

The Quest For Alternate Concentration Limits at Rio Algom Mining LLCs Ambrosia Lake Facility



- Vital Statistics

- 7000 tpd Acid Leach Mill

- 1958 – 1985

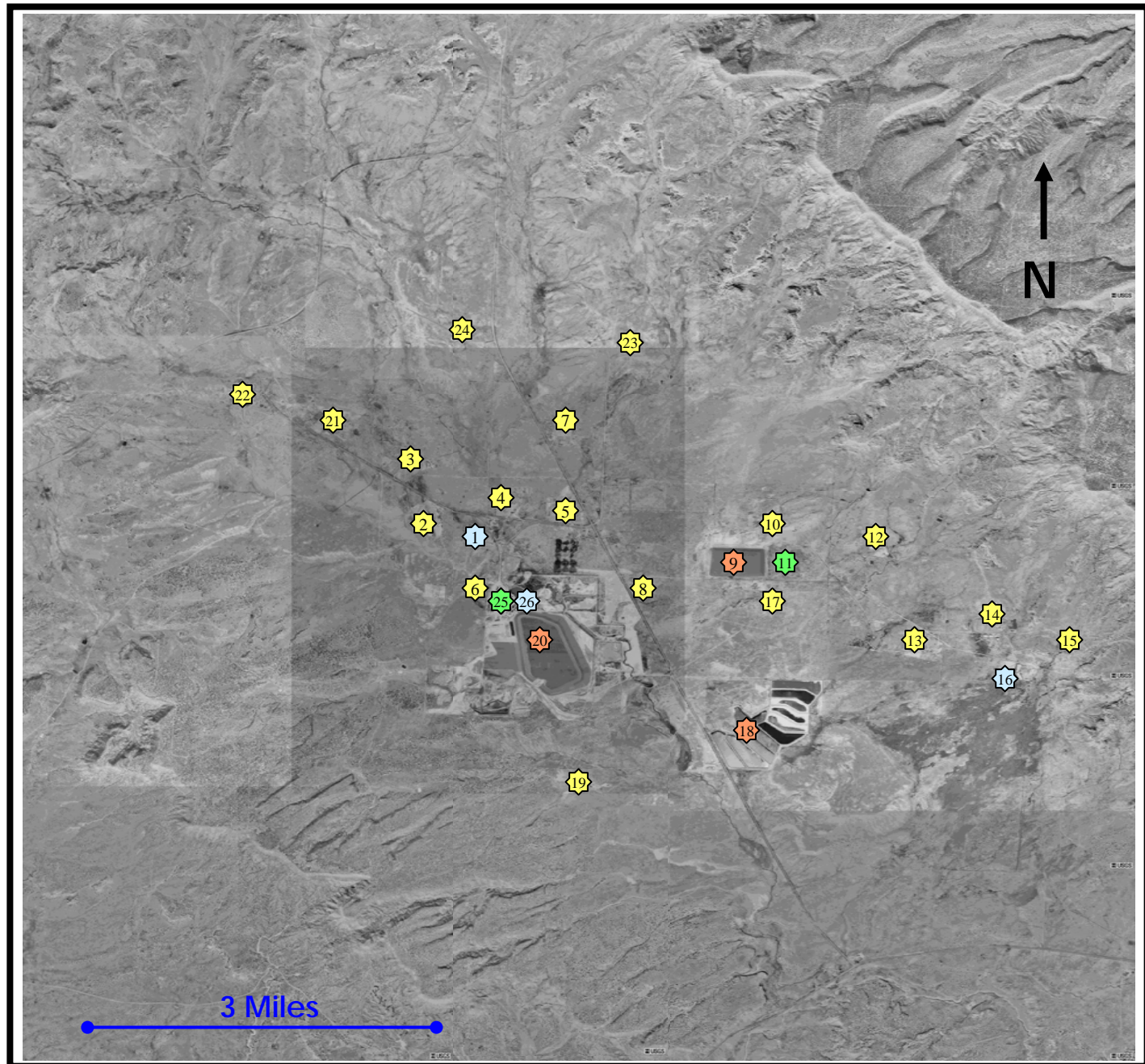
- 130 Million Pounds Yellowcake

- 33 Million Tons of Tailings (350 Acres)

- 18 Evaporation Ponds (400 Acres)



Ambrosia Lake Valley Features



Rio Algom Mining LLC Mill Site

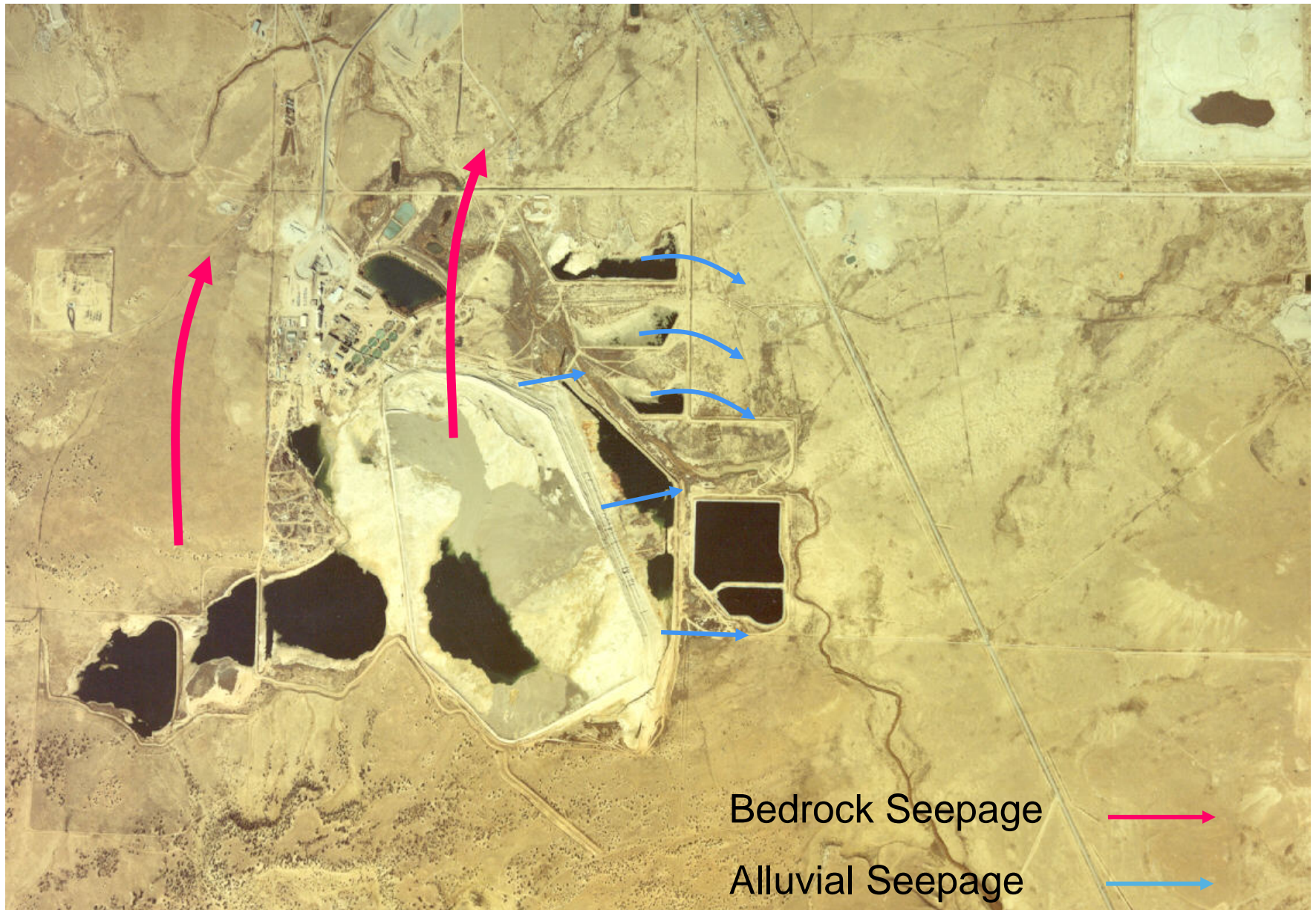


1 Mile

Ambrosia Lake Mill Facility



Seepage Path From Mill Site



The Players

- Rio Algom Mining LLC
- Nuclear Regulatory Commission
- New Mexico Environment Department
- Department of Energy

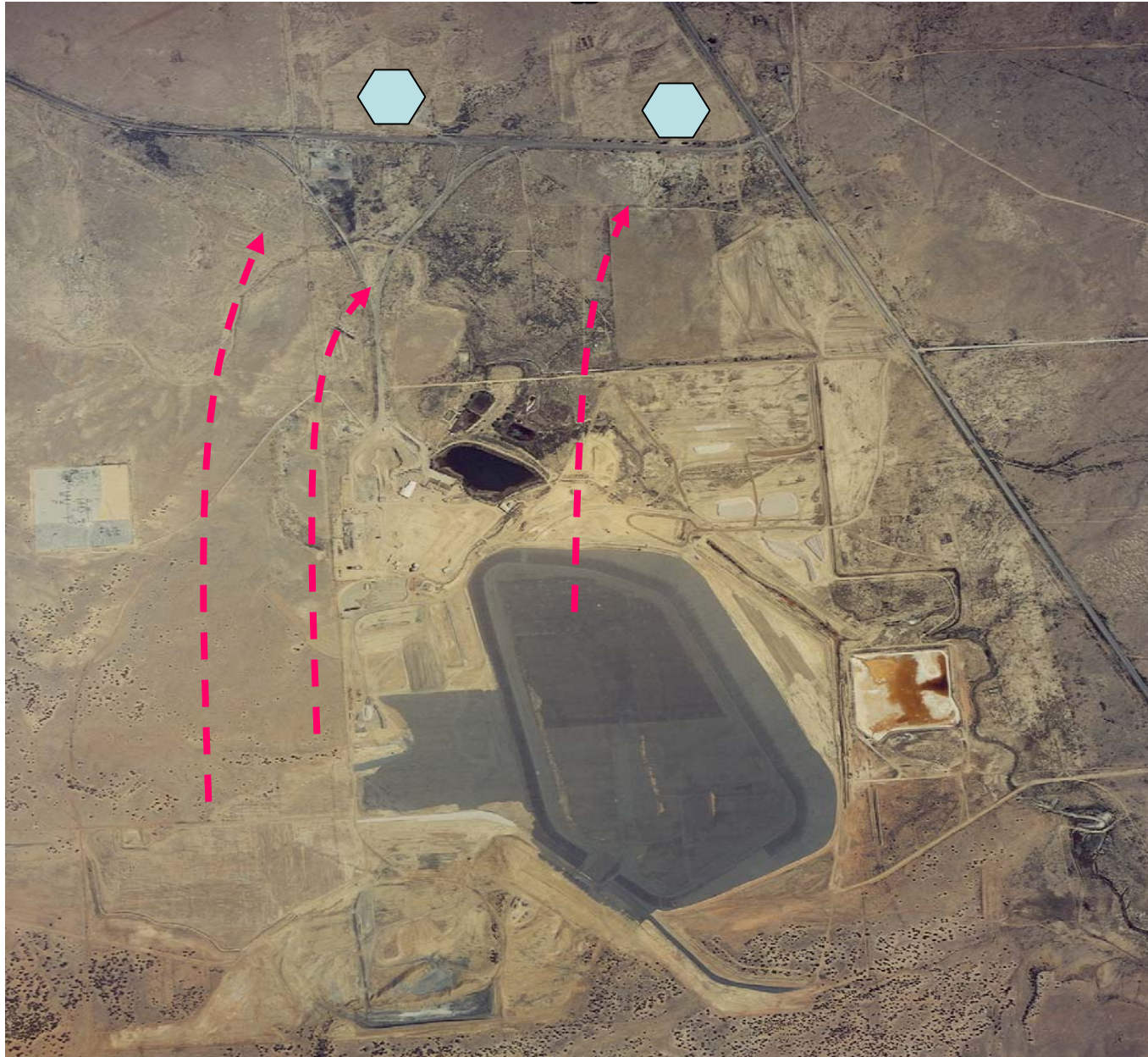


Mill Facility Oversight

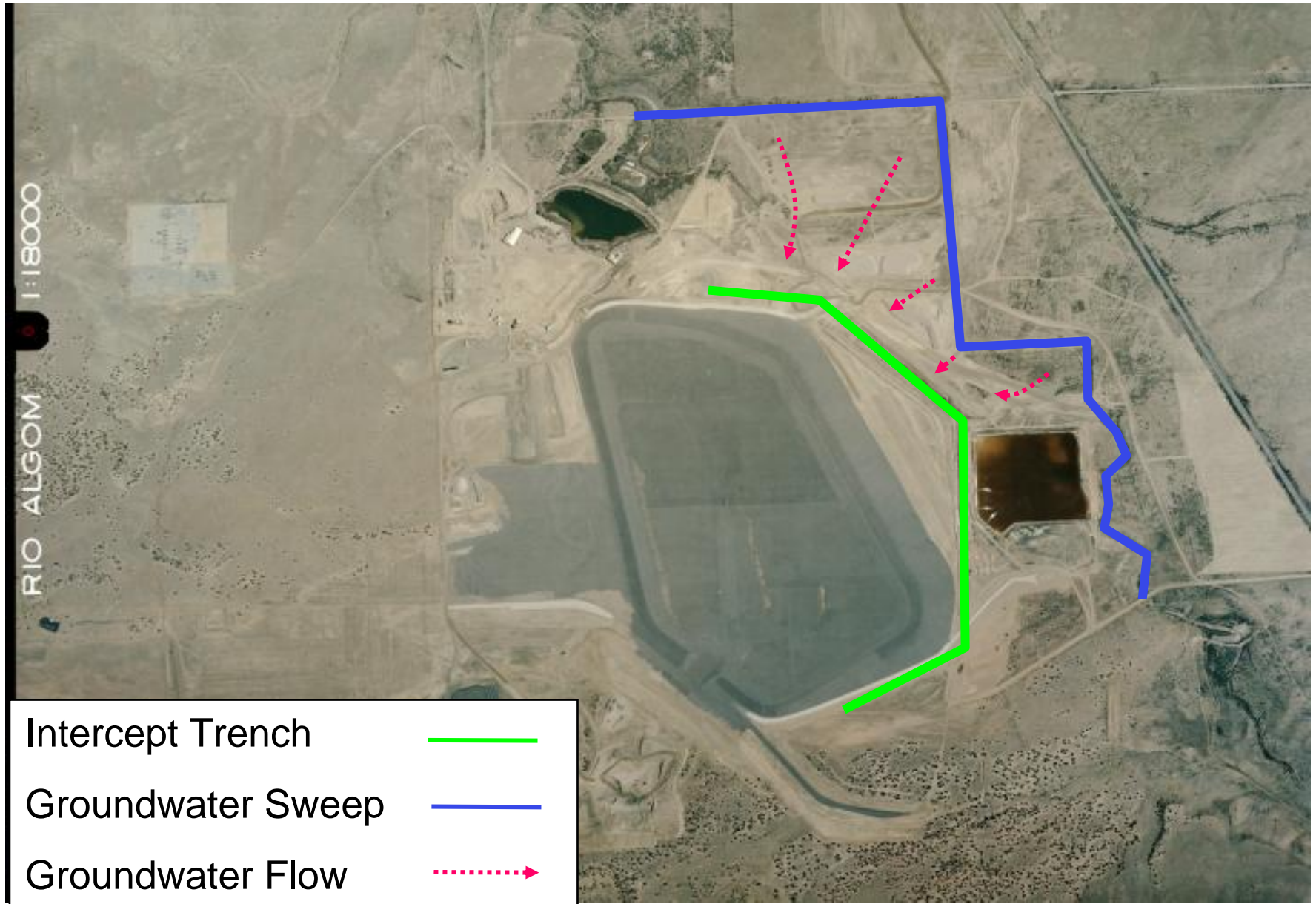
- NMED Regulated Milling Operations Until 1986
 - Groundwater Permits Issued 1980 - 1986
 - Mill Placed on Standby in 1985
 - NMED Unwilling to Regulate Sites Following Industry Collapse
- NRC Assumed Jurisdiction in 1986
 - RAM Required to Submit Reclamation Plans
 - RAM Required to Submit Groundwater Protection Plans
 - NMED Groundwater Permits Remained in Effect



Bedrock Corrective Action



Alluvium Corrective Action



Site Groundwater Standards

- NRC CAP
 - 19 Parameters
 - 4 Units
 - Dakota
 - Tres Hermanos A
 - Tres Hermanos B
 - Alluvium
- NMED DP-169 Specified Standards in 1995



Site Groundwater Standards

Parameter	Dakota	Alluvium
Uranium (mg/L)	0.02	0.06
Thorium-230 (pCi/L)	2.3	3.1
Radium-226/228 (pCi/L)	5.0	5.0
Molybdenum (mg/L)	0.05	0.06
Nickel (mg/L)	0.03	0.06
Selenium (mg/L)	0.04	0.05
Chloride (mg/L)	-	-
Sulfate (mg/L)	-	-
T.D.S. (mg/L)	-	-
Nitrate (mg/L)	-	-

Remediation Goals

- NRC

- Point of Compliance Concept Used
- Achieve Standard (Background, MCL, or ACL)

- NMED

- Protect Groundwater for Drinking Water Purposes
- Point of Compliance Concept not Recognized
- Alternate Abatement Standards Available
 - Public Hearing Required



ACL Application #1

- Initial Application Submitted 1991
 - Limited to Alluvium
- NRC Issues RAI in 1996
 - Delayed Pending Issuance of STP on ACLs
- NRC Denies Application in 1997
 - No Response Received From Rio Algom



ACL Application #2

- RAM Elects to Separate ACL into 2 Elements
 - Bedrock and Alluvium
- RAM Submits ACL For Bedrock Units in 2000
- RAM Submits ACL For Alluvium in 2001
- NRC Consolidates Documents and Initiates Review



ACL Application #2 (continued)

- NRC Contracts With CNWRA To Assist Review
- NRC Issues **RAI #1** – January 2003
- NRC/CNWRA Site Visit – February 2003
- RAM Response to RAI #1 – April 2003
- RAM/NRC Meeting – May 2003
- RAM/NRC Meeting (**RAI #2**) – August 2003
- RAM Response to RAI #2 – October 2003



ACL Application #2 (continued)

- CNWRA Raises Questions (**RAI #3**) – March 2004
- RAM/NRC Meeting – June 2004
- RAM Response to RAI #3 – July 2004
- NMED Comments on ACL – November 2004
- NRC Issues Draft EA – January 2005



ACL Application #2 (continued)

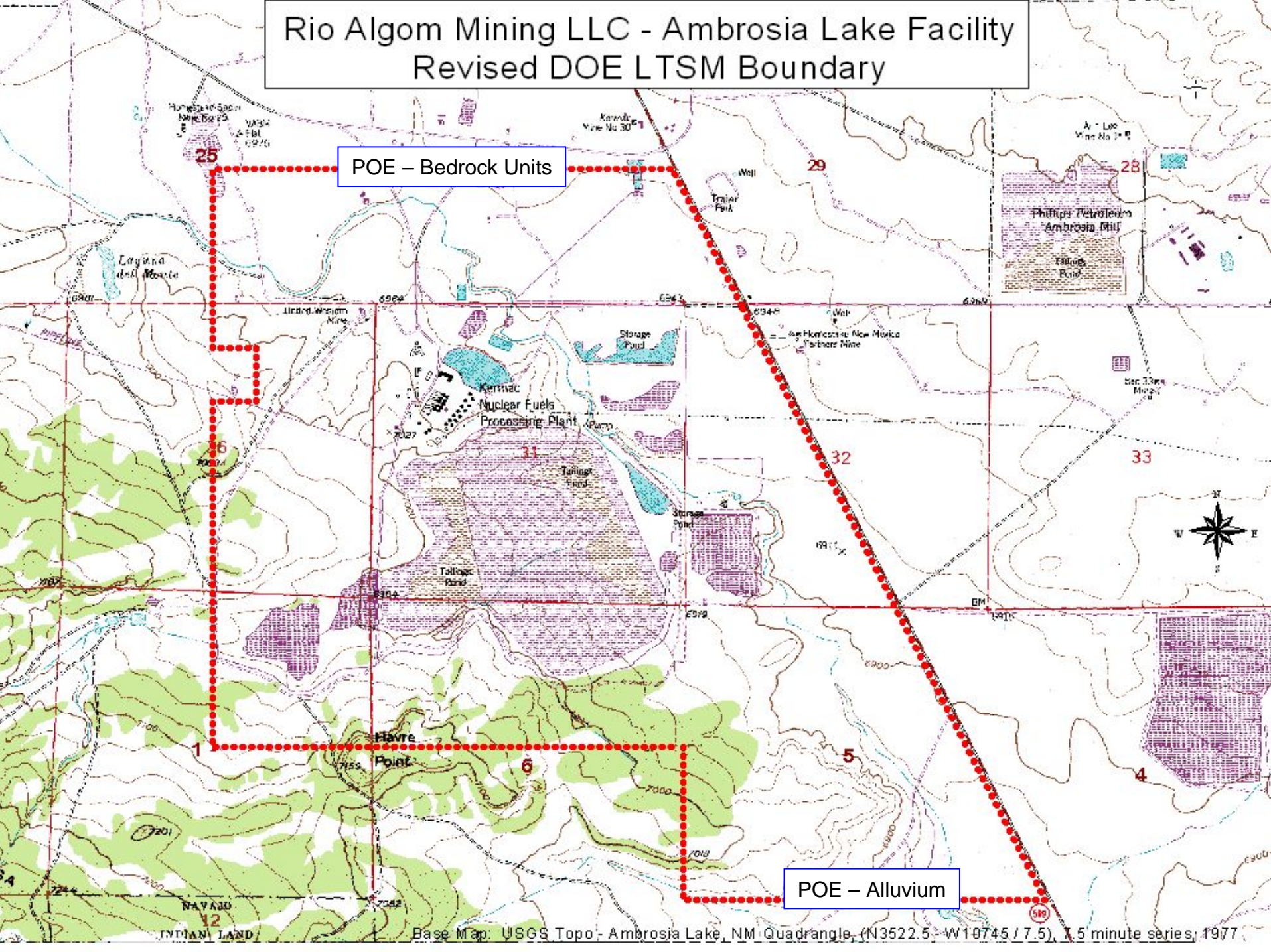
- NRC Responds to NMED Comments – February 2005
- NRC Requests More Information (**RAI #4**)– February 2005
 - Address Non-Hazardous Constituents
- RAM Responds to RAI #4 – July 2005
- NRC Issues **RAI #5** – October 2005
- RAM Responds to RAI #5 – December 2005
- NRC Issues EA – January 2006
- NRC Issues Amendment – February 2006



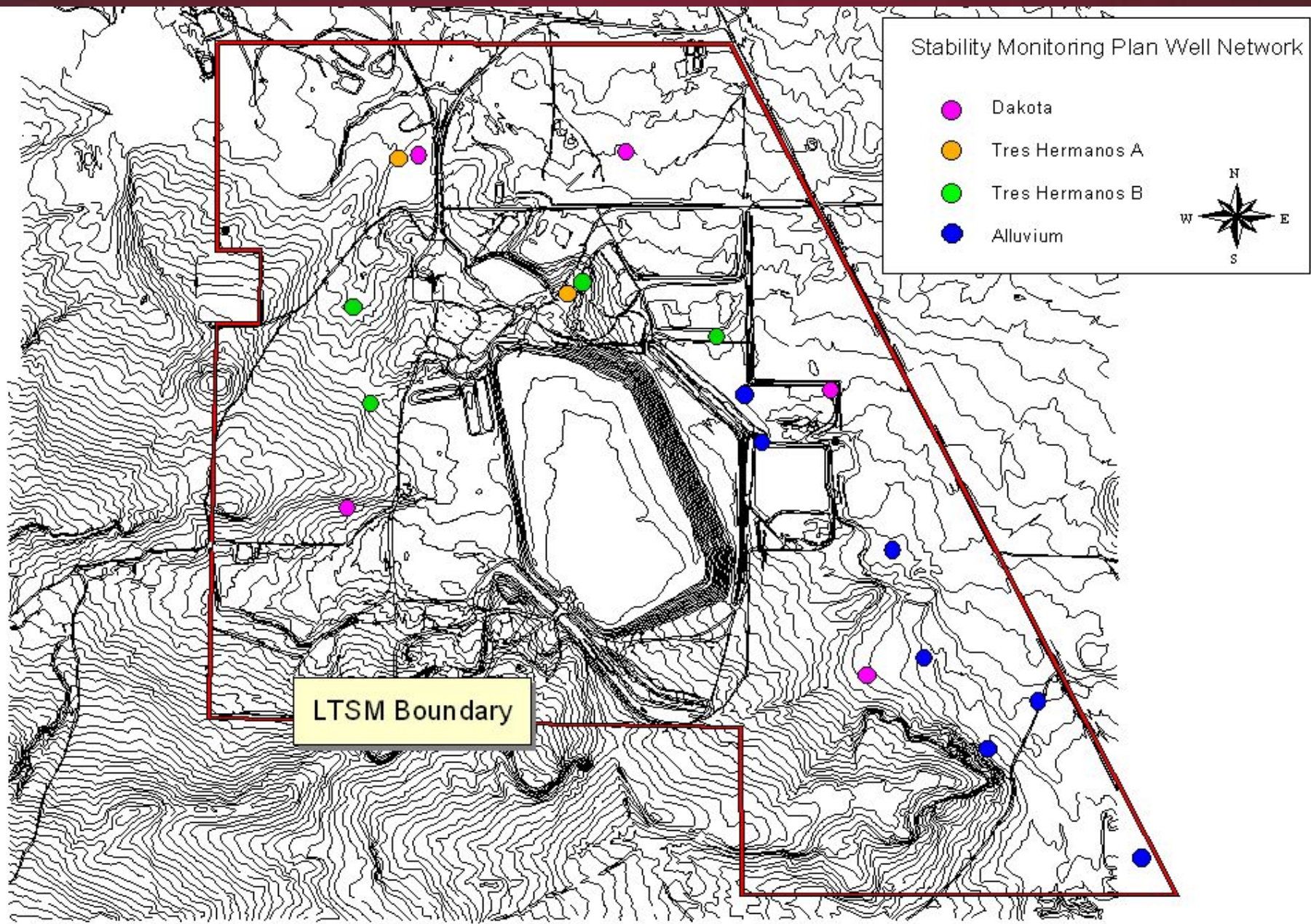
Approved ACLs

Parameter	Dakota	Tres Hermanos A	Tres Hermanos B	Alluvium
U-nat (mg/L)	1.6	No ACL	1.6	23
Th-230 (pCi/L)	945	945	945	13,627
Ra-226 and -228 (pCi/L)	218	218	218	3,167
Pb-210 (pCi/L)	88	88	88	1,274
Gross Alpha (pCi/L)	No ACL	No ACL	No ACL	8,402
Molybdenum (mg/L)	No ACL	No ACL	No ACL	176
Nickel (mg/L)	6.8	No ACL	6.8	98
Selenium (mg/L)	No ACL	No ACL	No ACL	49
Chloride (mg/L)	3,200	1,070	2,810	7,110
Nitrate (mg/L)	22.8	9.2	7.7	351
Sulfate (mg/L)	6,480	2,584	4,760	12,000
Total Dissolved Solids (mg/L)	14,100	6,400	11,700	26,100

Rio Algom Mining LLC - Ambrosia Lake Facility Revised DOE LTSM Boundary



Stability Monitoring Plan



What Next?

- Terminate NMED Discharge Permit
 - NRC Asserts Sole Jurisdiction (Fast Track)
 - Dissolve DP-169
 - Develop AAS With NMED (Not So Fast Track)
 - L-Bar Model



Lessons Learned

- Never, Ever Link Regulatory Approvals to Your Personal Bonus Program
- Know The Expectations of Each Party
- Maintain Communication With All Parties



Questions, Comments

