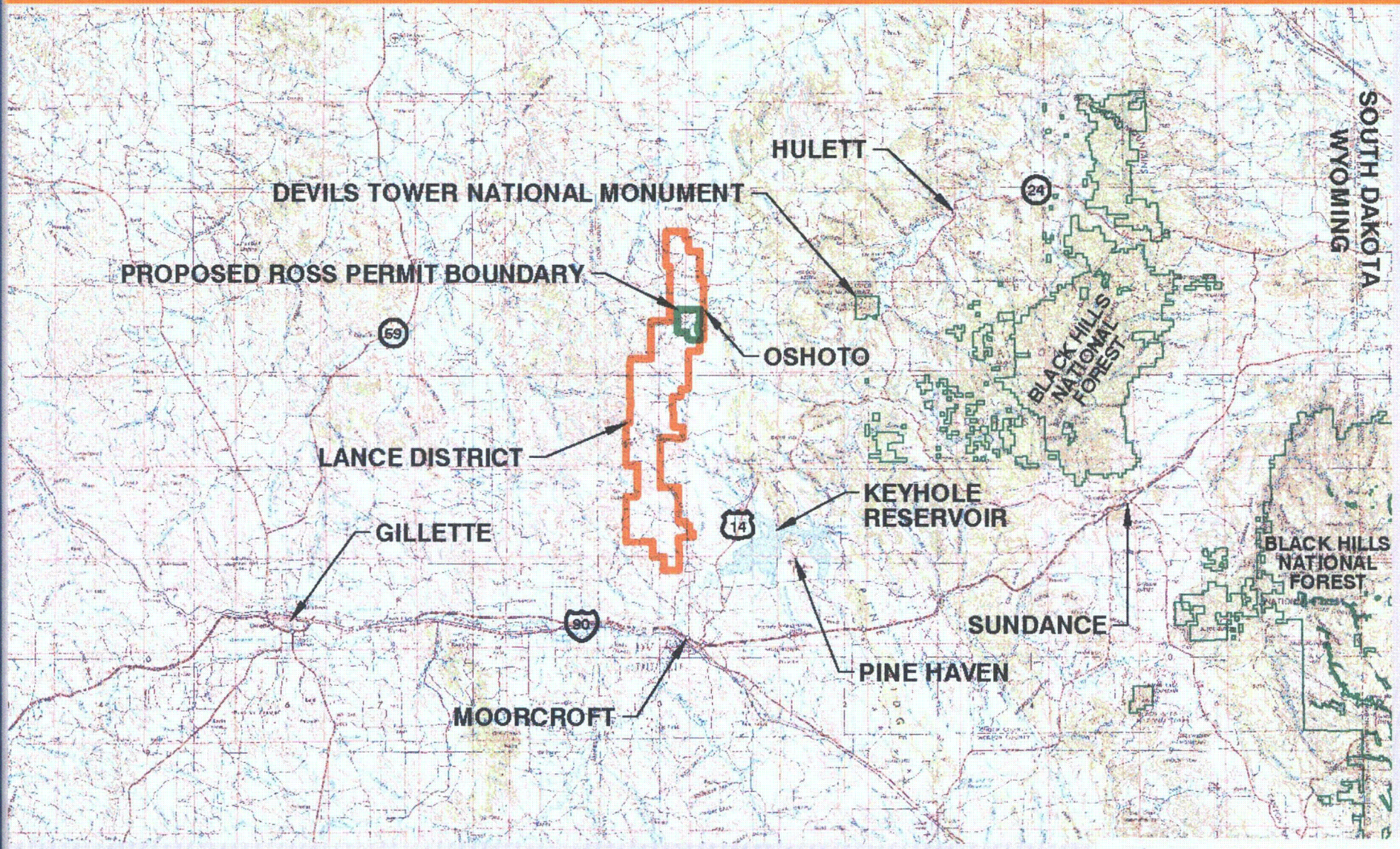
Ross Project and Lance District General Location



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Ross ISR Licensing Update

- Wildlife surveys ongoing (winter survey completed) along with WG&F and USF&WS consultations—critical species potentially could include; Utes Ladies tresses orchid, leopard frog, silver minnow – sage grouse has been eliminated as an issue of concern
- SHPO records search with no sites of record within or adjacent to project
- Agency consultations: BLM-NFO, CCNRD, Crook County Commission, WDEQ/WQD, WY State Lands, WDEQ/LQD – no significant issues have been raised at this time
- 2nd Stakeholder meeting and presentations on 1/15/10

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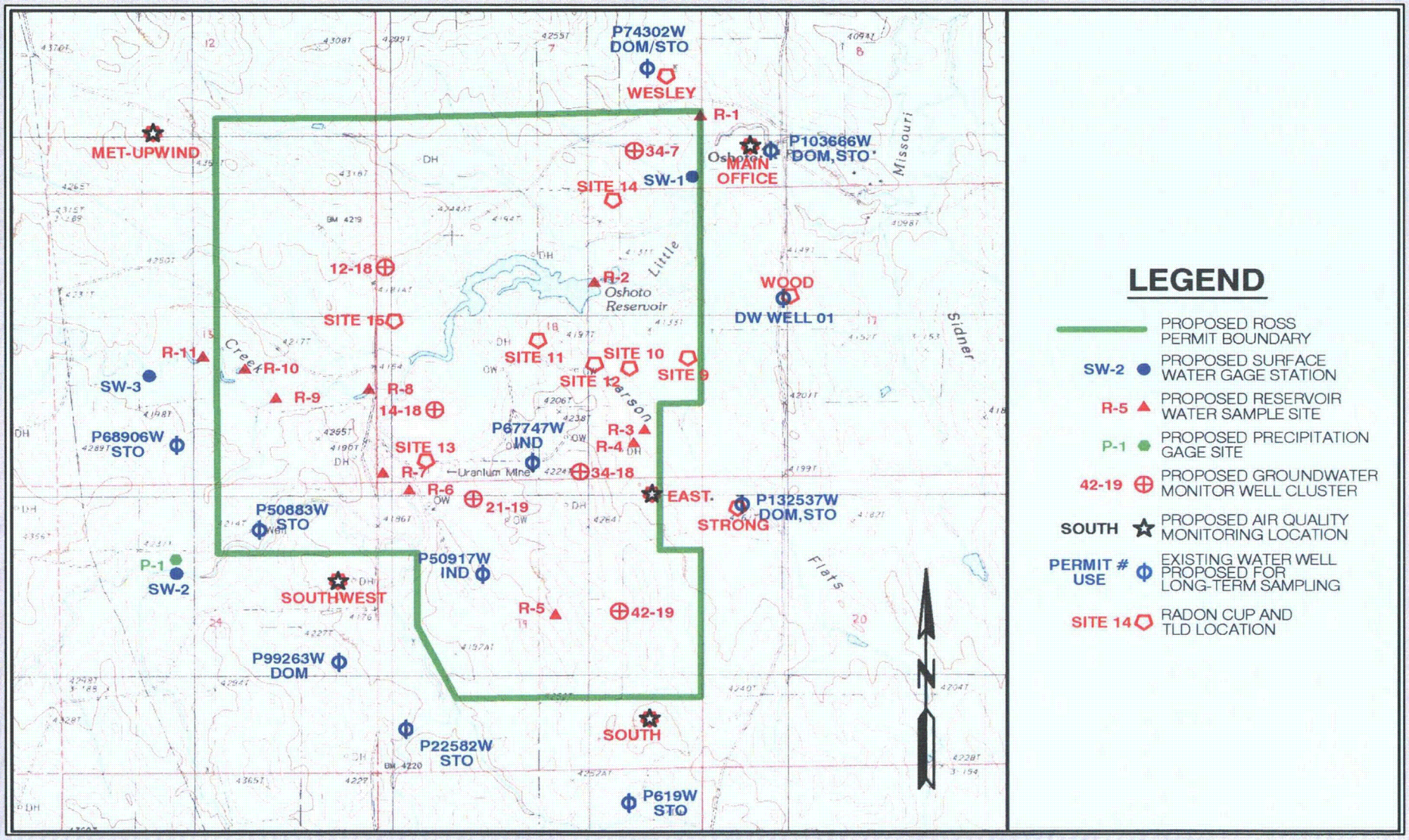
Pre-Operational Baseline Monitoring Sites



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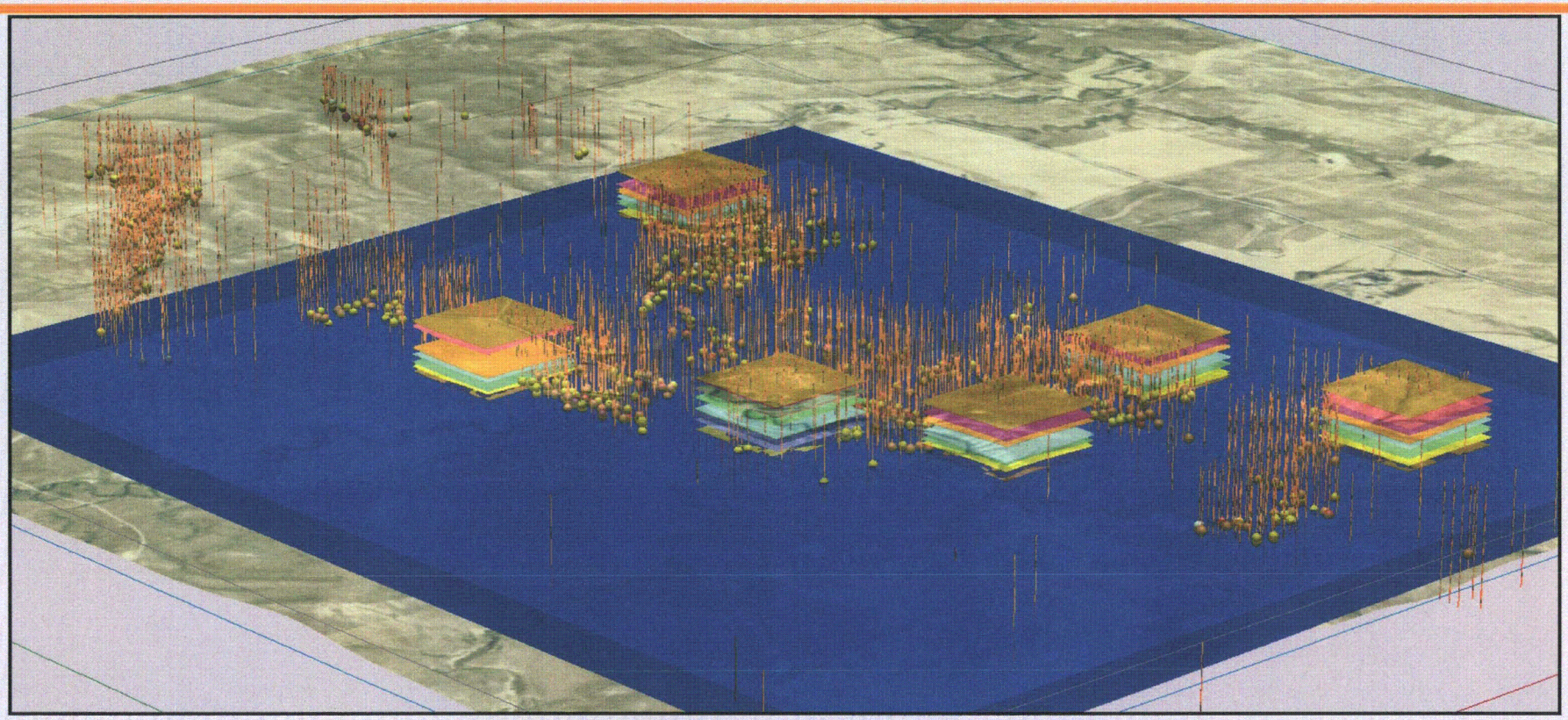
Lance Uranium Project Geologic Modeling



Utilizing GEMCOM software to produce a 3D subsurface Geologic model

- Central database incorporates historic and current drilling data
- Collaborative geologic and resource data guides development program
- 3 Dimensional control of key geologic surfaces validated against known drill hole data points

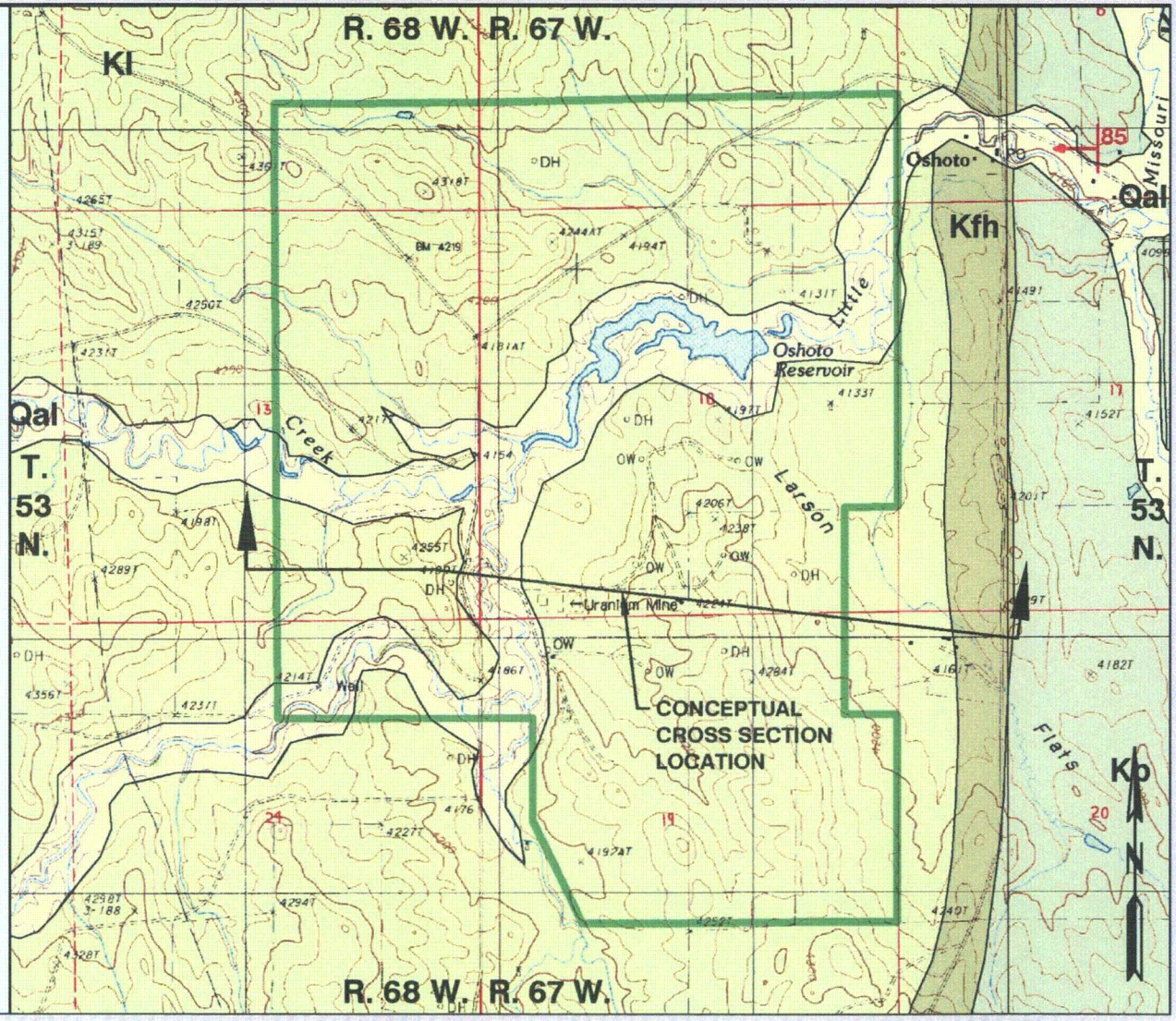
STRATA ENERGY

Bedrock Geology in Project Area

LEGEND

Qal		Alluvium (Holocene)
Kl		Lance Formation (Upper Cretaceous)
Kfh		Fox Hills Sandstone (Upper Cretaceous)
Kp		Pierre Shale (Upper Cretaceous)
	85	Field Verified Dip

Geology adapted from Halberg, L.L., Et. Al., Geologic Map of the Sundance 30' X 60' Quadrangle, Crook and Weston Counties, Wyoming and Lawrence and Pennington Counties, South Dakota: Wyoming State Geological Survey Map Series 78, Scale 1:100,000.



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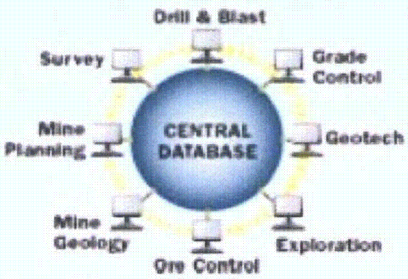
GEMCOM Platform Geologic Modeling

GEMCOM **GEMS**™
Geology and Mine Planning

GEMCOM

Collaborative Geology and Mine Planning Solution

» Download GEMS Brochure



Gemcom GEMS™ is the leader in collaborative geology and mine planning solutions. For over 20 years GEMS has been providing the right capabilities for open pit and underground mining professionals in exploration, modelling, mine design, long-term planning and production scheduling.

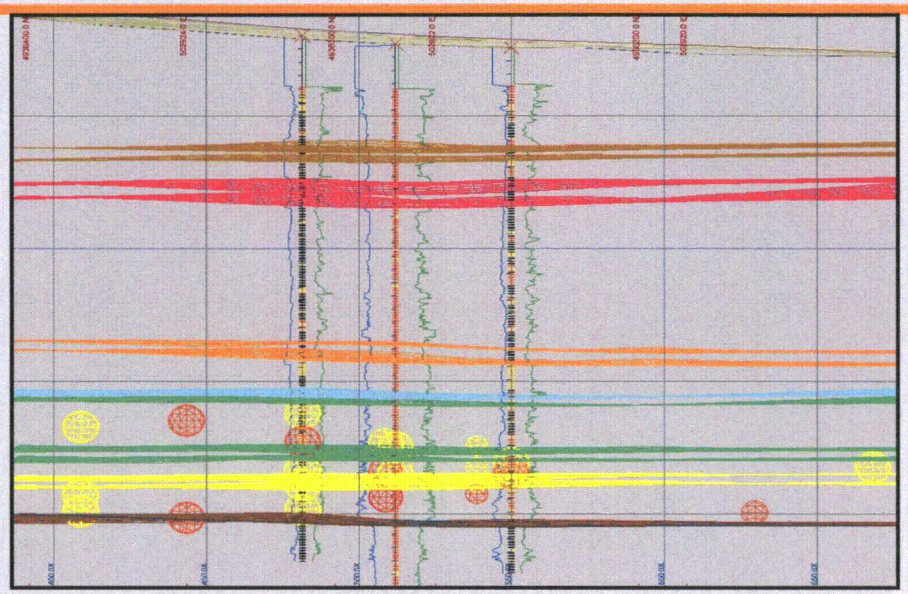
With GEMS' unique central database geologists and engineers gain immediate access to organised, up-to-date geological and mine planning data. GEMS' data security and auditing provides the capabilities they need to improve compliance with industry regulations like JORC, SAMREC and NI 43-101.

GEMS Benefits

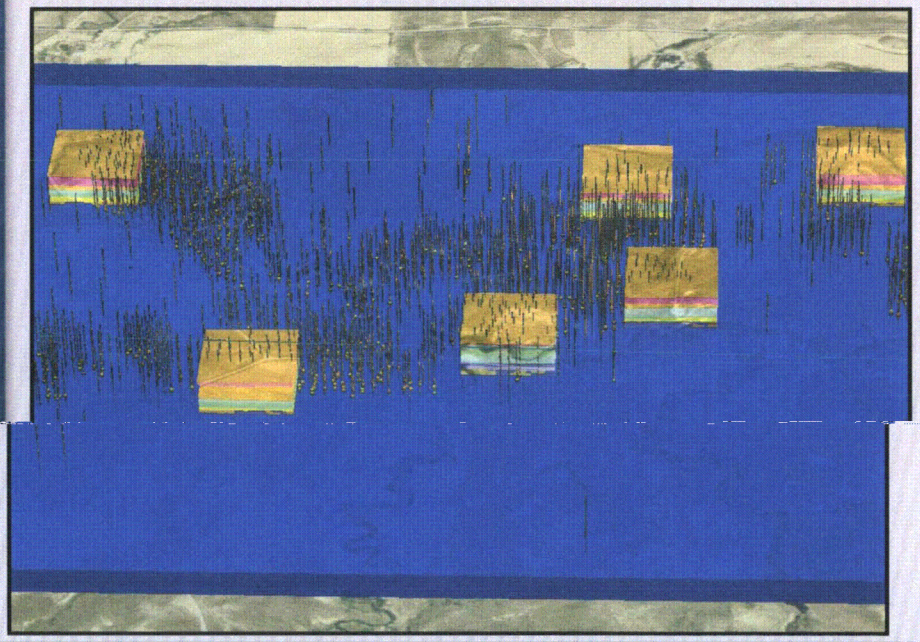
- Central database manages data, enabling data security and auditability, while eliminating data redundancy and increasing data integrity and accuracy.
- Streamlined data flows and central data access improves collaboration, providing information when needed to speed decision-making.
- System ease-of-use – robust dialog boxes guide users through workflows.
- Industry-standard Microsoft technologies integrate with existing IT infrastructure and ensure system scalability.
- PlotMaker feature allows users to annotate plots with text blocks, bitmaps, Excel spreadsheets, Word documents and other objects.

STRATA
ENERGY

Subsurface Data Capture and Graphic Representation



- Interpretation of drill holes is focused in baseline well cluster areas, set on the basal shale
- Lithologic contacts interpreted using geophysical data
- Drill hole trace with geophysical data, horizontal lines are interpreted surfaces, spheres represent uranium ore intercepts



- All 6 baseline cluster well areas interpreted out to an area 300m^2 (~1000ft^2)
- The basal confining shale in blue, is the initial layer tying all surfaces together based on its easy identification in geophysical logs

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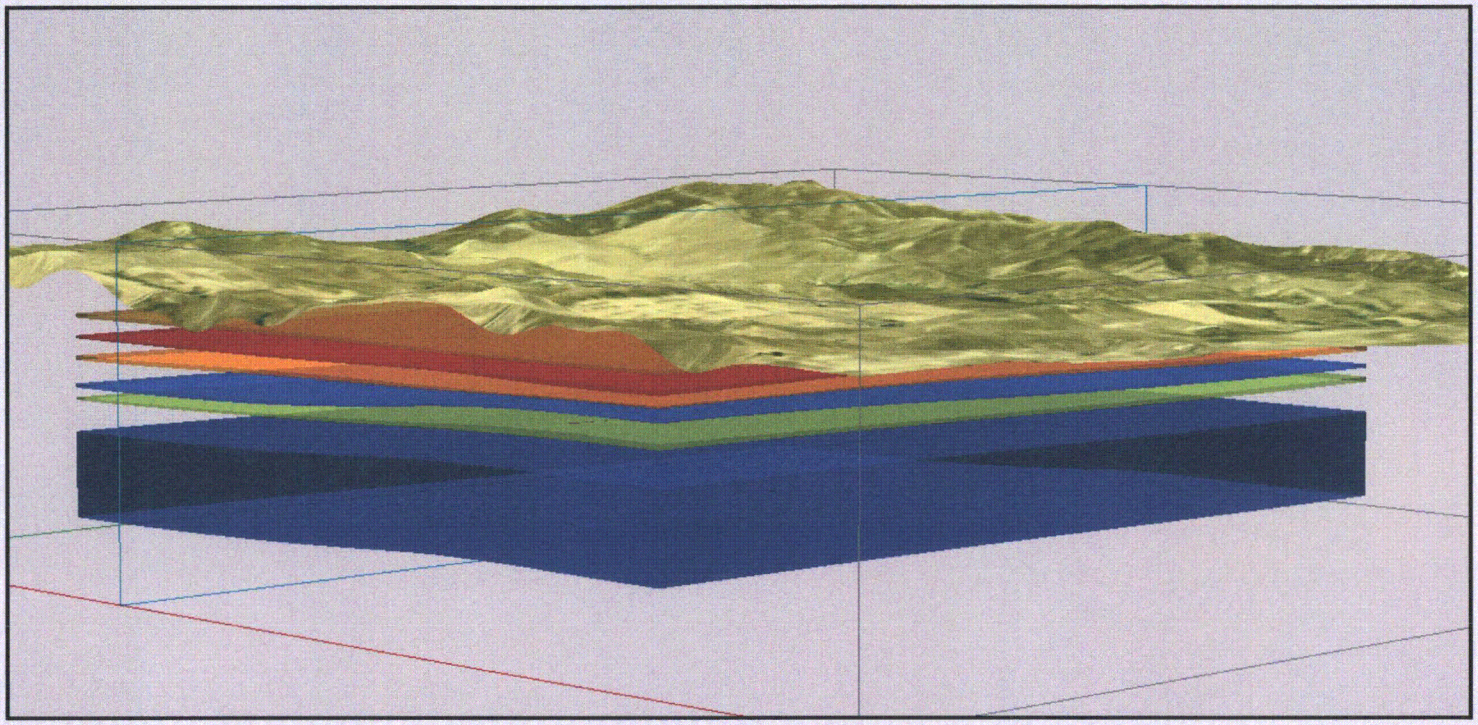
Resulting Defined Surfaces



Created solid surfaces – shown with 3x vertical exaggeration

• Continual modeling of new drill hole data and comparison of historical data points will ensue. Expectations are that this continued approach will develop higher resolution of the lateral continuity of key geologic surfaces

STRATA ENERGY

Groundwater Model Goals

- Estimate adequate perimeter well offset/setback distances within project area.
- Demonstrate the ability to identify and remedy a lateral excursion (i.e. lixiviants moving out of ore zone).
- Identify and mitigate or eliminate potential impacts to the surficial aquifer and surface impoundments.
- Identify and mitigate or eliminate potential impacts to adjacent water rights
- Estimate time (# PVs) to remediate site.

Groundwater Model Software

- Groundwater Vistas will be used to develop the groundwater model.
  - Groundwater Vistas utilizes the USGS three dimensional finite difference modular groundwater flow model (MODFLOW)
  - The MODFLOW code is widely used and accepted by regulatory agencies.

Bedrock Geology in Project Area

LEGEND

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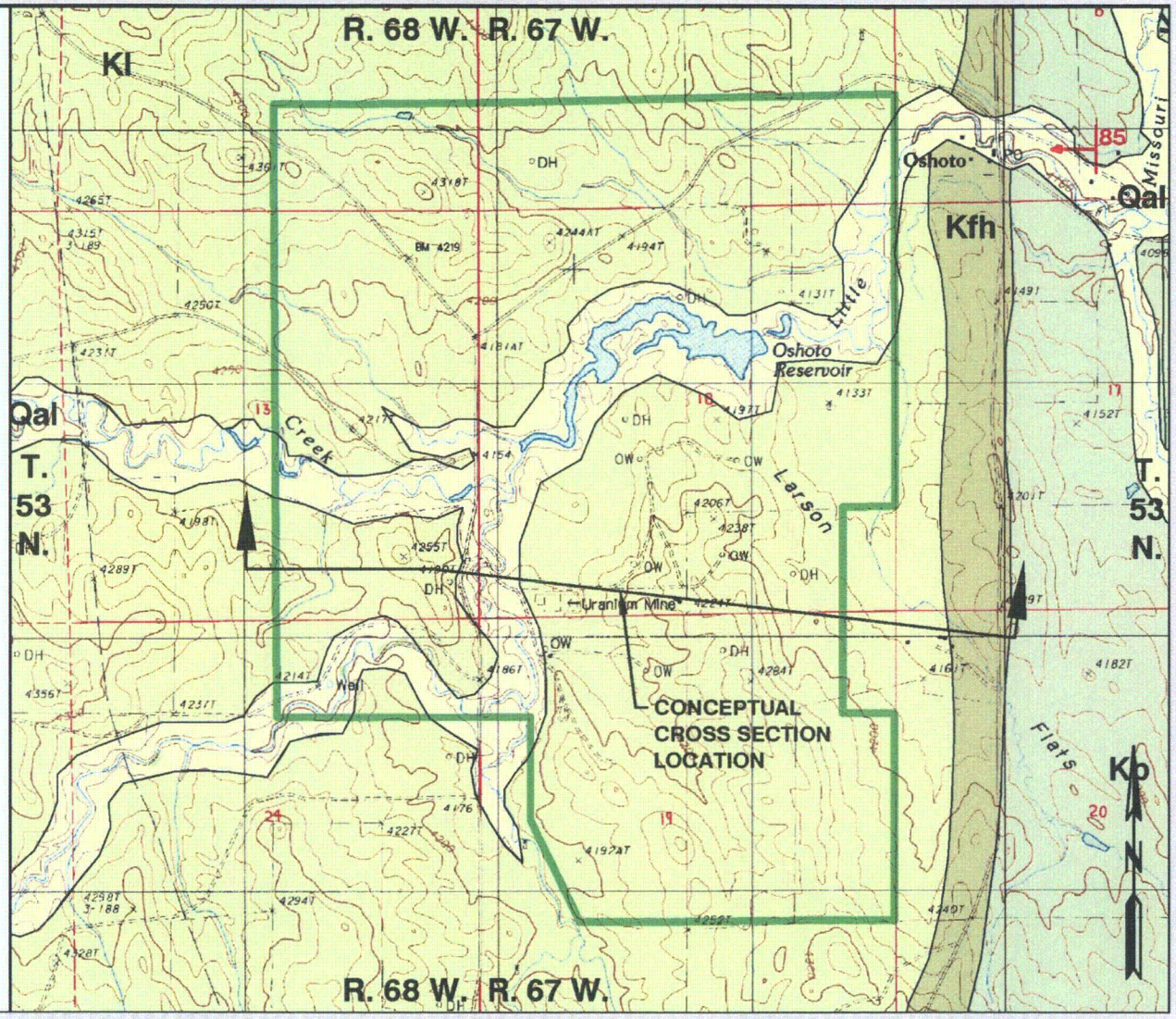

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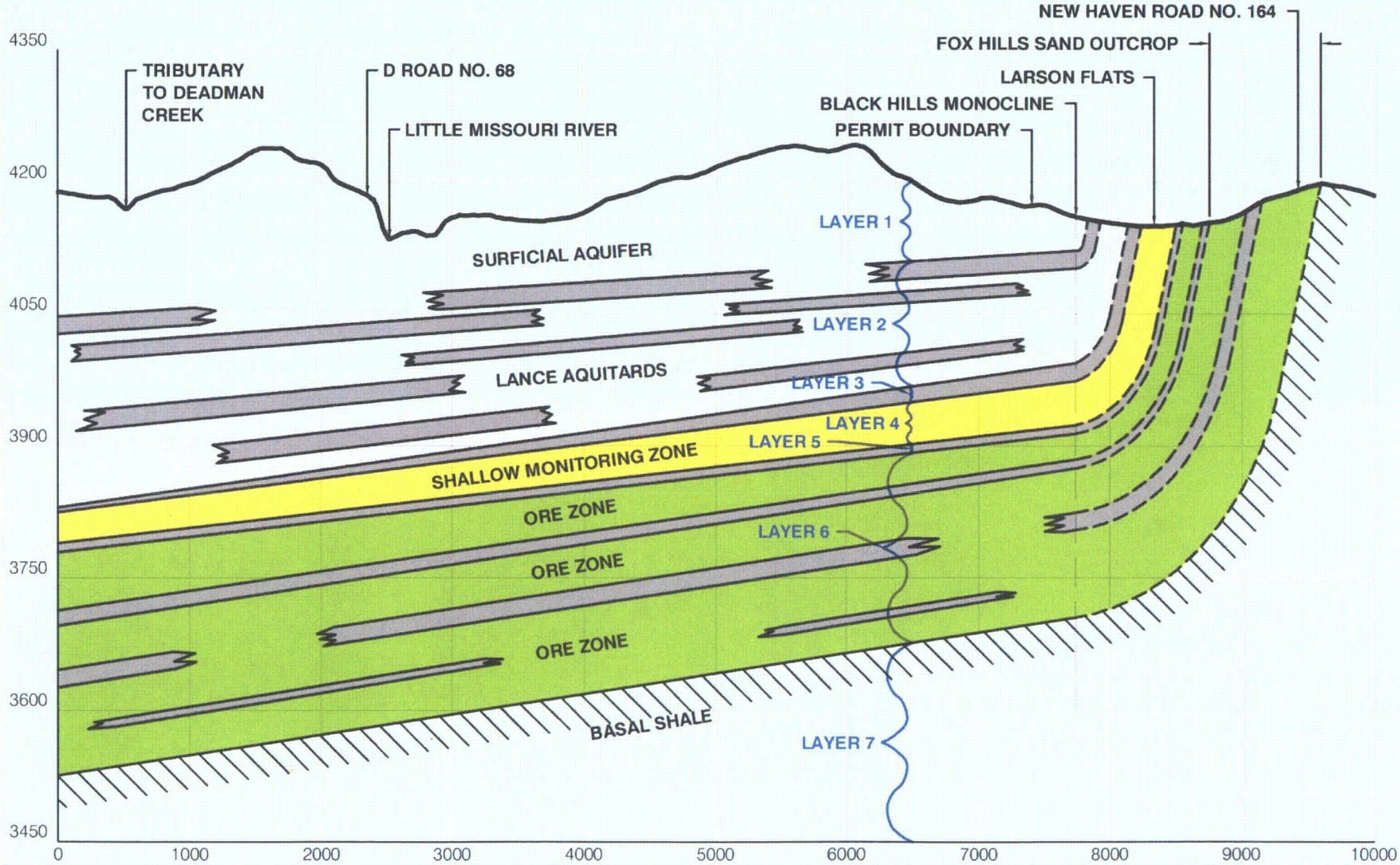
Conceptual Geologic Cross Section



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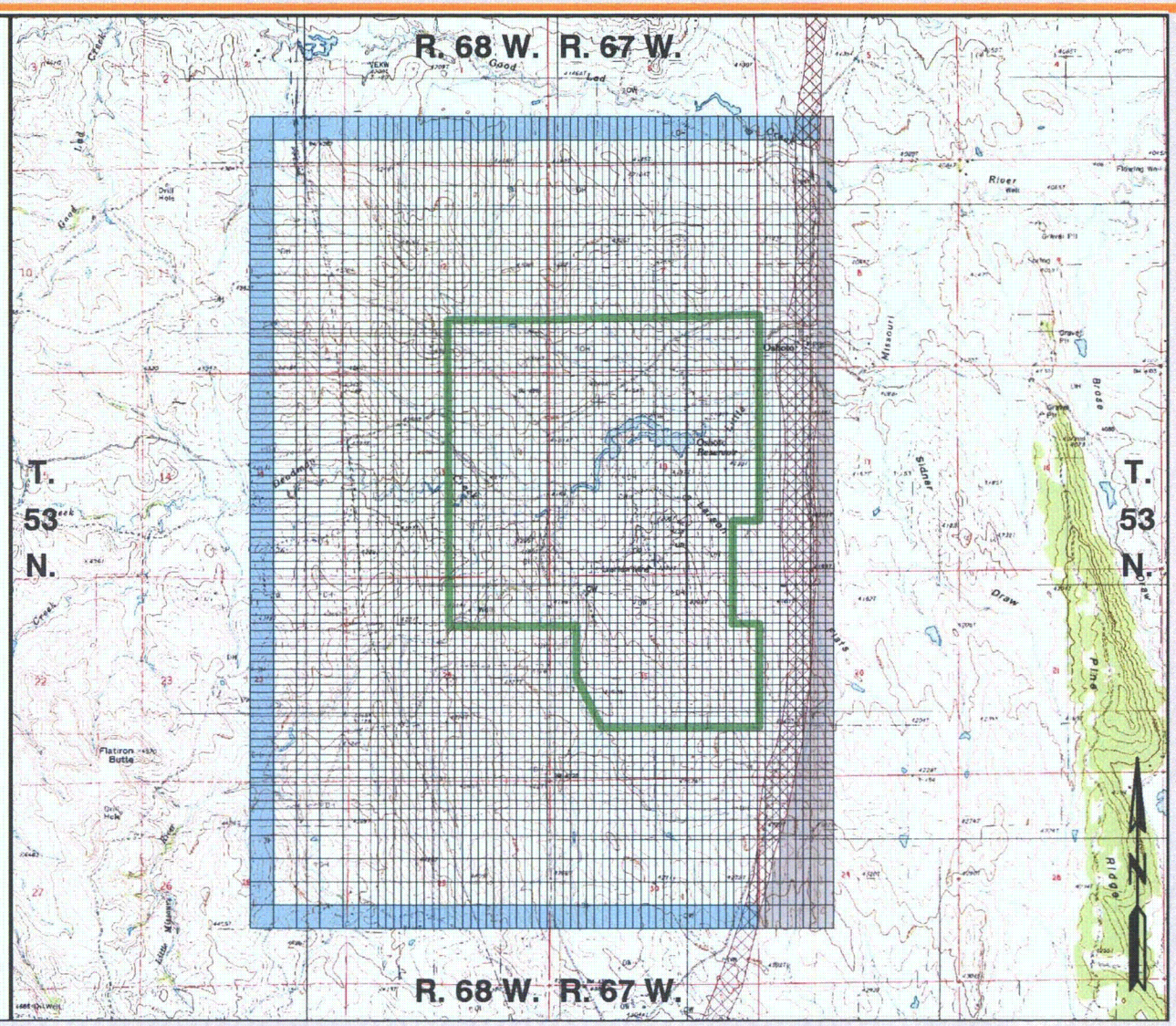
Model Grid and Boundary Conditions

LEGEND

- MODEL GRID
- FOX HILLS OUTCROP (RECHARGE ZONE)
- CONSTANT HEAD BOUNDARY
- NO FLOW BOUNDARY

Fox Hills sand outcrop adapted from Halberg, L.L., Et. Al., Geologic Map of the Sundance 30' X 60' Quadrangle, Crook and Weston Counties, Wyoming and Lawrence and Pennigton Counties, South Dakota: Wyoming State Geological Survey Map Series 78, Scale 1:100,000.



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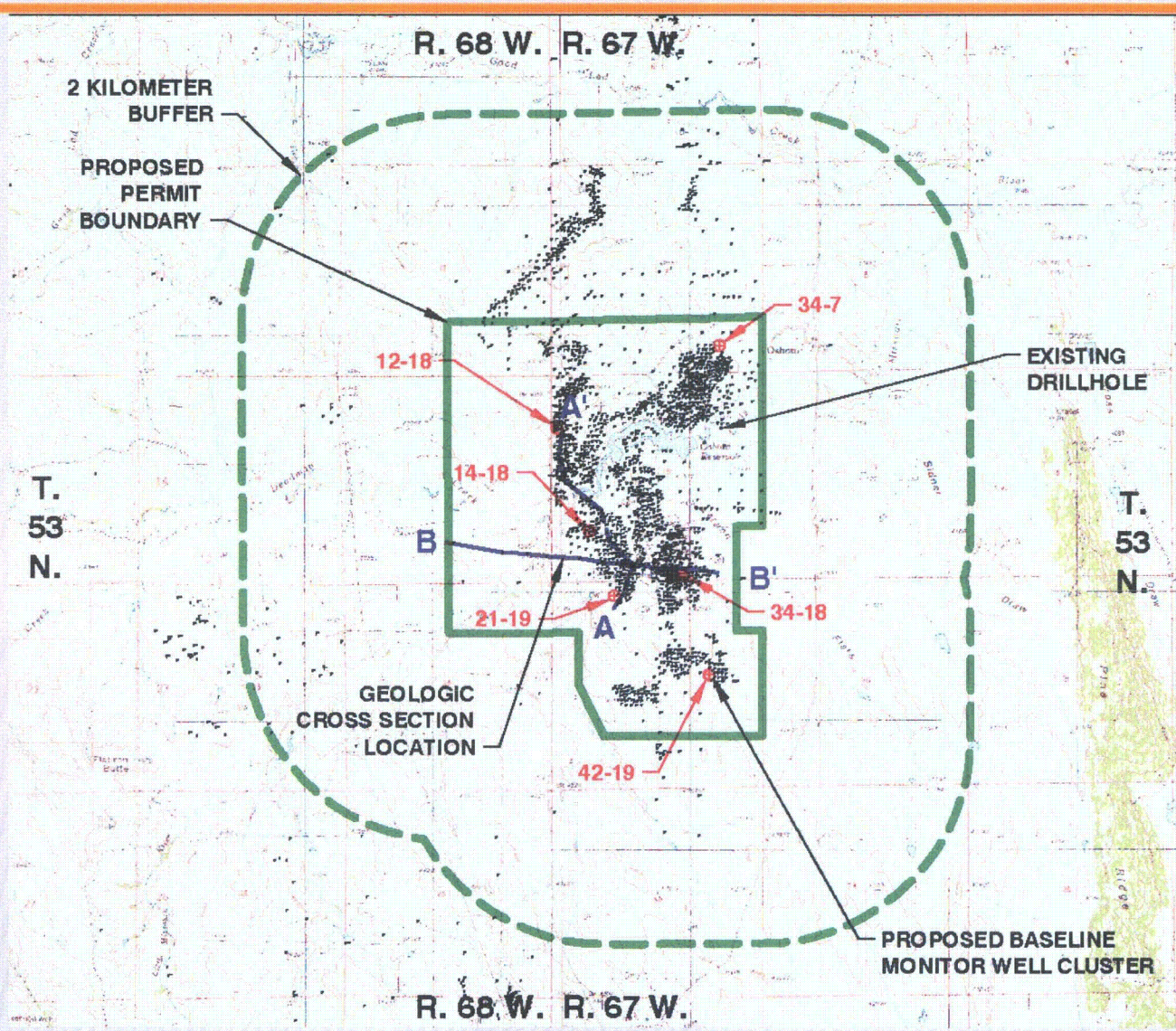
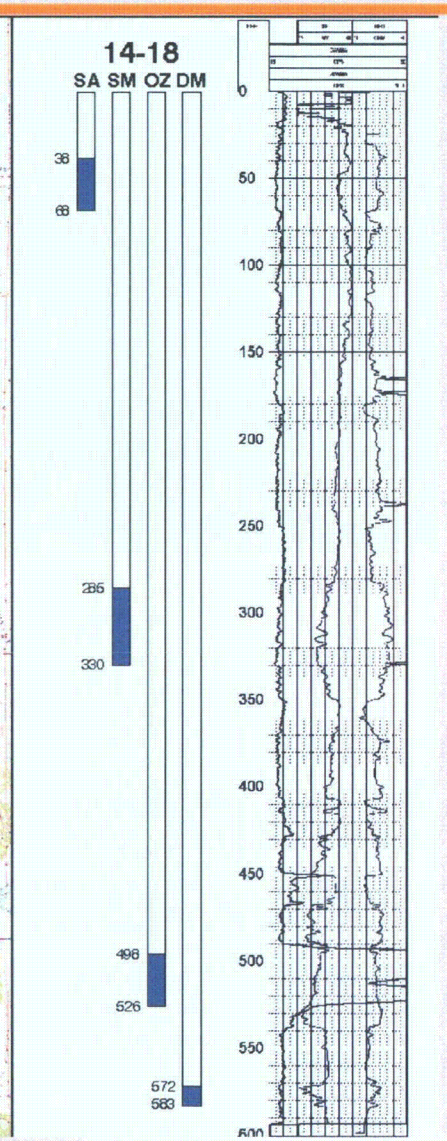
Groundwater Model Evolution

- Steady State Model
  - Pre-1978 conditions
- Calibration
  - 2010 conditions
- Mine Simulation
  - Sensitivity analysis will establish confidence level
- Recovery
  - Simultaneous with mine simulation

Regional Baseline Well Cluster Locations and Completion Intervals





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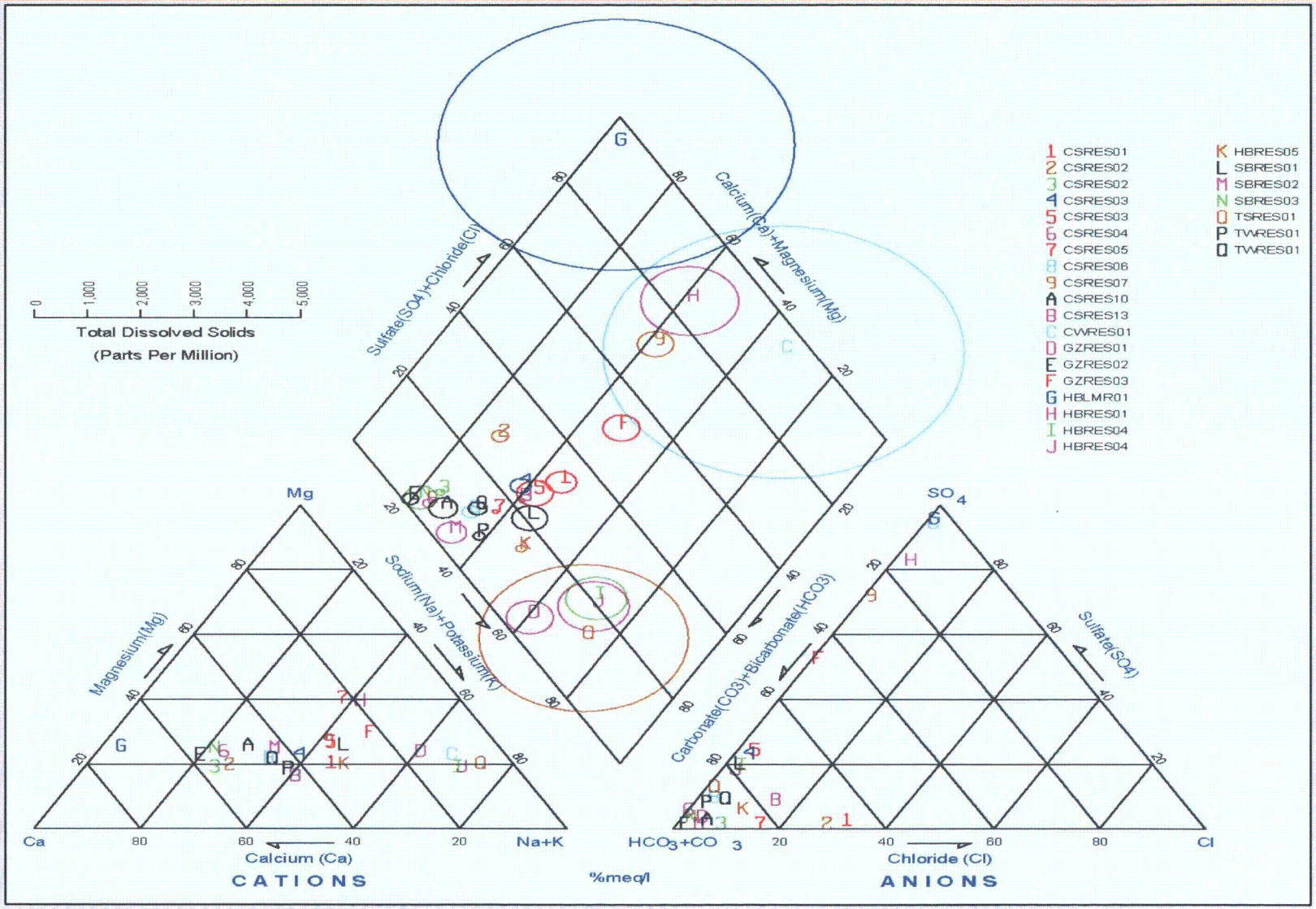
Preliminary Trilinear of Surface Water Quality



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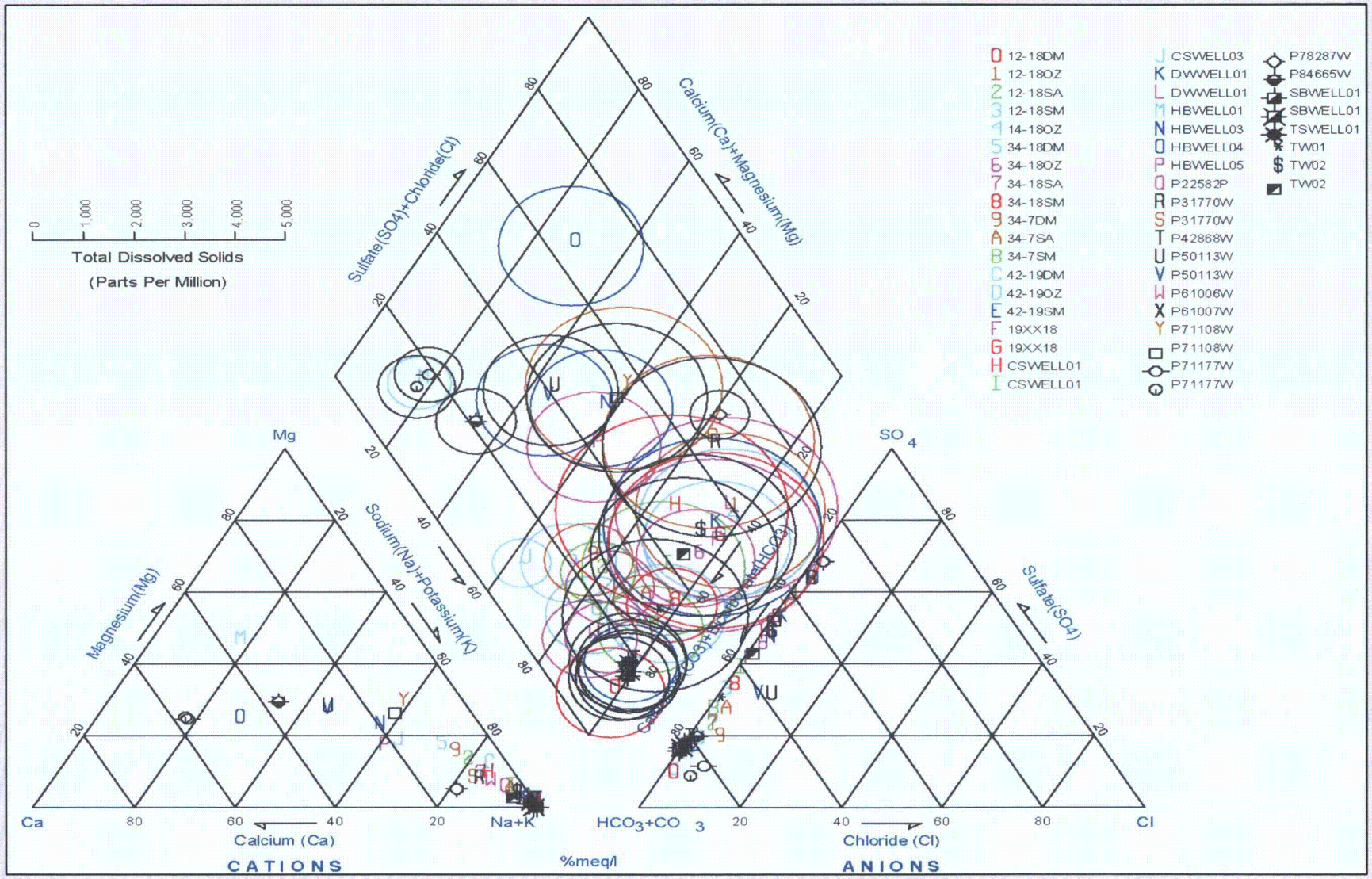
Preliminary Trilinear of Ground Water Quality



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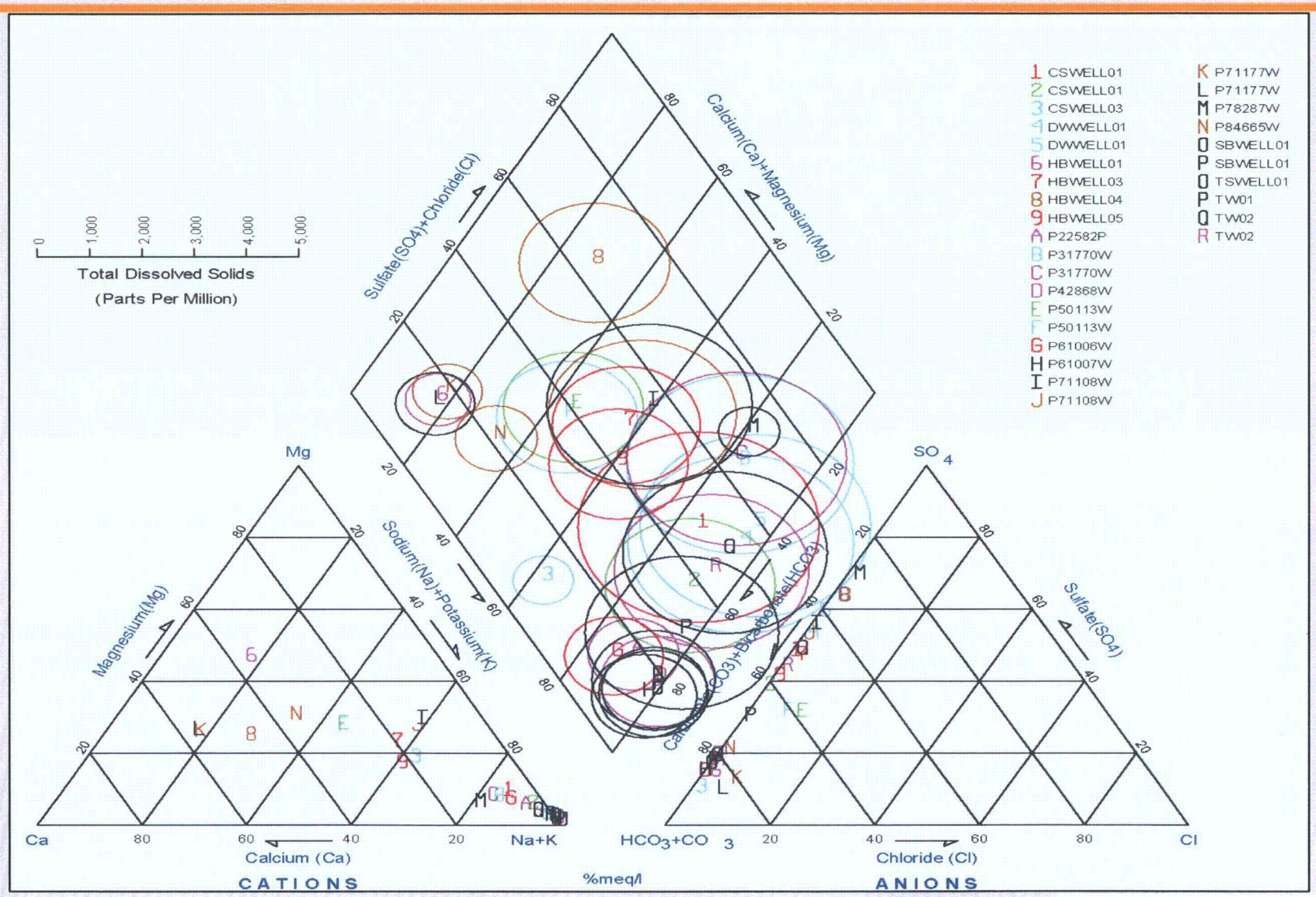
Preliminary Trilinear of Stock, Domestic and Misc. Use Wells



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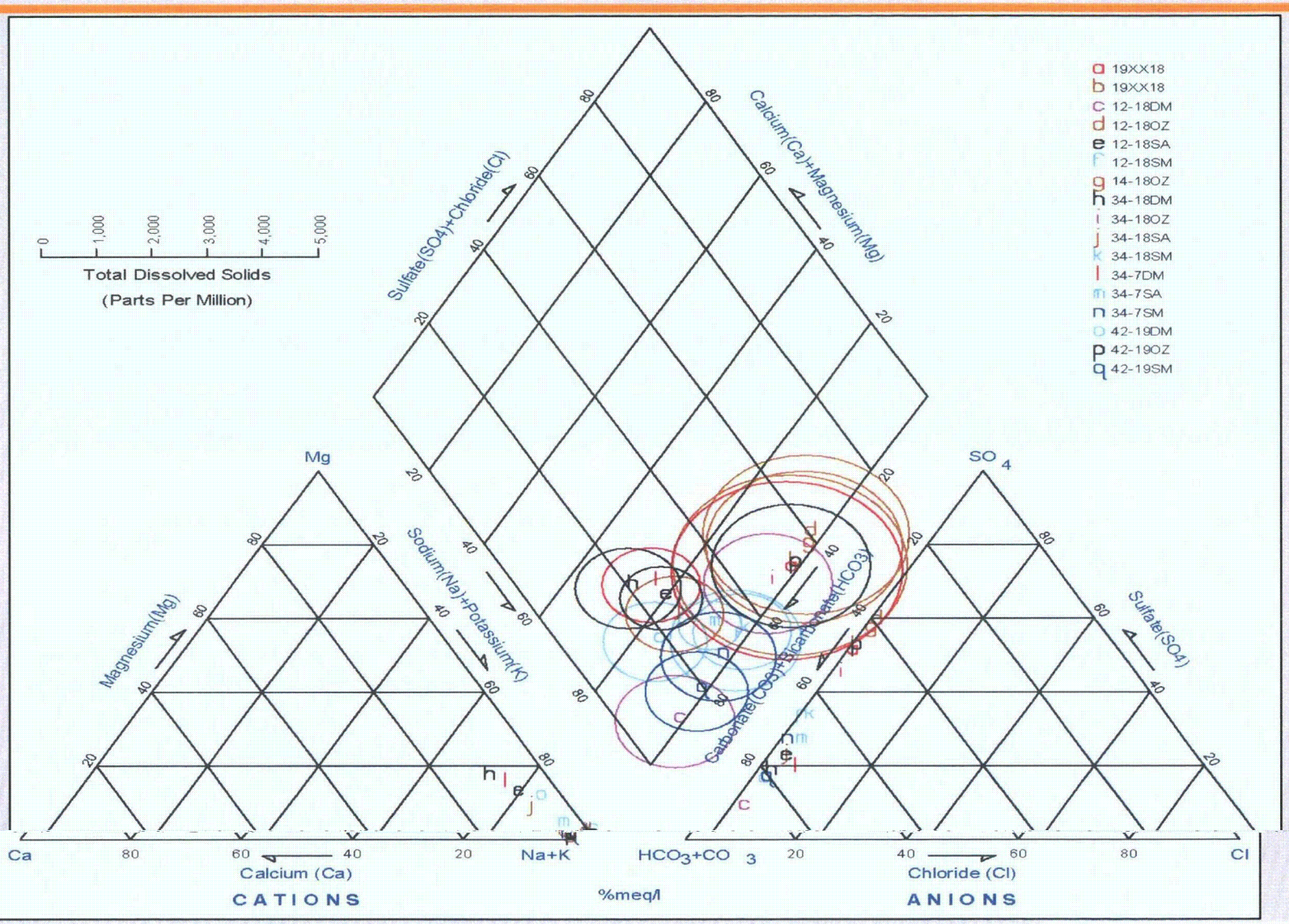
Preliminary Trilinear from Regional Baseline Wells



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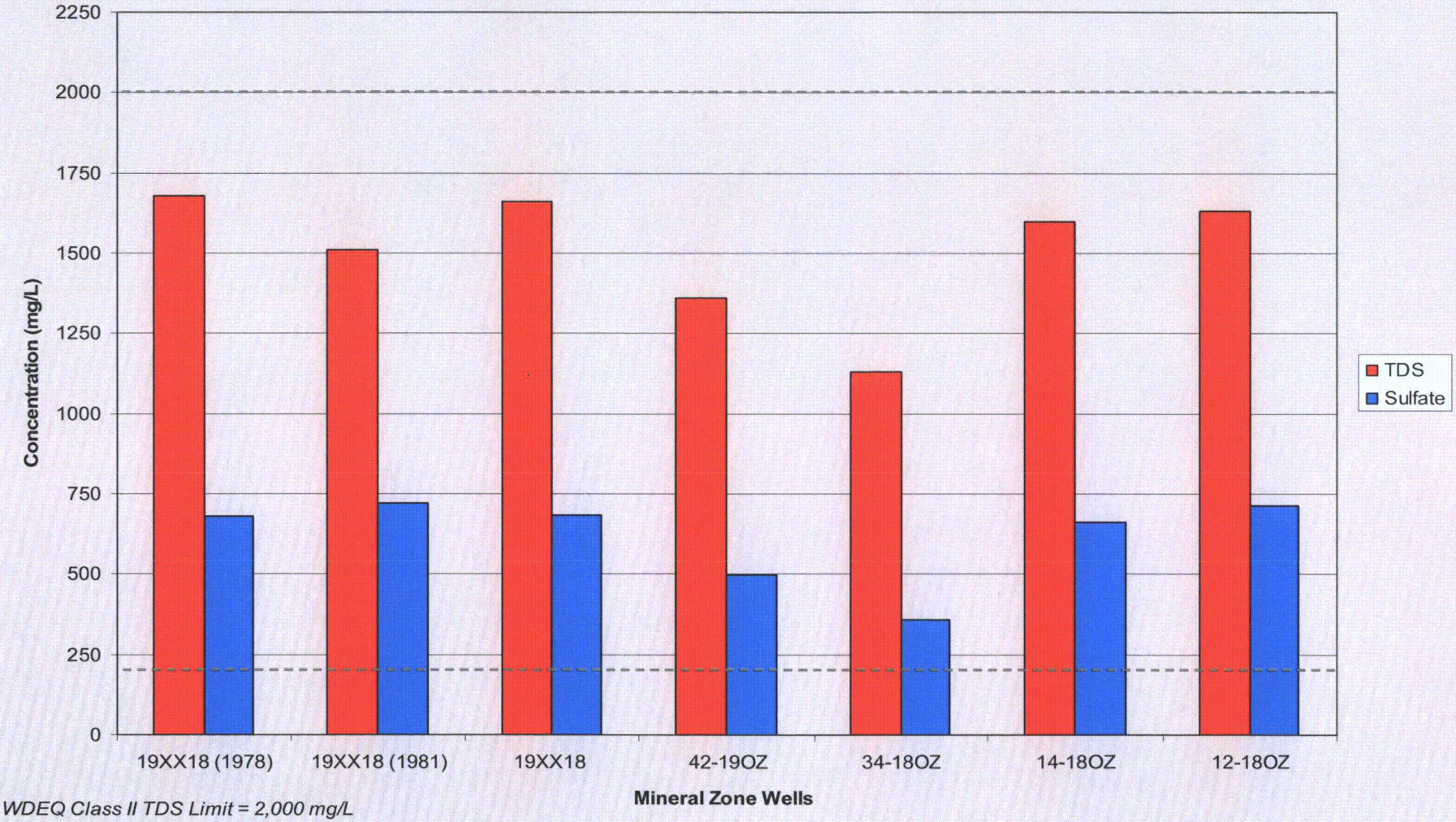
Mineral Zone Water Quality—TDS and SO4



WDEQ Class II TDS Limit = 2,000 mg/L
WDEQ Class II SO4 Limit = 200 mg/L

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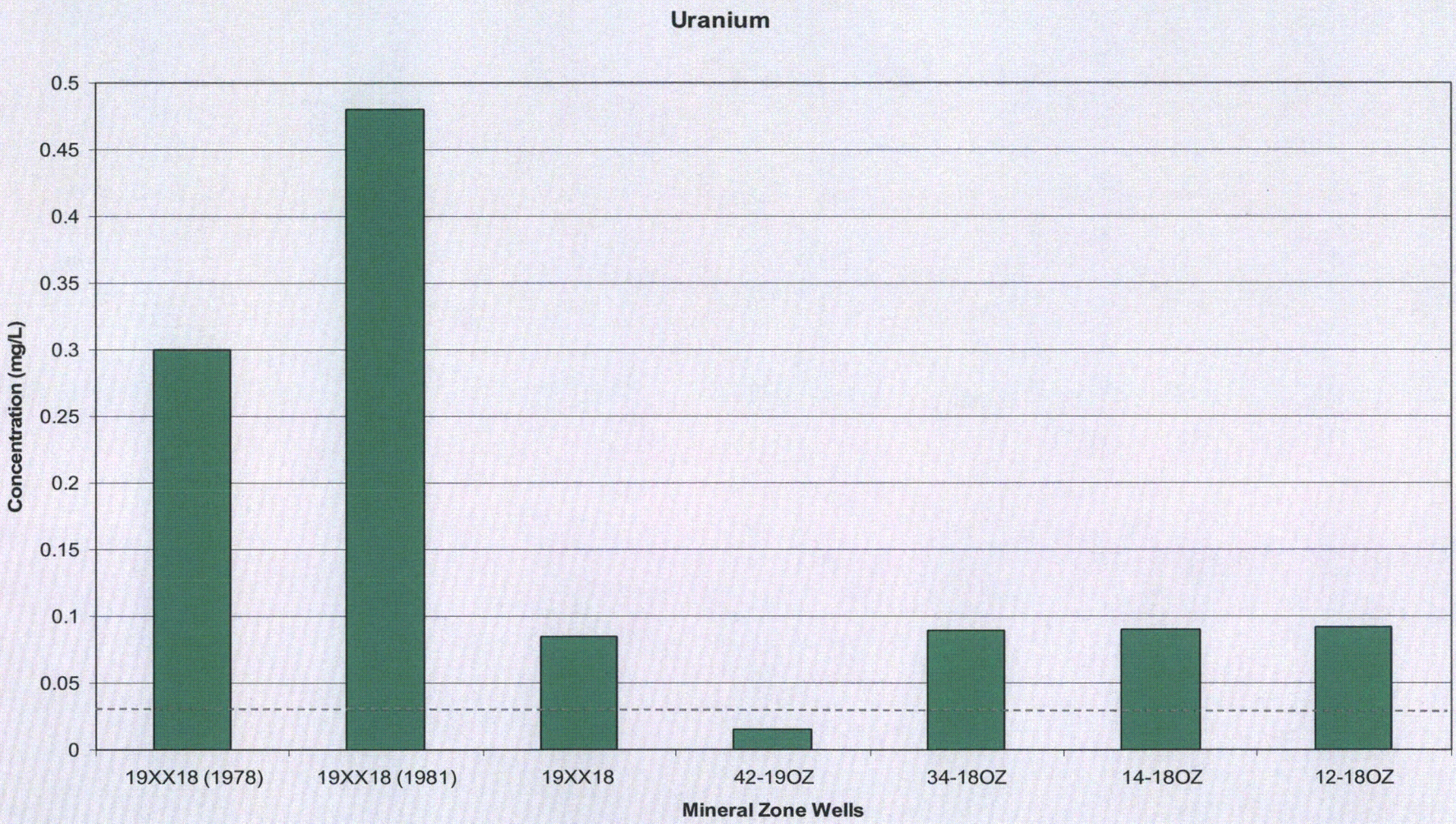
Mineral Zone Water Quality—Uranium



WDEQ Uranium Limit = 0.03 mg/L

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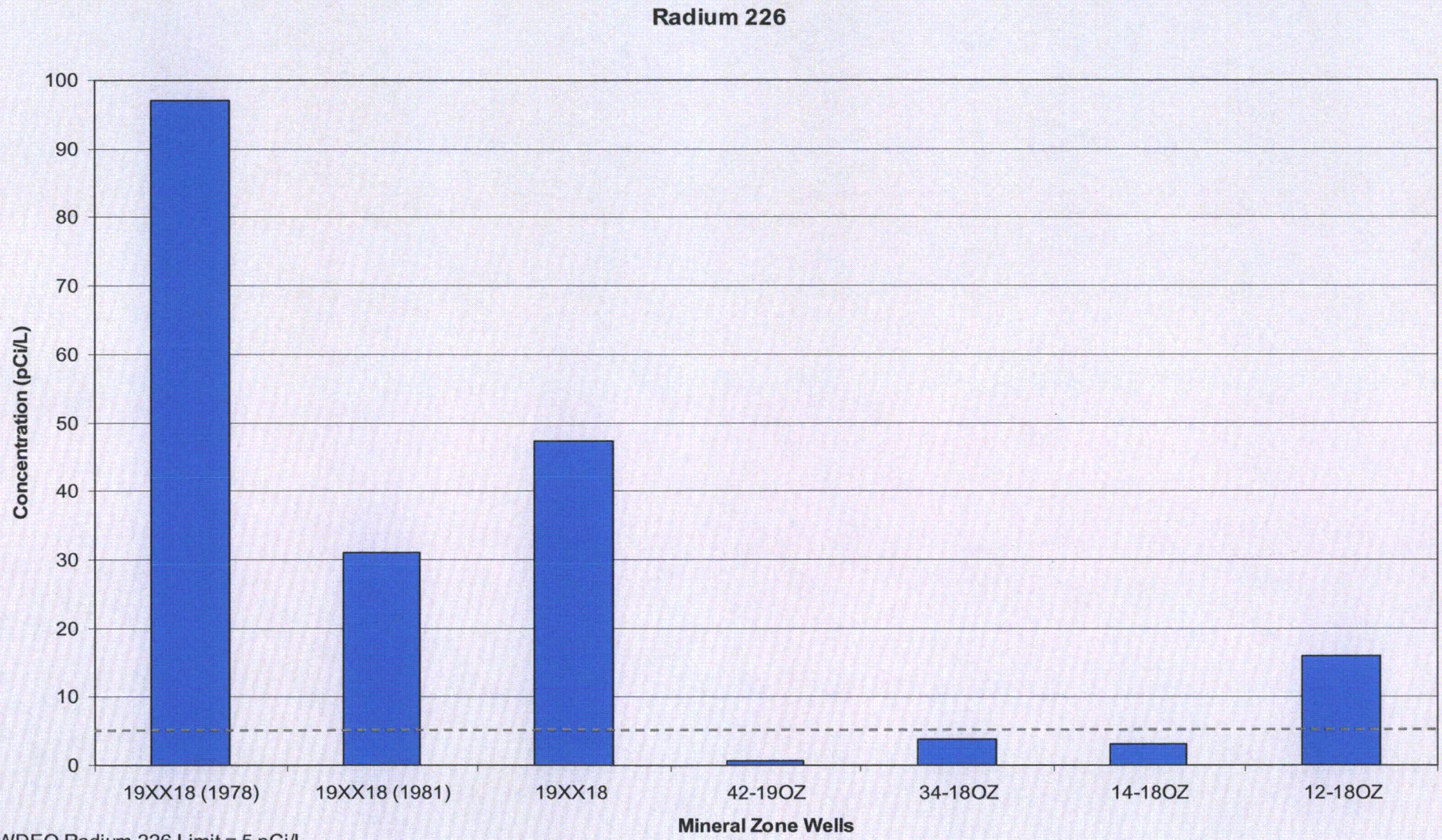
Mineral Zone Water Quality—Radium 226



WDEQ Radium-226 Limit = 5 pCi/L

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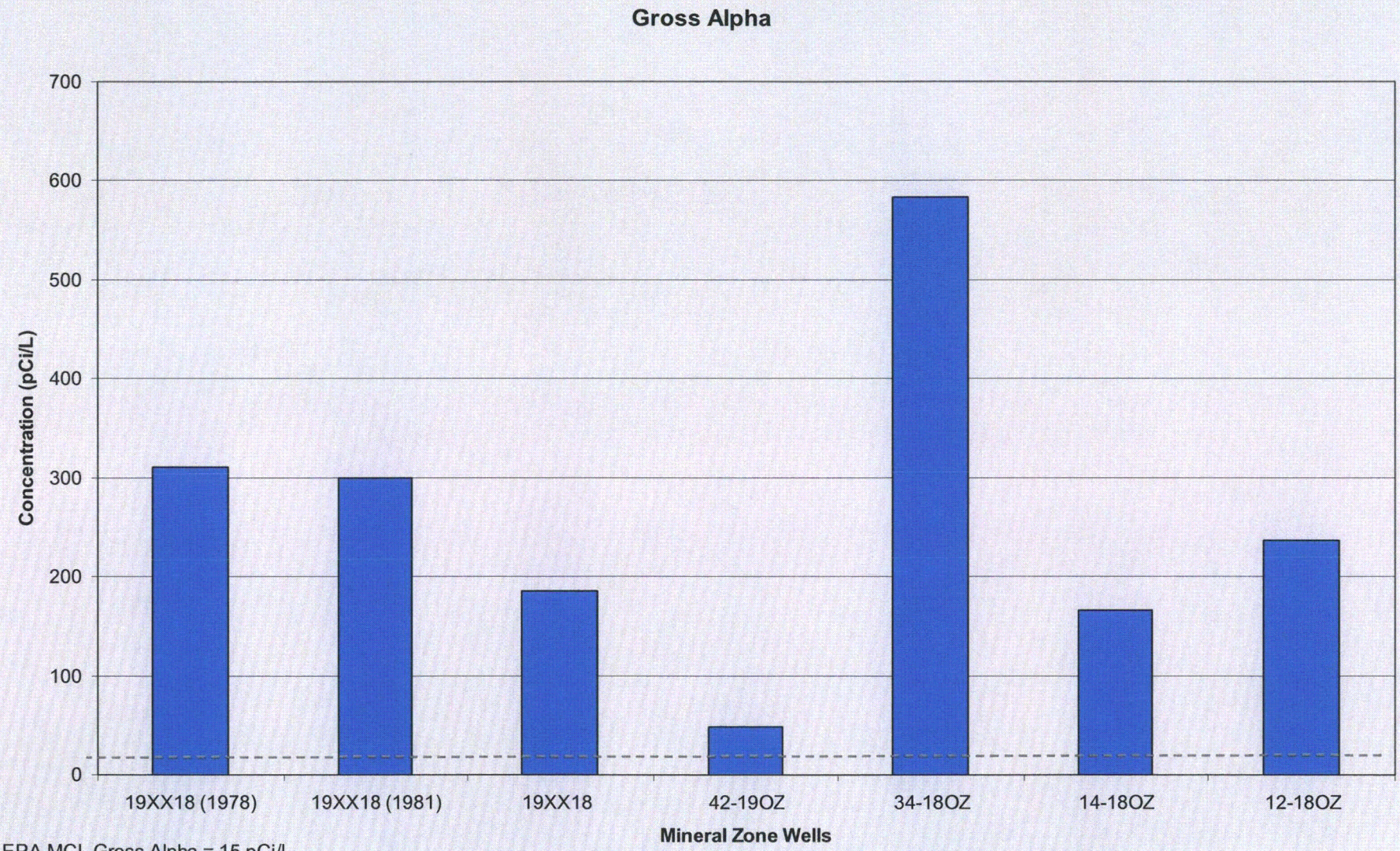
Mineral Zone Water Quality—Gross Alpha



EPA MCL Gross Alpha = 15 pCi/L

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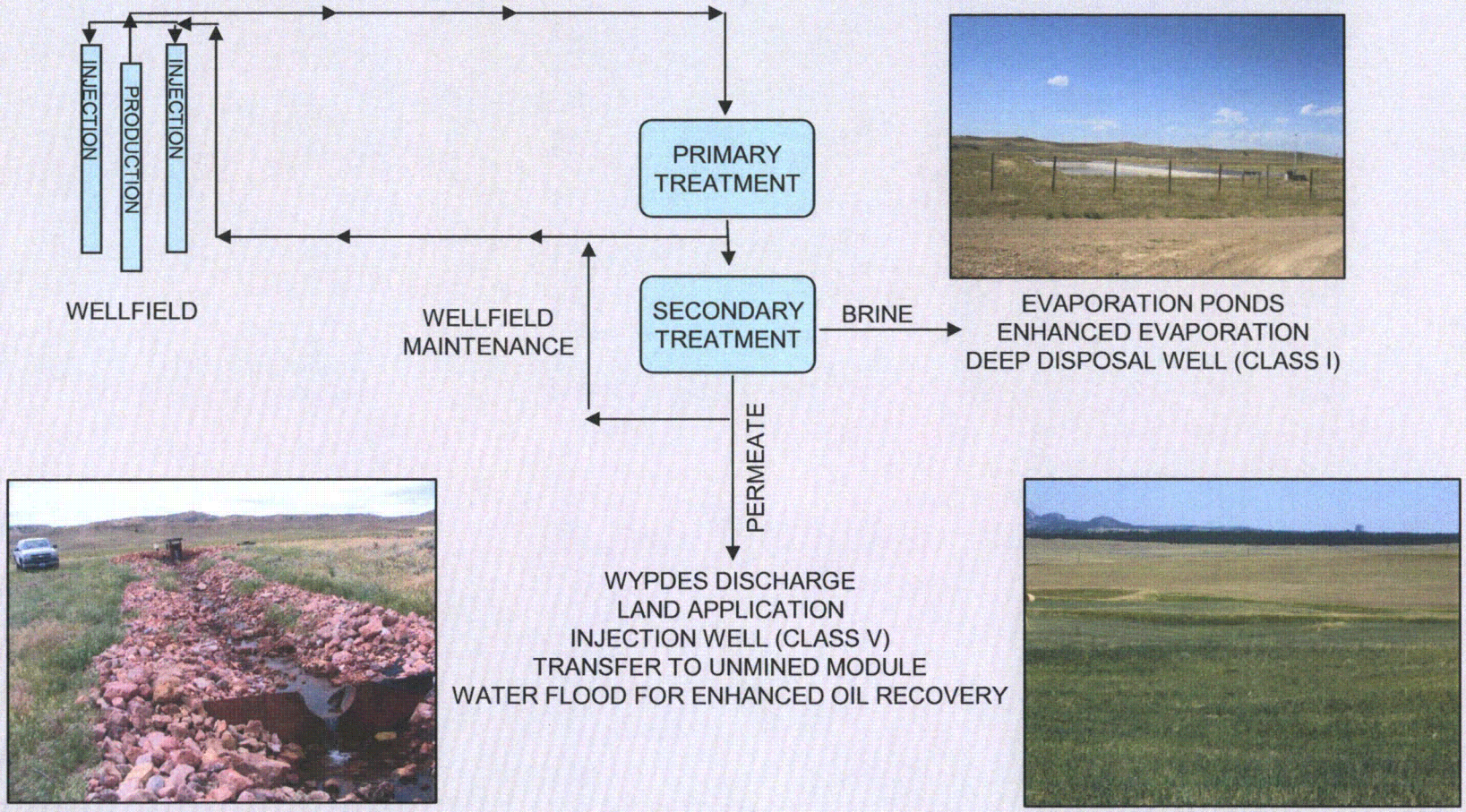
Ross ISR Upcoming Hydrology Activities

- Work plan completed for aquifer testing and additional test/observation well installations

  --Focus on: initial mining areas, variations in yield, chemistry and potentiometry from all aquifers, hydrologic barriers noted in previous work hence more test wells necessary to establish background
- Work plan completed for groundwater model
- Work plans provided to WDEQ and NRC for review, comment and incorporation into Pre-Operational document
- Continue M. Buswell thesis evaluation
- Establish surface water stations

Conceptual Water Management - Production

GOAL: MINIMIZE CONSUMPTIVE USE



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Conceptual Water Management - Restoration

GOAL: MINIMIZE CONSUMPTIVE USE

- Restoration Flow at 15% of Production
- Optimize Restoration Methods:
  - Water Transfer
  - Wellfield Maintenance = Less Restoration
  - Biological Reductants
  - Chemical Reductants
  - Reverse Osmosis
  - Stability

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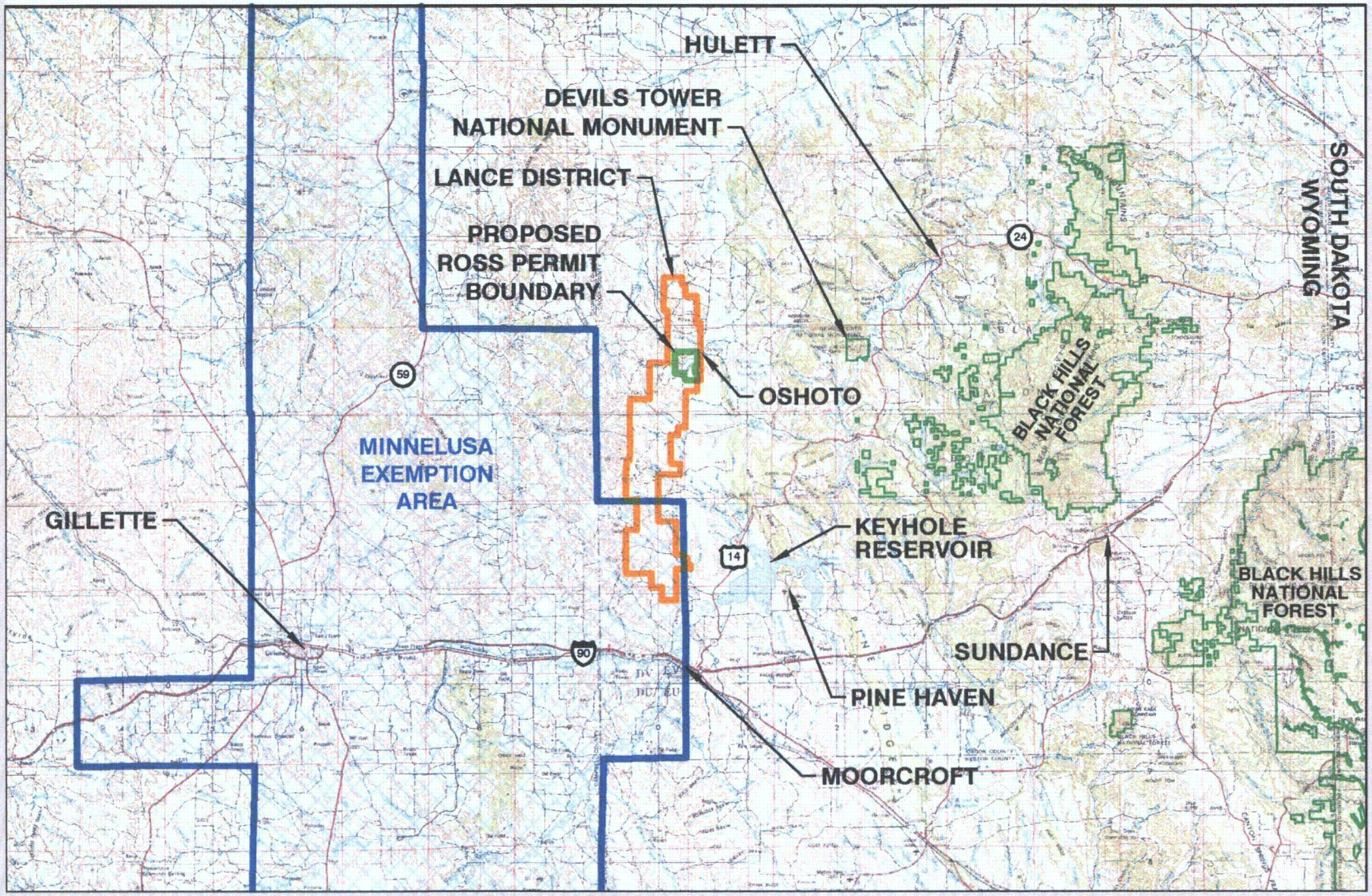
Minnelusa Exemption Area near Lance District



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RESPONSE
TO SOURCES SOUGHT
SOLICITATION NO. FSMEDECOMM2009
(CAPABILITY REQUEST)

Questions									
1	2	3	4	5	6	7	8	9	10
Company Name, Location, and (Years in Operation)	**Type**	**Size (# of employees)**	**GSA/FSS Contracts**	**n/a**	**Established Teams to Work Outside their Core Competencies?**	**List Companies For Plan Nuclear Work**	**COI Issues?**	**Inspection Experience**	**Work Accomplished Under CFR**
Responses									
1. Applied Science Professionals, Salt Lake City, UT (11)	Veteran Owned-Small Business	5	None	**n/a**	Yes	Blank	No	Yes	50,60,61,and 70
2. VISTA Engineering Technologies, Richmond, VA (9)	Veteran Owned-Small Business	80	GS23F0245R	**n/a**	Yes	Environmental Research Incorporated, Areva	No	No	40, 50,60, 61, and 70
3. Attenuation Environmental Company, Seattle, WA (18)	Woman Owned-Small, Business	2	None	**n/a**	Yes	None	No	Yes	30, 61, and 70
4. Weston Solutions Inc., West Chester, PA (52)	Large Business	1900	GS-10F-0117J GS-35F-0419T GS-07F-5814R GS-07F-0099U	**n/a**	Yes	EPA, Babcock-Wilcox	No	Yes	30,40.50, and 61
5. NGTS Inc., Cummings, GA (2)	Small Business	Blank	None	**n/a**	No	None	No	Yes	20, 40, and 61
6. Spectra Tech, Inc., Oak Ridge, TN (14) – partner with Eberline Services	Small Disadvantage Business, 8(a)	100	None	**n/a**	Yes	None	No	Yes	40, 50, 60 and 61
7. Advanced Technologies and Laboratories International, Inc, Germantown, MD (20) – partner with AECOM	Large Woman Owned Business	120	GS-35F-0242M GS-10F-0092J GS-10F-0032K GS-02F-0027U	**n/a**	Yes	NRC, EPA, Air Force, Army Corps of Engineers, and DOE	No	Yes	40,50,60, and 70