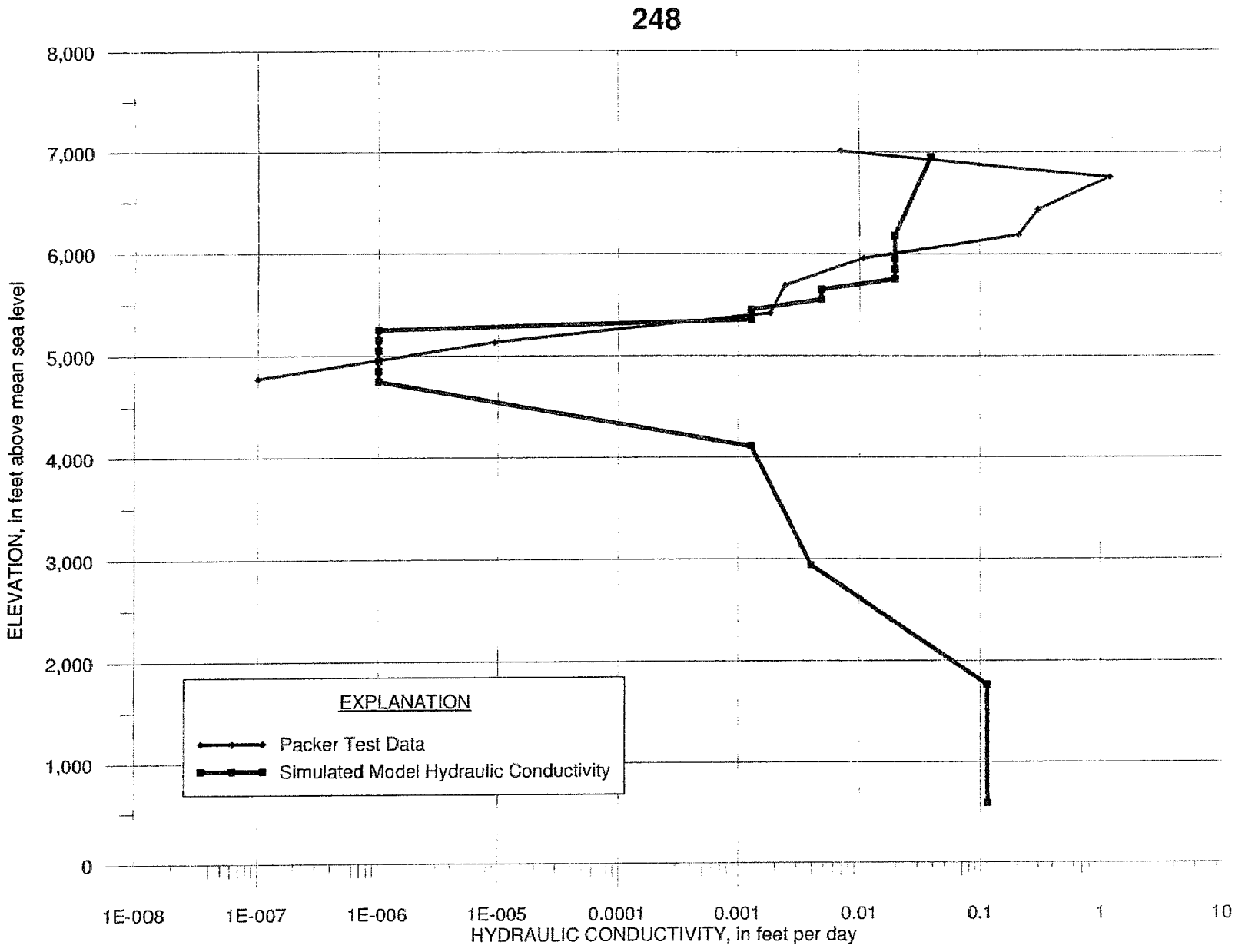
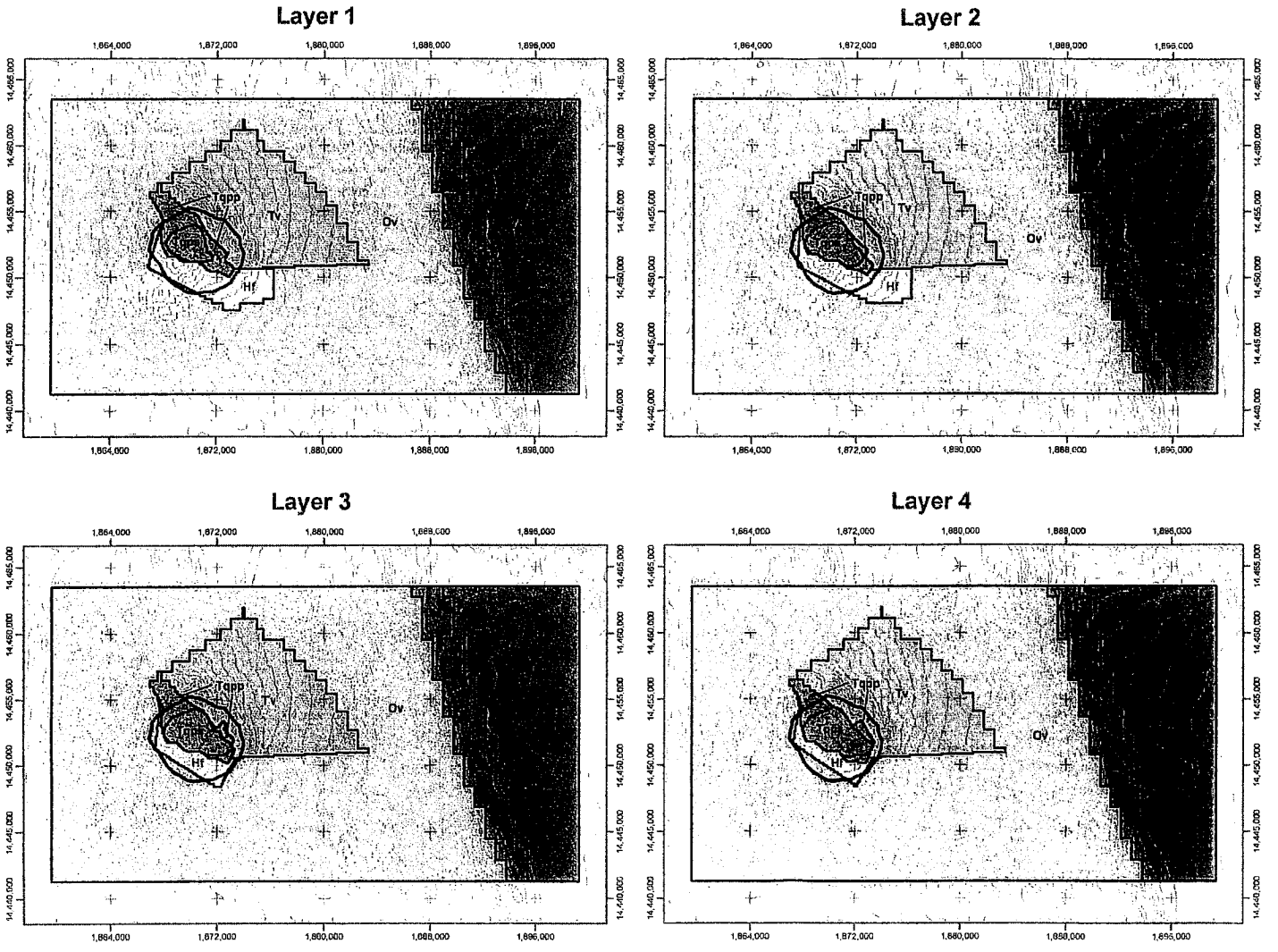


Figure 4.2-18. Computed and Simulated Hydraulic Conductivities for Packer-Tested Borehole 248

001650

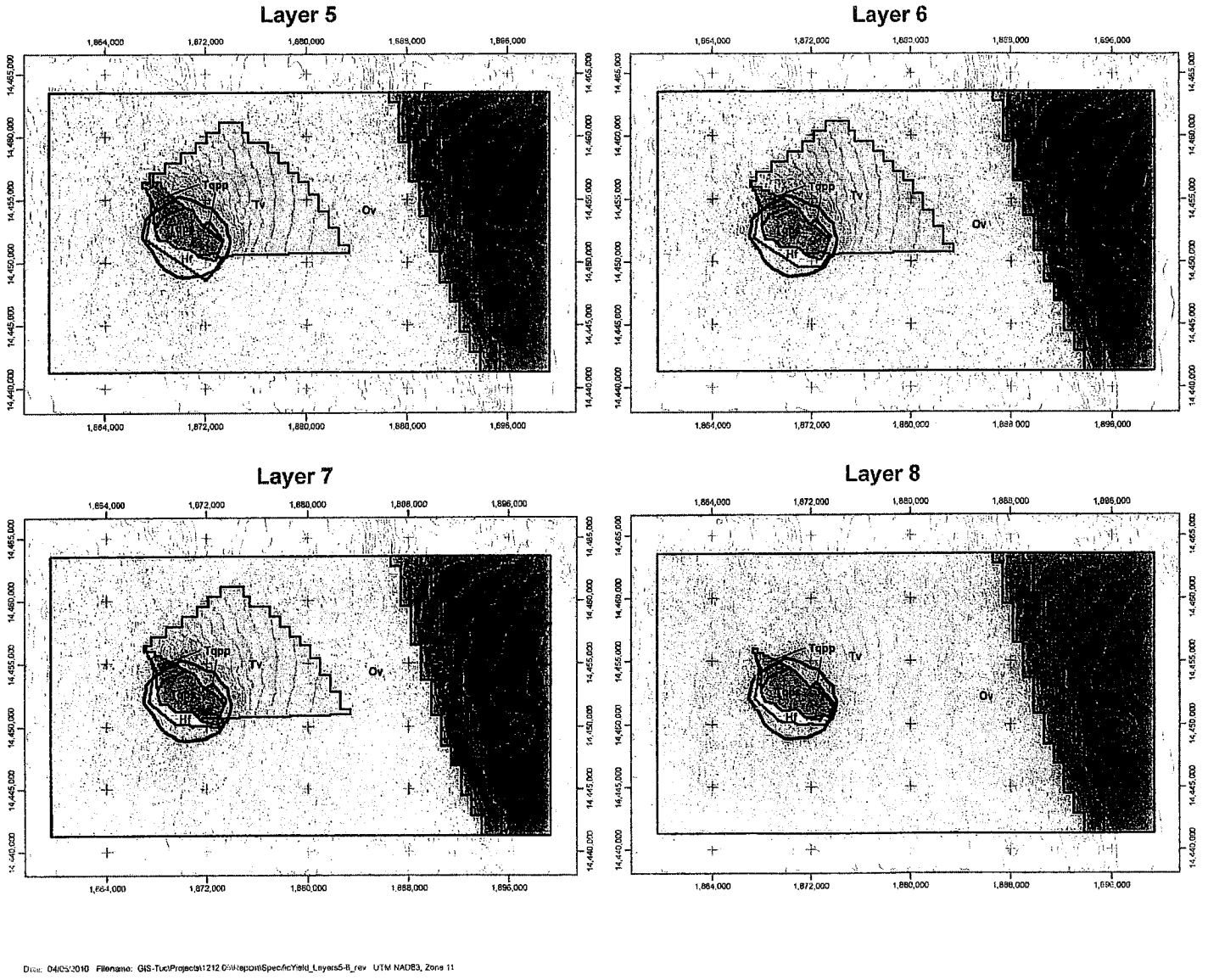
S:\1212\1\Figures\Stone_packer\Figure4.2-18_KforPackerTest_248.grf 07Apr2010

JA1817



Date: 04/05/2010 Filename: GIS-Tuc\Projects\1212.06\Report\SpecificYield_Layers1-4_rev UTM NAD83, Zone 11

Figure 4.2-19. Hydrogeologic Zones and Specific Yield Distribution for Model Layers 1 Through 4



EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Specific Yield, unitless

- 0.0002
- 0.0050
- 0.0053
- 0.0200
- 0.0250
- 0.0300

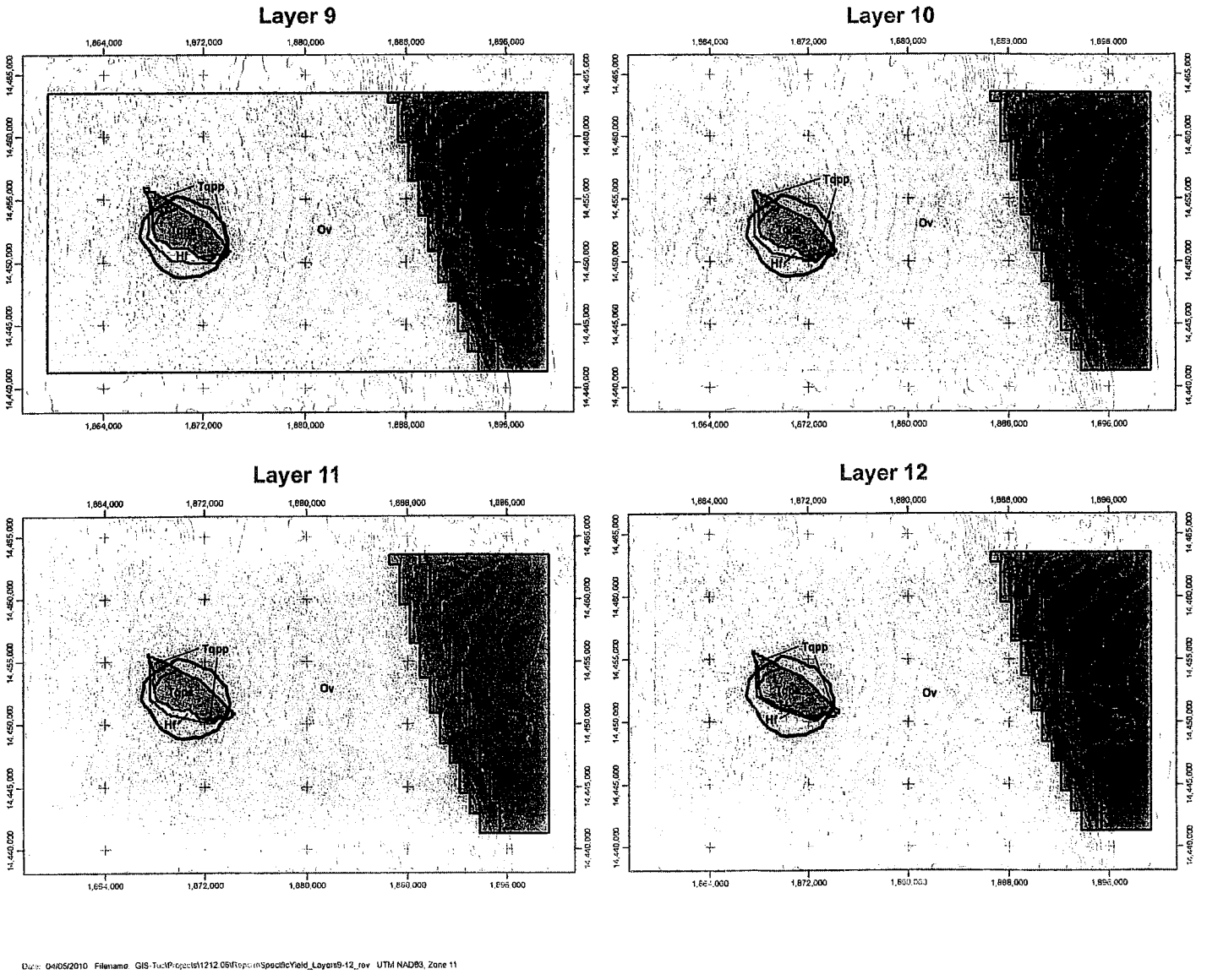
Hydrogeologic Zones

Tv	Rhyolite Ash-flow Tuff
Tqps	Quartz Porphyry, Silicic
Tqpp	Quartz Porphyry, Potassic
Ov	Vinini Formation
Hf	Hornfels
Pgl	Garden Valley Formation
Pzcl	Paleozoic Clastics
Pzca	Paleozoic Carbonates

N

0 4,100 8,200
Feet

Figure 4.2-20. Hydrogeologic Zones and Specific Yield Distribution for Model Layers 5 Through 8



Date: 04/05/2010 Filename: GIS-Tech\Projects\1212.05\Report\SpecificYield_Layers9-12_rev UTM NAD83, Zone 11

Figure 4.2-21. Hydrogeologic Zones and Specific Yield Distribution for Model Layers 9 Through 12

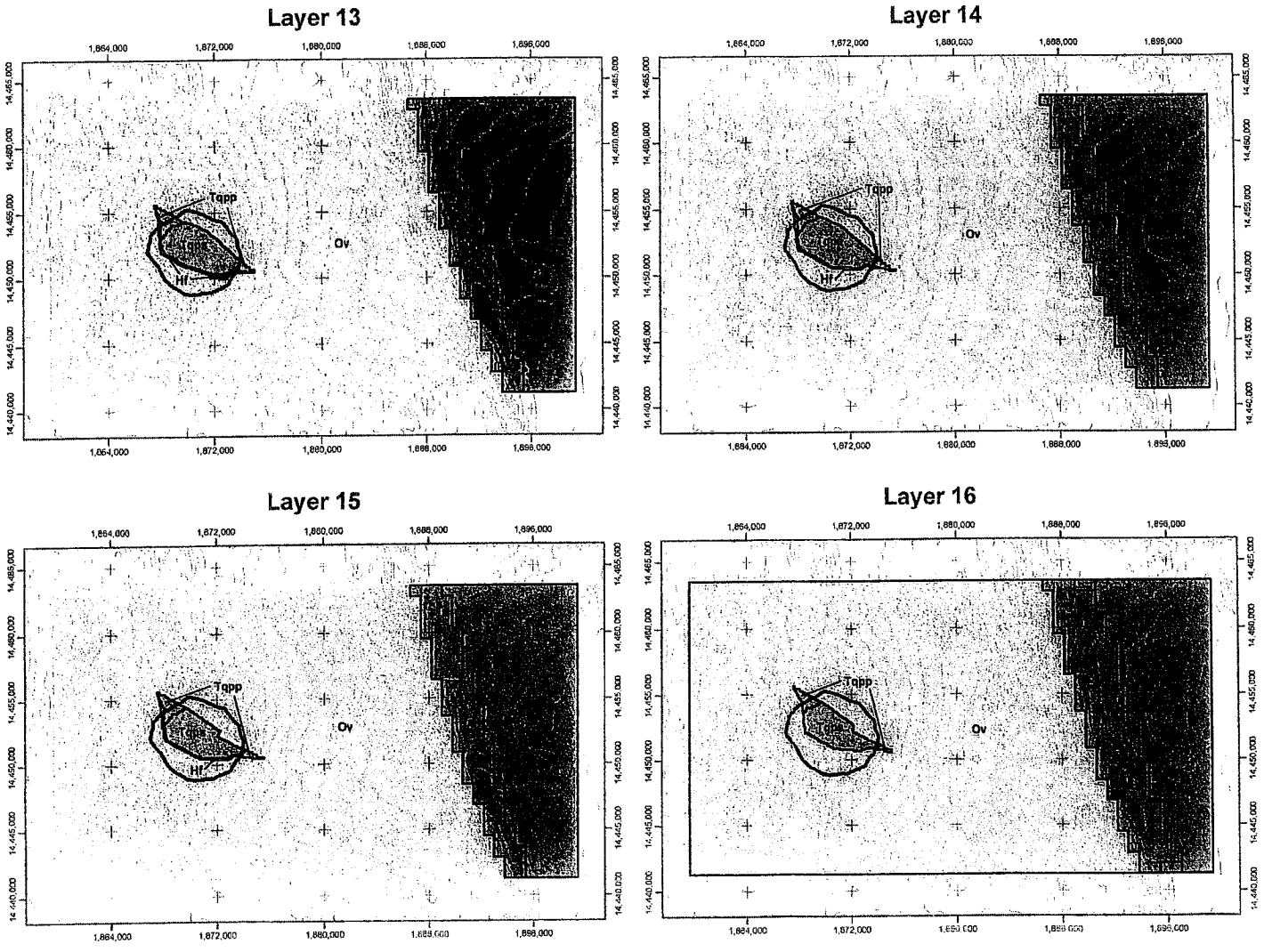
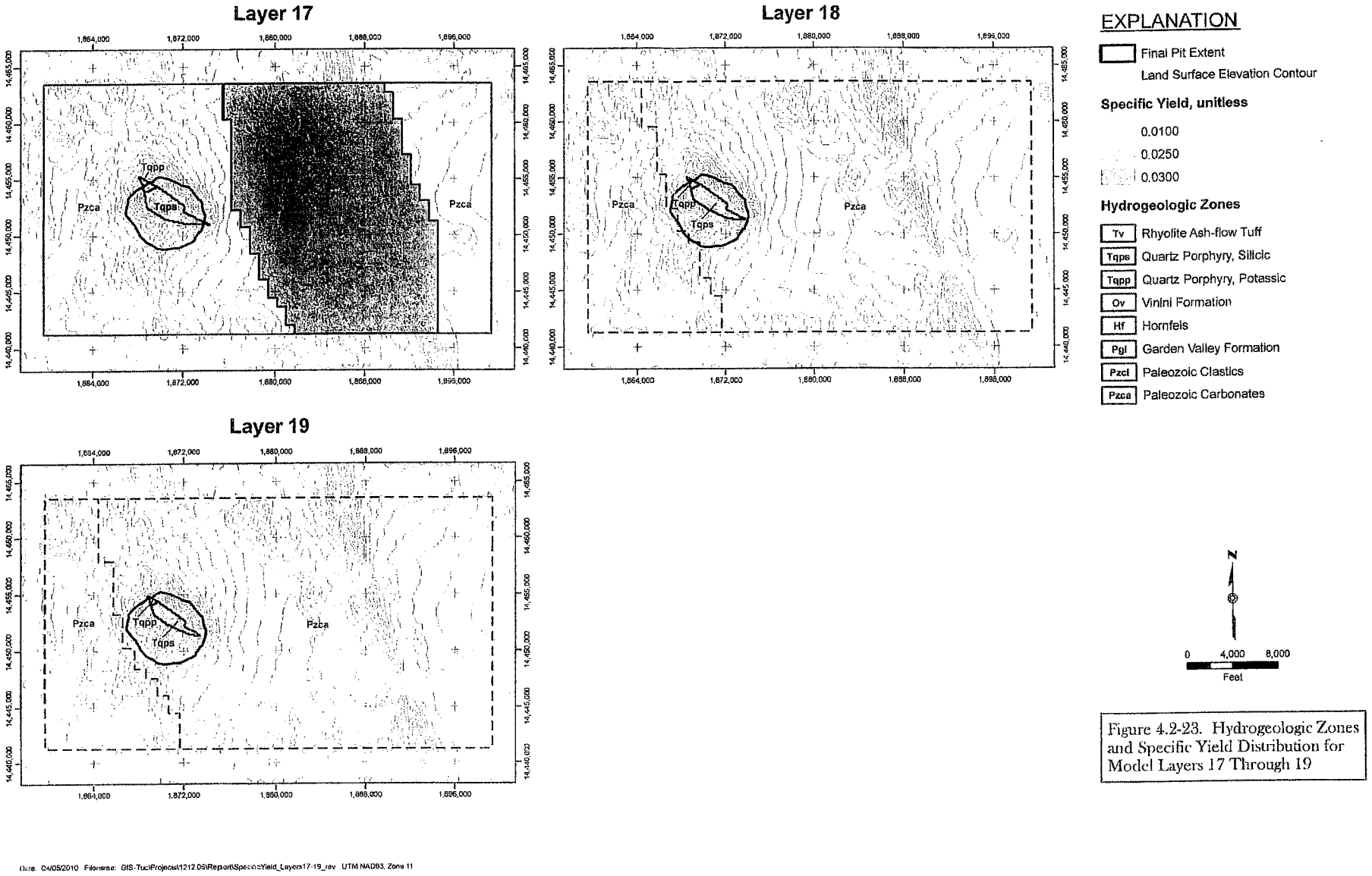


Figure 4.2-22. Hydrogeologic Zones and Specific Yield Distribution for Model Layers 13 Through 16



Date: 04/05/2010 Filename: GIS-Tuc\Projects\1212.06\Report\SpecificYield_Layers17-19_rev UTM NAD83, Zone 11

Figure 4.2-23. Hydrogeologic Zones and Specific Yield Distribution for Model Layers 17 Through 19

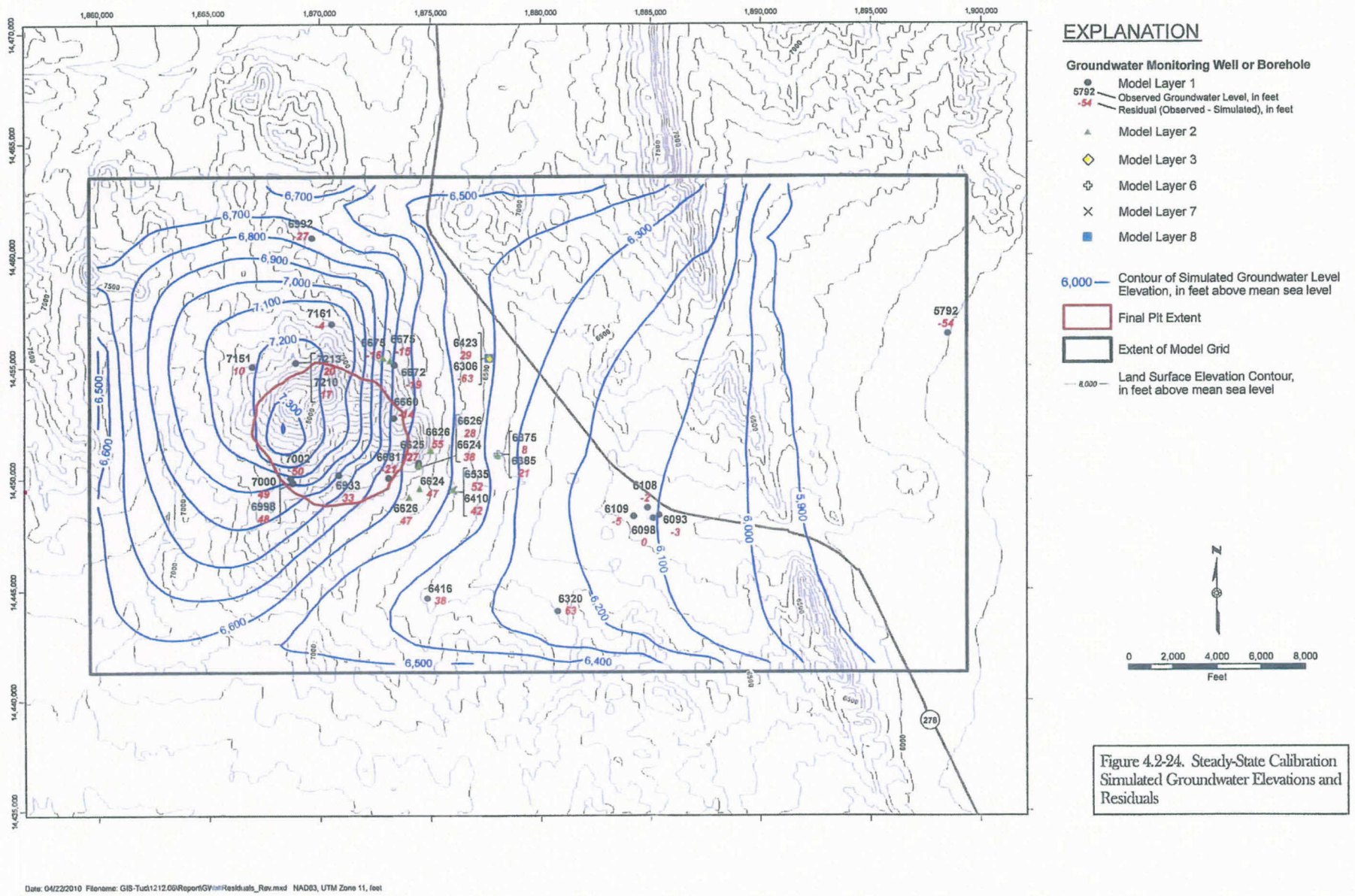


Figure 4.2-24. Steady-State Calibration Simulated Groundwater Elevations and Residuals

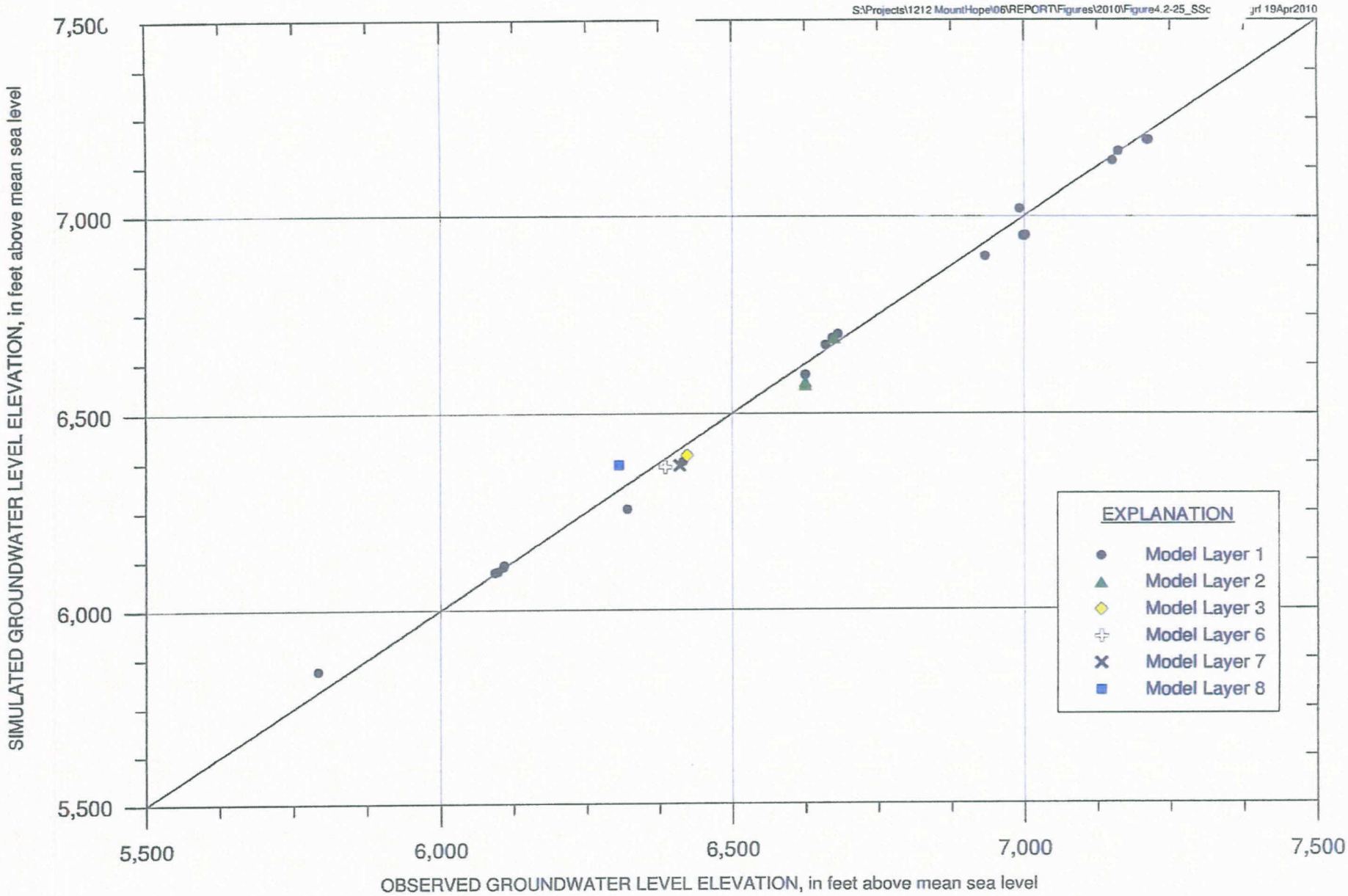


Figure 4.2-25. Graph of Observed and Simulated Groundwater Level Elevations for Local Model Steady-State Calibration

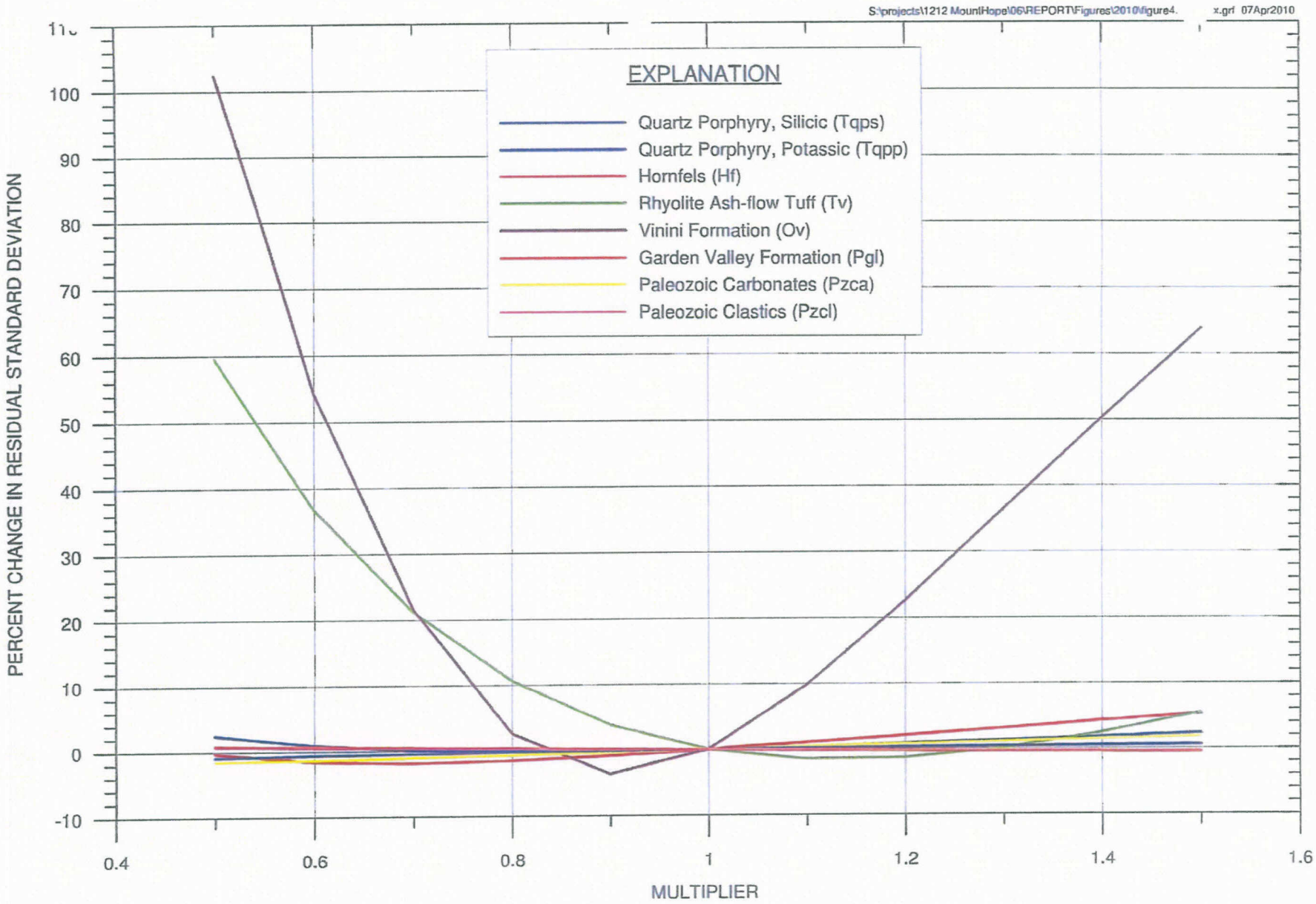


Figure 4.2-26. Sensitivity of Residual Standard Deviation Due to Changes in Horizontal Hydraulic Conductivity

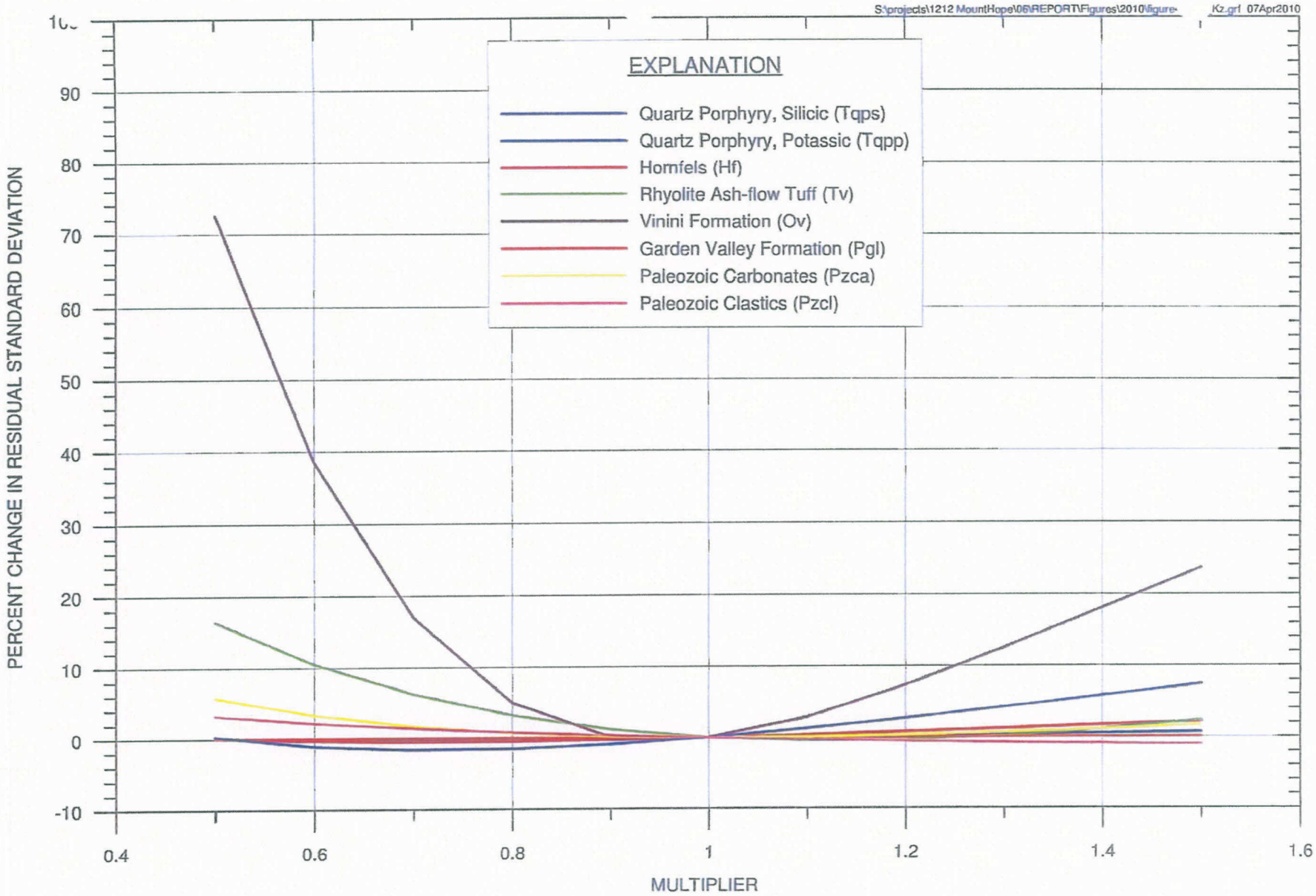


Figure 4.2-27. Sensitivity of Residual Standard Deviation Due to Changes in Vertical Hydraulic Conductivity

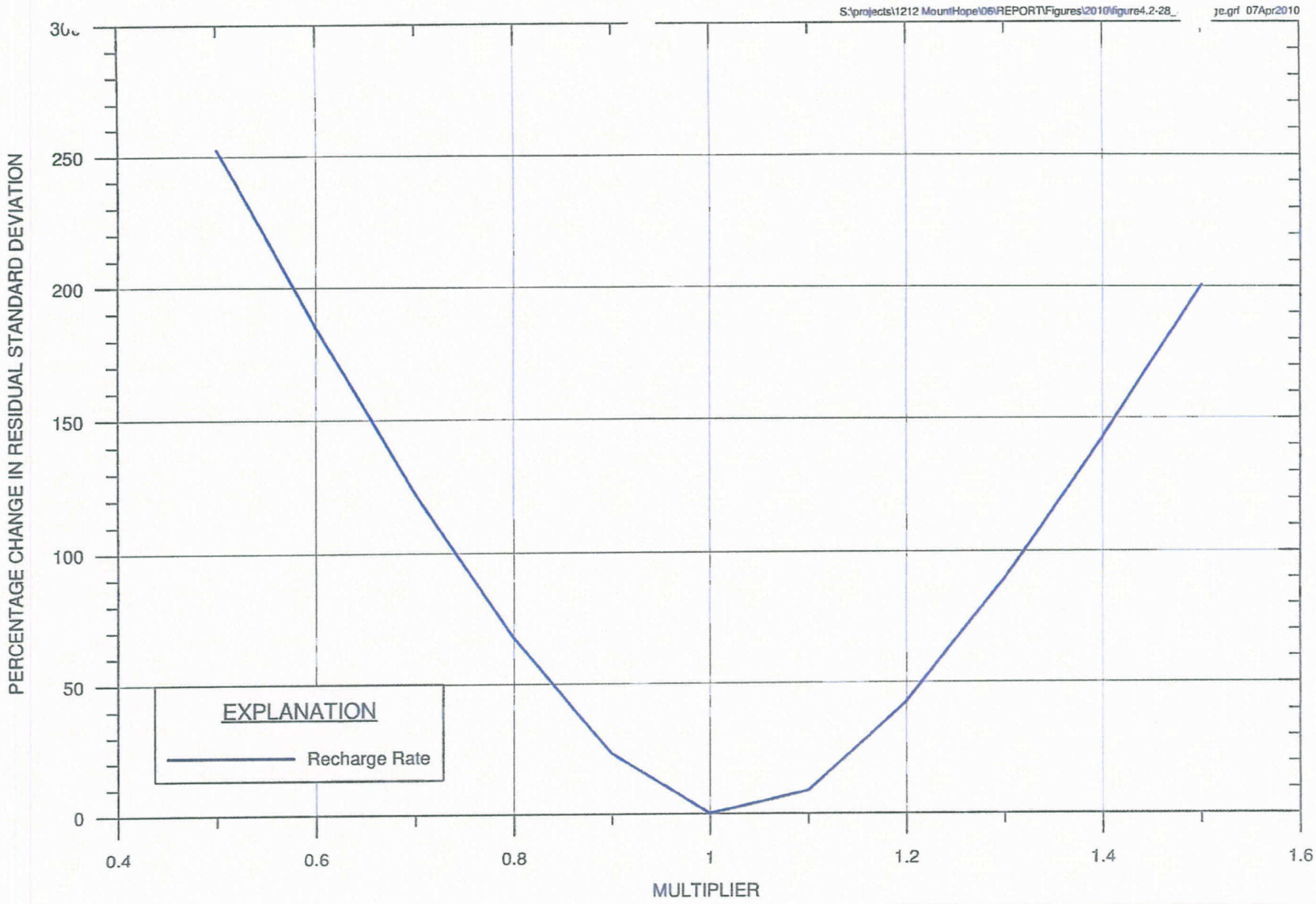


Figure 4.2-28. Sensitivity of Residual Standard Deviation Due to Changes in Recharge

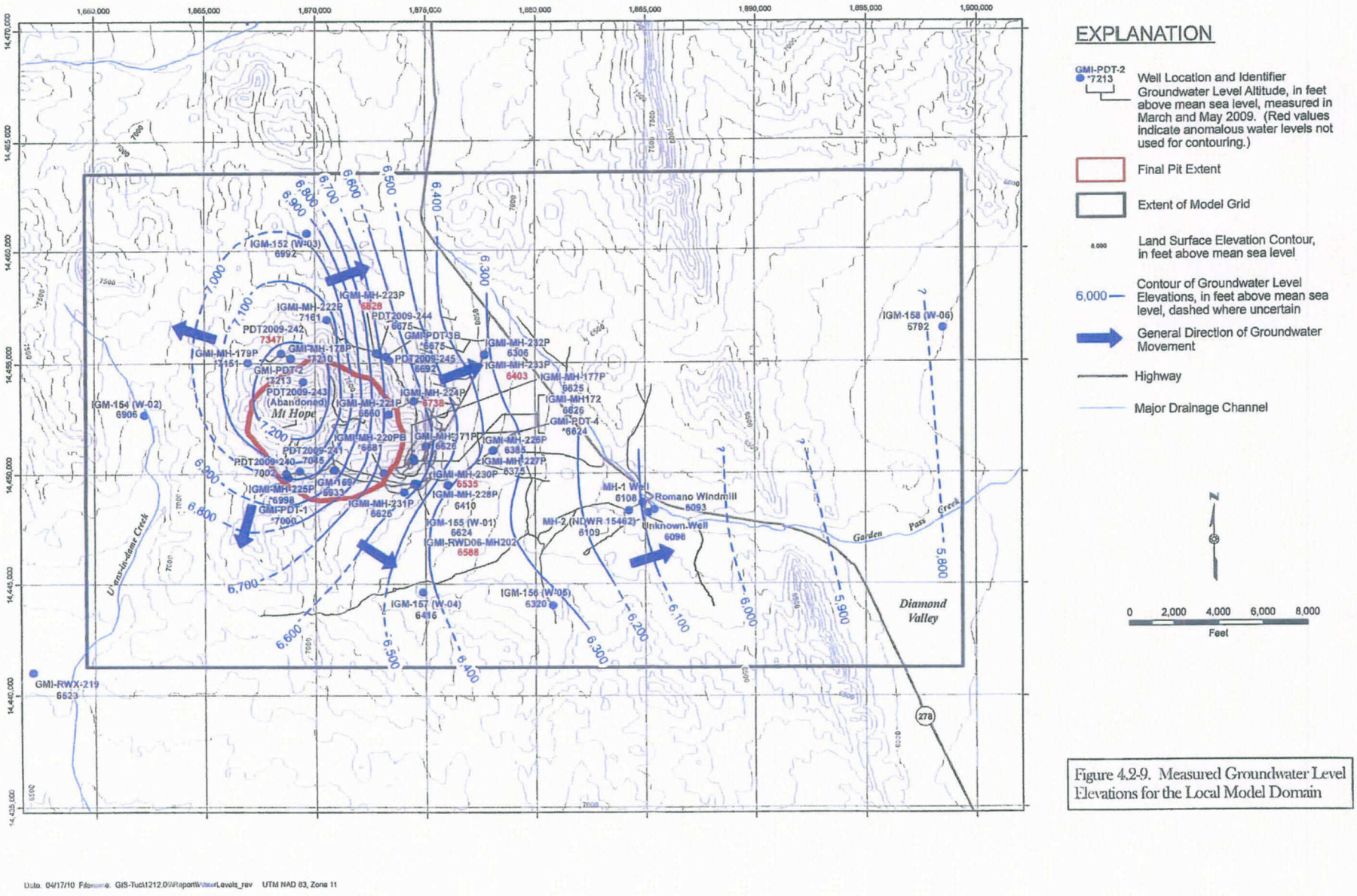
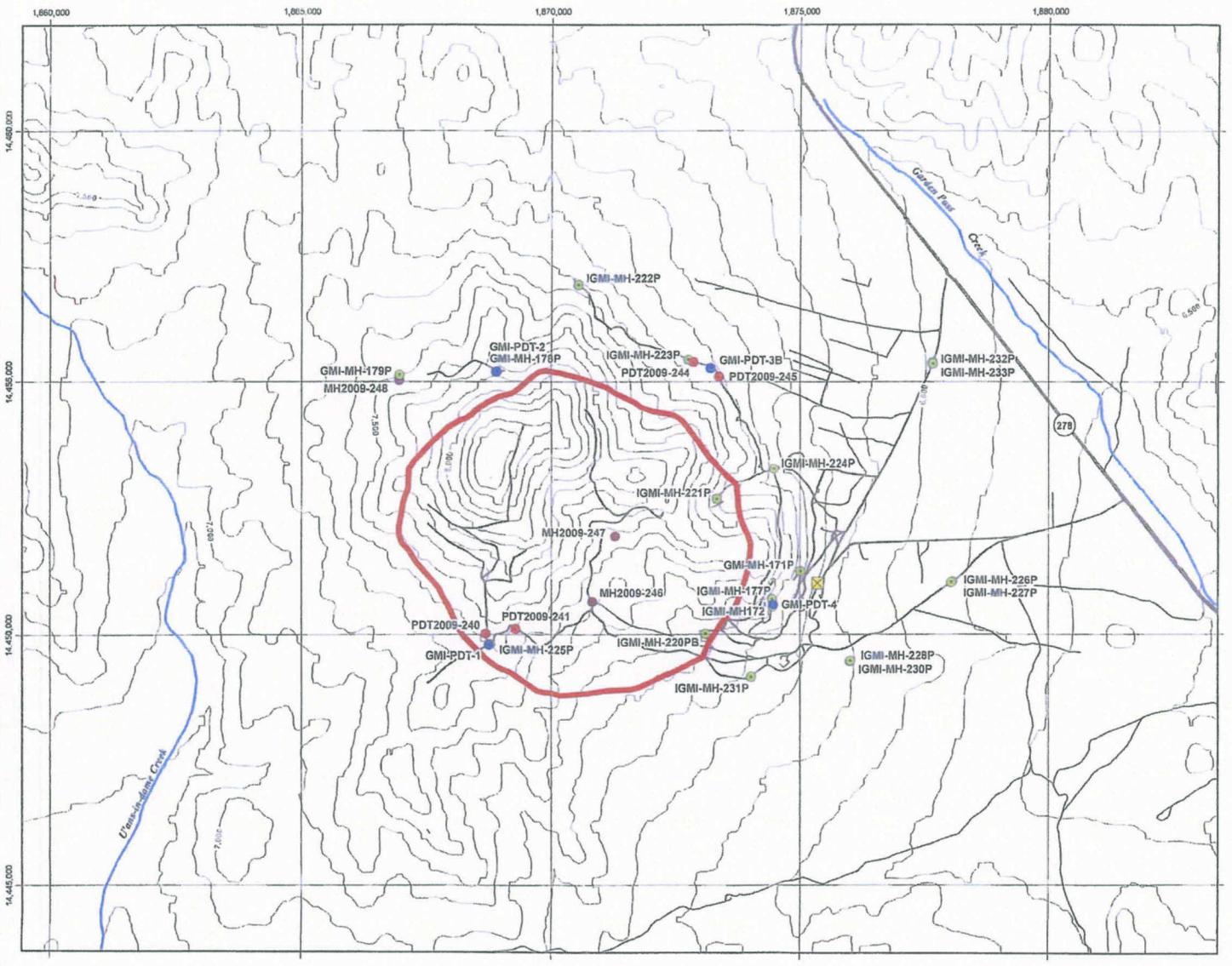


Figure 4.2-9. Measured Groundwater Level Elevations for the Local Model Domain



EXPLANATION

- MH2009-247 — Packer Test Location and Identifier
- IGMI-MH-222P — Slug Test Location and Identifier
- PDT2009-245 — Short-Term Pumping Test Location and Identifier
- GMI-PDT-3B — Long-Term Pumping Test Location and Identifier
- Meteorological Station, elevation 6,630 feet above mean sea level
- Land Surface Elevation Contour In feet above mean sea level
- Final Pit Extent

N

0 1,000 2,000 3,000 4,000
Feet

Figure 4.2-10. Hydraulic Testing Locations

Date: 04/02/10 Filename: GIS-Tuc\1212\08\REPORT\Hydraulic_Testing_locations.mxd UTM NAD83, Zone 11

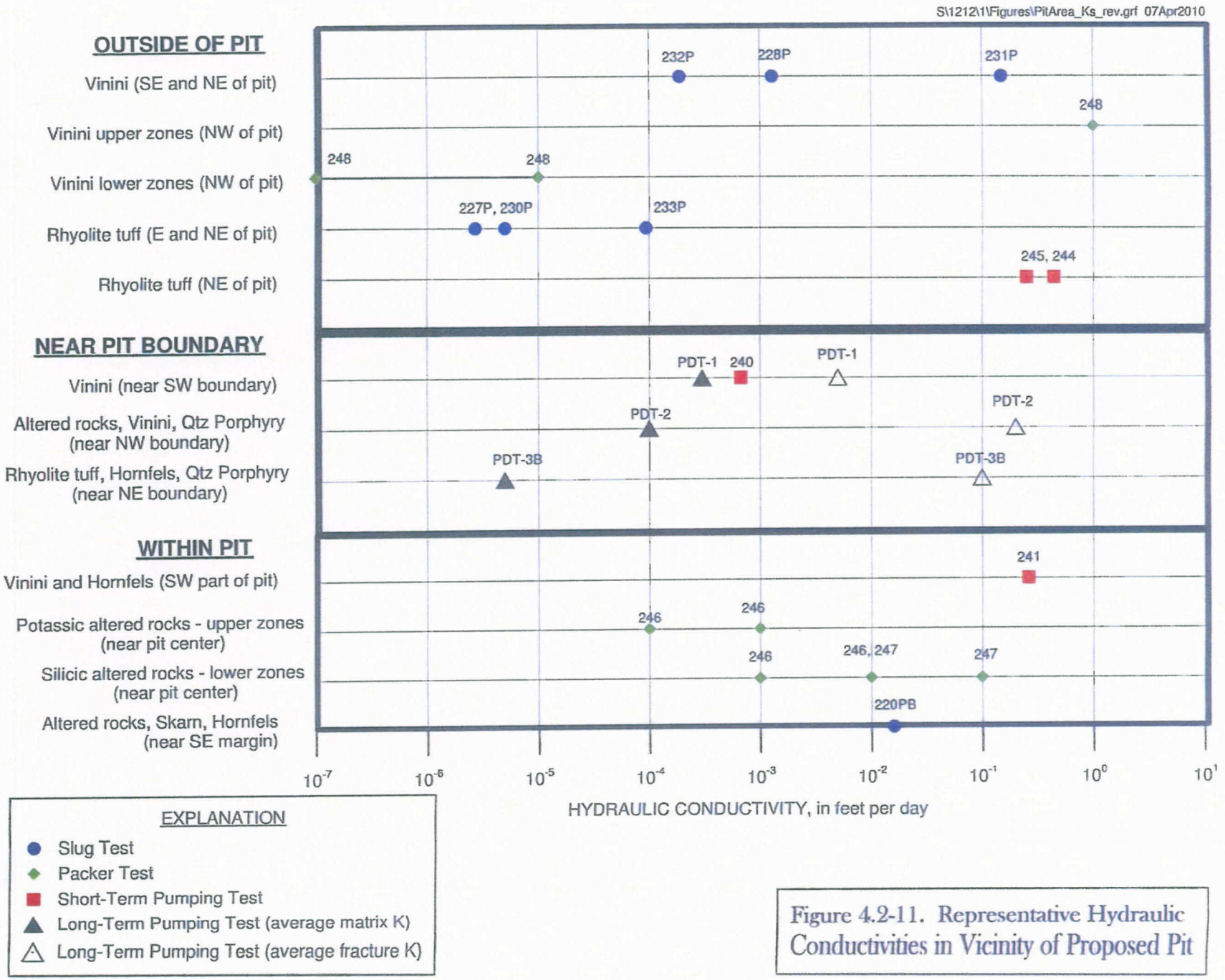
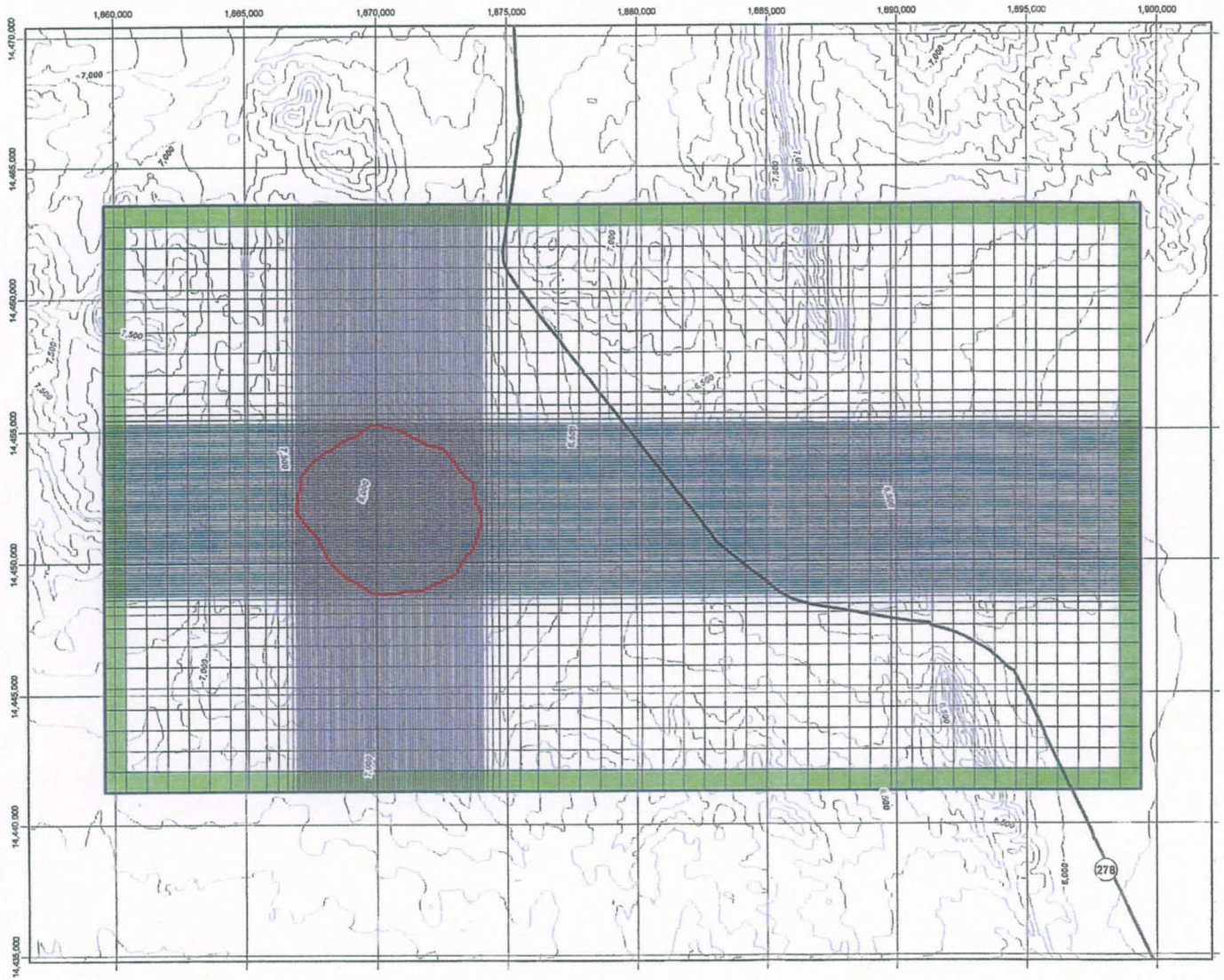


Figure 4.2-11. Representative Hydraulic Conductivities in Vicinity of Proposed Pit



EXPLANATION

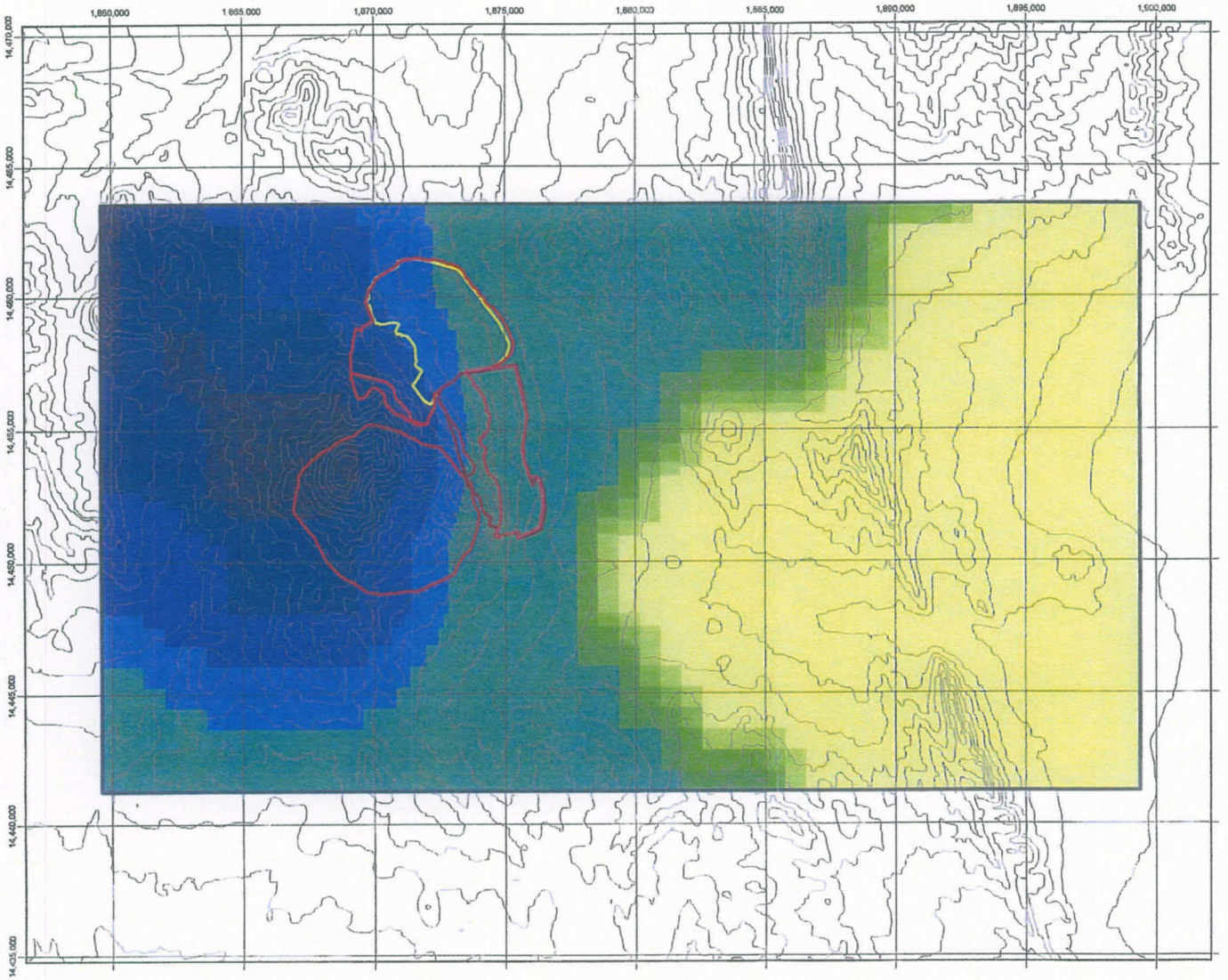
- Specified Head Boundary
- Final Pit Extent
- Extent of Model Grid
- —8,000— Land Surface Elevation Contour, in feet above mean sea level

N

0 2,000 4,000 6,000 8,000
Feet

Date: 04/17/2010 Filename: GIS-Tuc\1212.06\Report\NumericalModel\BndryConditions.mxd UTM NAD83, Zone 11

Figure 4.2-12. Local Model Grid and Boundary Conditions



Date: 04/22/10 Filename: GIS-Tuc\1212.06\Report\Recharge_Rev.mxd UTM NAD83, Zone 11

EXPLANATION

- Final Pit Extent
- Extent of Local Model Grid

Low-Grade Ore Stockpile

- 5 Years After Start of Mining
- 15 Years After Start of Mining
- 25 Years After Start of Mining

Potentially Acid-Generating Stockpile

- 5 Years After Start of Mining
- 15 Years After Start of Mining
- 25 Years After Start of Mining

Simulated Recharge (inches per year)

- 0.08 - 0.19
- 0.19 - 0.44
- 0.44 - 0.77
- 0.77 - 1.13
- 1.13 - 1.50
- 1.50 - 1.74
- 1.74 - 1.88
- 1.88 - 2.00
- 2.00 - 2.17
- 2.17 - 2.34

N

0 2,000 4,000 6,000 8,000
Feet

Figure 4.2-13. Simulated Recharge Distribution

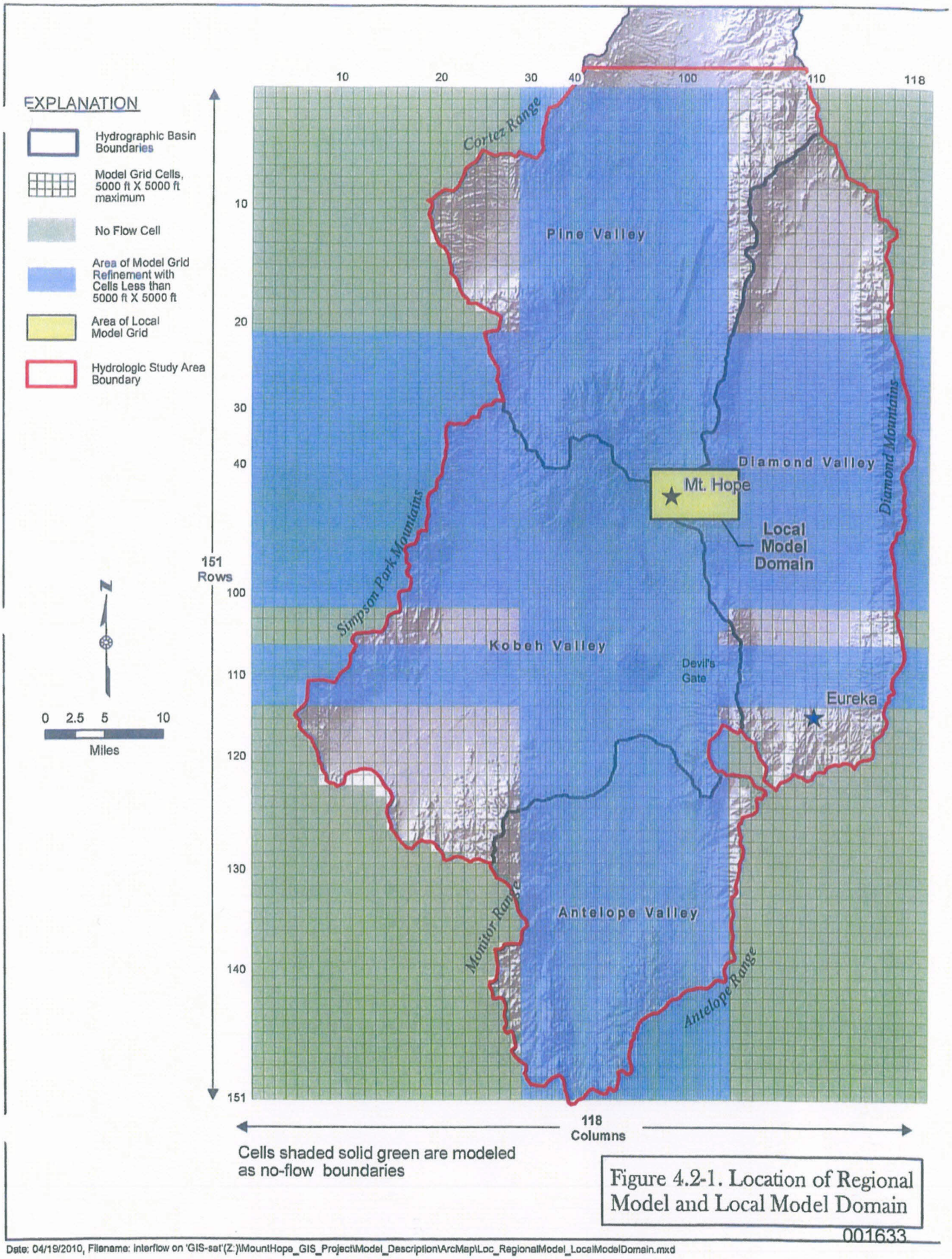
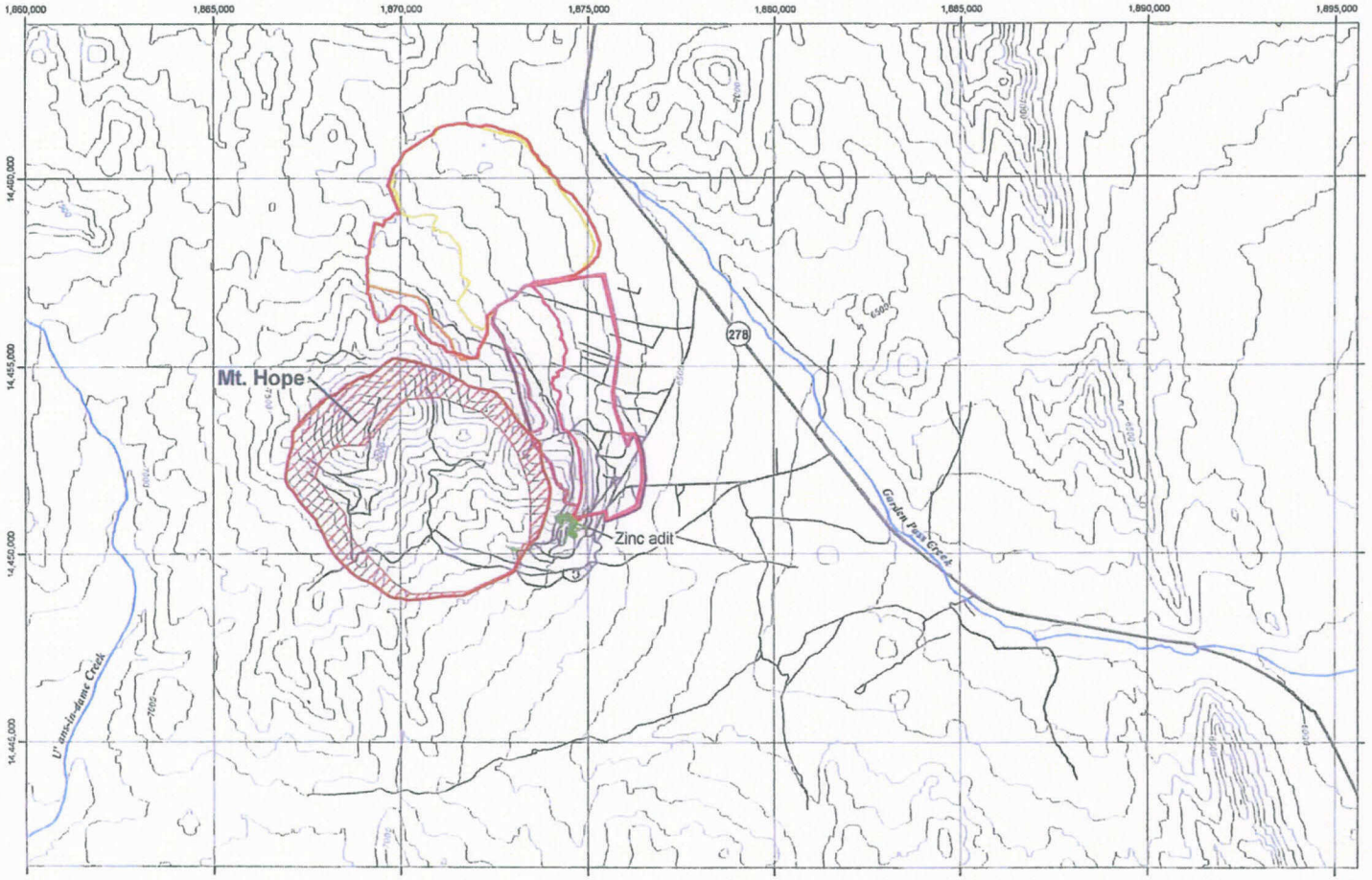


Figure 4.2-1. Location of Regional Model and Local Model Domain

001633

Date: 04/19/2010, Filename: interflow on 'GIS-sat'(Z:)\MountHope_GIS_Project\Model_Description\ArcMap\Loc_RegionalModel_LocalModelDomain.mxd



EXPLANATION

- Final Pit Extent
- Area of Pit Above Spill Elevation
- Extent of Model Grid
- Mine Access Road
- Historical Mine Workings

Low-Grade Ore (LGO) Stockpile

- 5 Years After Start of Mining
- 15 Years After Start of Mining
- 25 Years After Start of Mining

Potentially Acid-Generating (PAG) Stockpile

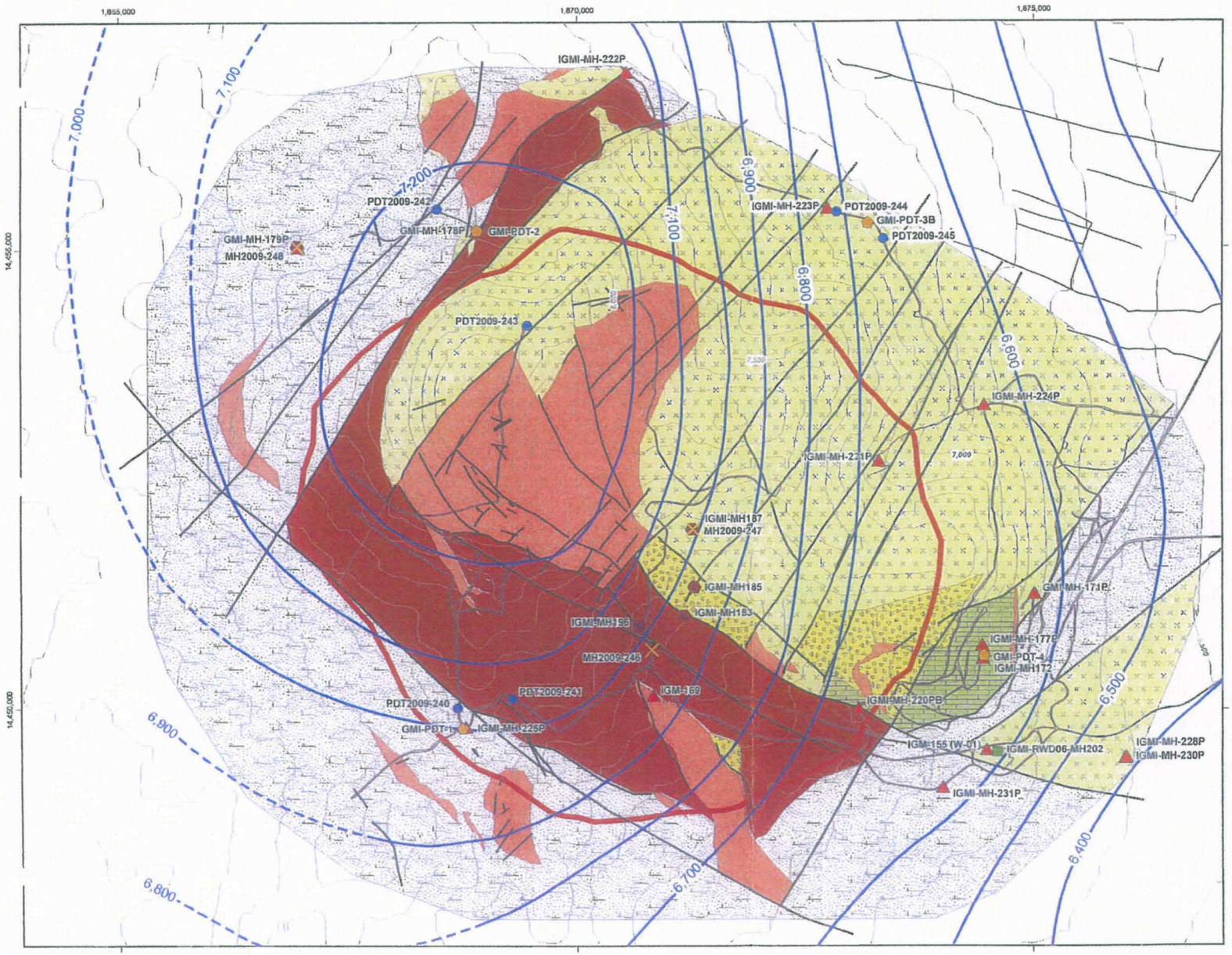
- 5 Years After Start of Mining
- 15 Years After Start of Mining
- 25 Years After Start of Mining

N

0 1,500 3,000 6,000
Feet

Figure 4.2-2. Local Model Domain

Date: 04/07/10 Filename: GIS-Tuc\1212.05\Report\LocalModelDomain_Enlarged UTM NAD83, Zone 11



EXPLANATION

- Packer Tested Coreholes
- Grouted Piezometer
- 2-inch Piezometer
- 4-inch Monitor Well
- 8-inch Pilot Dewatering Test Well
- Water Supply Well
- Land Surface Elevation Contour
- Final Pit Extent
- Faults
- Mine Access Road
- Contour of Groundwater Level Elevations, in feet above mean sea level, dashed where uncertain

Geologic Units

- Outcrop, Hornfels
- Outcrop, Limestone-Clastic Sedimentary Rocks (Includes Vinini Formation)
- Outcrop, Quartz Porphyry
- Outcrop, Rhyolite Tuff
- Outcrop, Rhyolite Breccia
- Outcrop, Skarn

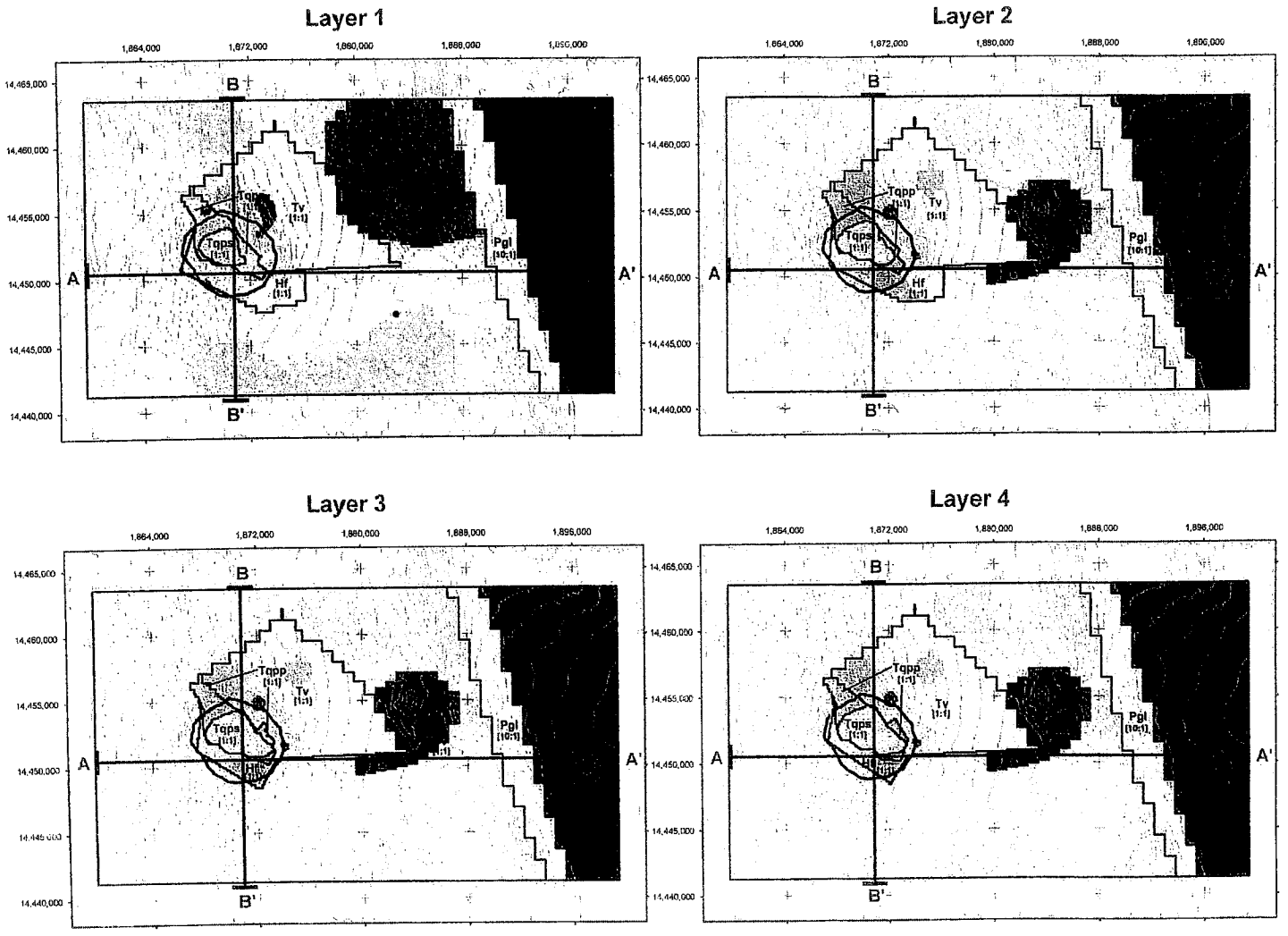
N

0 495 990 1,980

Feet

Date: 04/22/2010 Filename: GIS-Tuc\1212.08\Report\Geology_WaterLevels.mxd UTM NAD83, Zone 11

Figure 4.2-3. Pit-Area Geology and Water Levels



EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Horizontal Hydraulic Conductivity, in feet per day

- 0.000010 - 0.000100
- 0.000100 - 0.001000
- 0.001001 - 0.010000
- 0.010001 - 0.100000
- 0.100001 - 1.000000
- 1.000001 - 10.000000

[10:1] Ratio of Horizontal to Vertical Hydraulic Conductivity

Hydrogeologic Zones

- Tv — Rhyolite Ash-flow Tuff
- Tqps — Quartz Porphyry, Silicic
- Tqpp — Quartz Porphyry, Potassic
- Ov — Vinini Formation
- Hf — Hornfels
- Pgl — Garden Valley Formation
- Pzcl — Paleozoic Clastics
- Pzca — Paleozoic Carbonates

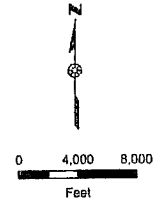
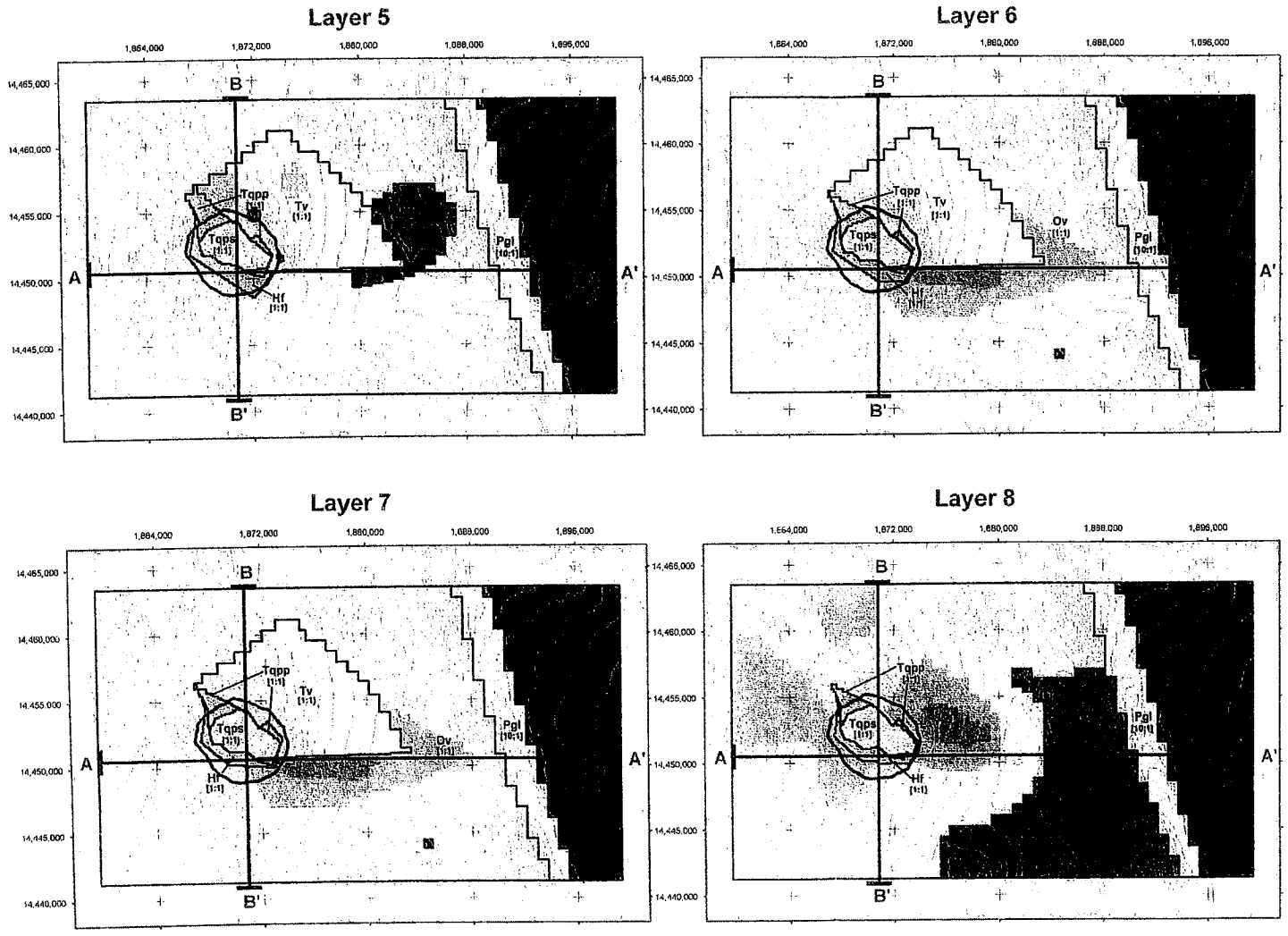


Figure 4.2-4. Hydrogeologic Zones and Simulated Hydraulic Conductivity Distribution for Local Model Layers 1 through 4

Date: 01Apr2010 G:\GIS-Tuc\Projects\1212.06\Report\K_Layers1-4 UTM NAD 83, Zone 11



EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Horizontal Hydraulic Conductivity, in feet per day

- 0.000010 - 0.000100
- 0.000100 - 0.001000
- 0.001001 - 0.010000
- 0.010001 - 0.100000
- 0.100001 - 1.000000
- 1.000001 - 10.000000

[10:1] Ratio of Horizontal to Vertical Hydraulic Conductivity

Hydrogeologic Zones

- Tv Rhyolite Ash-flow Tuff
- Tqps Quartz Porphyry, Silicic
- Tqpp Quartz Porphyry, Potassic
- Ov Vinini Formation
- Hf Hornfels
- Pgl Garden Valley Formation
- Pzcl Paleozoic Clastics
- Pzca Paleozoic Carbonates

N

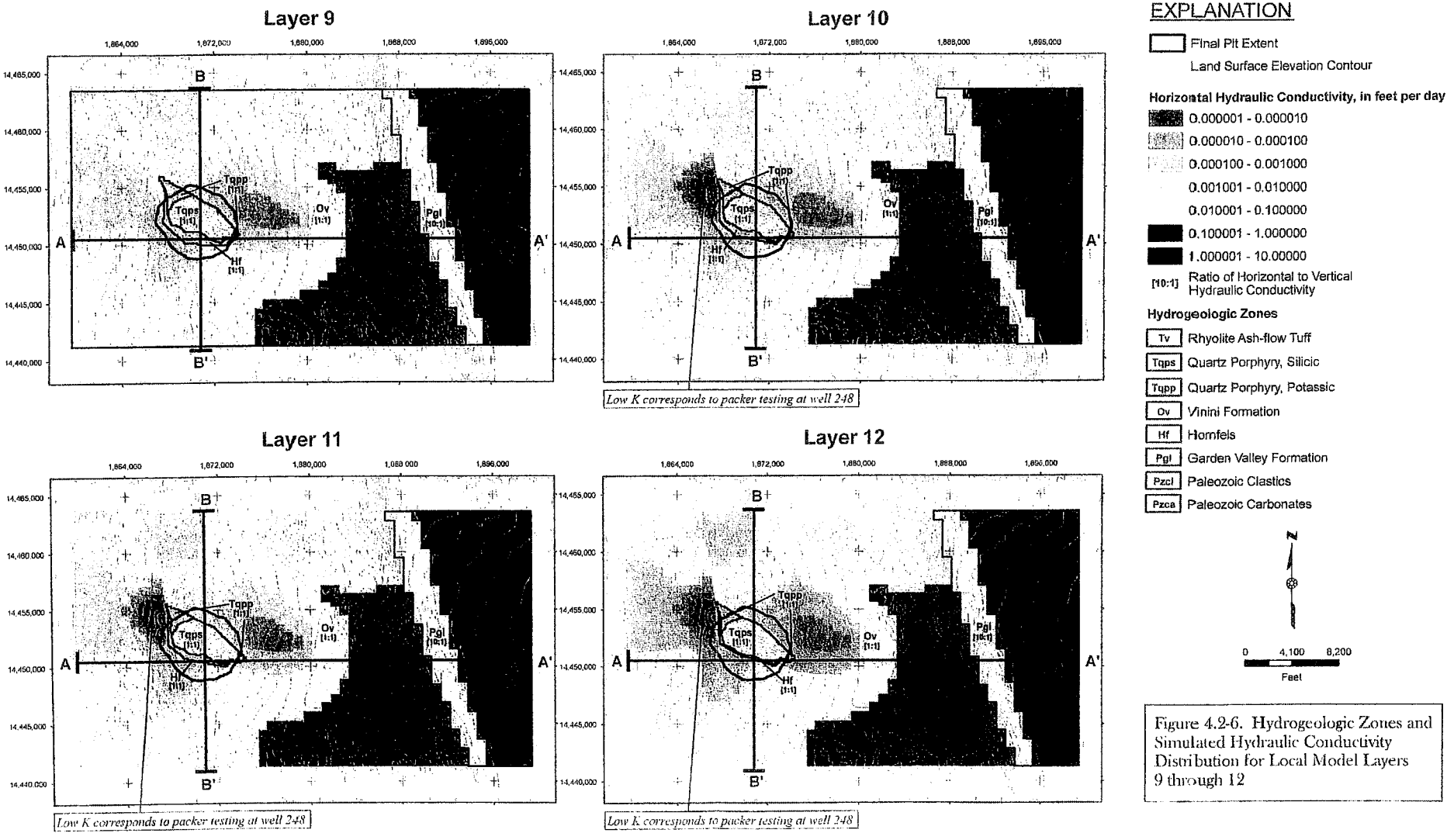
0 4,000 8,000
Feet

Figure 4.2-5. Hydrogeologic Zones and Simulated Hydraulic Conductivity Distribution for Local Model Layers 5 through 8

Date: 22Apr2010 Filepath: G:\GIS-Tuc\Projects\121206\Report\K_Layers5-8 UTM NAD 83, Zone 11

001637

JA1804



Date: 02/Apr/2010 Filename: G:\GIS-Tuc\Projects\1212.06\Report\K_Layers9-12 UTM NAD 83, Zone 11

EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Horizontal Hydraulic Conductivity, in feet per day

- 0.000001 - 0.000010
- 0.000010 - 0.000100
- 0.000100 - 0.001000
- 0.001001 - 0.010000
- 0.010001 - 0.100000
- 0.100001 - 1.000000
- 1.000001 - 10.00000

[10:1] Ratio of Horizontal to Vertical Hydraulic Conductivity

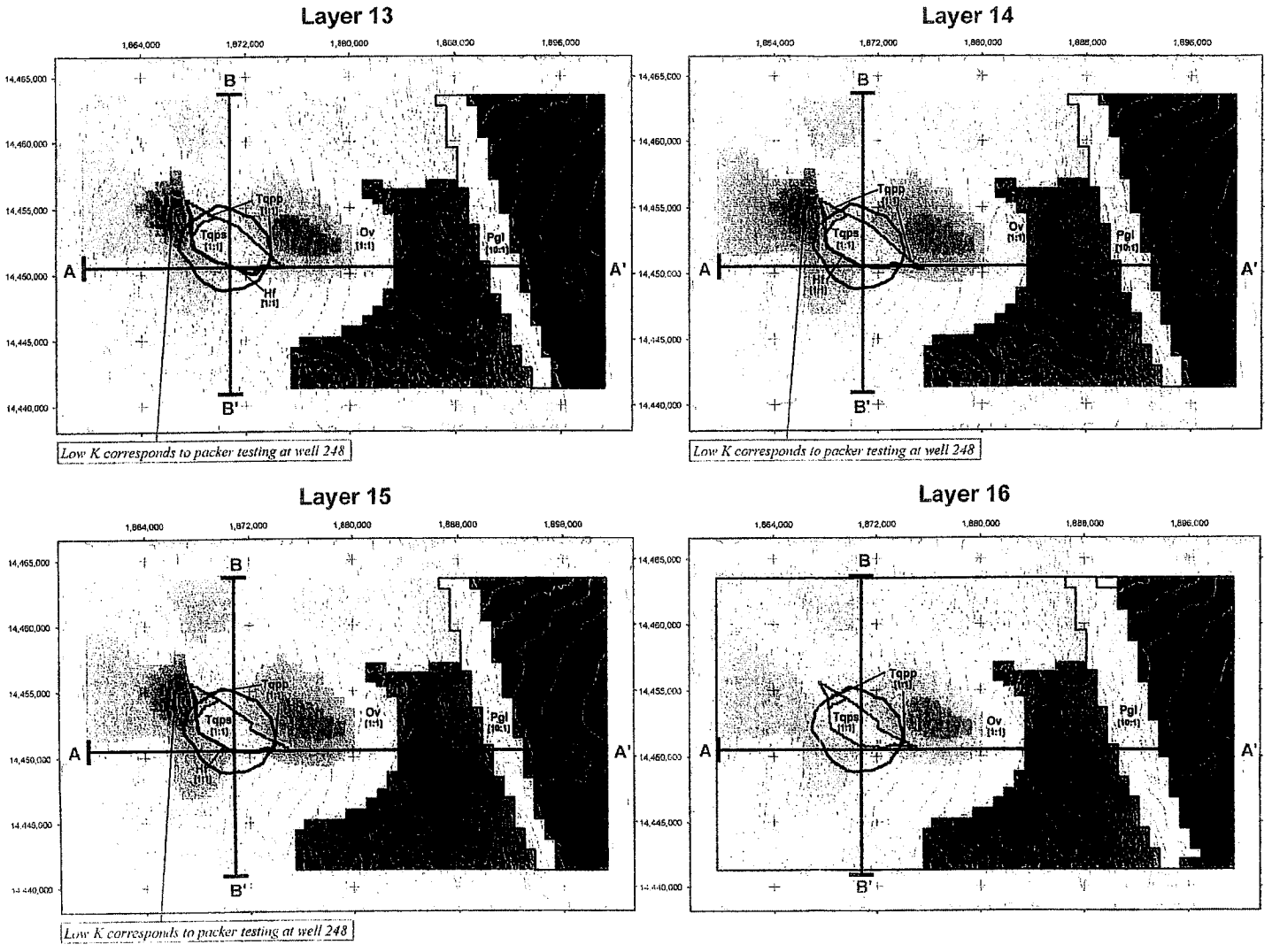
Hydrogeologic Zones

- Tv Rhyolite Ash-flow Tuff
- Tqps Quartz Porphyry, Silicic
- Tqpp Quartz Porphyry, Potassic
- Ov Vinini Formation
- Hf Hornfels
- Pgl Garden Valley Formation
- Pzcl Paleozoic Clastics
- Pzca Paleozoic Carbonates

N

0 4,100 8,200
Feet

Figure 4.2-6. Hydrogeologic Zones and Simulated Hydraulic Conductivity Distribution for Local Model Layers 9 through 12



EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Horizontal Hydraulic Conductivity, in feet per day

- 0.000001 - 0.000010
- 0.000010 - 0.000100
- 0.000100 - 0.001000
- 0.001001 - 0.010000
- 0.010001 - 0.100000
- 0.100001 - 1.000000
- 1.000001 - 10.00000
- [10:1] Ratio of Horizontal to Vertical Hydraulic Conductivity

Hydrogeologic Zones

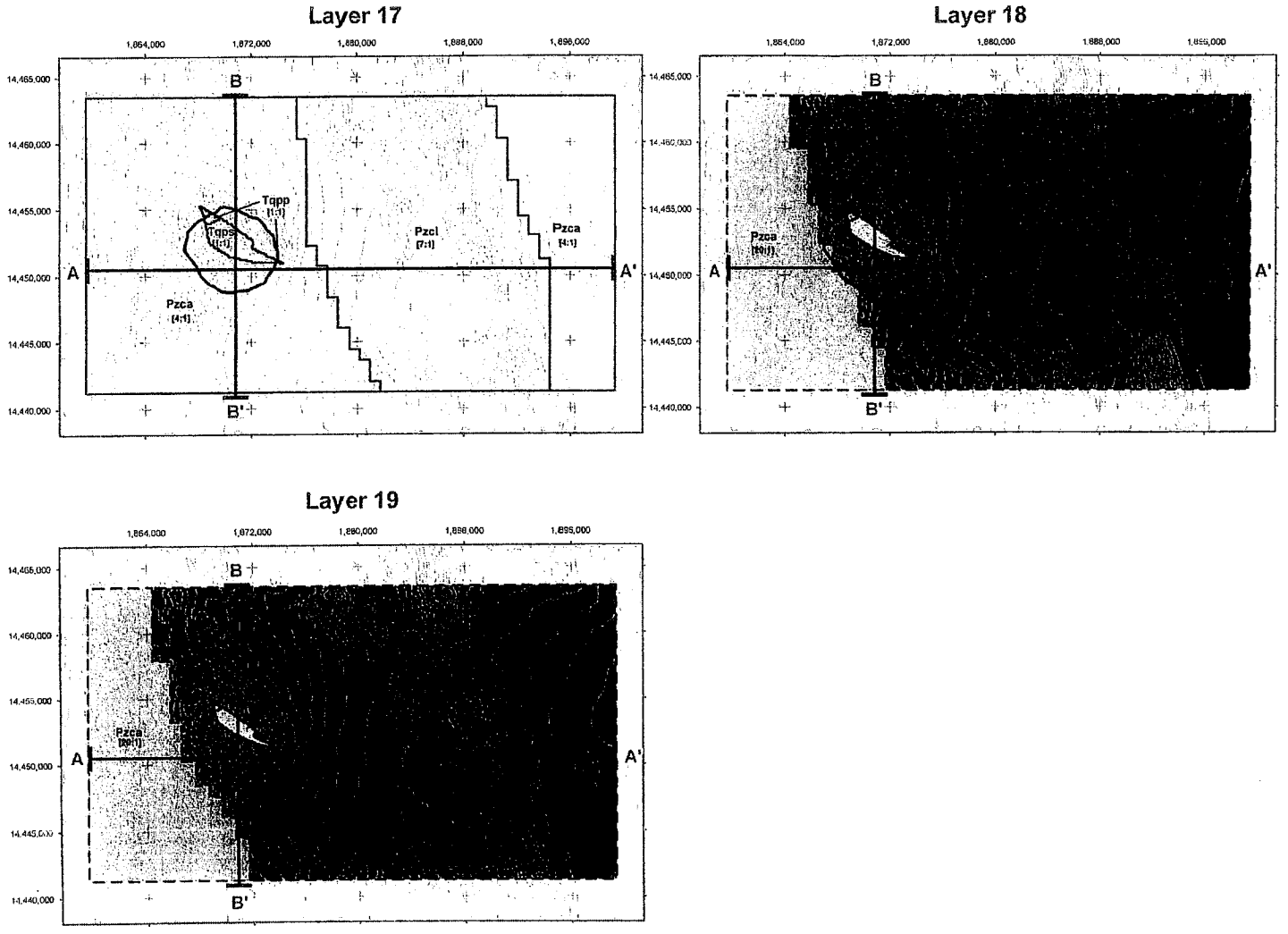
- Tv Rhyolite Ash-flow Tuff
- Tqps Quartz Porphyry, Silicic
- Tqpp Quartz Porphyry, Potassic
- Ov Vinini Formation
- Hf Hornfels
- Pgl Garden Valley Formation
- Pzcl Paleozoic Clastics
- Pzca Paleozoic Carbonates

N

0 4,100 8,200
Feet

Figure 4.2-7. Hydrogeologic Zones and Simulated Hydraulic Conductivity Distribution for Local Model Layers 13 through 16

Date: 22Apr2010 Filepath: G:\GIS-Tuc\Projects\1212.05\Report\K_Layers13-16 UTM NAD 83, Zone 11



Date: 05Apr2010 Filepath: G:\GIS-Tuc\Projects\1212 06\Report\K_Layers17-19 UTM NAD 83, Zone 11

EXPLANATION

- Final Pit Extent
- Land Surface Elevation Contour

Horizontal Hydraulic Conductivity, in feet per day

- 0.000010 - 0.000100
- 0.000100 - 0.001000
- 0.001001 - 0.010000
- 0.010001 - 0.100000
- 0.100001 - 1.000000
- 1.000001 - 10.00000

[10:1] Ratio of Horizontal to Vertical Hydraulic Conductivity

Hydrogeologic Zones

- Tv Rhyolite Ash-flow Tuff
- Tqps Quartz Porphyry, Silicic
- Tqpp Quartz Porphyry, Potassic
- Ov Vinini Formation
- Hf Hornfels
- Pgl Garden Valley Formation
- Pzcl Paleozoic Clastics
- Pzca Paleozoic Carbonates

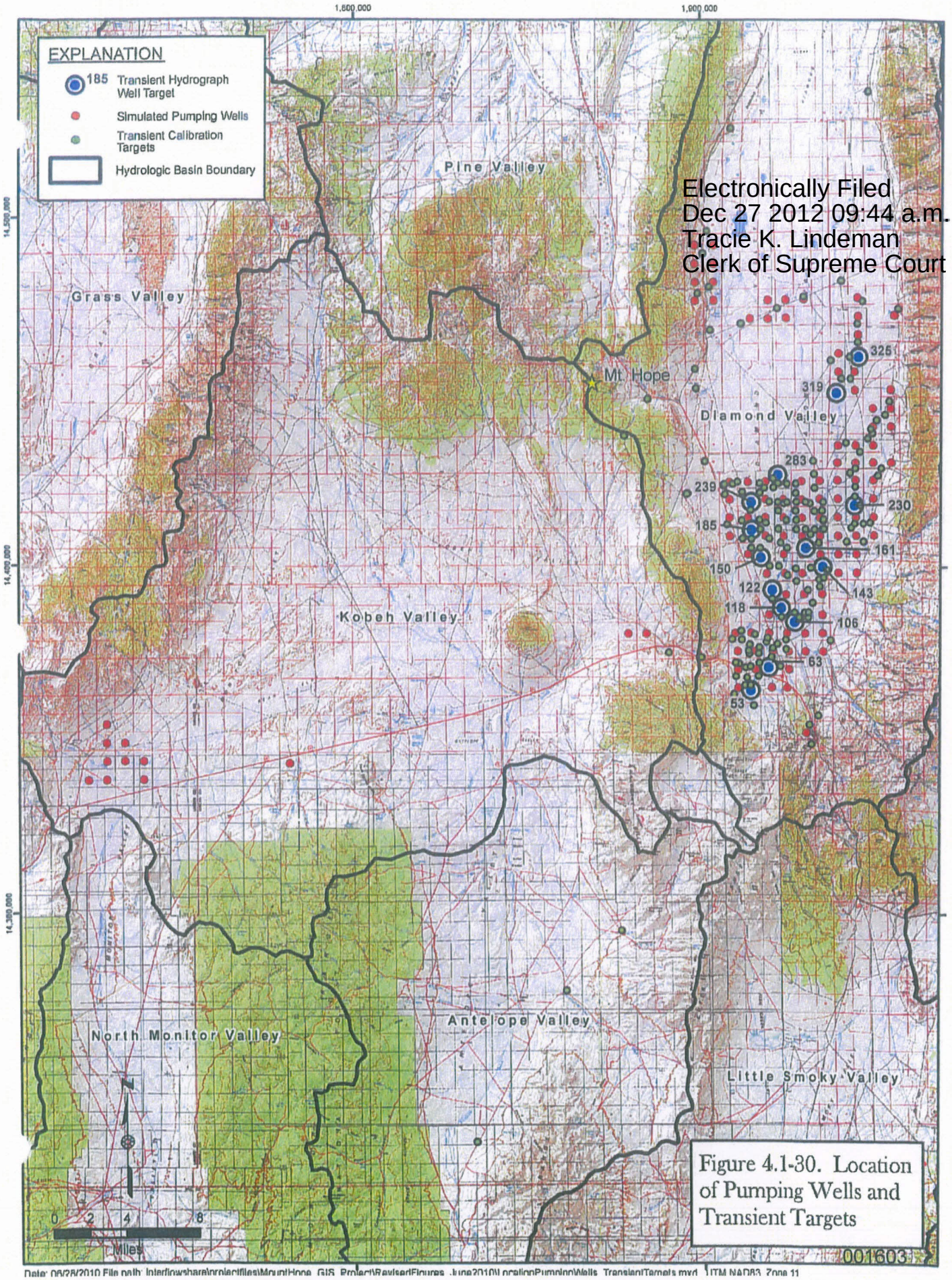
N

0 4,000 8,000
Feet

Figure 4.2-8. Hydrogeologic Zones and Simulated Hydraulic Conductivity Distribution for Local Model Layers 17 through 19

001640

JA1807



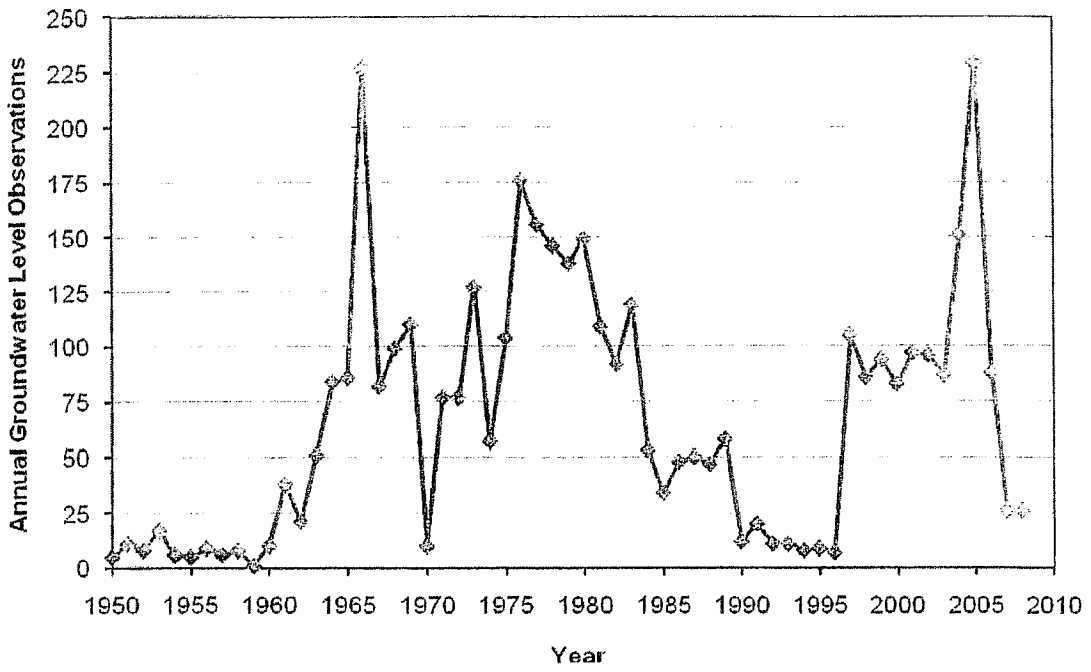


Figure 4.1-31. Annual Frequency of Groundwater Level Measurements Obtained by USGS and NDWR within the Study Area, 1950-2008

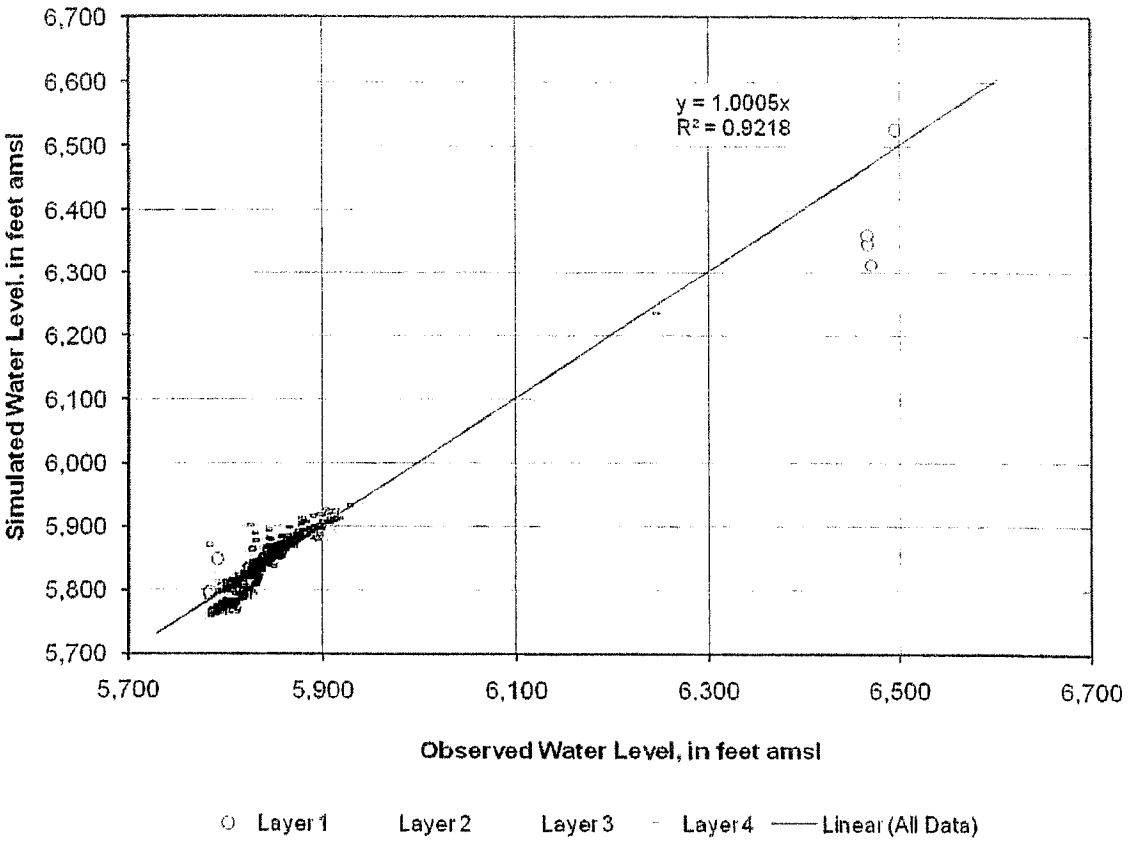


Figure 4.1-32. Simulated vs. Observed Water Levels for Steady-State and Transient Calibration Targets

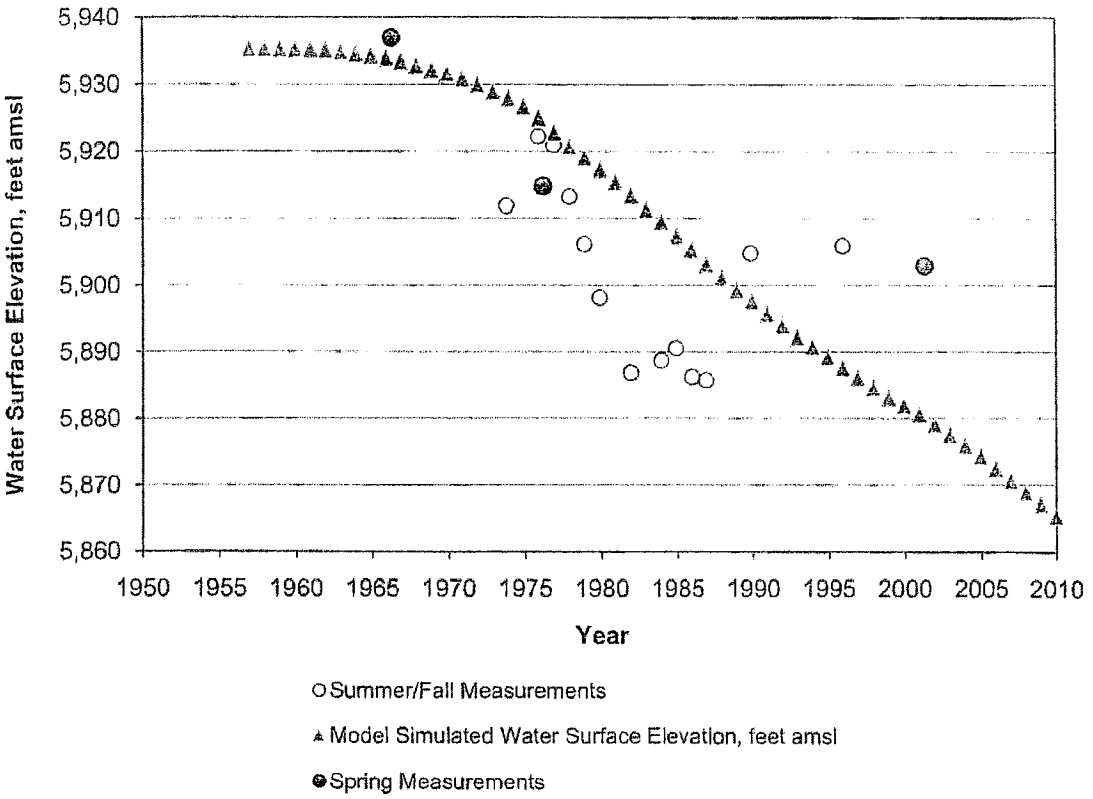


Figure 4.1-33. Transient Calibration Hydrograph for Well 53

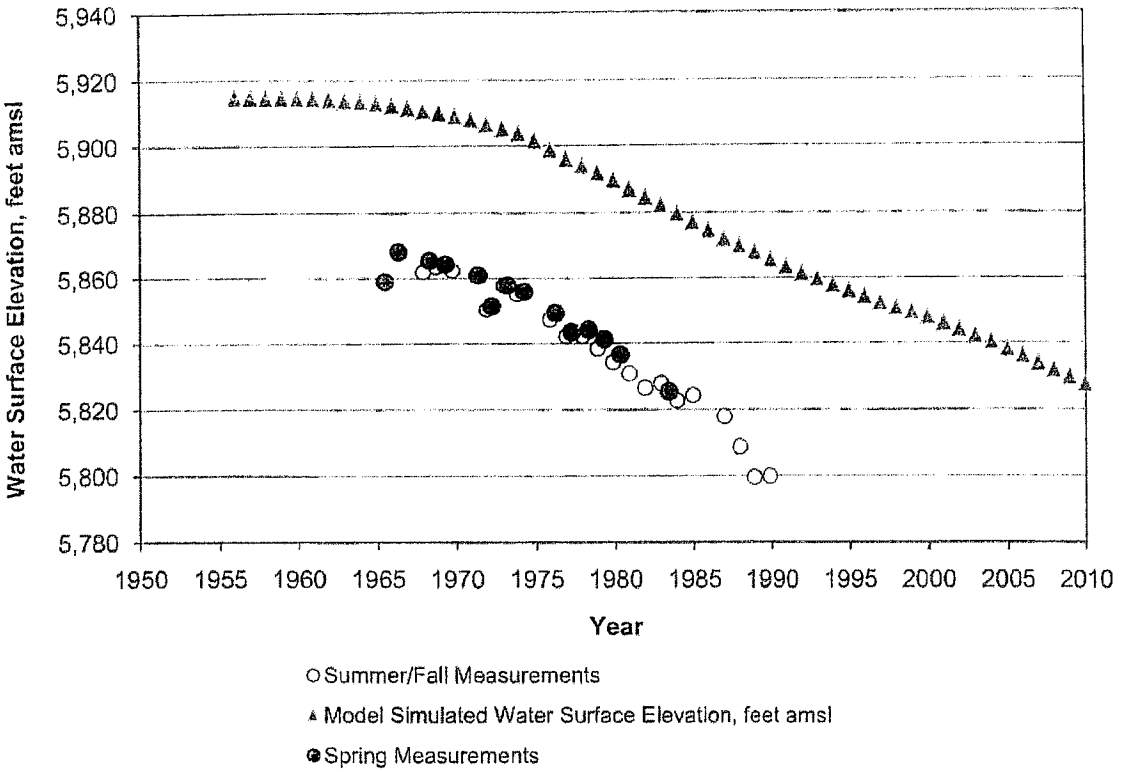


Figure 4.1-34. Transient Calibration Hydrograph for Well 63

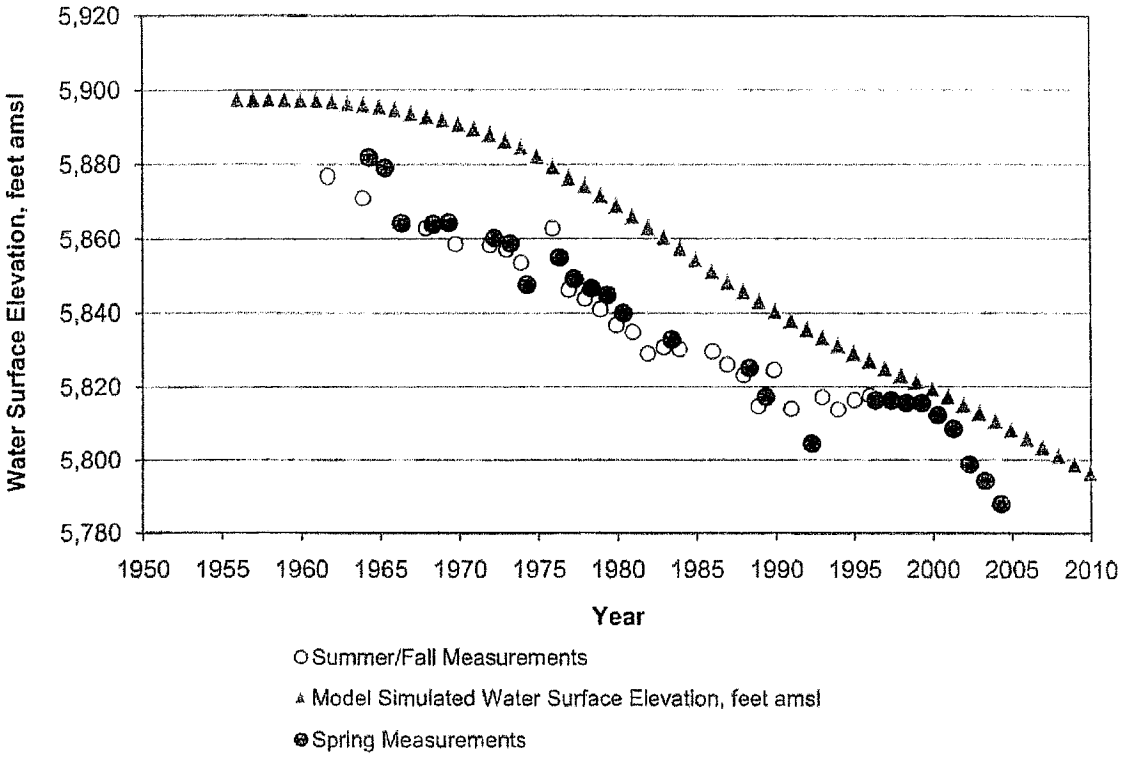


Figure 4.1-35. Transient Calibration Hydrograph for Well 106

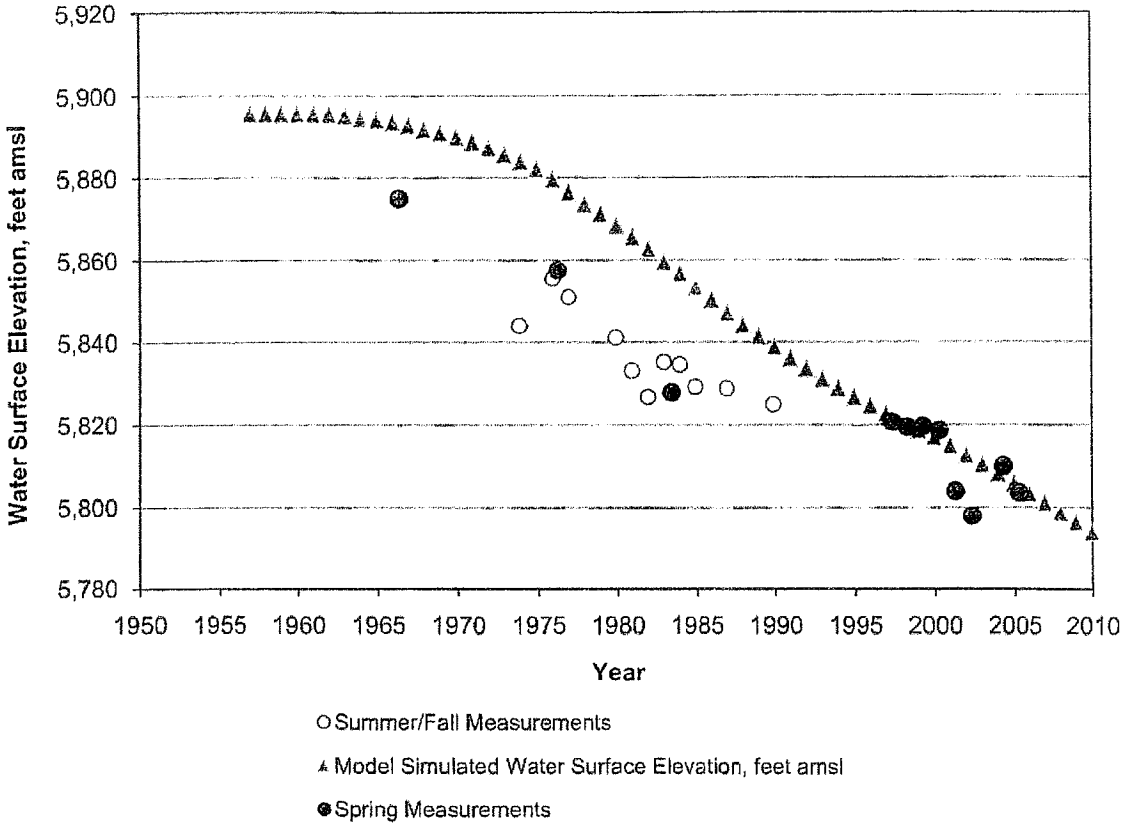


Figure 4.1-36. Transient Calibration Hydrograph for Well 118

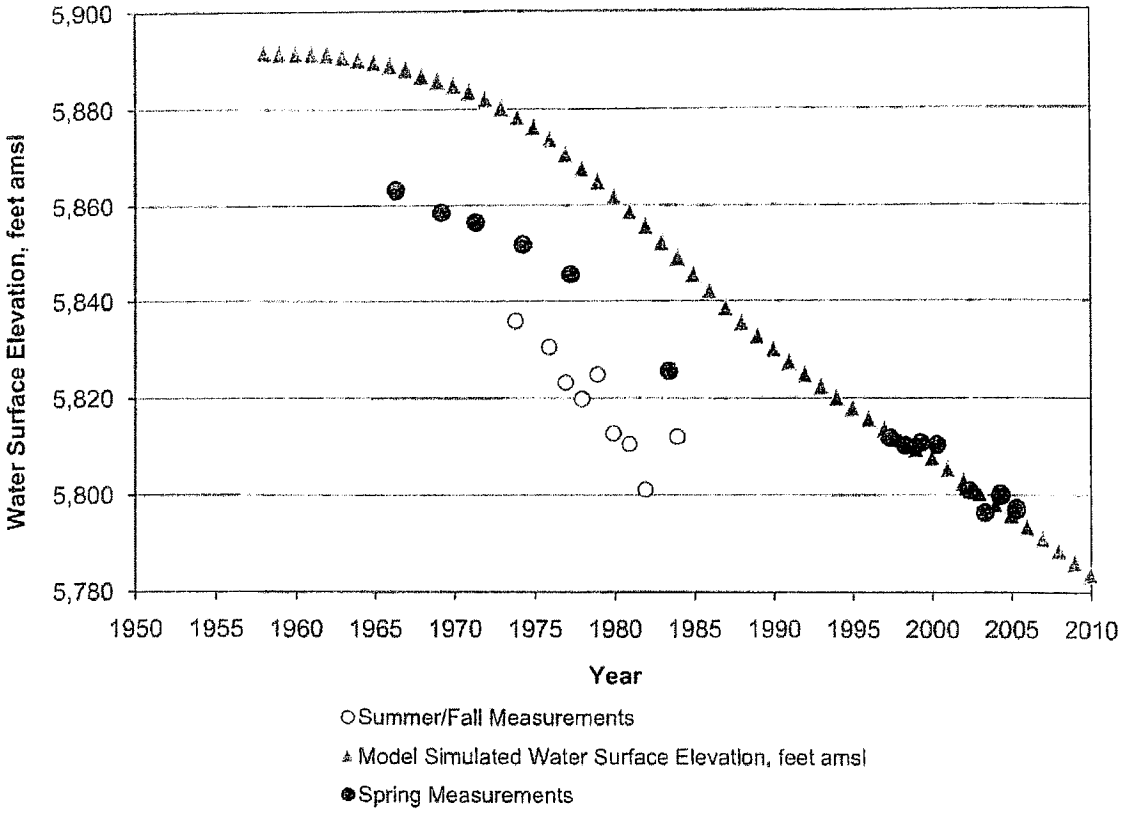


Figure 4.1-37. Transient Calibration Hydrograph for Well 122

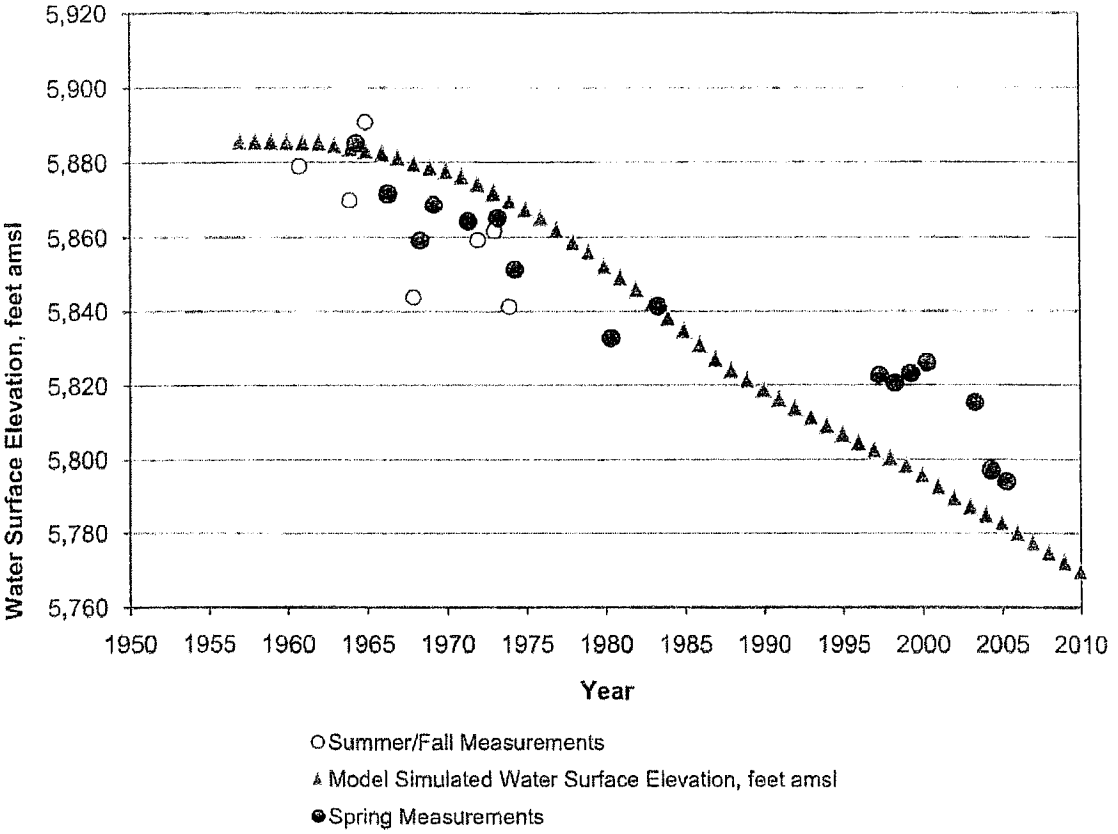


Figure 4.1-38. Transient Calibration Hydrograph for Well 143

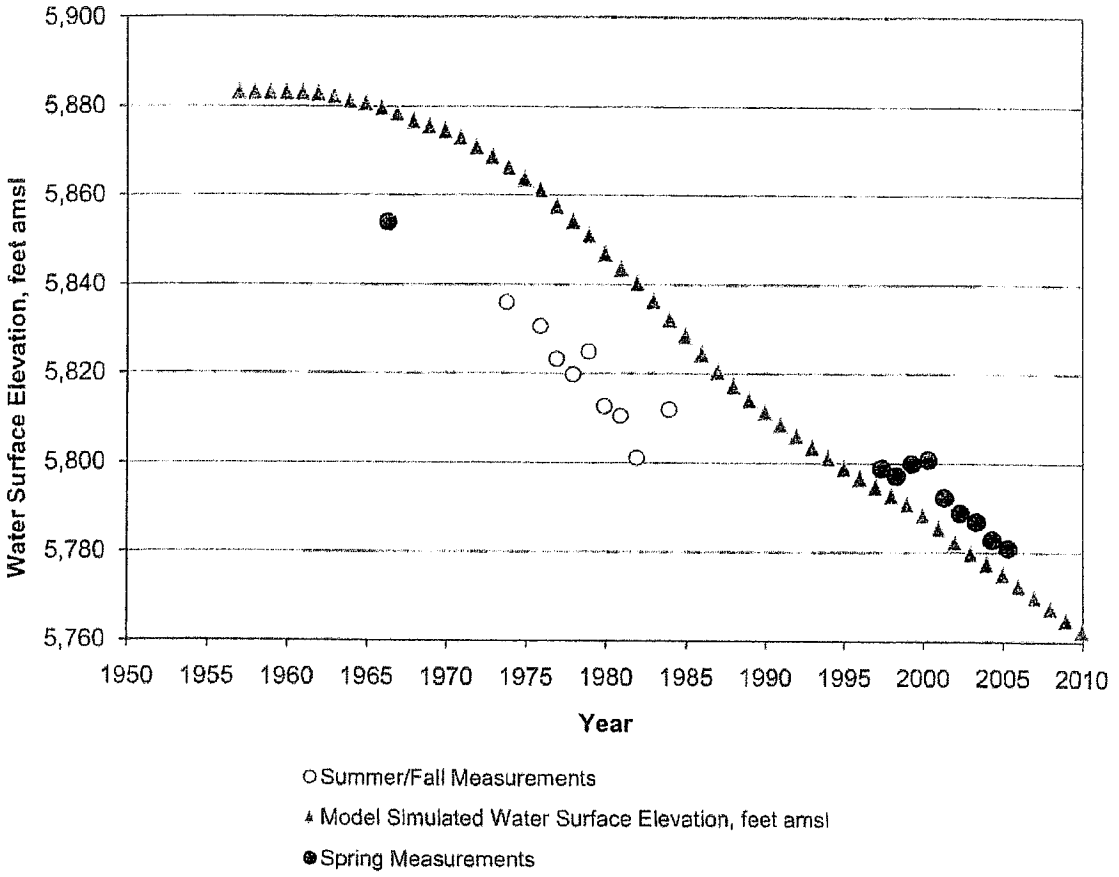


Figure 4.1-39. Transient Calibration Hydrograph for Well 150

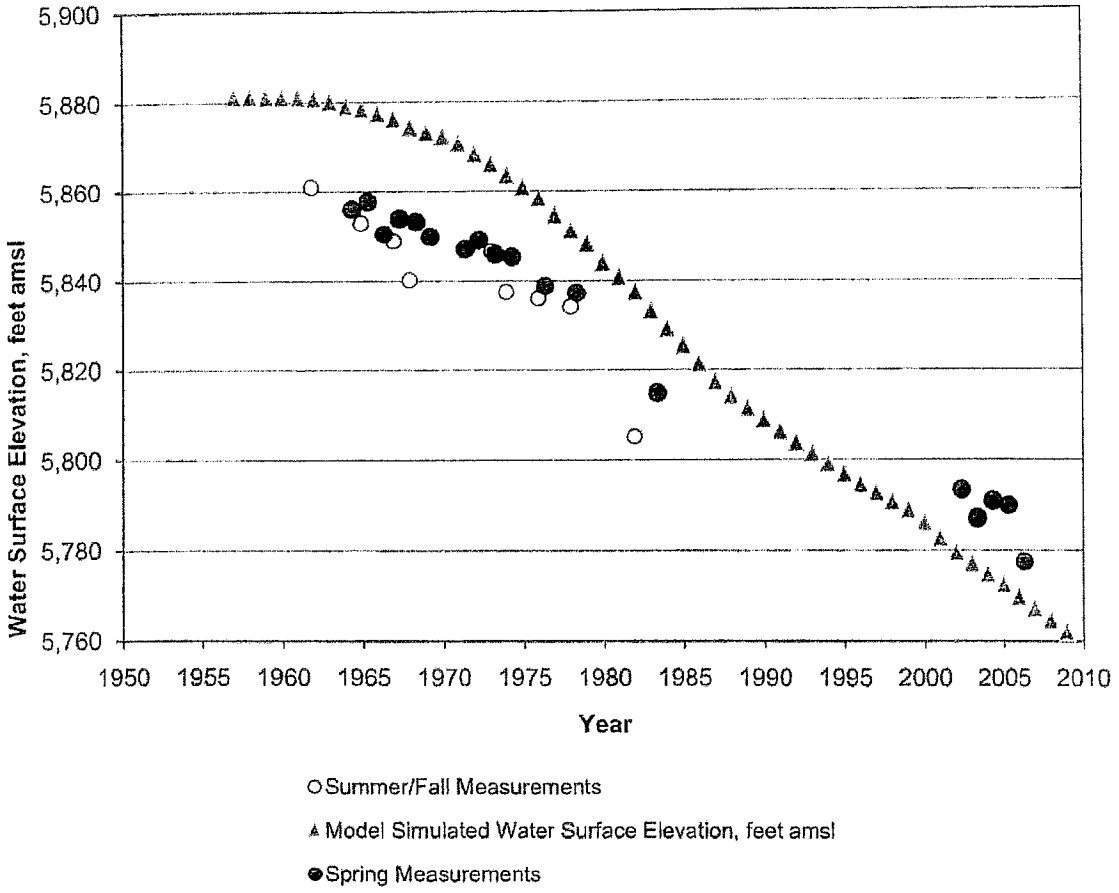


Figure 4.1-40. Transient Calibration Hydrograph for Well 161

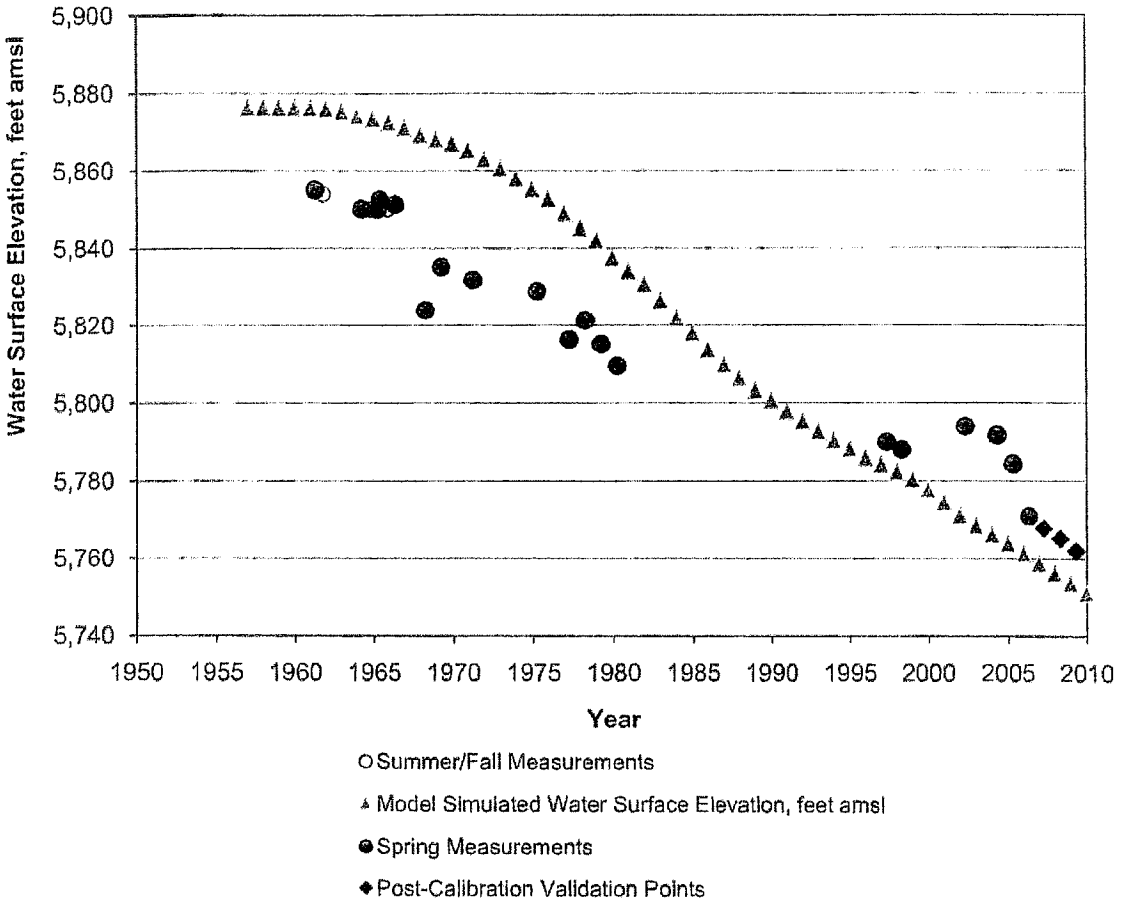


Figure 4.1-41. Transient Calibration Hydrograph for Well 185

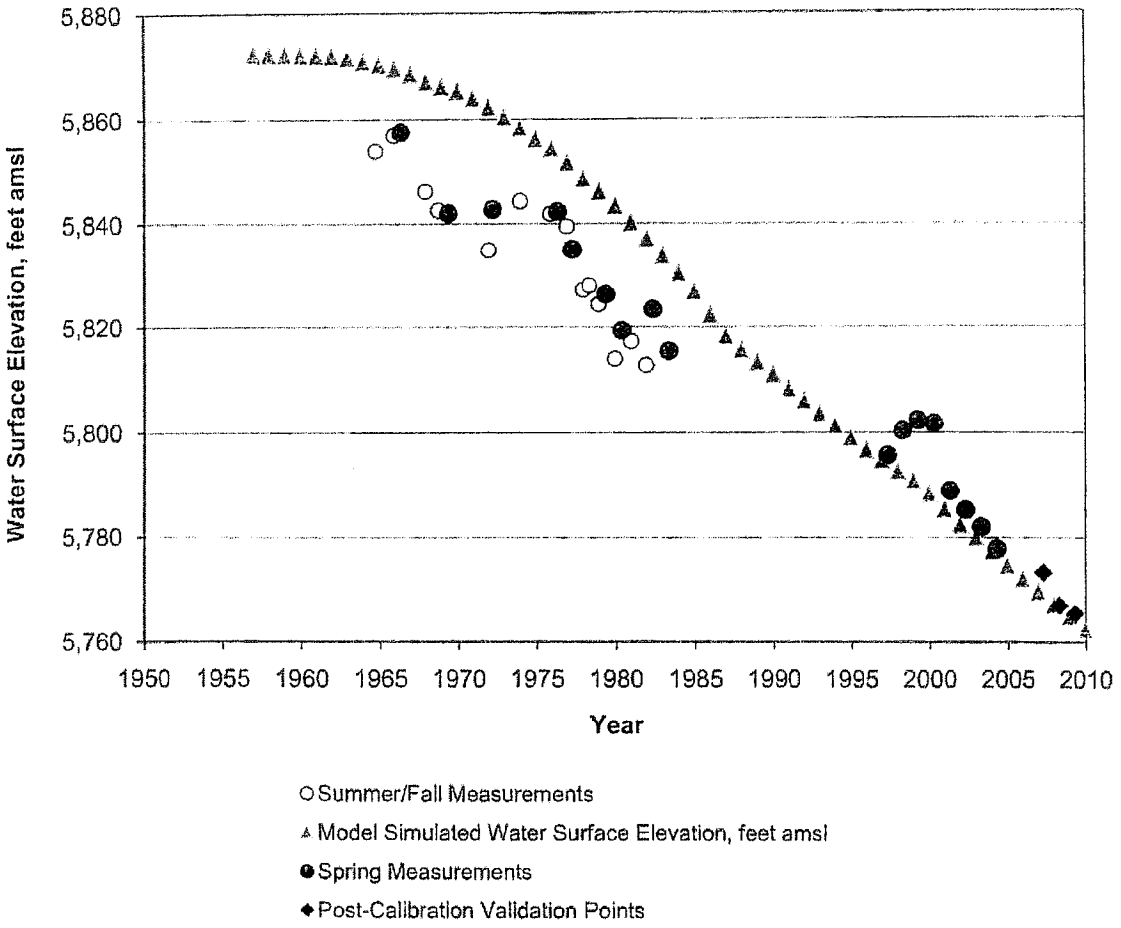


Figure 4.1-42. Transient Calibration Hydrograph for Well 230

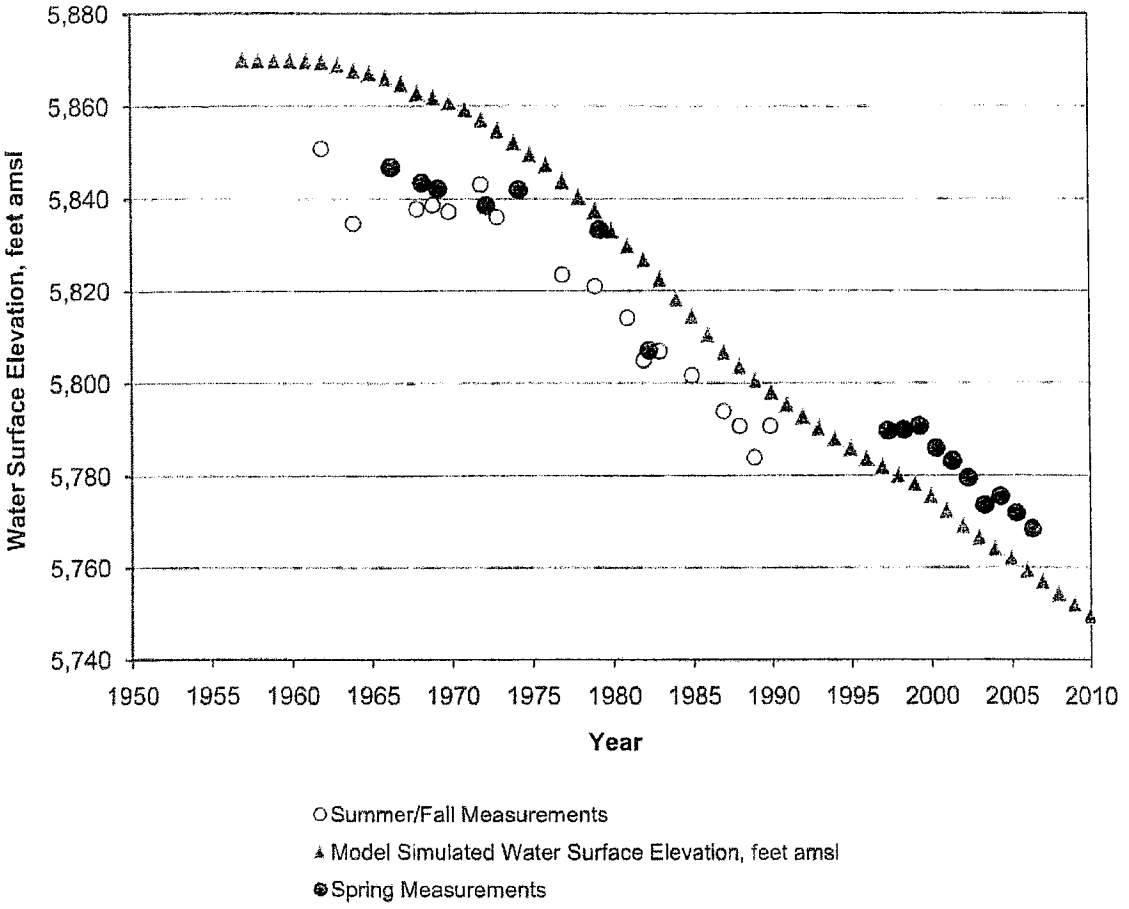


Figure 4.1-43. Transient Calibration Hydrograph for Well 239

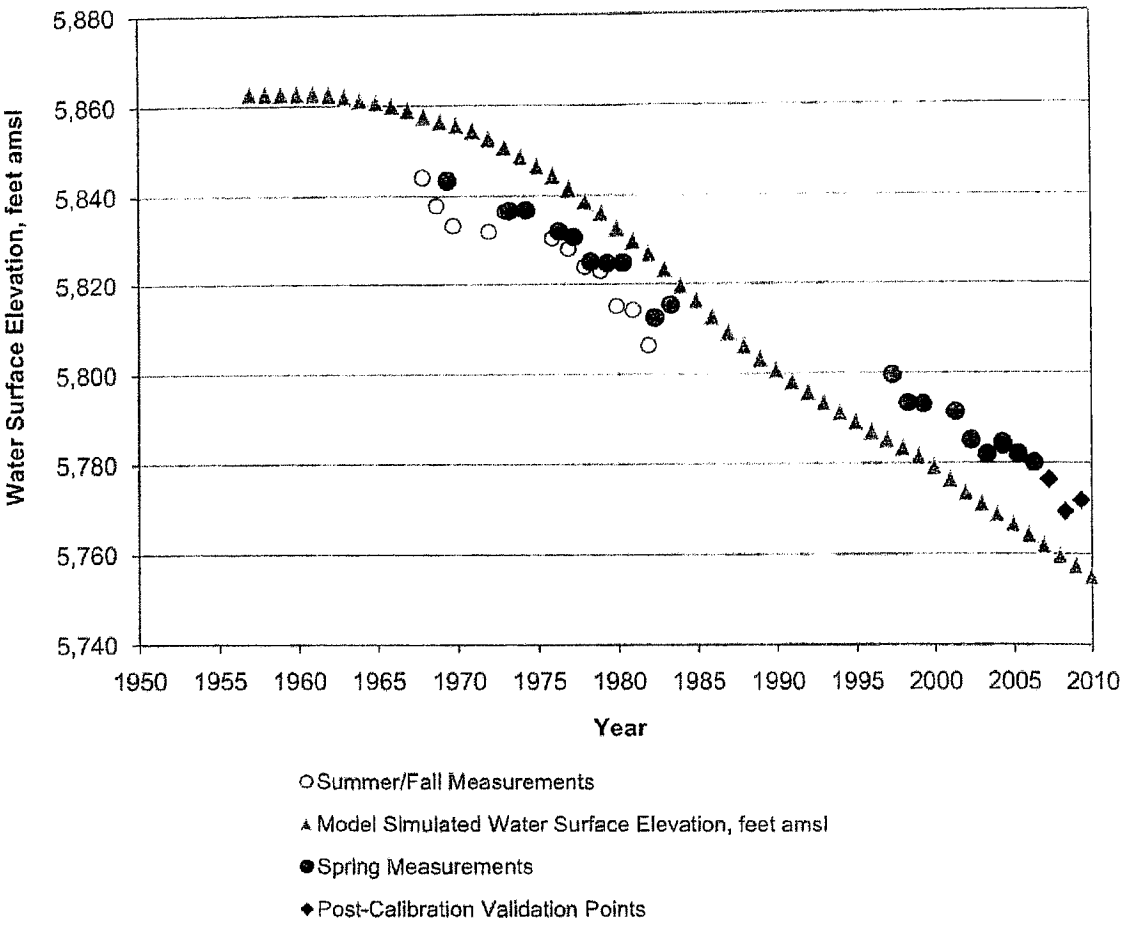


Figure 4.1-44. Transient Calibration Hydrograph for Well 283

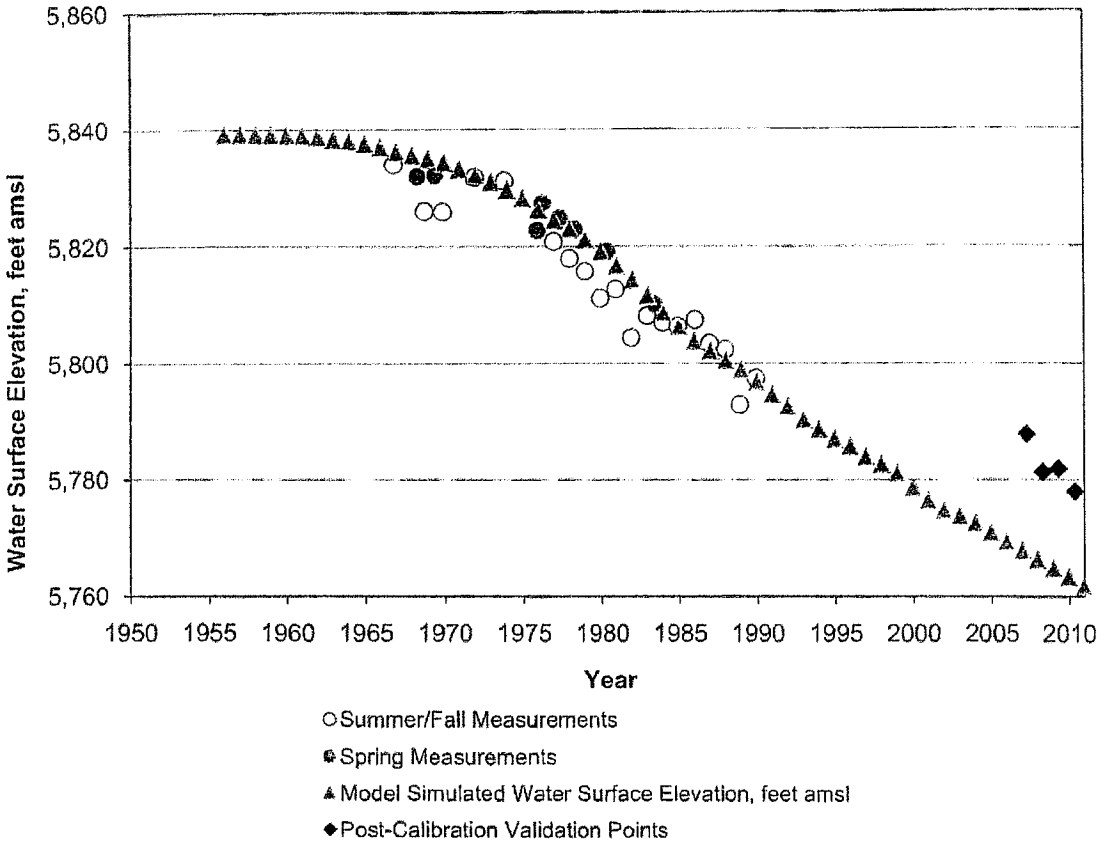


Figure 4.1-45. Transient Calibration Hydrograph for Well 319

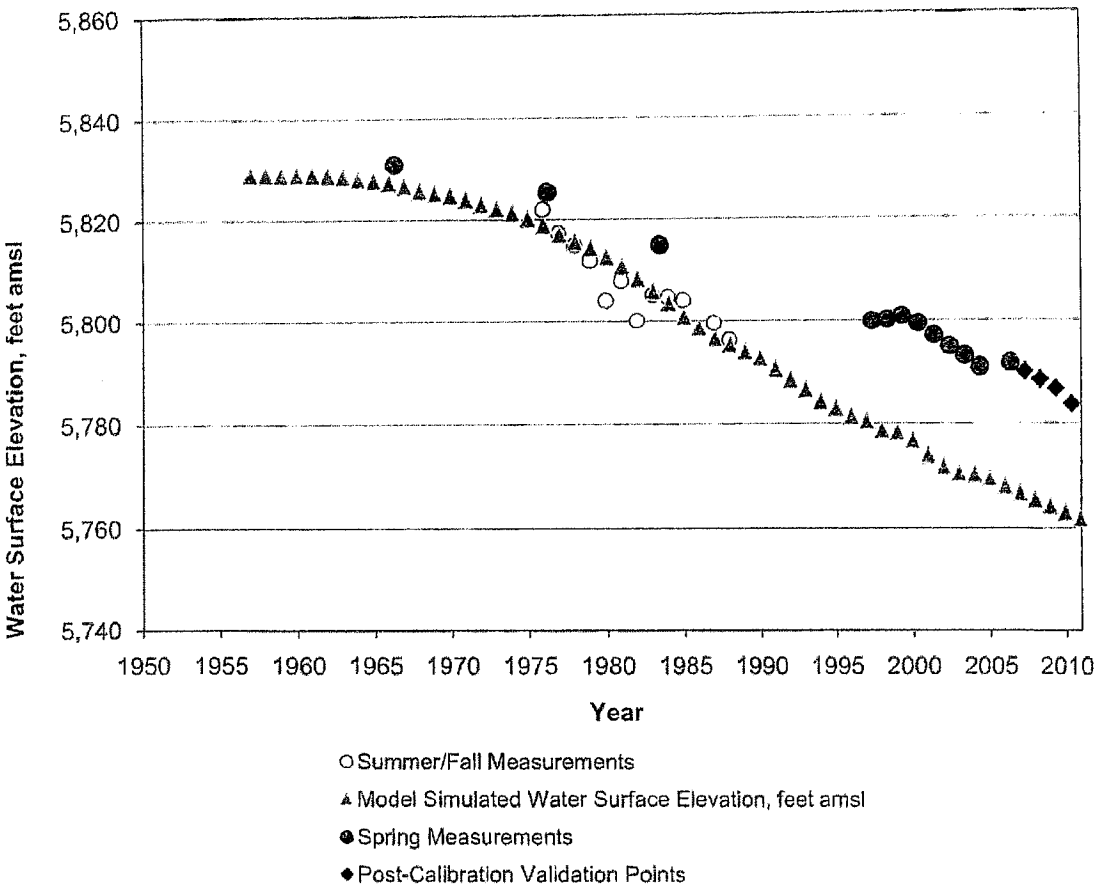
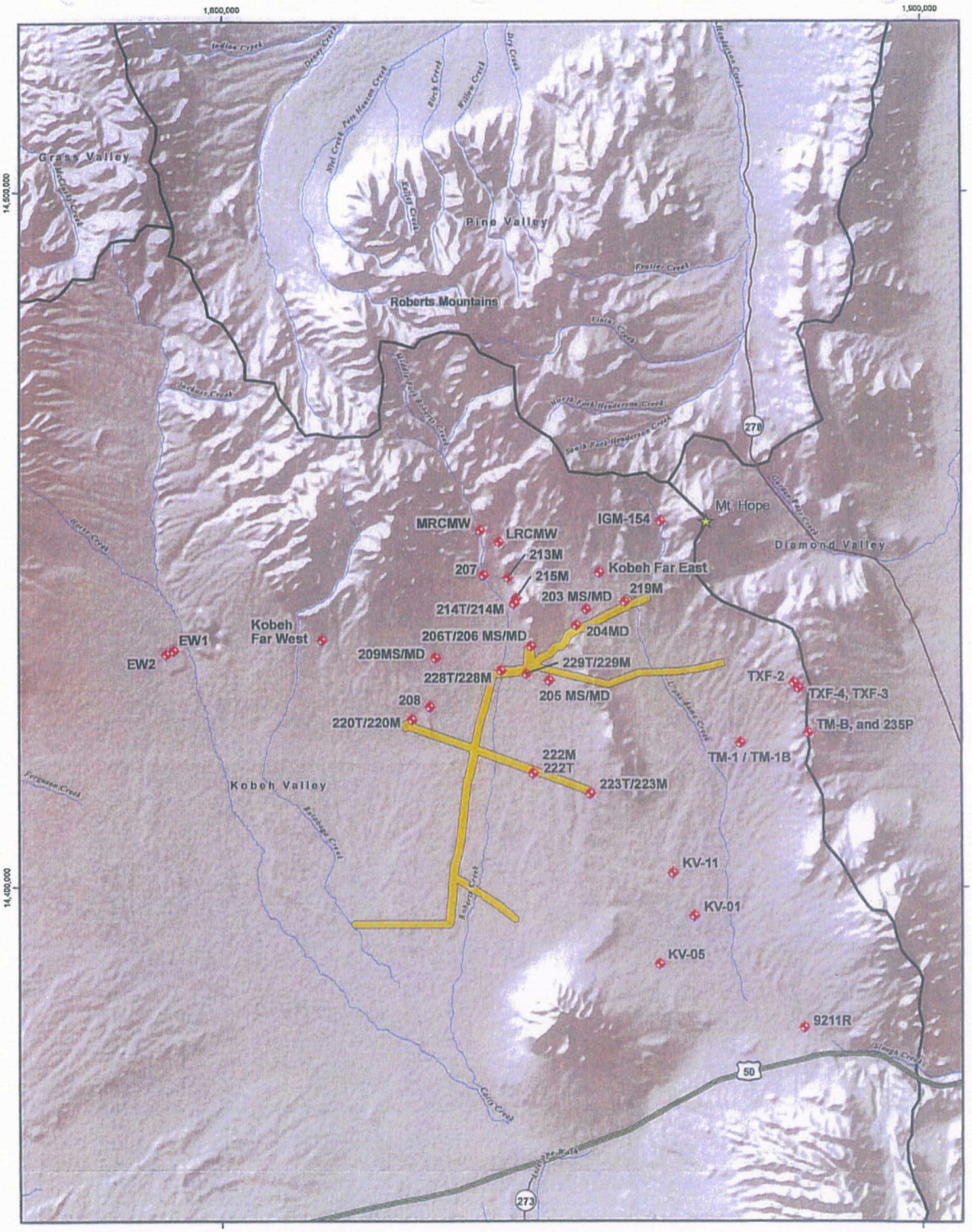


Figure 4.1-46. Transient Calibration Hydrograph for Well 325



EXPLANATION

- EMLLC Test or Monitor Well
- Proposed Well Field Corridor
- Streams and Drainages
- Federal Highway
- State Highway
- Hydrographic Basin Boundary

N

0 1 2 4
Miles

Figure 4.1-47. Test and Monitoring Well Locations, Kobeh Valley

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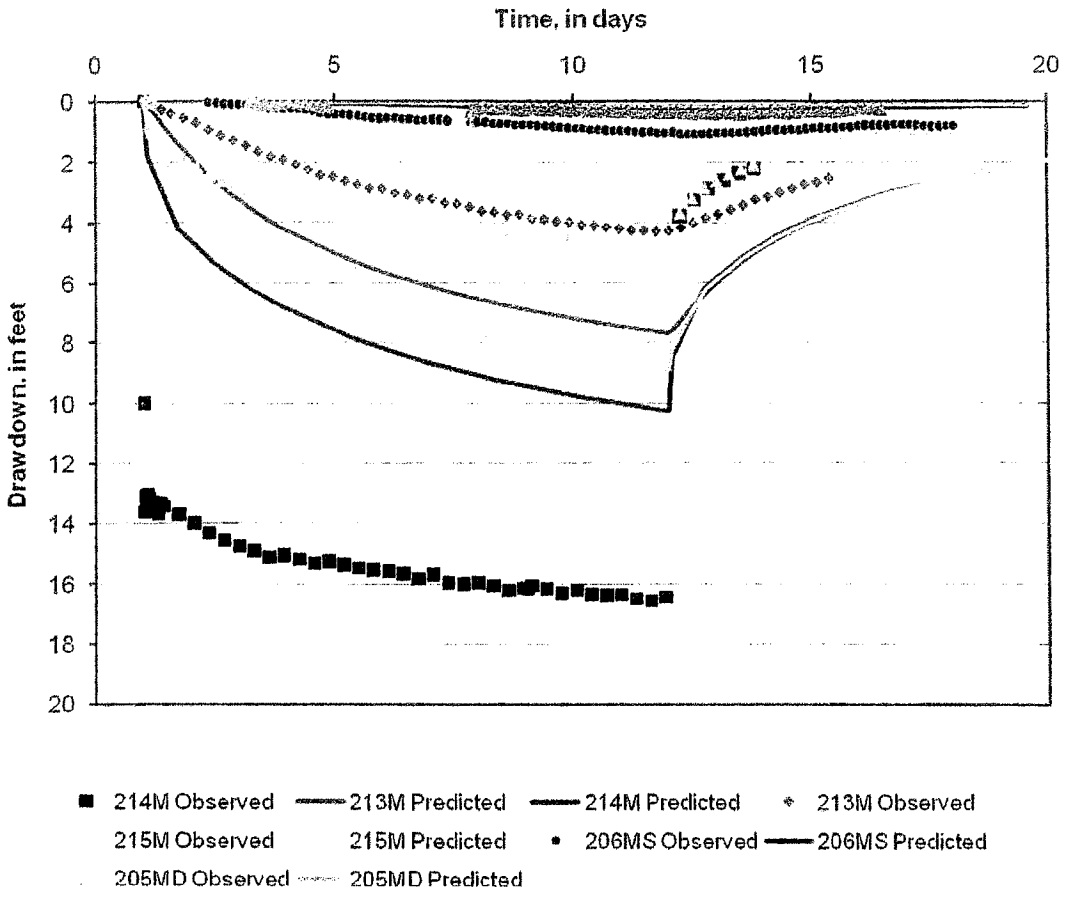

Figure 4.1-48a. Observed and Simulated Water Level Drawdown during Testing at Well 214P

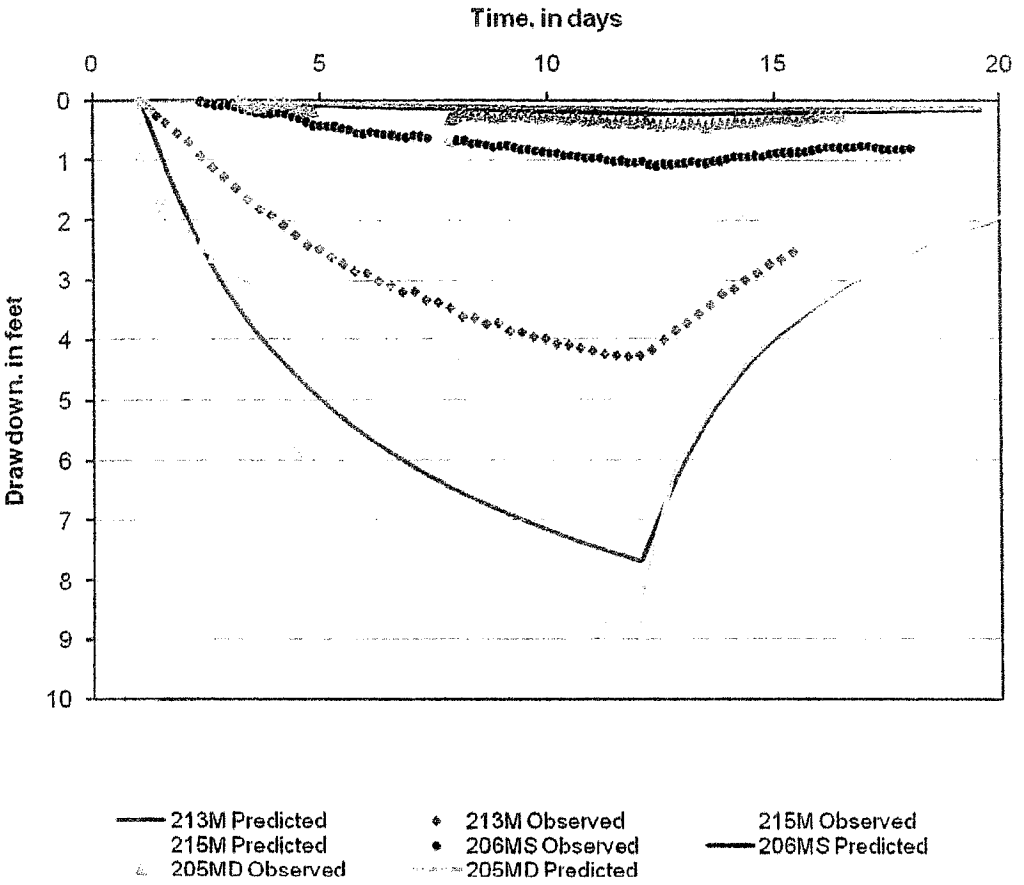

Figure 4.1-48b. Observed and Simulated Water Level Drawdown during Testing at Well 214P

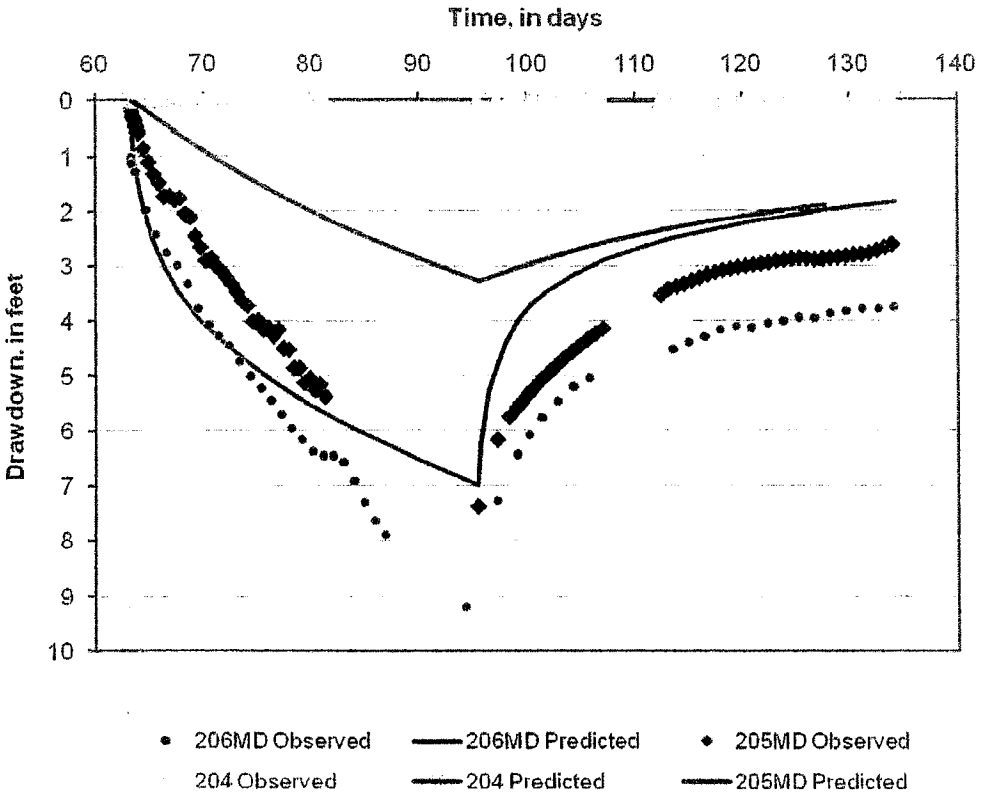

Figure 4.1-49. Observed and Simulated Water Level Drawdown during Testing at Well 206P (Cumulative Run)

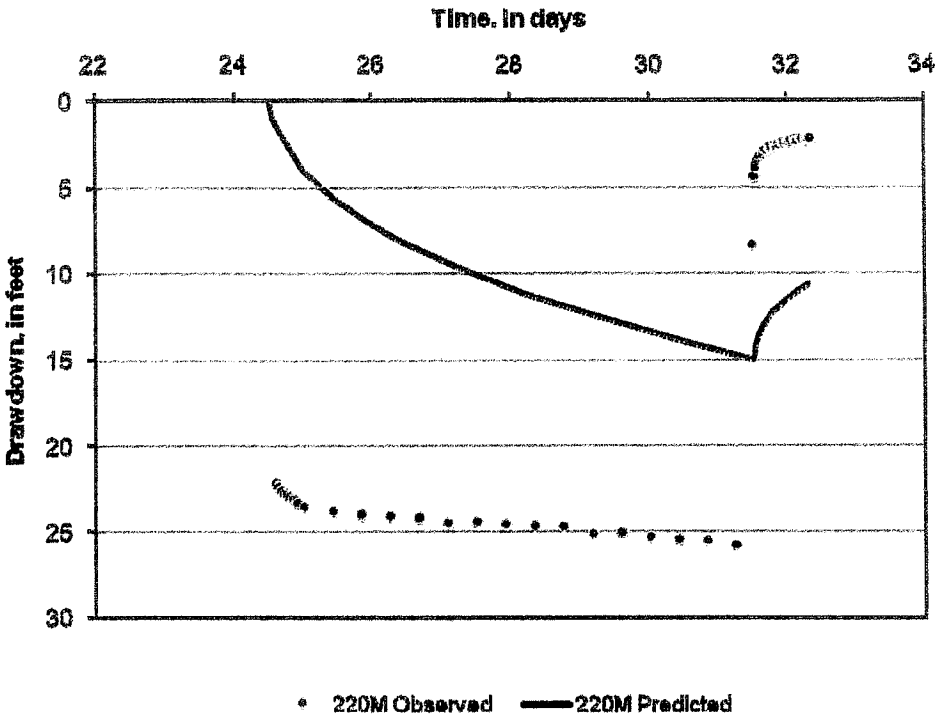

Figure 4.1-50. Observed and Simulated Water Level Drawdown during Testing at Well 220P (Cumulative Run)

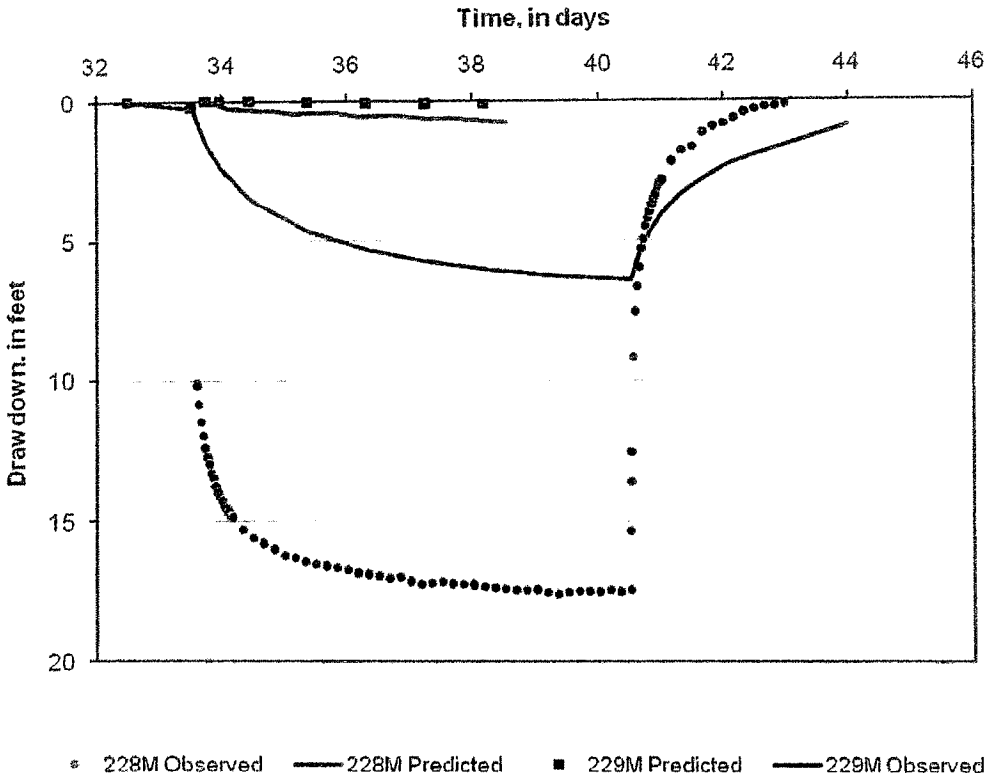

Figure 4.1-51. Observed and Simulated Water Level Drawdown during Testing at Well 228P (Cumulative Run)

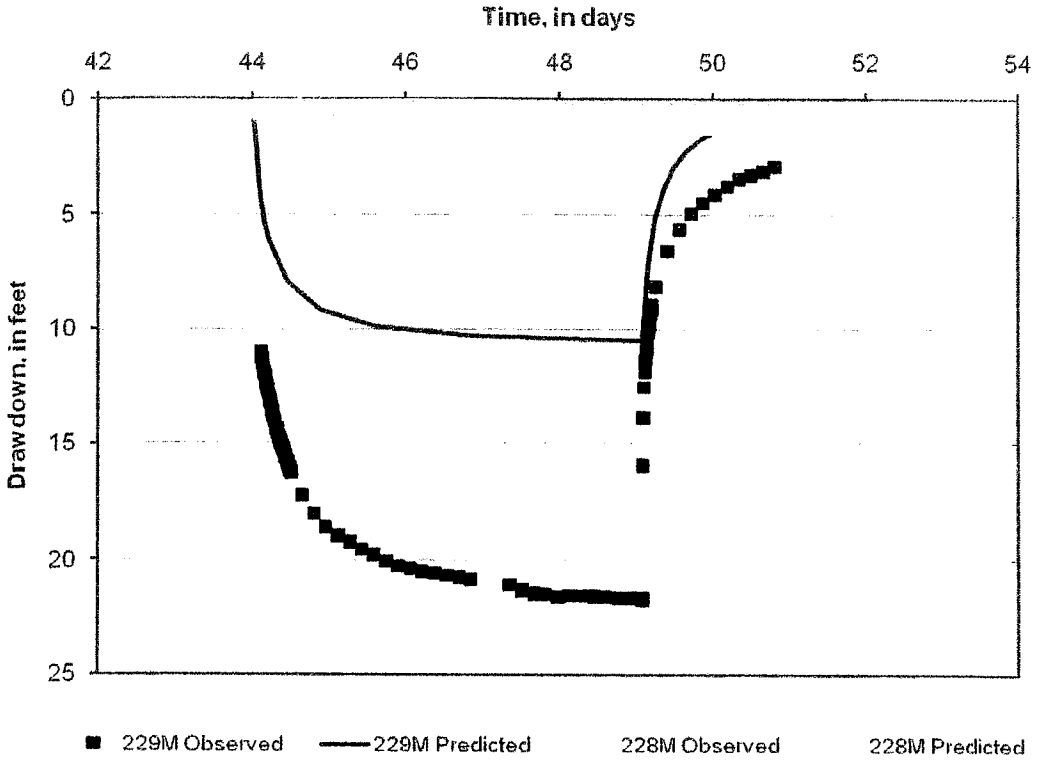

Figure 4.1-52. Observed and Simulated Water Level Drawdown during Testing at Well 229P (Cumulative Run)

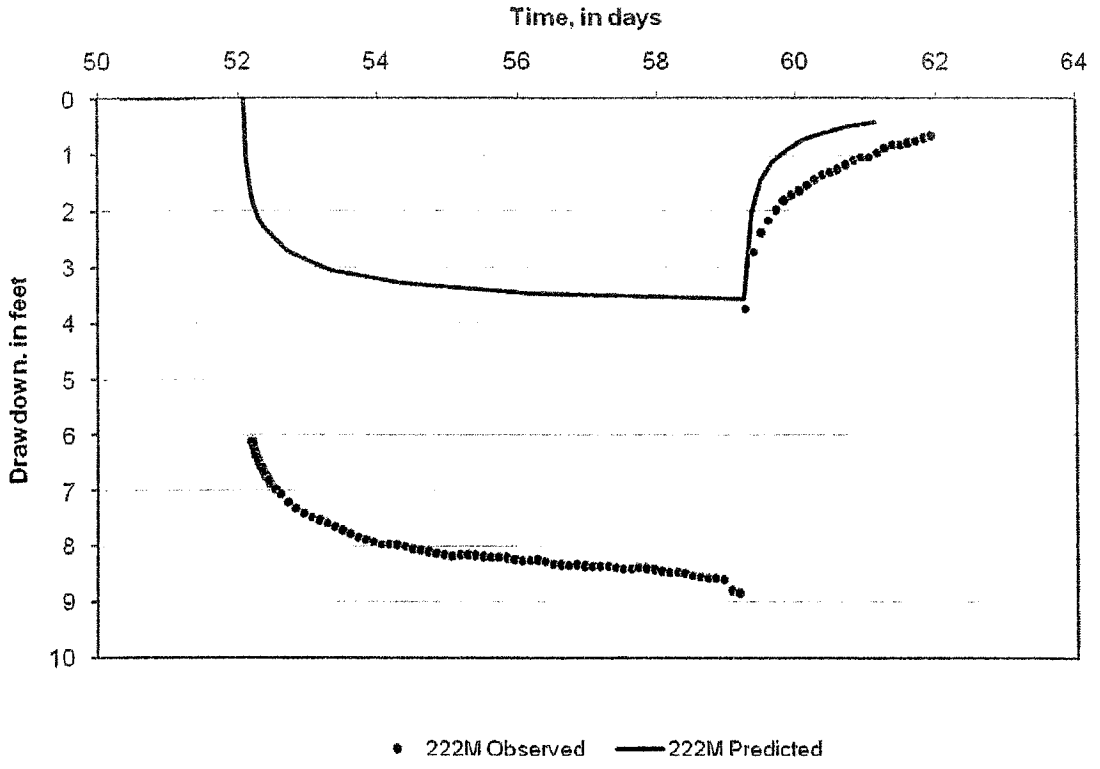

Figure 4.1-53. Observed and Simulated Water Level Drawdown during Testing at Well 222P (Cumulative Run)

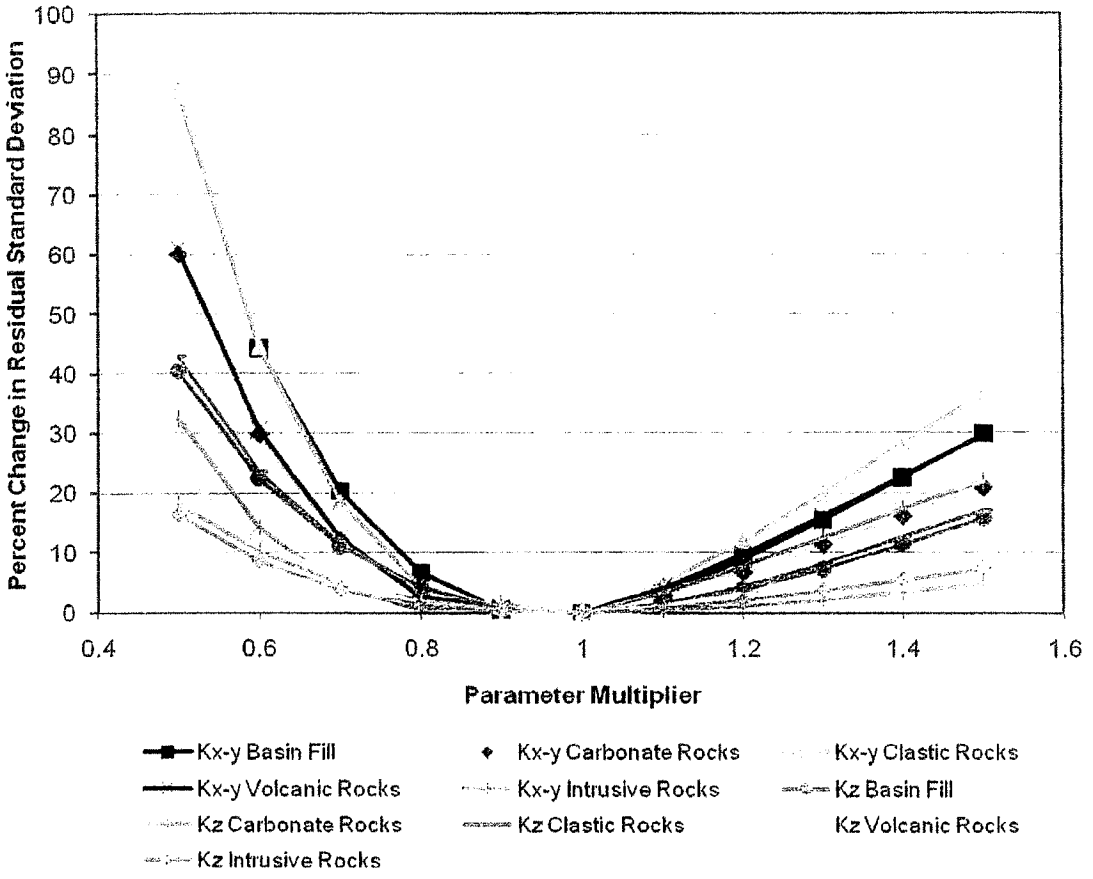

Figure 4.1-54. Sensitivity of the Calibrated Steady-State Regional Model to Changes in Horizontal (Kx-y) and Vertical (Kz) Hydraulic Conductivity, by Grouped Hydrogeologic Unit

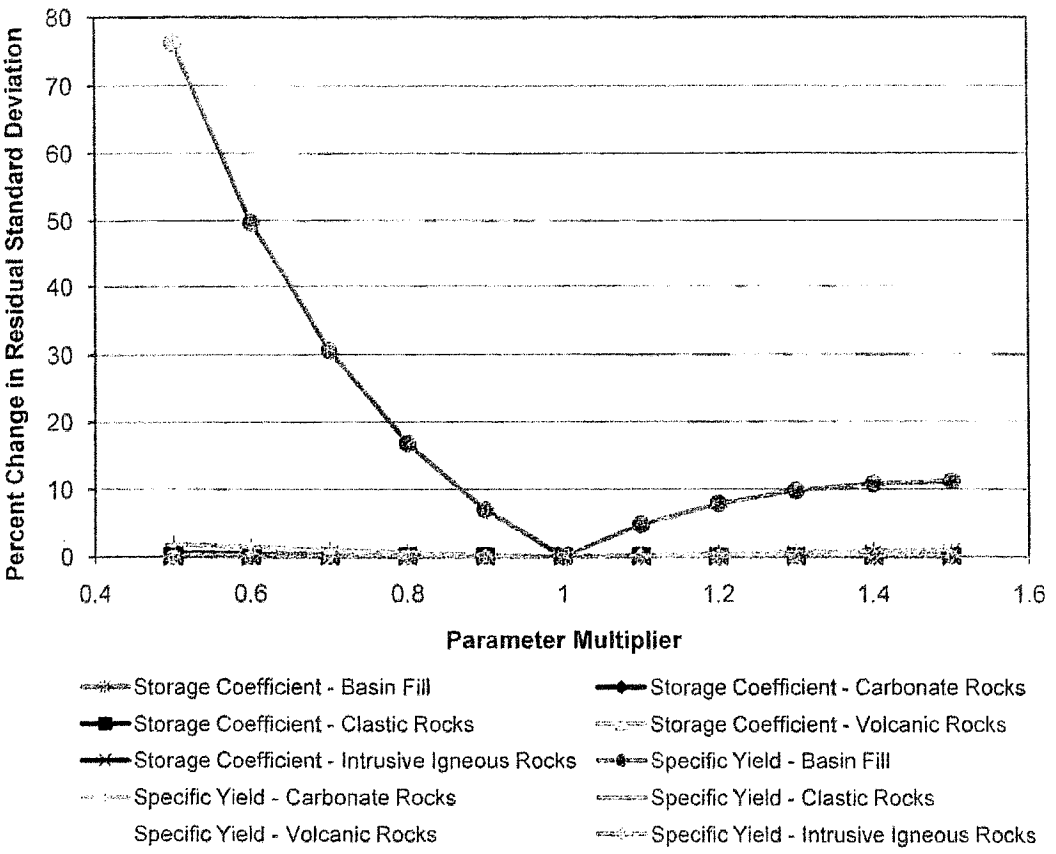

Figure 4.1-55. Sensitivity of the Calibrated Transient Regional Model (Years 1956-2006) to Changes in Storage Coefficient and Specific Yield, by Grouped Hydrogeologic Unit

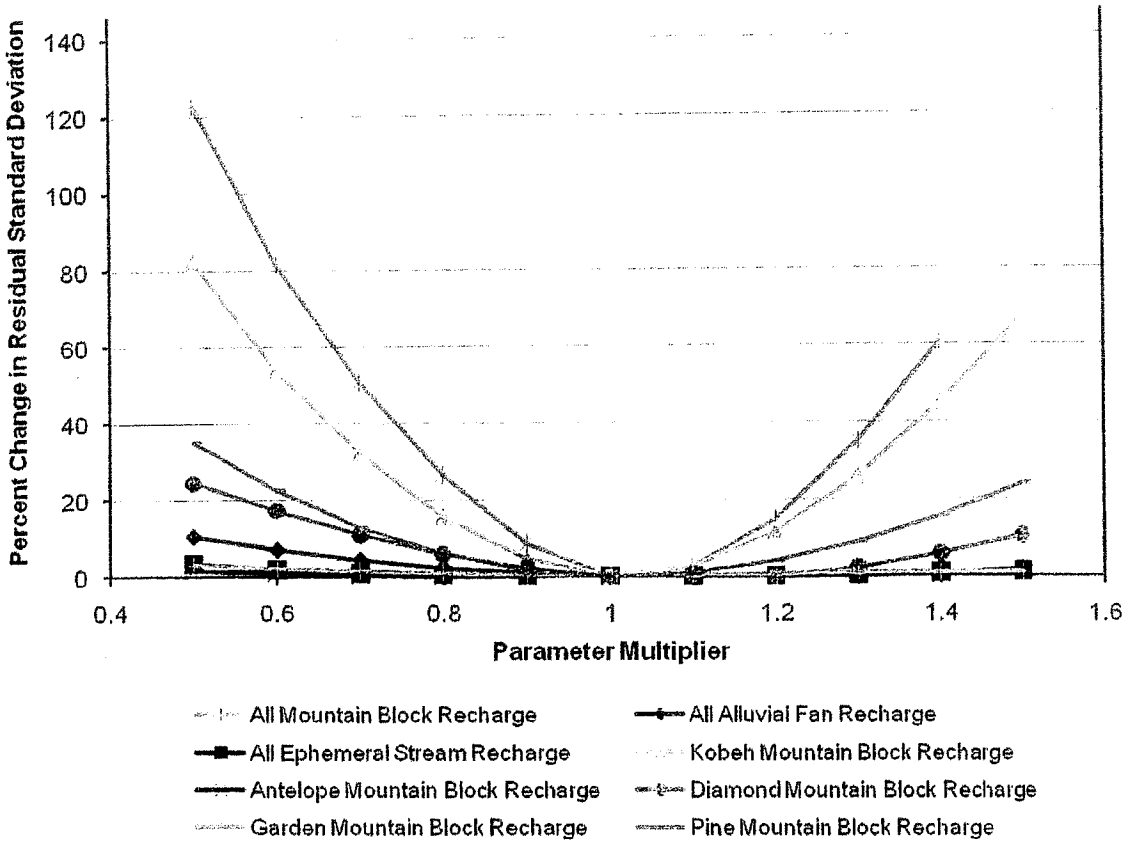

Figure 4.1-56. Sensitivity of the Calibrated Steady-State Regional Model to Changes in Recharge, by Recharge Zone

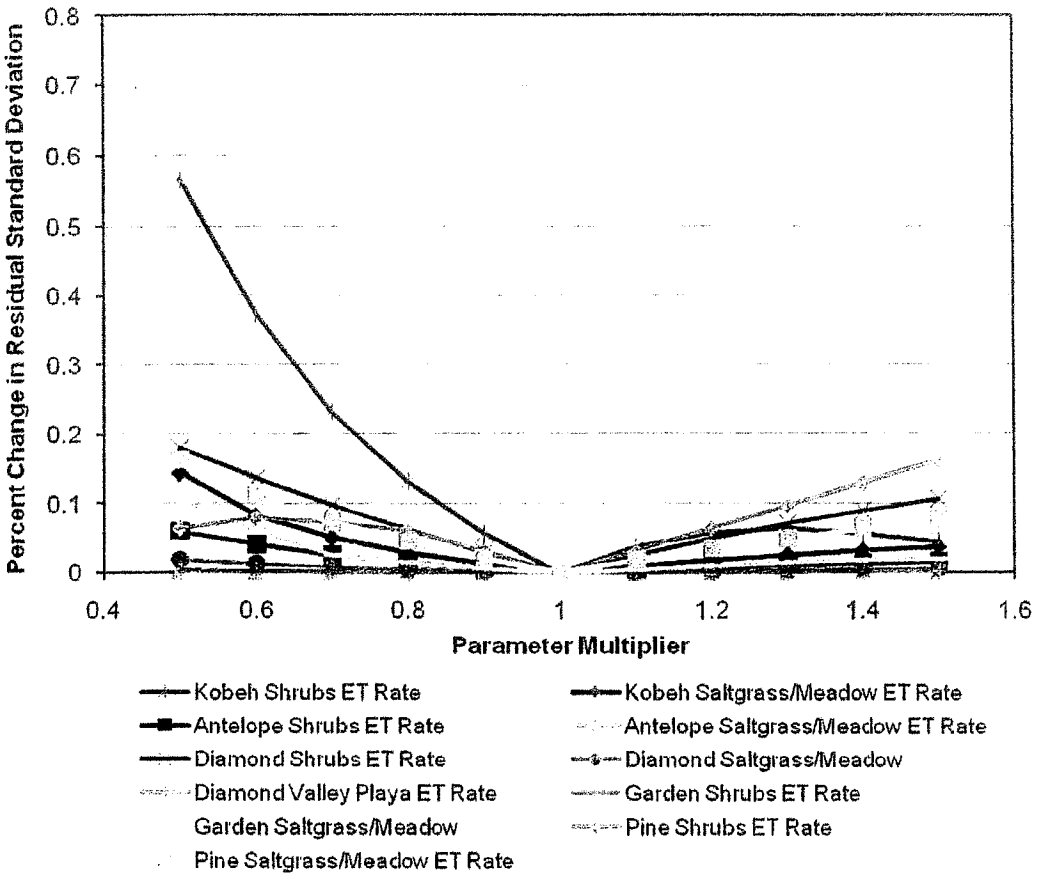

Figure 4.1-57. Sensitivity of the Calibrated Steady-State Regional Model to Changes in Evapotranspiration, by Evapotranspiration Zone

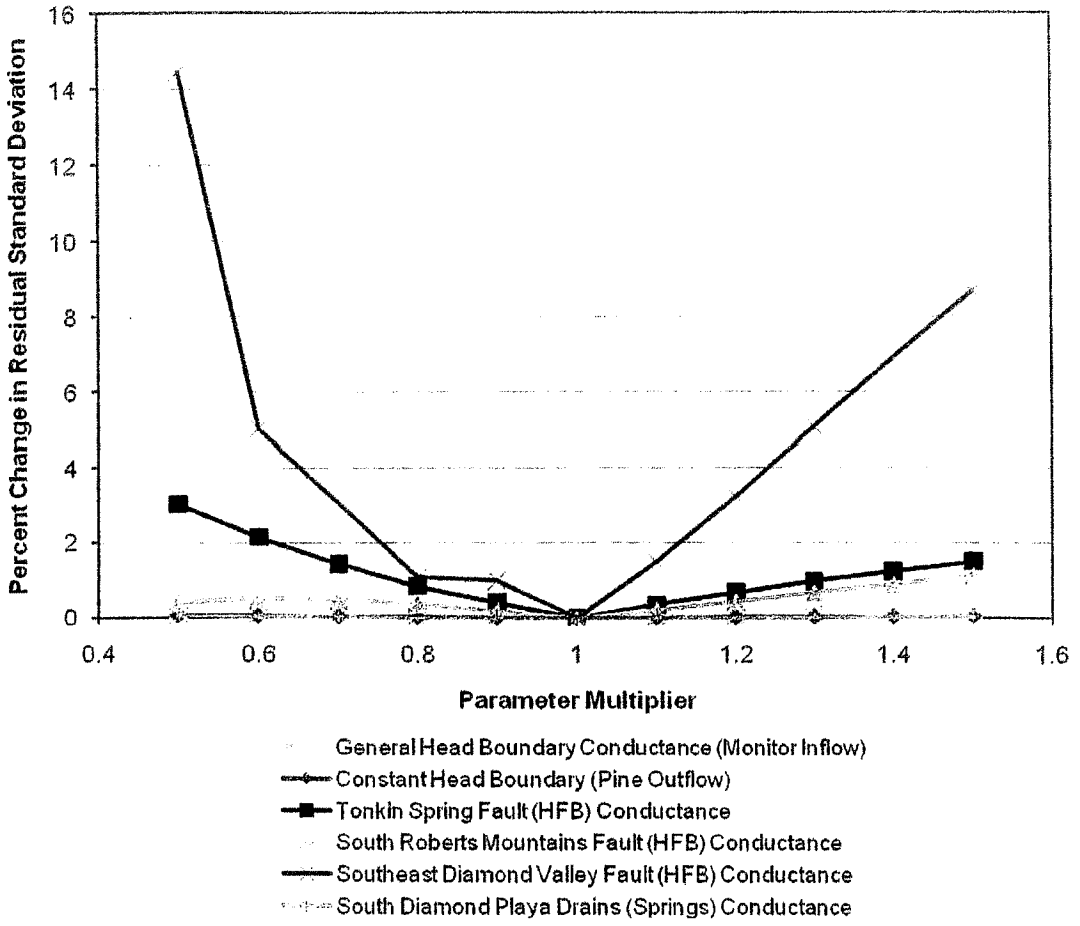

Figure 4.1-58. Sensitivity of the Calibrated Steady-State Regional Model to Changes in Boundary Condition Conductance