

AEROJET UPDATE

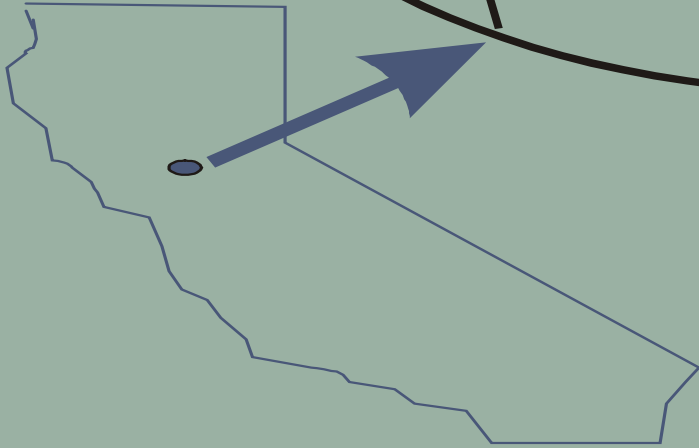
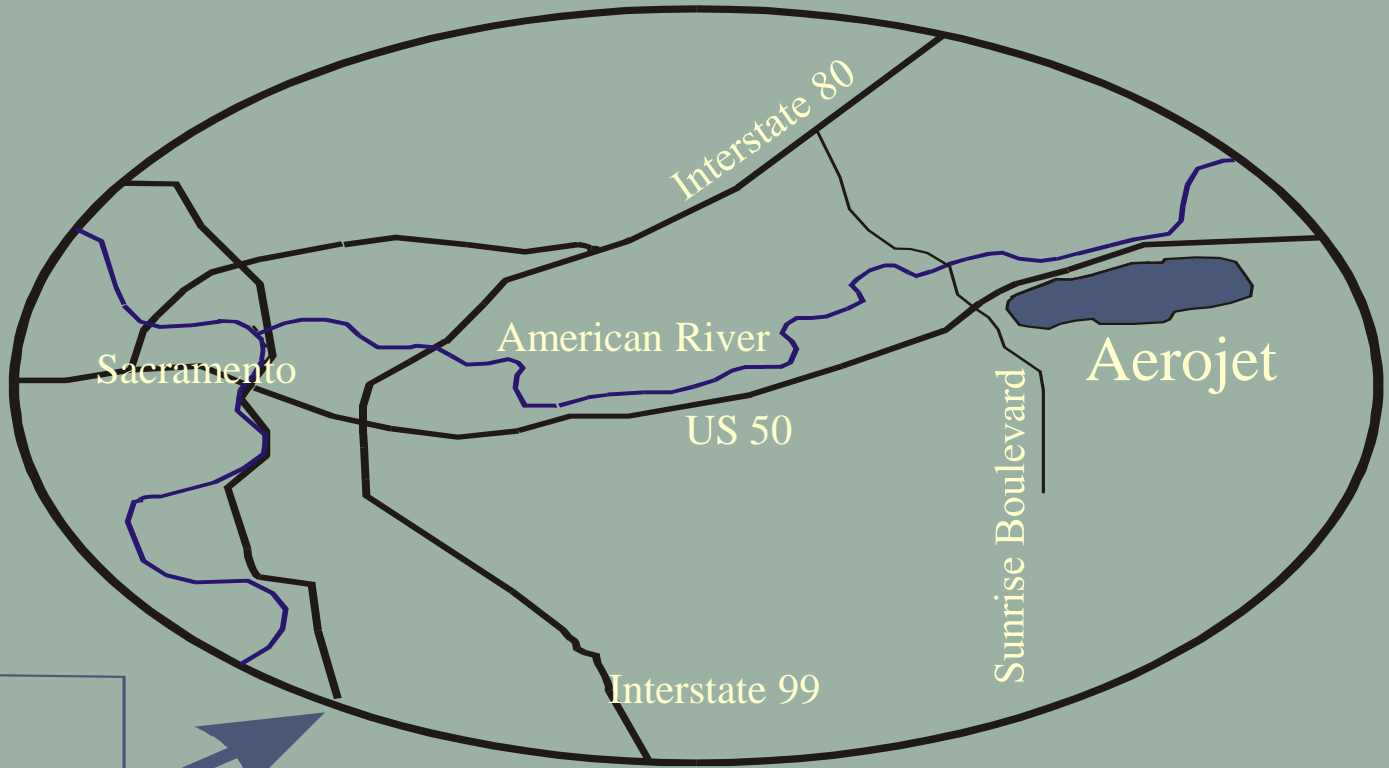


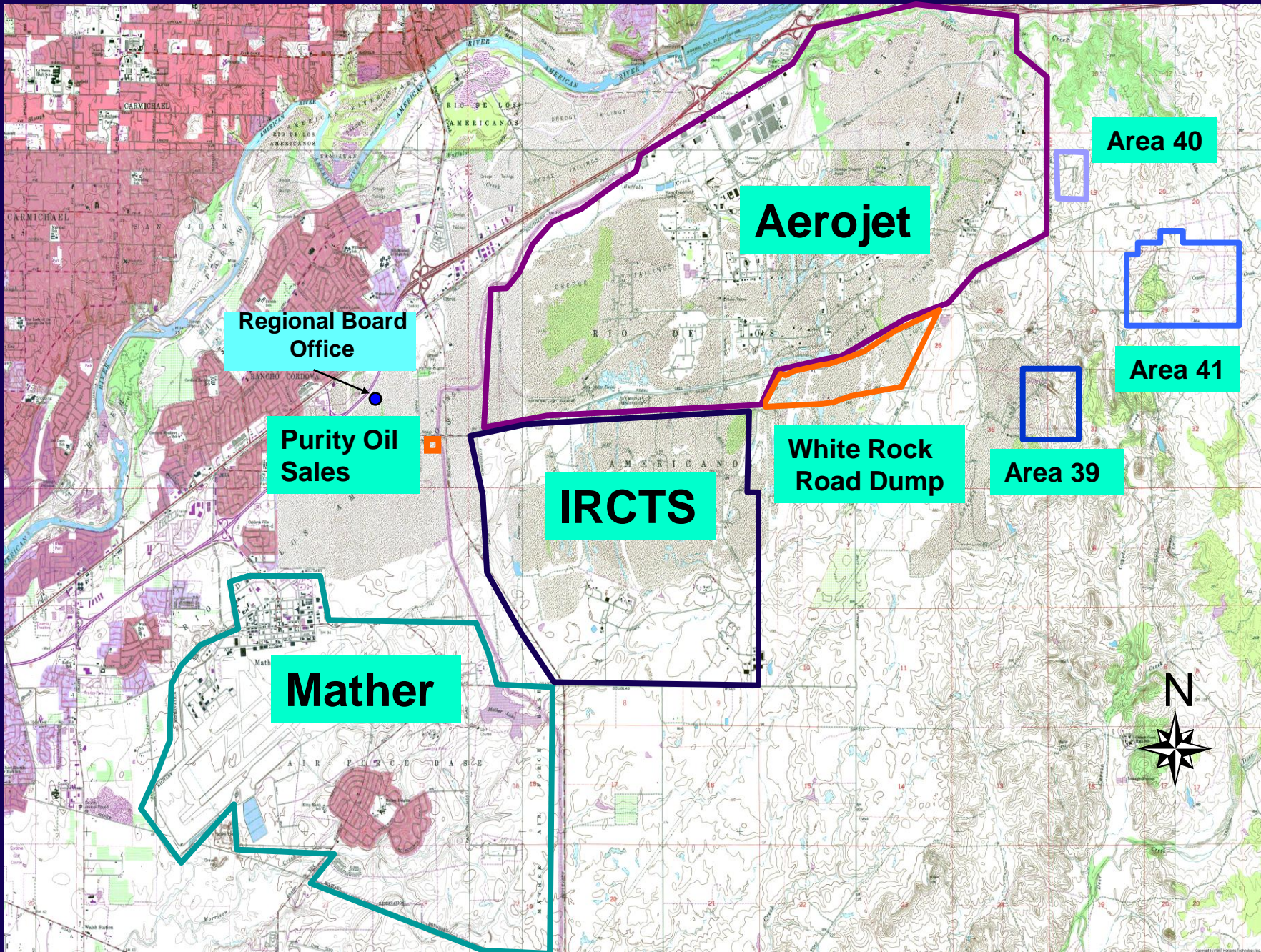
10 November 2010

Alexander MacDonald (RWQCB)

916-464-4625

amacdonald@waterboards.ca.gov





Aerojet

Area 40

Regional Board Office

Area 41

Purity Oil Sales

Area 39

IRCTS

White Rock Road Dump

Mather



Groundwater Flow

Sector C

Sector A

Sector D

Sector B

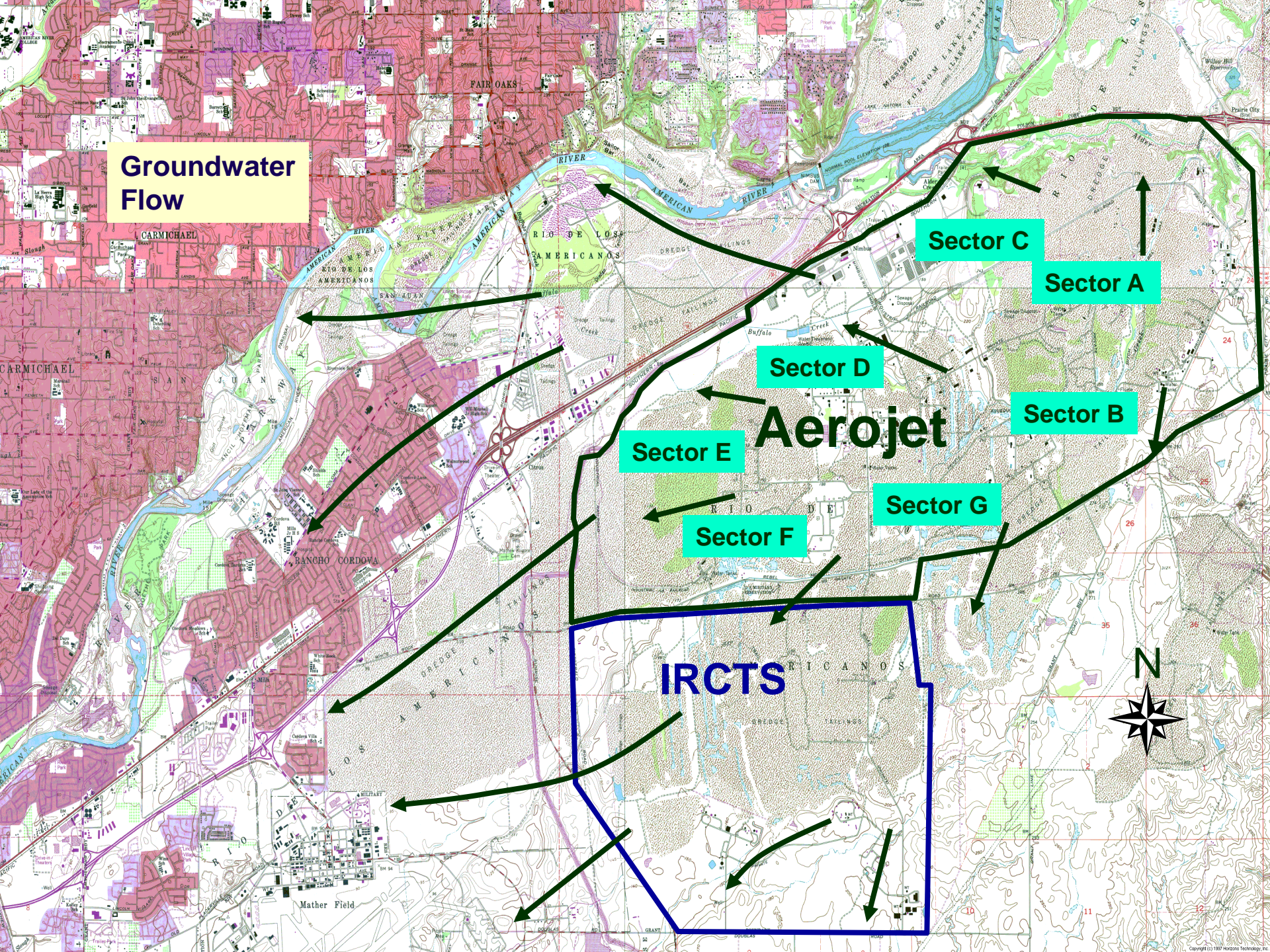
Sector E

Aerojet

Sector G

Sector F

IRCTS



E

W

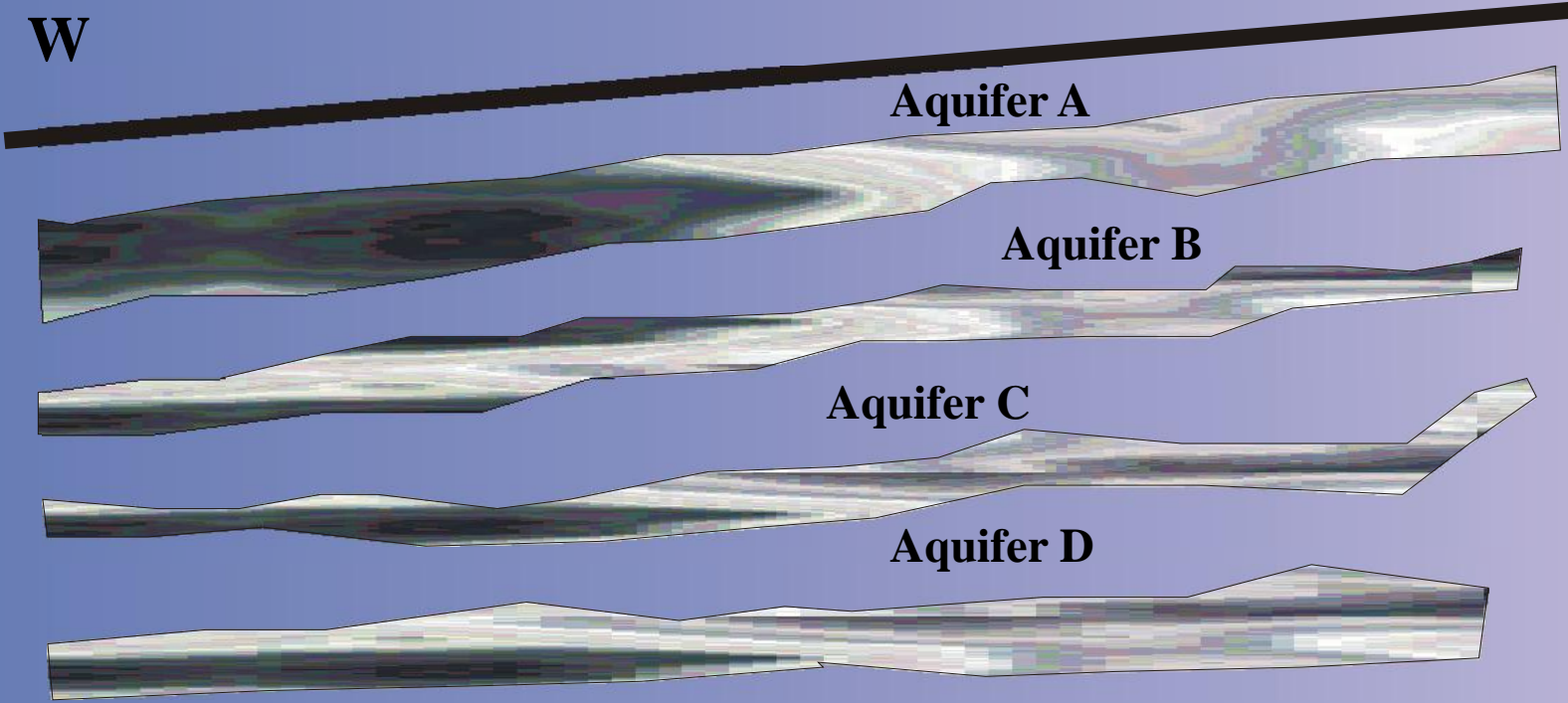
Aquifer A

Aquifer B

Aquifer C

Aquifer D

Aquifer E



Contaminants of Concern



- Solvents - TCE, PCE, Freon, Chloroform
- Perchlorate – component of solid rocket propellant
- NDMA – associated with liquid rocket fuel
- Fuels – hydrazine-based, kerosene

Cleanup Process



- Conduct Remedial Investigation (RI)
- Prepare Feasibility Study (FS)
- USEPA Prepares Proposed Plan – Public Meeting
- USEPA Issues a Record of Decision (ROD)
- Consent or Unilateral Order Issued
- Design Remedy
- Implement and Monitor the Remedy

Aerojet Historical Overview



- WDRs First Adopted 1952
- Over 40 Orders – WDRs, NPDES Permits, C&As, Referrals to Attorney General (AG)
- Discharges to Surface Water, Landfills, Injection Wells, to Ground
- Aerojet Commences Groundwater Pump and Treat in 1982
- Aerojet Added to Superfund List in 1983
- 1989 Partial Consent Decree Signed

Aerojet-General Corporation

1989 Partial Consent Decree



Requires Aerojet to:

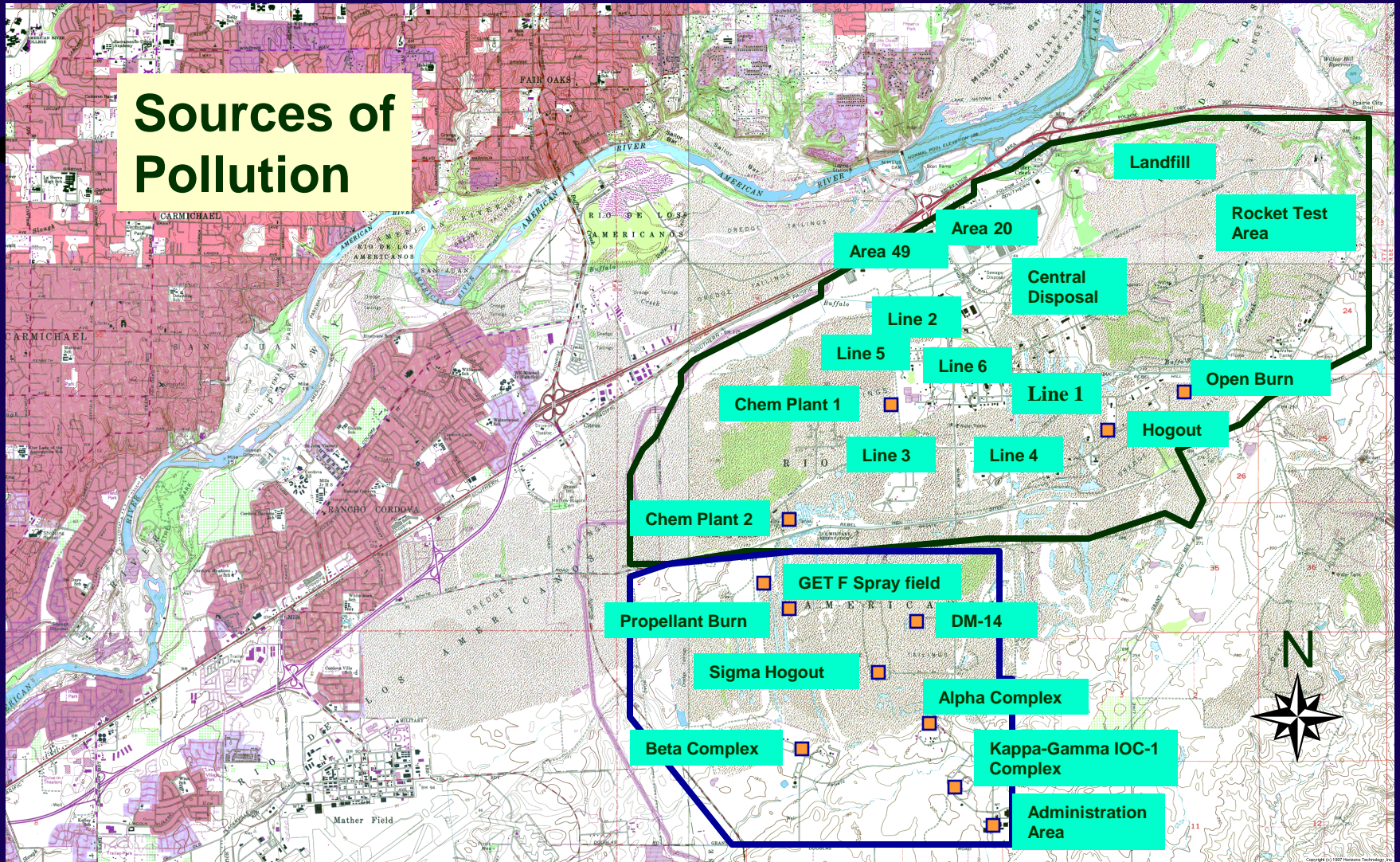
- Conduct a Remedial Investigation/Feasibility Study (RI/FS) for Entire Site
- Monitor Water Supply Wells and American River
- Provide Alternate Water Supply Reports for Triggered Wells
- Operate and Meet Standards for Groundwater Extraction and Treatment systems (GETs)

IRCTS Historical Overview



- 4000 Acre Parcel
- Owned and Operated by both McDonnell-Douglas and Aerojet-General Corp.
- Currently Owned by Aerojet
- Soil and Groundwater Contamination
- 1994 DTSC Order

Sources of Pollution



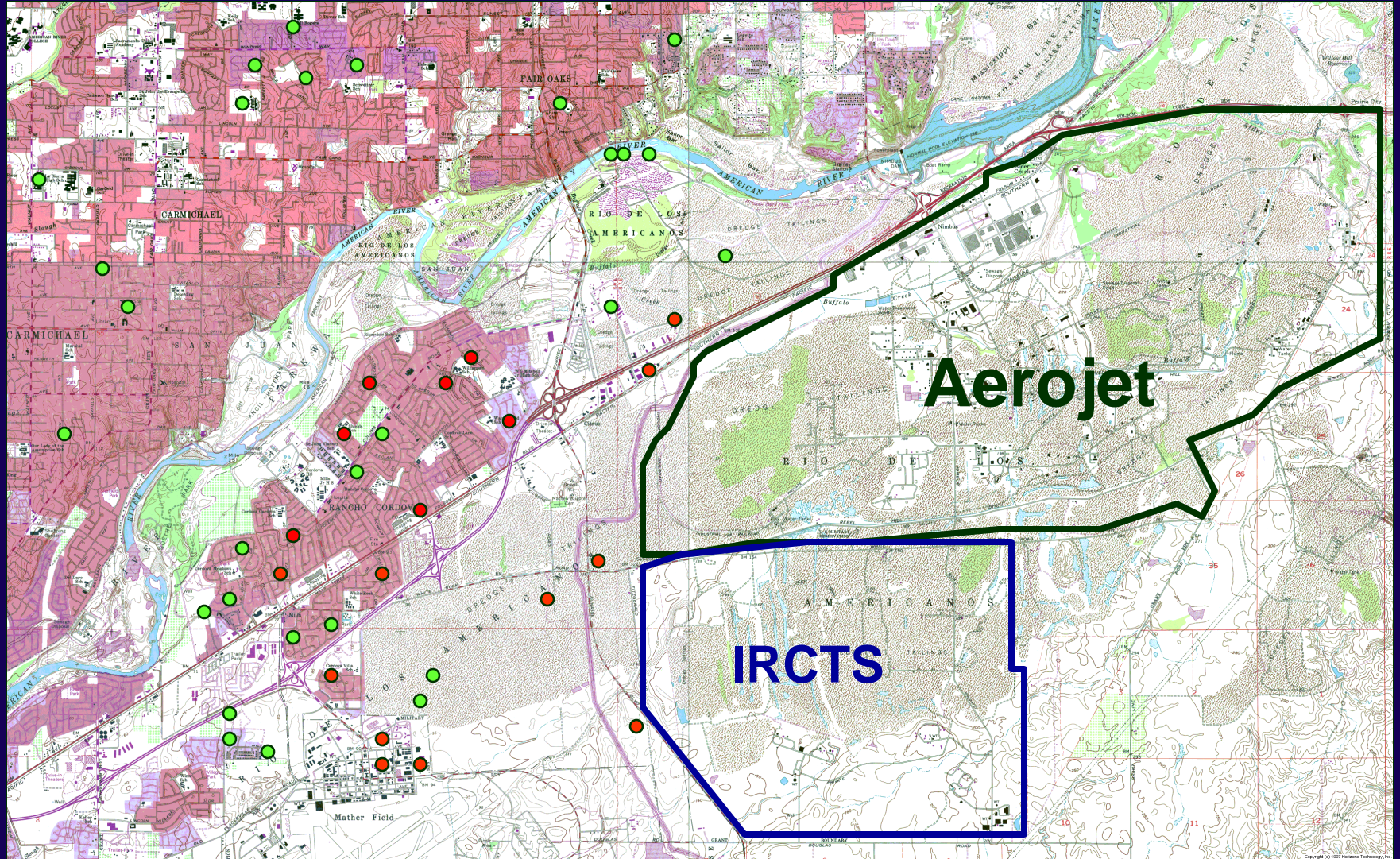
Early 1990's Efforts

- 1990-1993 Aerojet Completes Phase I Remedial Investigation
- 1994-96 Evaluates Groundwater Pollution in the American River Study Area
- December 1995 – EPA affirms Provisional Reference Dose for Perchlorate (4-18 ppb)
- 1996 - Aerojet Directed to Investigate Perchlorate off-site to West

1997 -1998 Lost Water Supplies



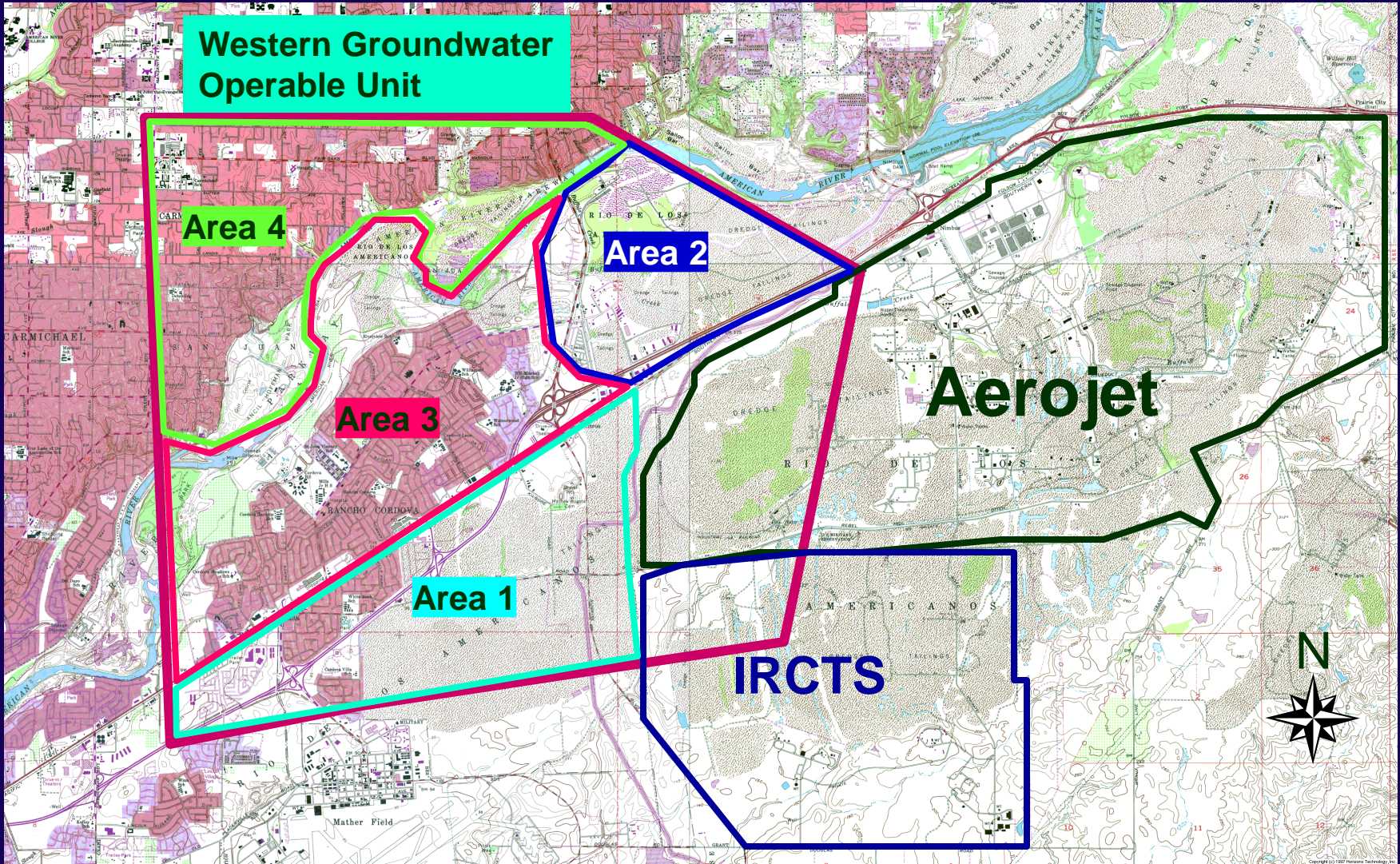
- Since 1997 18 Water Supply Wells Off-line Due to Pollution
- Interim Response Actions – Construction of New Wells and Pipeline/Storage Facilities
- Development of Contingency Plans for Interim Water Supply Replacement
- Evaluating an Implementing Long-Term Replacement Measures



Western Groundwater Operable Unit



- Remedial Investigation/Feasibility Study Completed in October 2000
- Record of Decision in July 2001
 - Cleanup Values of 4 ppb for perchlorate, 0.0013 ppb for NDMA, and 5.0 ppb for TCE
- Unilateral Administrative Order (UAO) Issued by EPA in August 2002
 - UAO Requires Design and Implementation of Remedy
 - Includes Contingency Plan for Replacement Water Supplies



Initial Implementation of Western Groundwater Remedy



- Add Additional Extraction Wells on Aerojet Property
- Construct 3 Off-Property Extraction and Treatment Systems
- Discharge Treated Groundwater Under an NPDES Permit
- Continue Evaluation of Western Plume in Areas 3 and 4 and Need for Modification of Design
- Add New Extraction and Treatment Facilities as Needed

2002 PCD Modifications



- Divide Aerojet Site for Investigation and Reduce Time to Get to Cleanup
- Have An Enforceable Schedule to Complete RI/FS
- Enhance the Requirements of Alternative Water Supply

2002 PCD Modifications



Alternate Water Supply Contingency Plan

- Must Provide Immediate Interim Water Supply for Most Threatened Wells
- Required to Be Modified As Needed
- In Effect Until Western Groundwater Record of Decision is Enforceable

2002 PCD Modifications

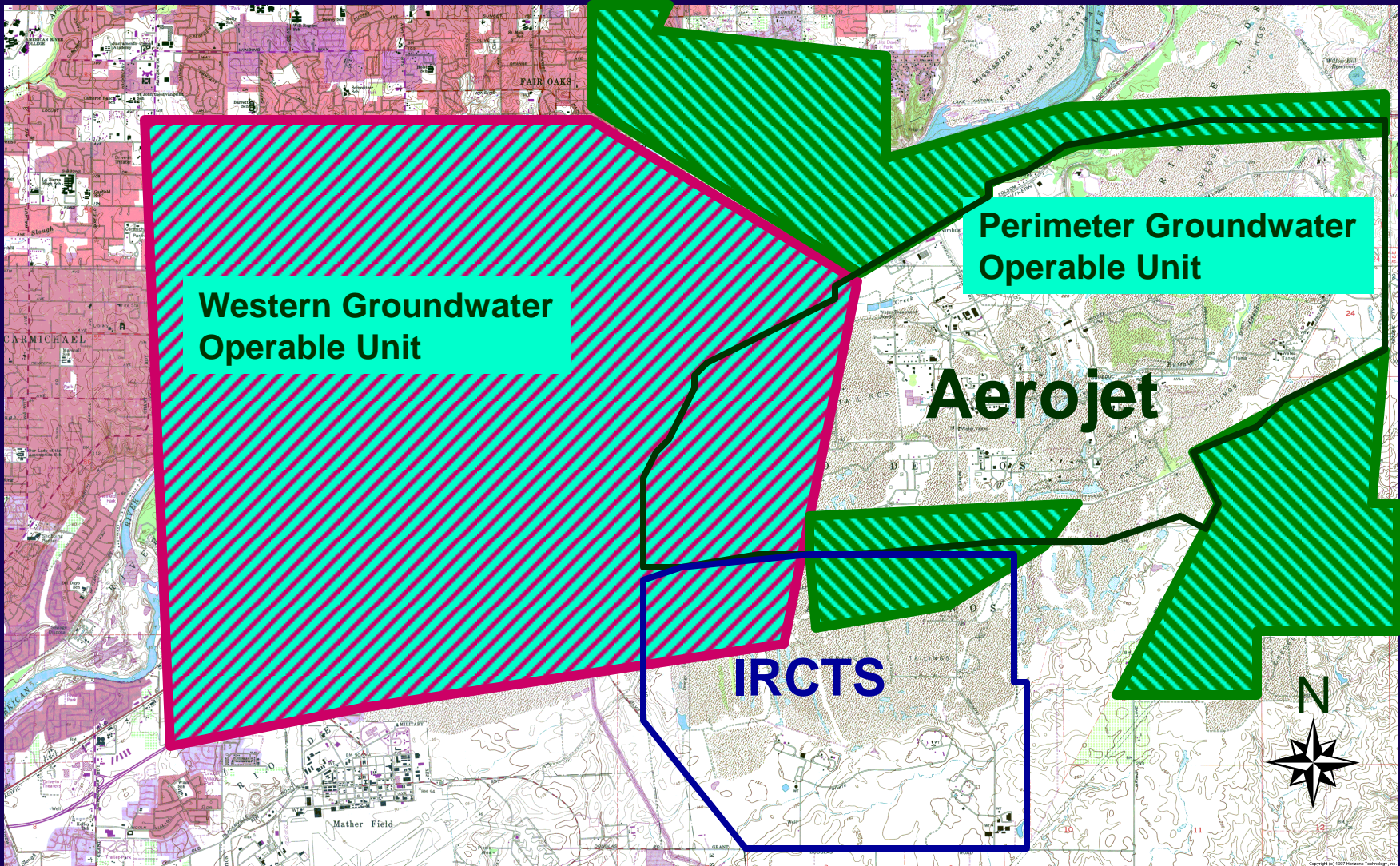


- Additional Financial Assurance
- Carve-out of a Portion of Aerojet Property from the PCD
- Deed Restrictions and Covenants on Carve-out Property

Perimeter Groundwater Operable Unit



- Remedial Investigation/Feasibility Study Completed in August 2008
- Record of Decision any day now
 - Will be an Interim ROD for groundwater and a final ROD for soils
 - No cleanup values for groundwater
- Unilateral Administrative Order (UAO) will be issued by EPA likely in 2011



Western Groundwater Operable Unit

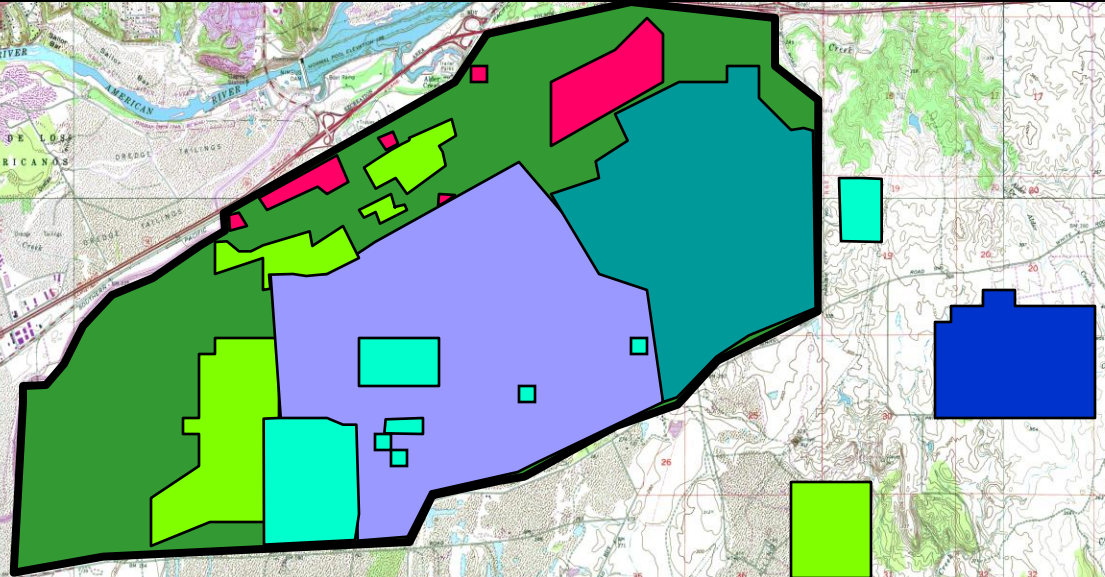
Perimeter Groundwater Operable Unit








Aerojet

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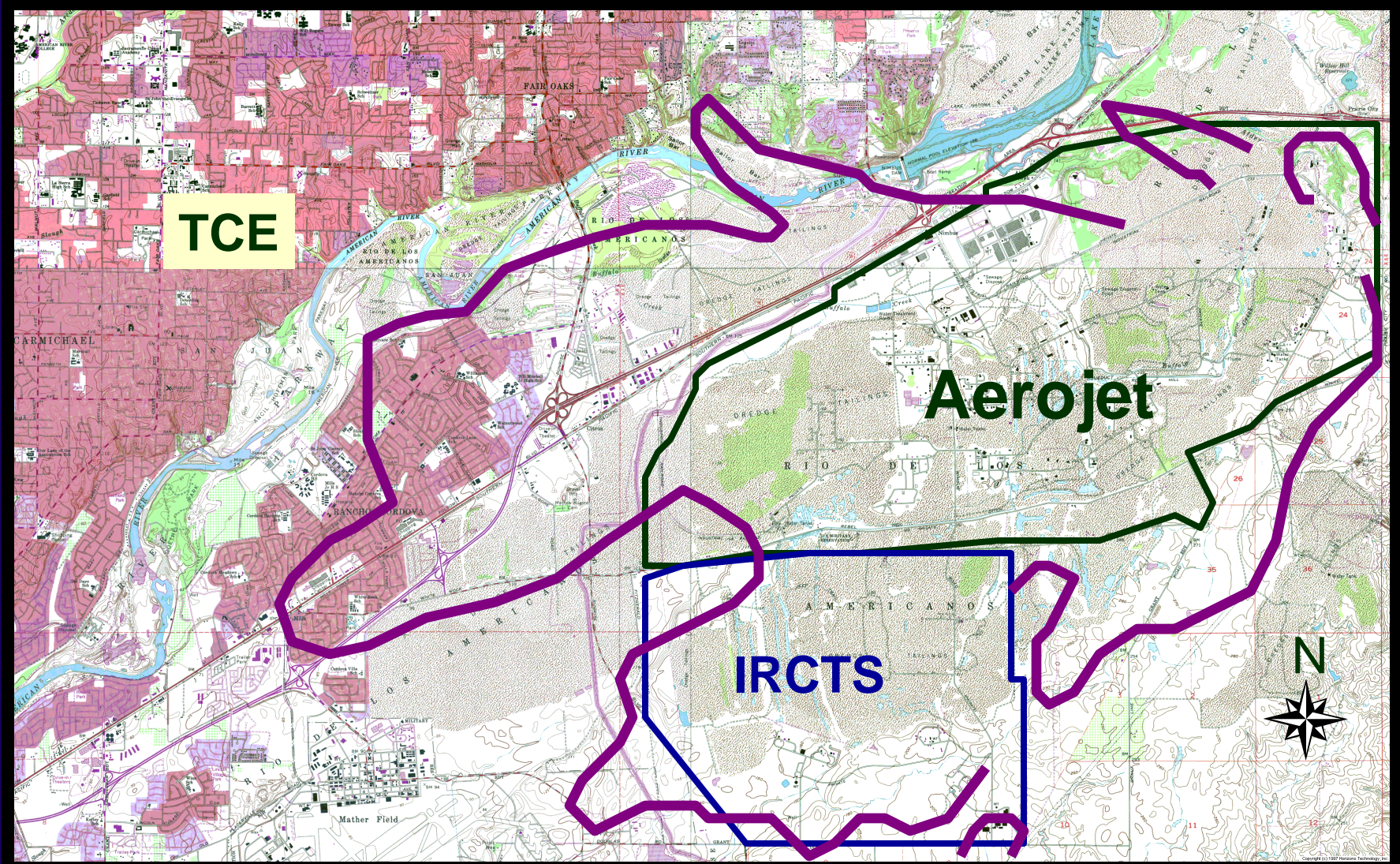


Soil Portions of Operable Units



-  Carve-out Land
-  OU-5 - Perimeter Groundwater
-  Boundary OU
-  Central OU
-  Island OU
-  Eastern OU
-  Cavitt Ranch





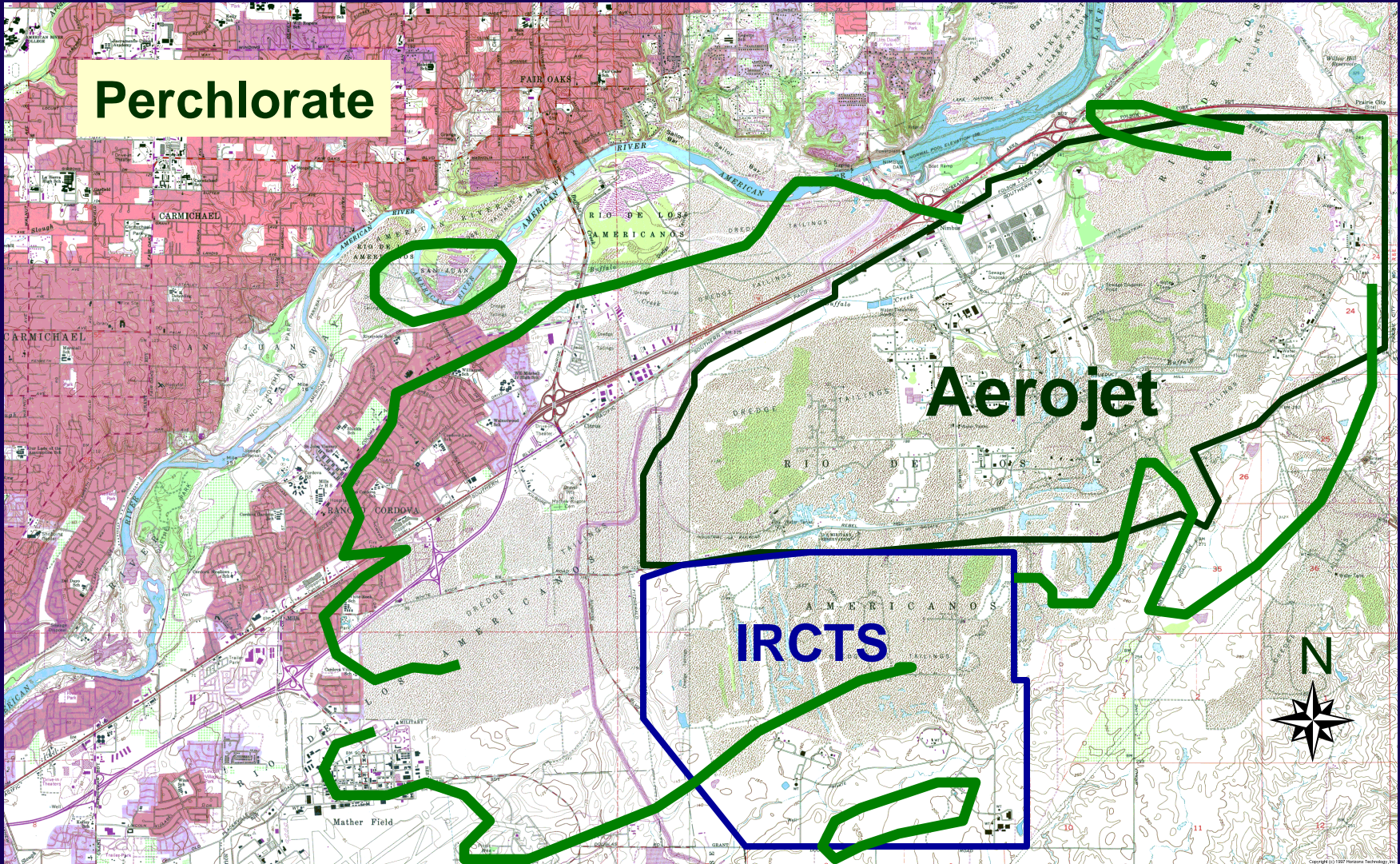
TCE

Aerojet

IRCTS



Perchlorate

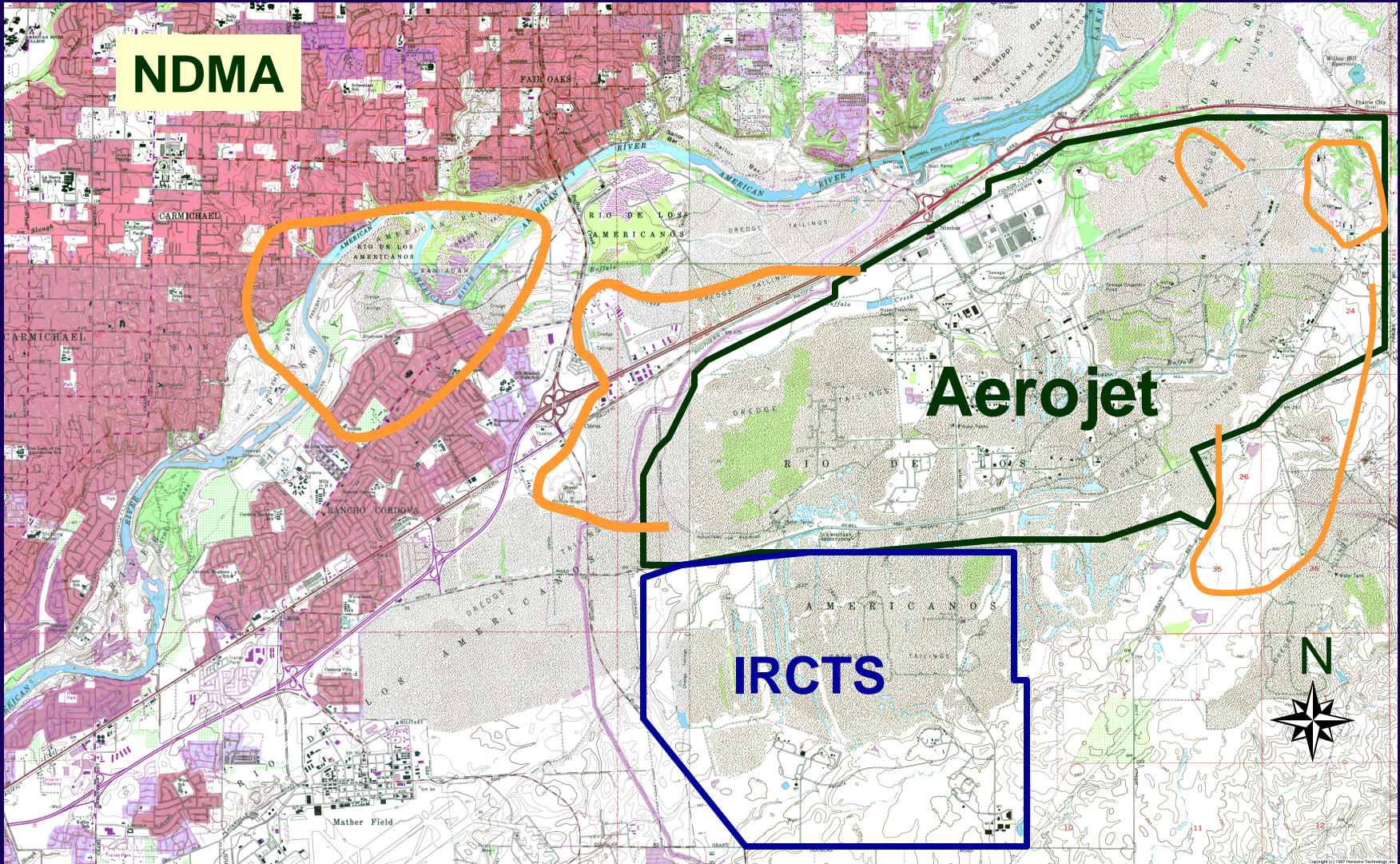


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NDMA



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