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To: "Paul Michalak" <PXM2@nrc.gov>, "Rich Zinkl" <Rich.Zinkl@gjo.doe.gov>
Date: 12/19/2007 5:22:13 PM
Subject: Paul, I understand from the call today that we sent you a link to the

Paul, I understand from the call today that we sent you a link to the modeling effort on Gunnison that did not work out, for the layer(S) that we later used to indicate a hot spot but it is in an area that is not very close to a well. Sam or Rich, can you help out with this please? Rich I vaguely remember you saying something about an orphaned link some months ago when some of our IT changes were taking effect.

I have attached the power point slides that Rich spoke from way back when, and the areas of interest to Paul are to the south, near the Tomichi creek. If you look at slide 5 you can see a lack of monitoring wells to the south but slide 6 which was used in the modeling shows a number of wells in that area. Also, if you look at slides 12-14 you will see the 'hot spot' referred to by Paul, so his concern is that it was derived without many wells, but they are shown in slide 6.

Paul also indicated that he remembered from our modeling that the plume goes under the Tomichi creek, which I didn't remember. As shown in the slides, it does dive down under the West Fork of the Gunnison from the island area, and a bit south of the creek as well, but this is beyond the boundaries of any wells and more than likely a mathematical artifact from the kriging done with Surfer rather than representing reality. The model boundaries extend well beyond the well coverage in order to eliminate other model problems. The edges of a model are understood by the math as a 'no flow' boundary, and that has a meaning that is not reflected in reality that would skew the results and you would never be able to converge on the observed data.

Rich, can you maybe call Paul and discuss his concerns again since it has been a while since we responded to his GCAP comments? I'll be happy to sit in although it is now Joe's site since I was on it at that time.

Thanks!

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CC: "Joe Desormeau" <Joe.Desormeau@lm.doe.gov>, "Sam Campbell" <Sam.Campbell@gjo.doe.gov>, "Tom Pauling" <Tom.Pauling@lm.doe.gov>

Mail Envelope Properties (47699986.BD2 : 16 : 43986)

Subject: Paul, I understand from the call today that we sent you a link to the
Creation Date 12/19/2007 5:21:20 PM
From: "Rich Bush" <Richard.Bush@lm.doe.gov>
Created By: Richard.Bush@lm.doe.gov

Recipients

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Files	Size	Date & Time
MESSAGE	1974	12/19/2007 5:21:20 PM
Groundwater Modeling - Gunnison.ppt		3244032
Mime.822	4443352	

Options

Expiration Date: None
Priority: Standard
ReplyRequested: No
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Concealed Subject: No
Security: Standard

Groundwater Modeling and UMTRA

- Groundwater PEIS
- Site Observational Work Plan (like RI)
- Groundwater Compliance Action Plan(like F/S)
- NRC or agreement State acceptance

Groundwater Modeling - Gunnison

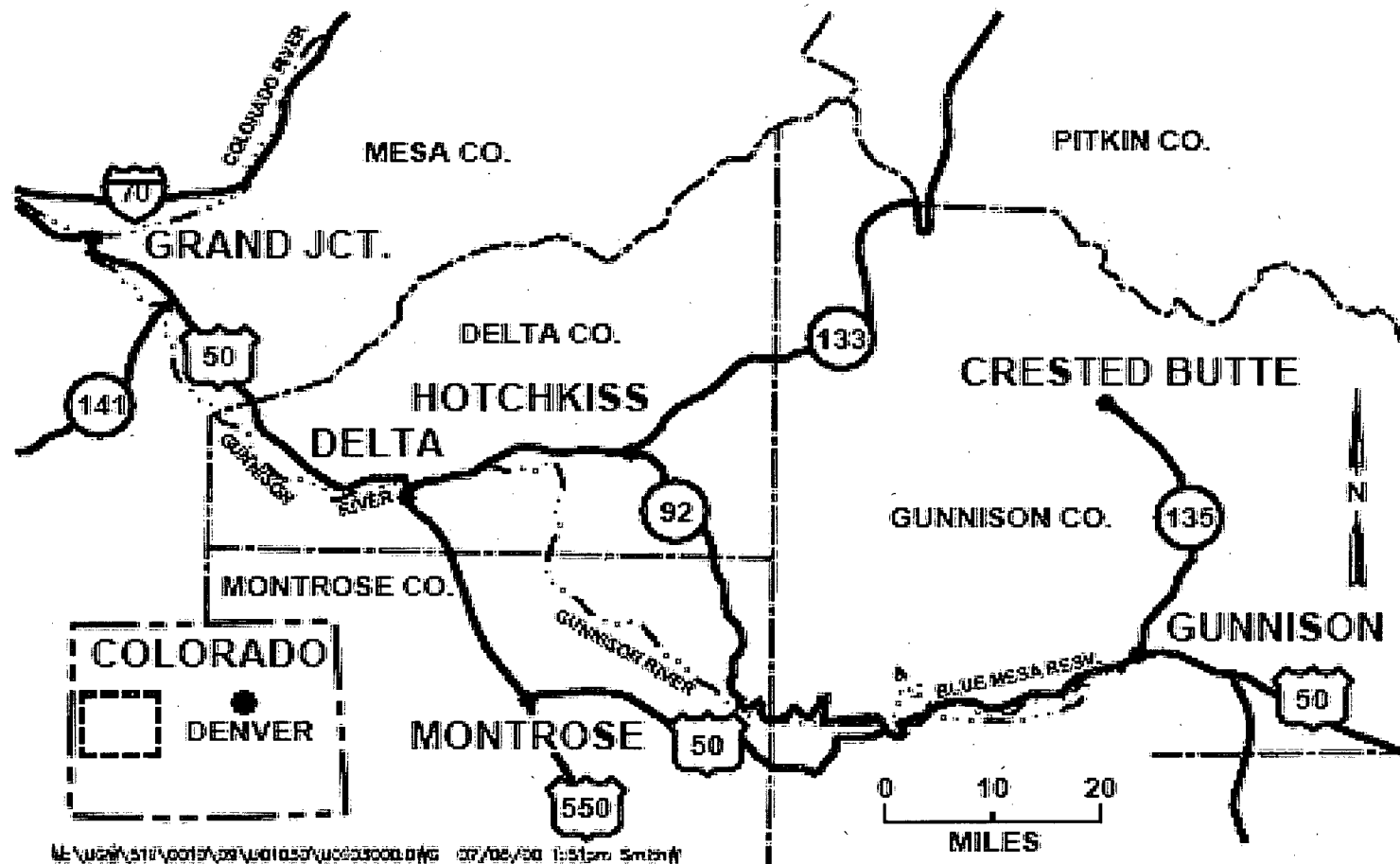
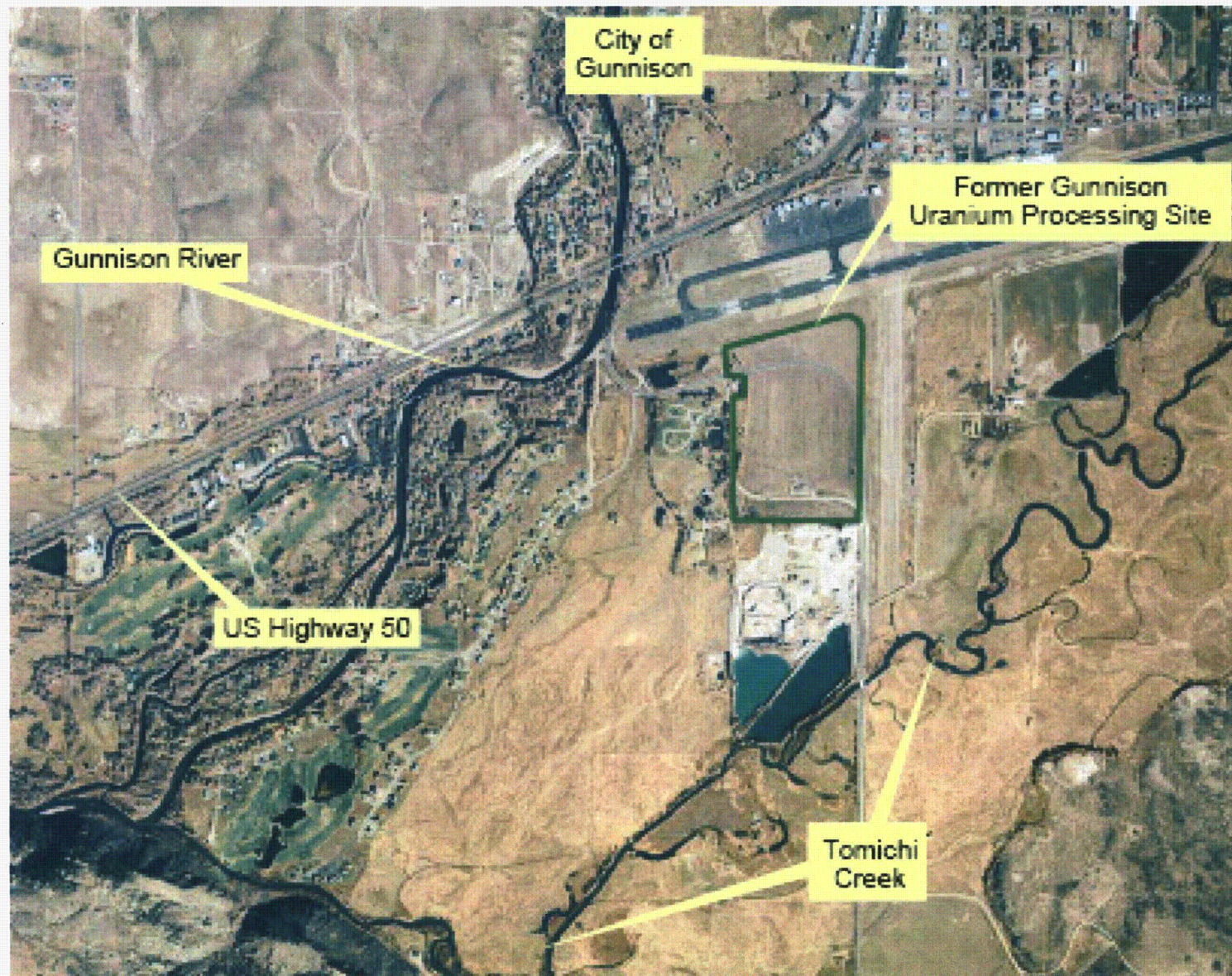
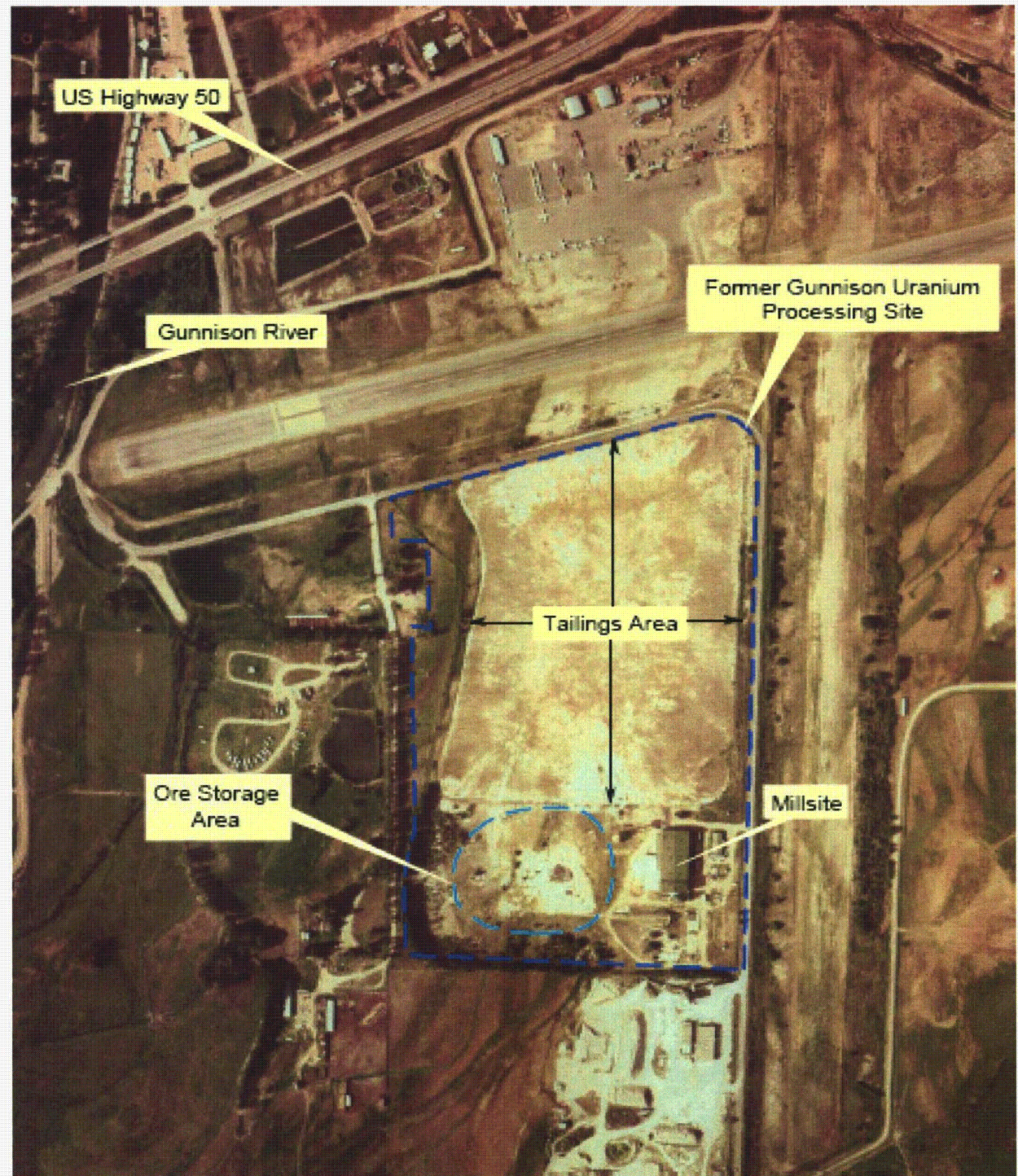


Figure 1. Location of the Gunnison Site

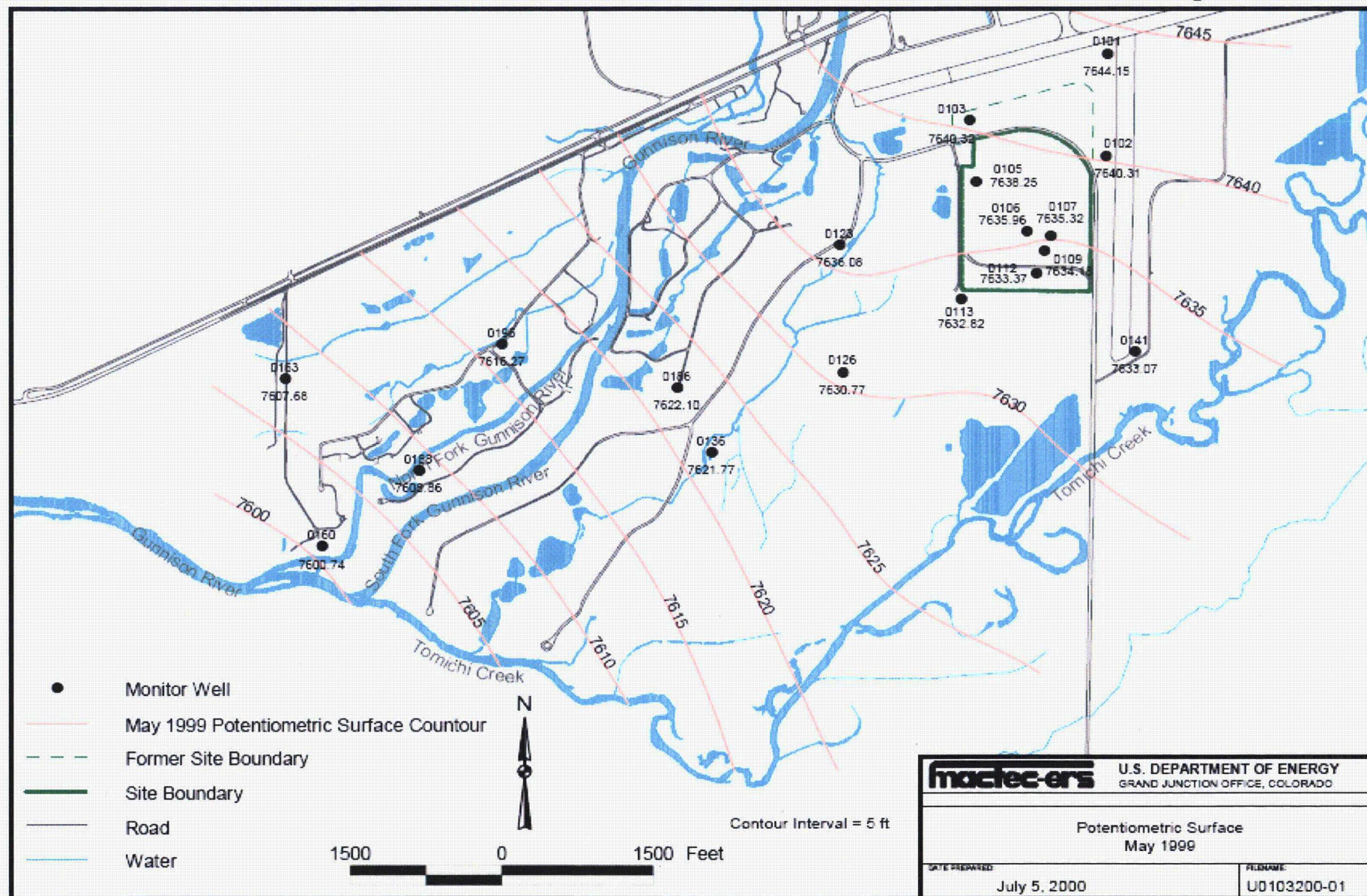
Satellite overview



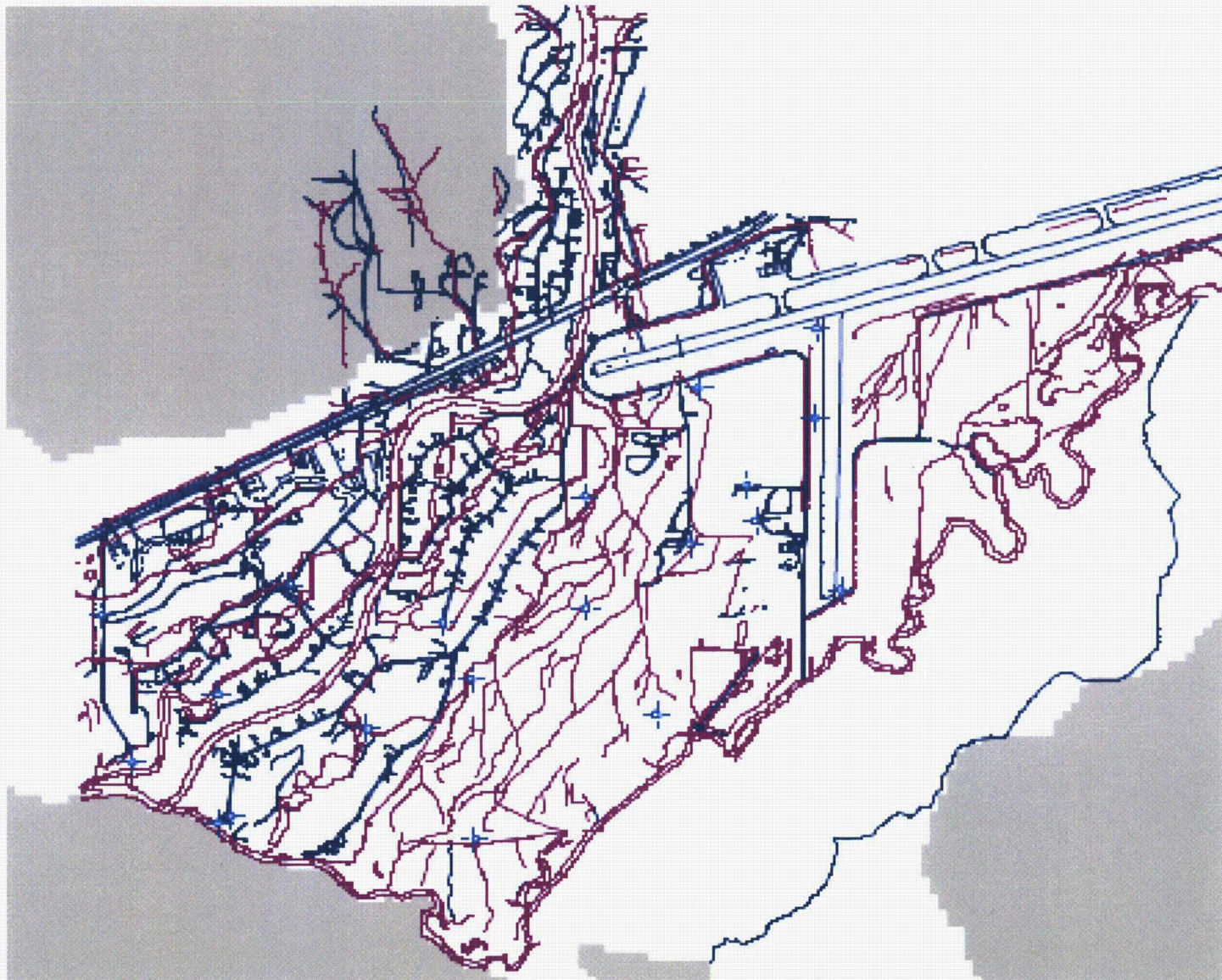
Gunnison Industrial Area



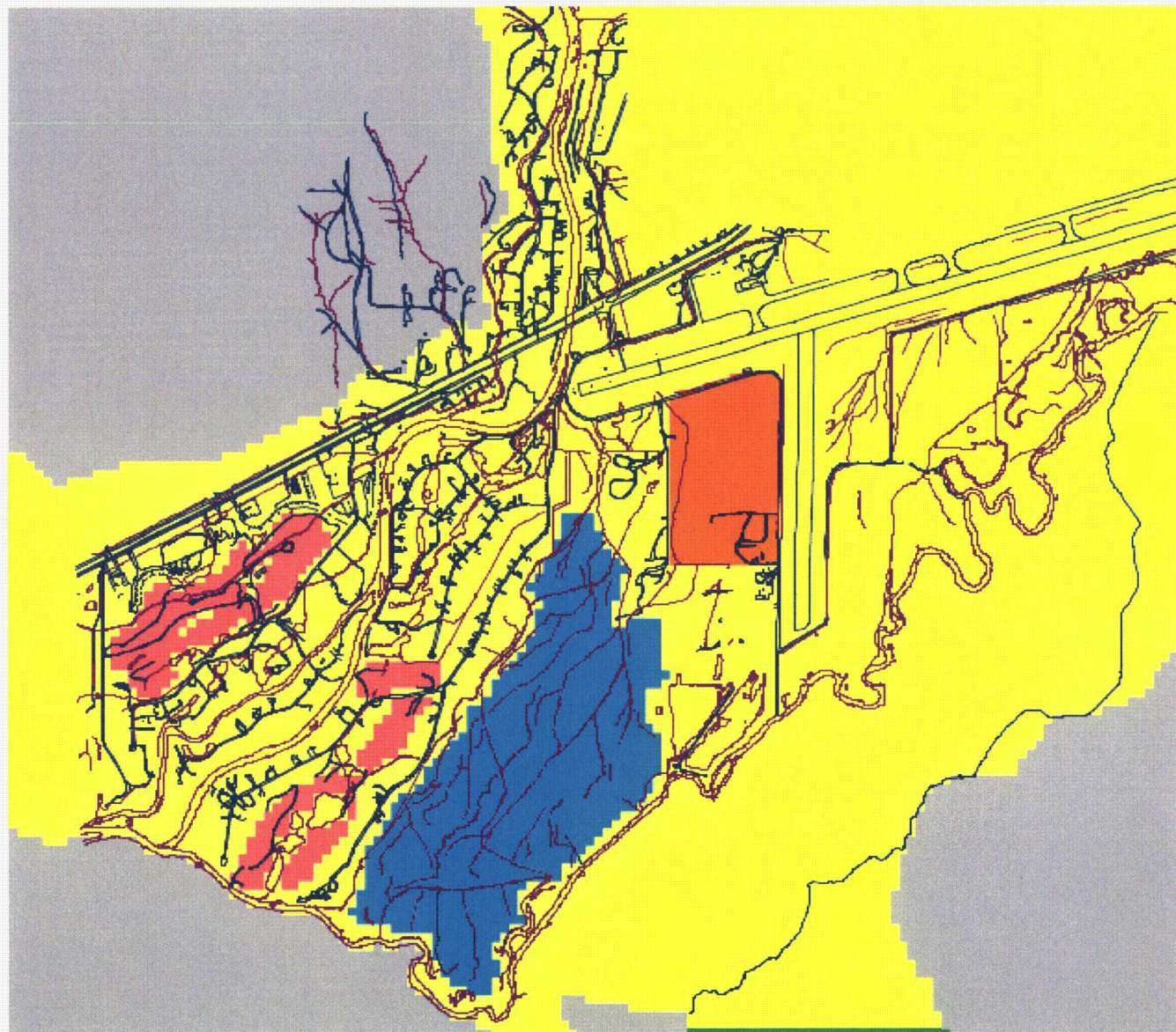
Potentiometric Surface Map



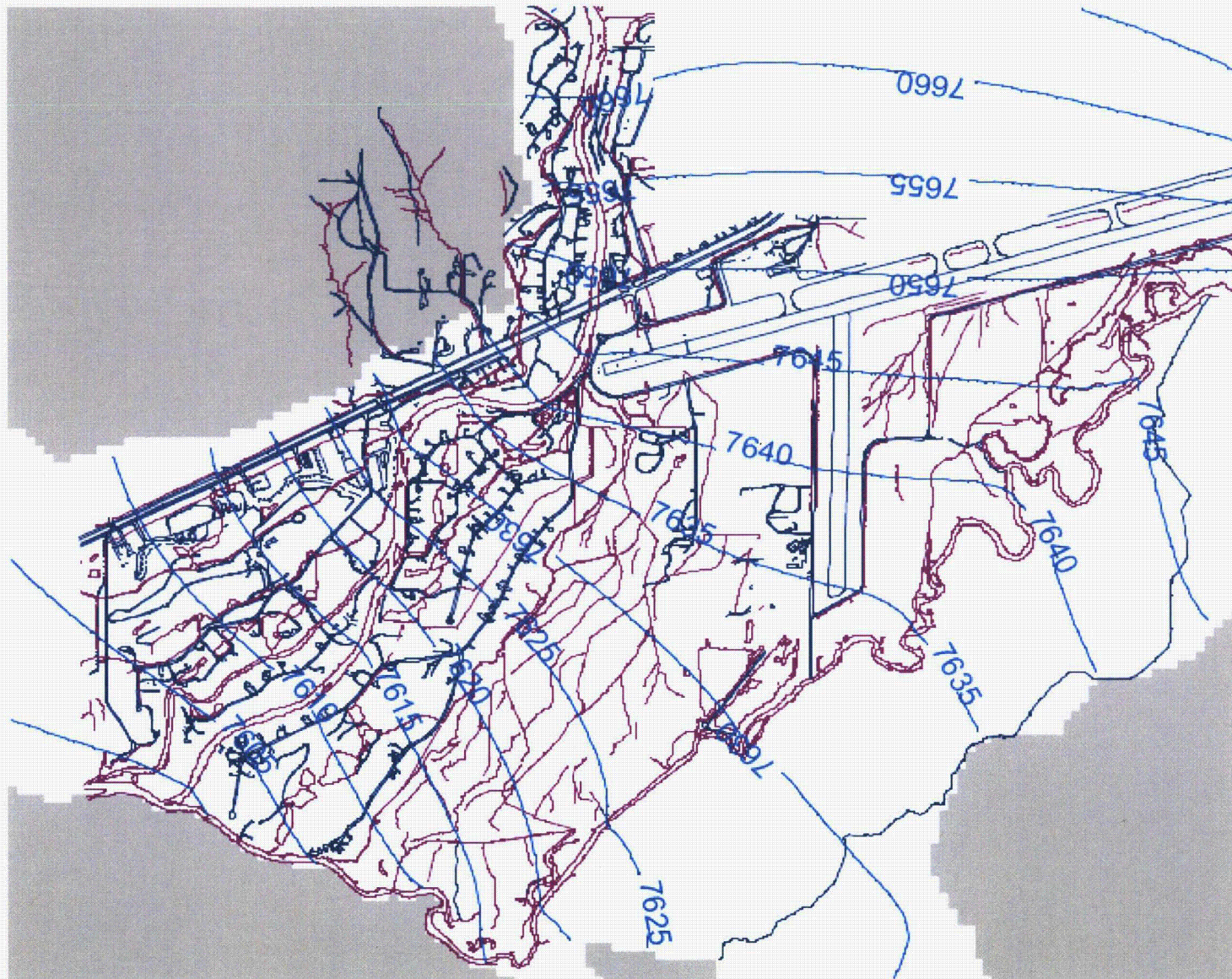
Model Boundaries and Features



Recharge Zonation

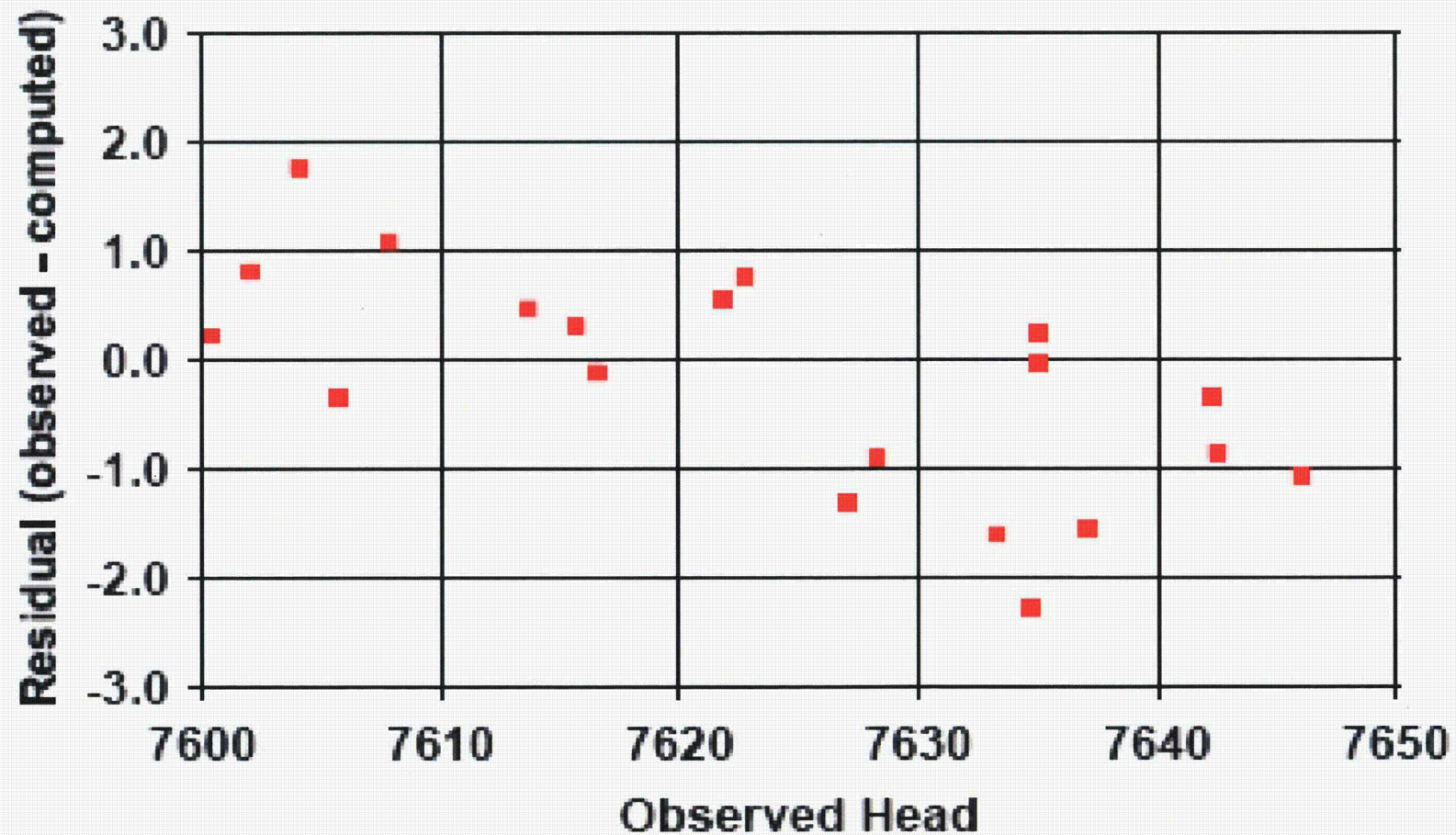


Model Results



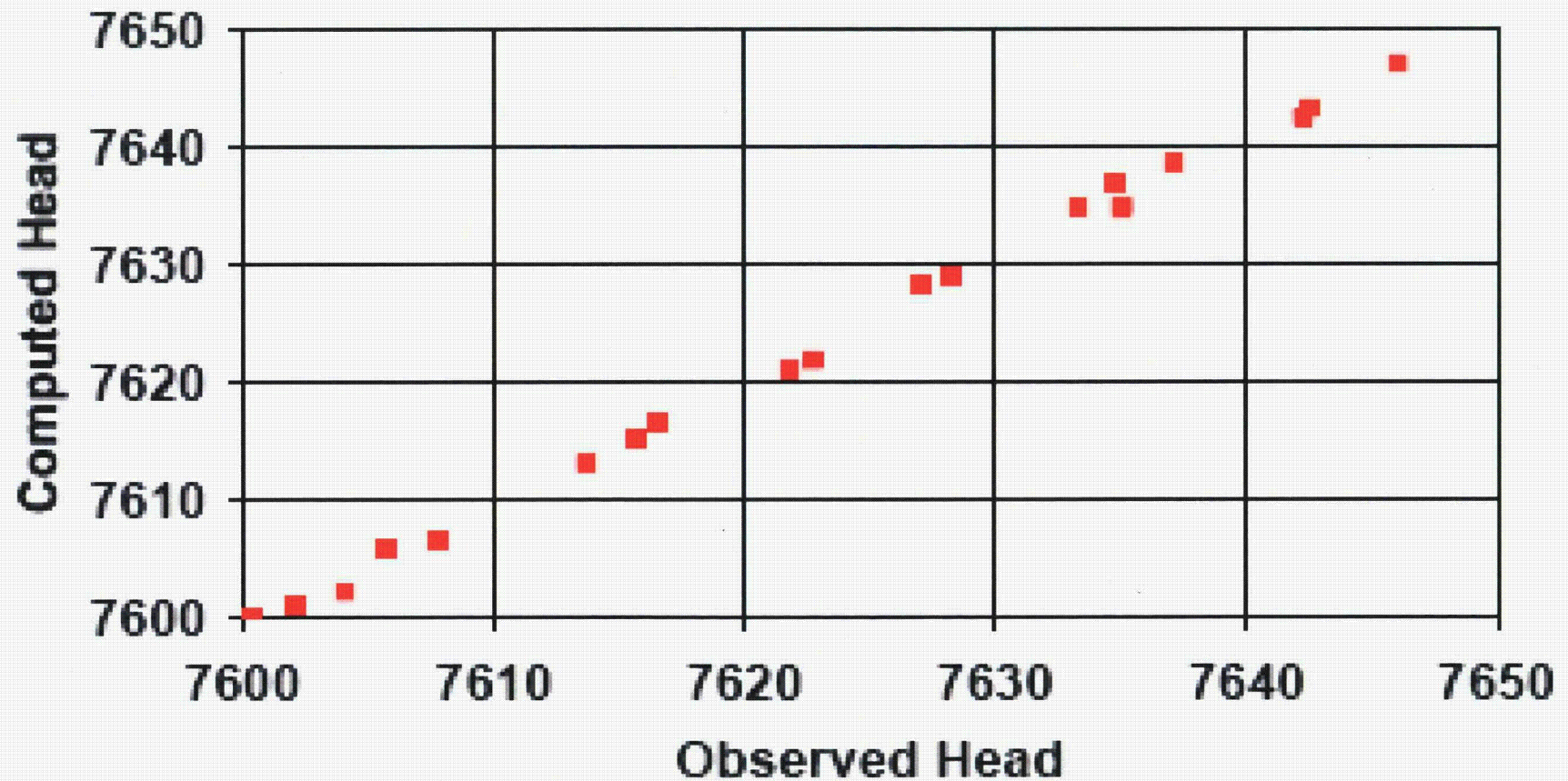
Model Residuals

Residual vs. Observed Head



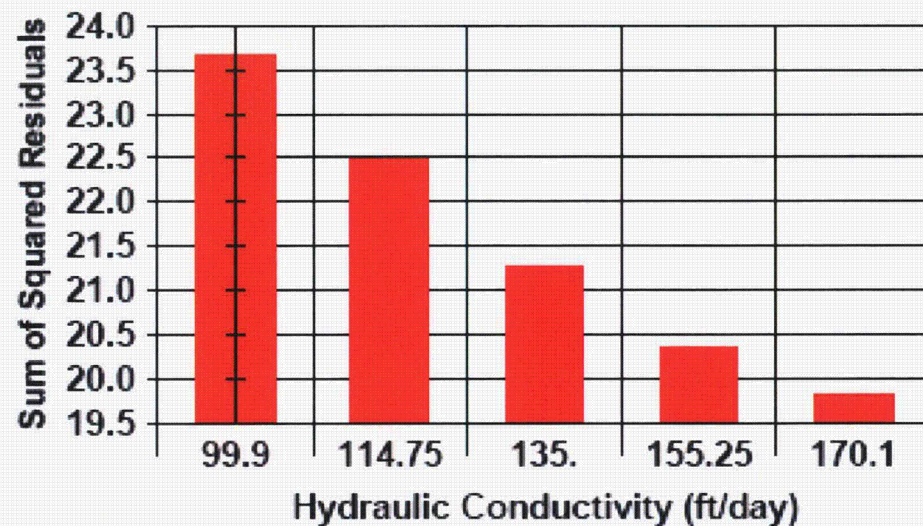
Model Correlation

Computed vs.Observed Head

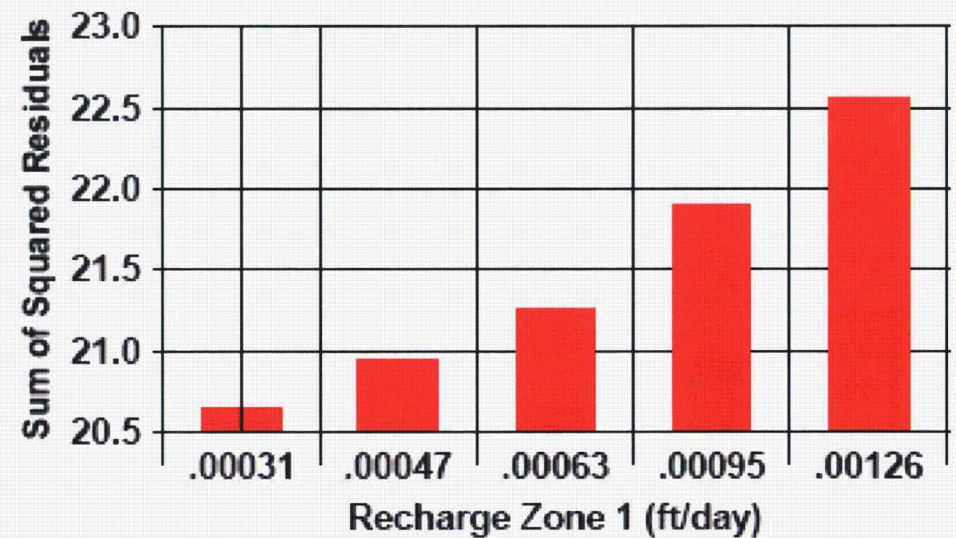


Sensitivity Analysis

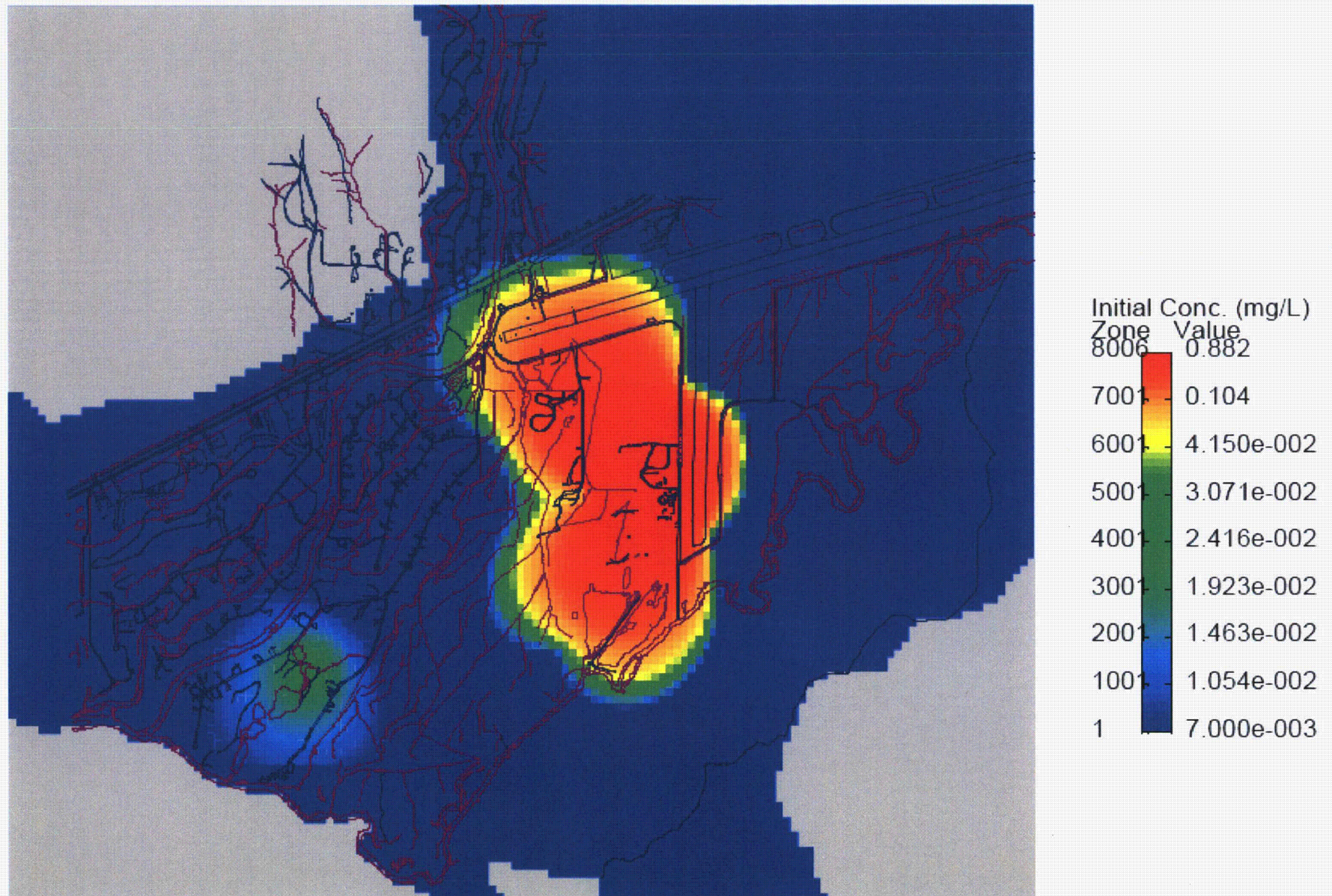
Hydraulic Conductivity Sensitivity Analysis



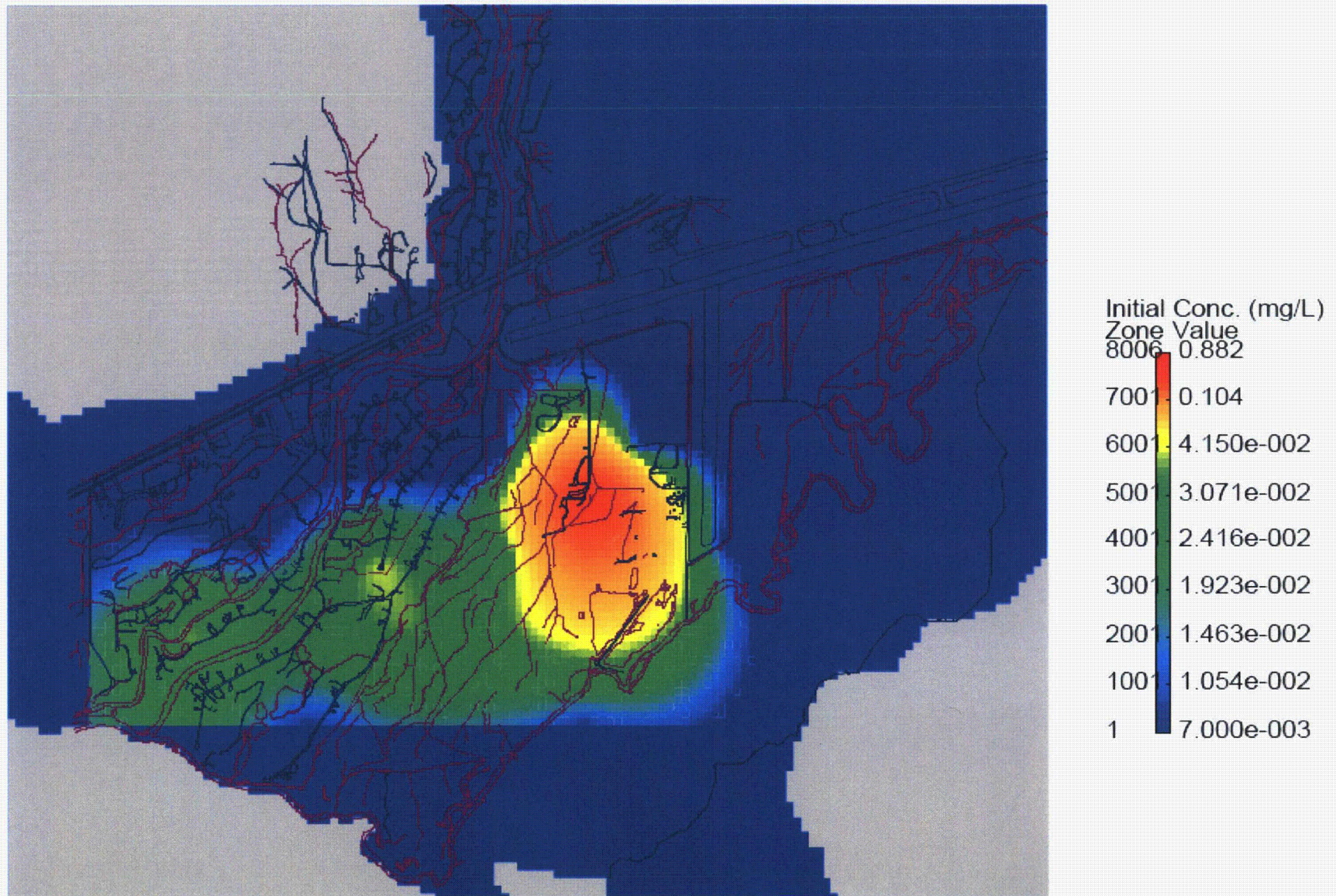
Recharge Zone 1 Sensitivity Analysis



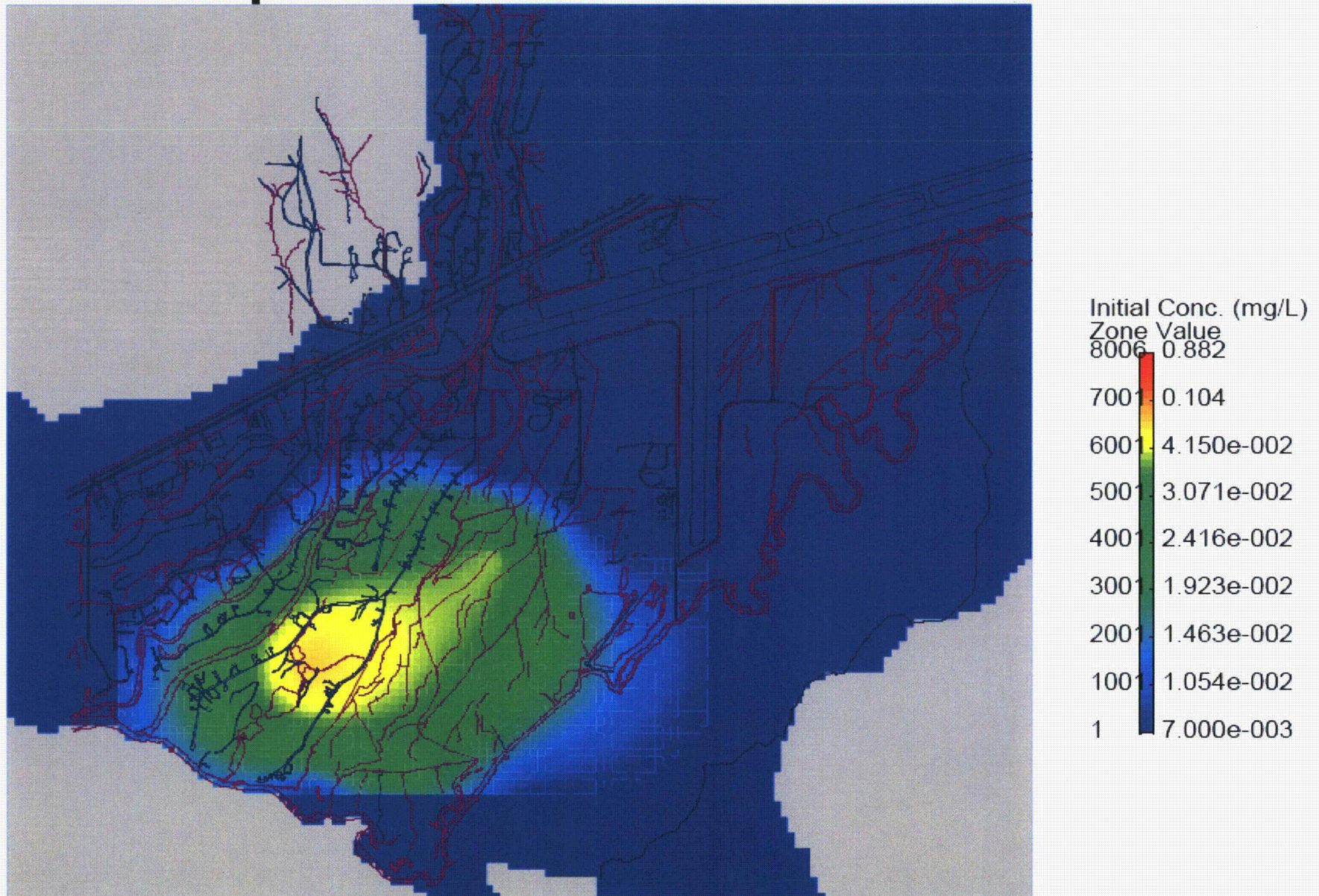
Shallow Uranium Contamination



Intermediate Uranium Contamination



Deep Uranium Contamination



Conclusions

- Steady State model to match observations
- Stochastic model to determine uncertainty
- Transport based on advection, sorption
- 100 years of flushing adequate