

28th Bomb Wing, Ellsworth AFB

May 6, 2008

Public Meeting Restoration Advisory Board



**This Briefing is:
UNCLASSIFIED**





Presentation Outline

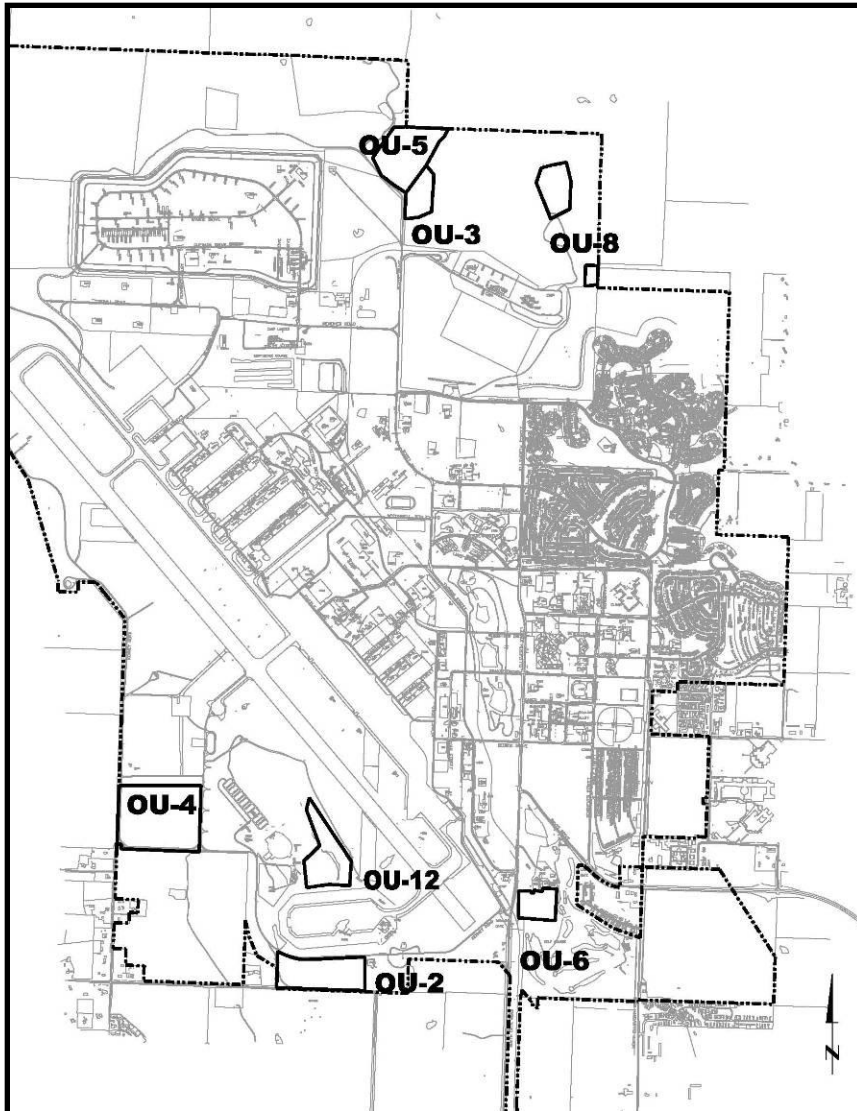


- **Landfill Sites**
- **Petroleum Release Sites**
- **Chlorinated Plume Sites**
- **Off-Base Plume**





Landfill Sites

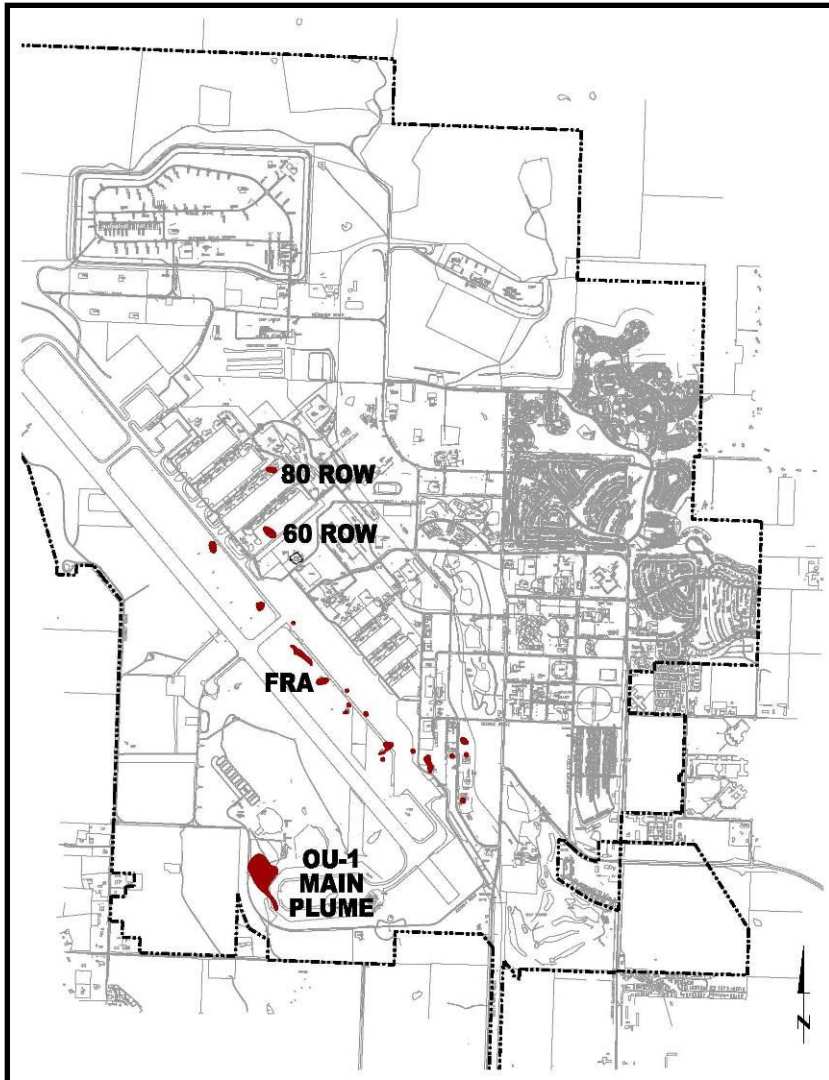


- No change in status since last RAB meeting.
- Soil covers in place since 1995 / 1996.
- Currently in LTO/LTM phase.
- Quarterly inspections indicate soil covers are in good condition.
- Groundwater sampling indicates minimal impacts.
- Inspections and groundwater sampling will continue.





Petroleum Release Sites



- Plan to obtain No Further Action under SDDENR rules.
- Free phase product recovery has been completed except at OU-1 and 80 Row.
- Implemented HiVac at OU-1 in 2007. Plan to continue HiVac and add bioventing and oxygen infusion this year.
- Completed surfactant flush at 60 Row and 80 Row in January 2008. Product removed from 60 Row and plan additional HiVac at 80 Row.
- Started additional testing at FRA in April 2008.





Flightline Refueling Area



- **100 acres, 7 pump houses, underground storage tanks, fuel piping, and fuel hydrants**
- **PH 1, 2, and 3 still operational and PH 4, 5, 6, and 7 have been demolished**
- **Free product has been recovered at PH 1, 4, 5, and 6**
- **Additional investigation to achieve No Further Action status under SDDENR rules:**
 - **16 direct push soil and groundwater samples**
 - **3 new monitoring wells and 11 monitoring well samples**
 - **Semi-annual sampling at 8 monitoring wells**

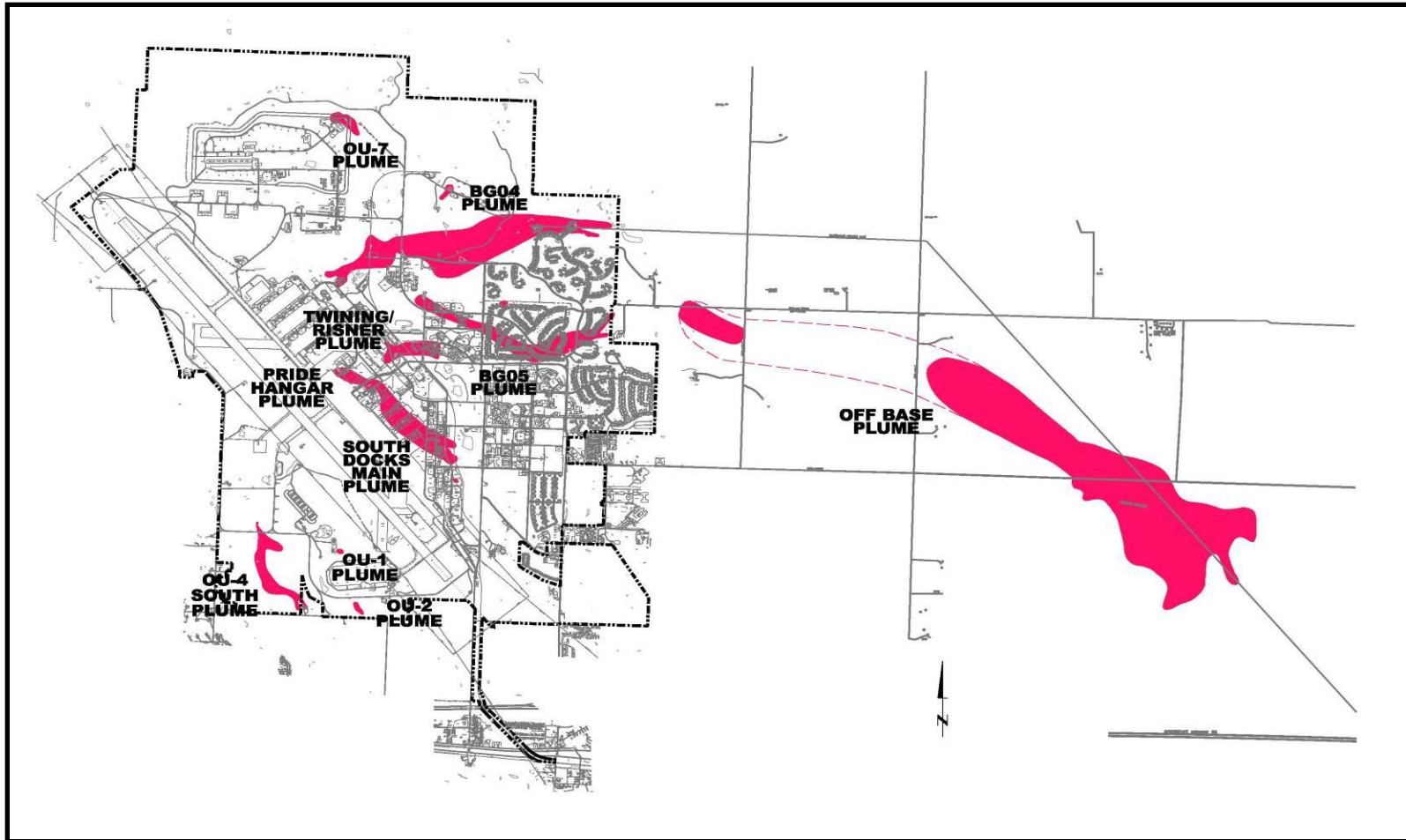




Chlorinated Plume Sites



- Plan to treat TCE to allow turning off pumps at extraction wells.
- Started full-scale in-situ treatment last year and plan to continue this year.

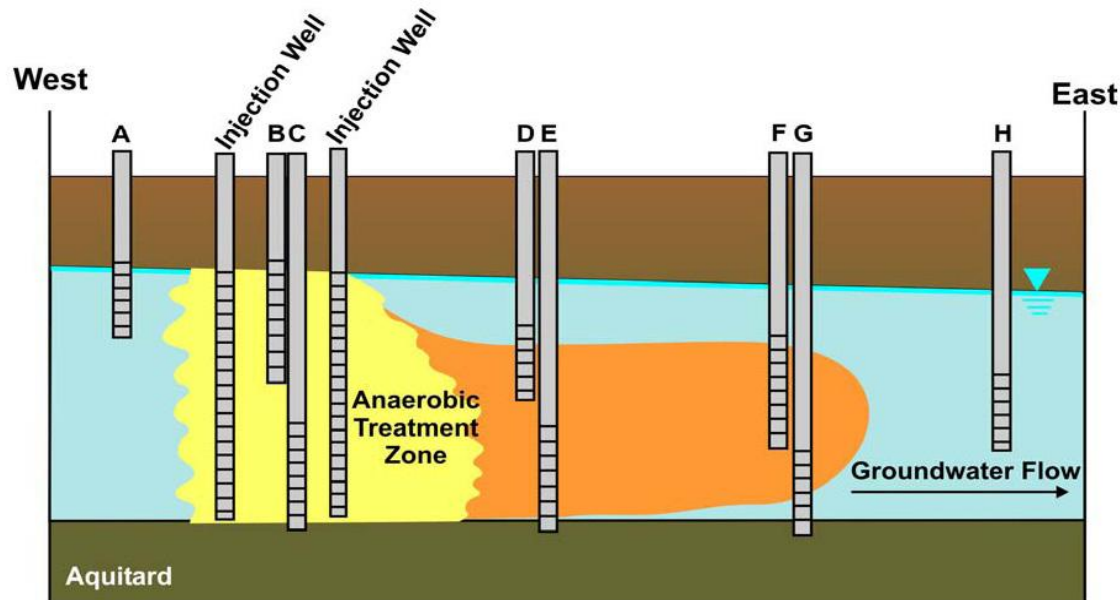




Full-Scale In-Situ Treatment of TCE

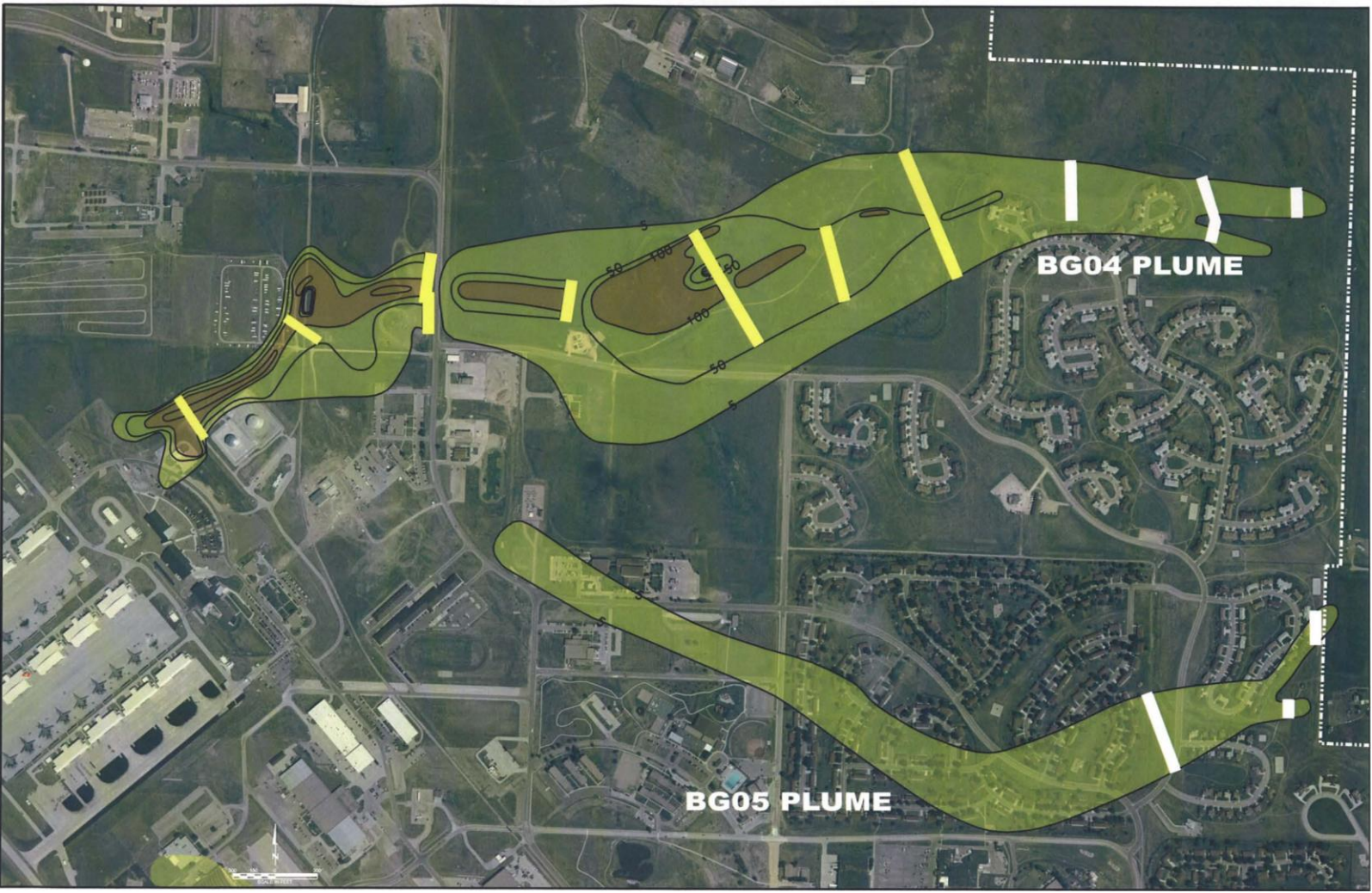


- Initial phase of full-scale injection completed last year
 - BG04, Pride Hangar and South Docks Main, and OU-4
 - 61,000 gallons of organic substrate (emulsified soy oil)
 - 470 liters of dechlorinating bacteria
 - Over 1,500 injection points
- Second phase of full-scale injection phase planned to start in June 2008
 - Fortify some injection zones with additional organic substrate
 - New injection zones planned at BG04, BG05, Pride Hangar and South Docks Main, OU-1, OU-2, and OU-4.



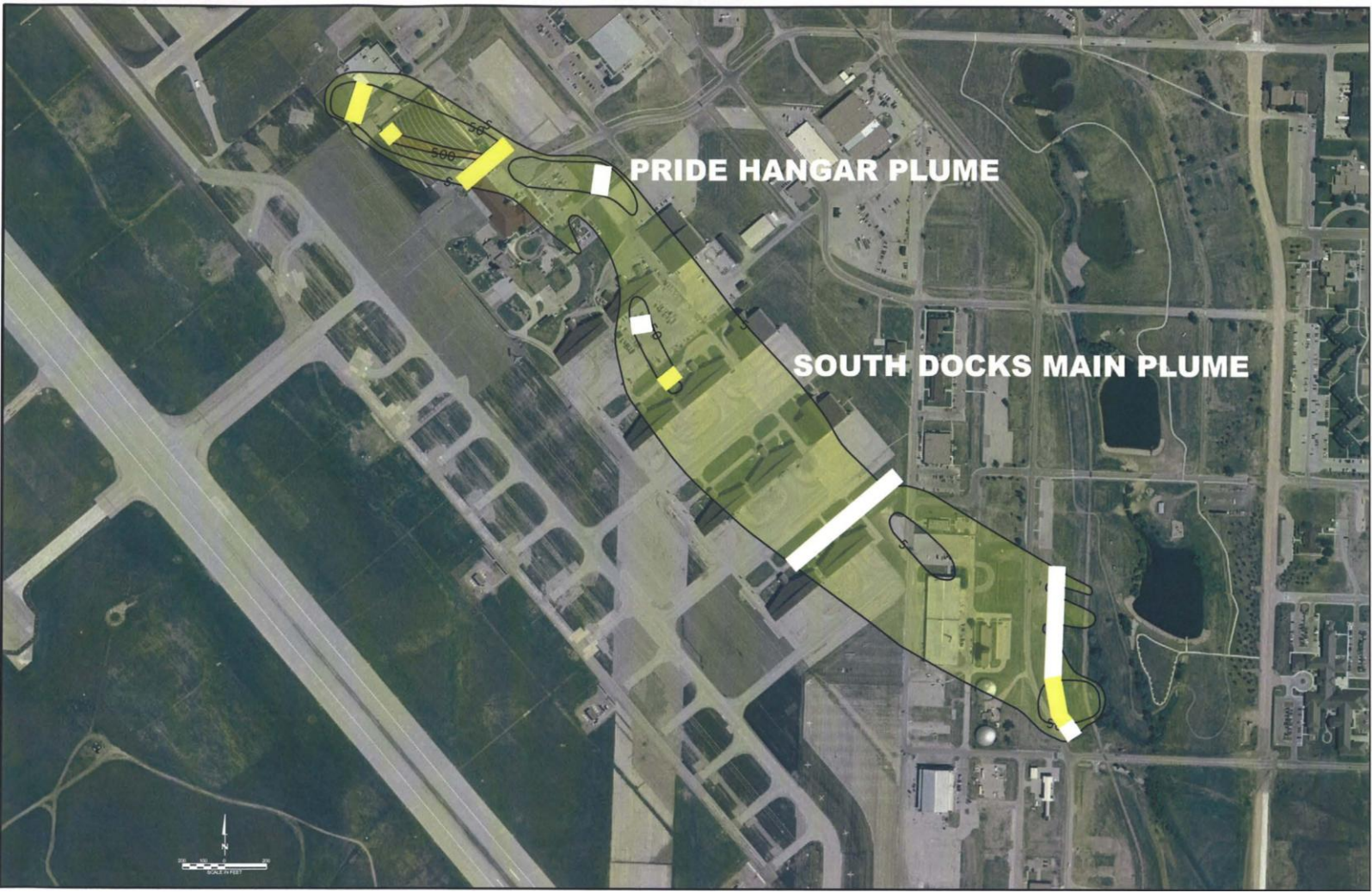


BG04 & BG05 In-Situ Treatment Zones

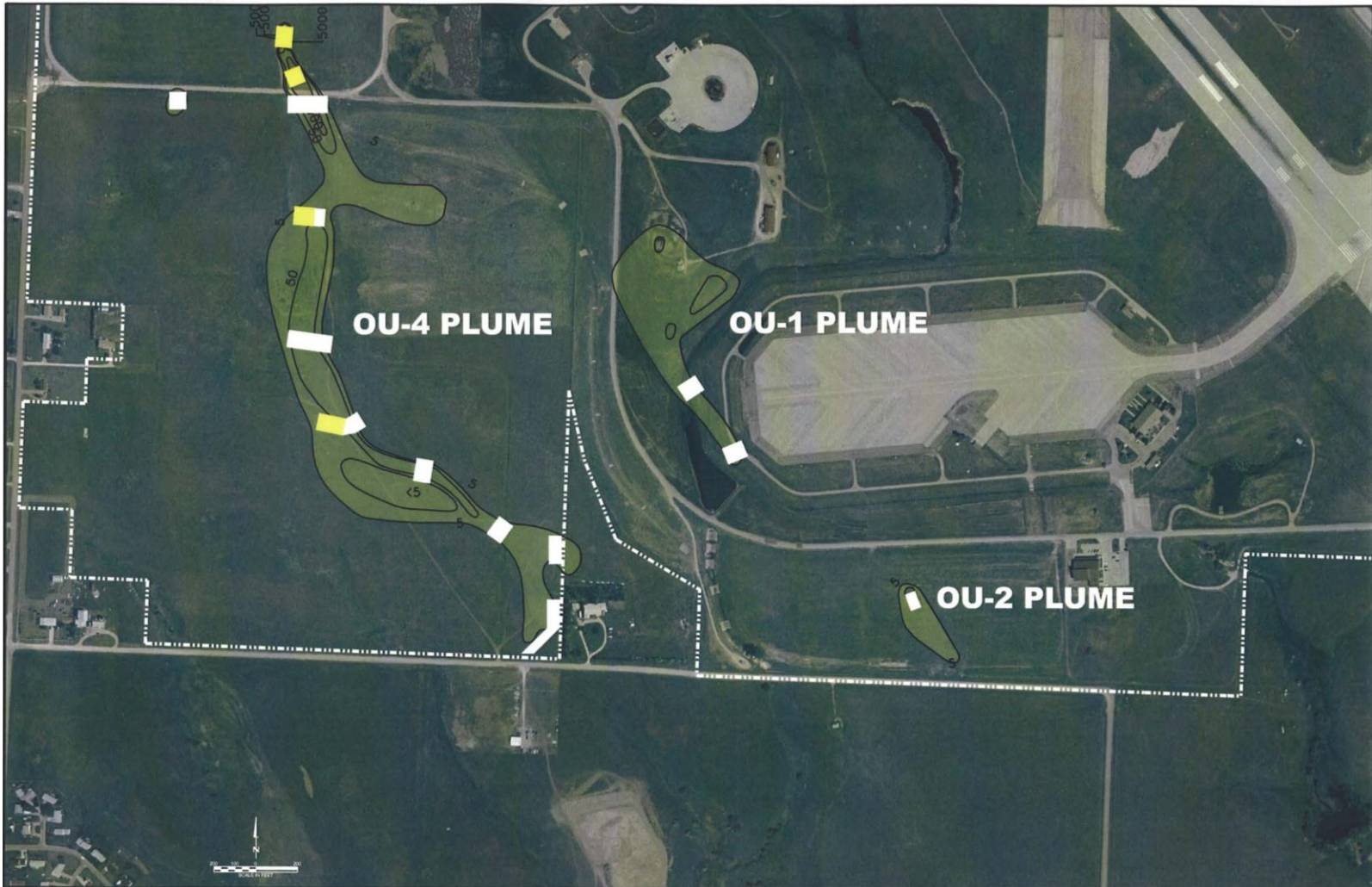




Pride Hangar and South Docks Main In-situ Treatment Zones



OU-1, OU-2, and OU-4 In-situ Treatment Zones





Off-Base Plume

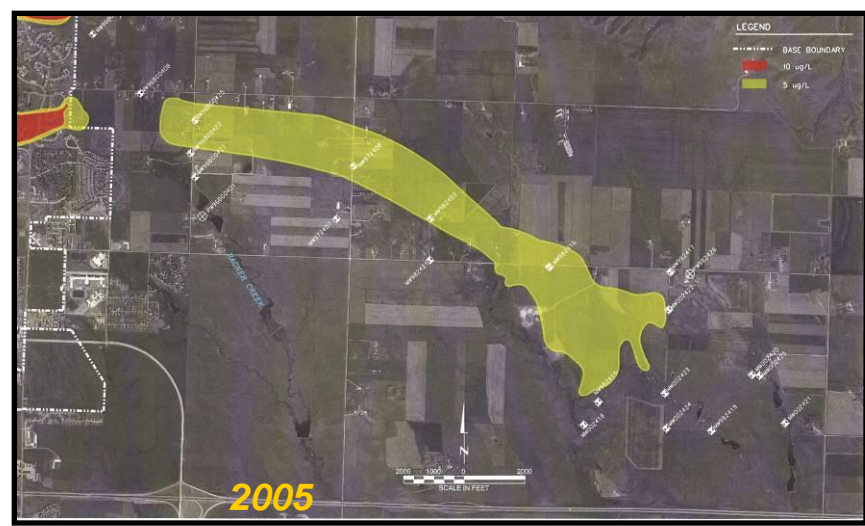
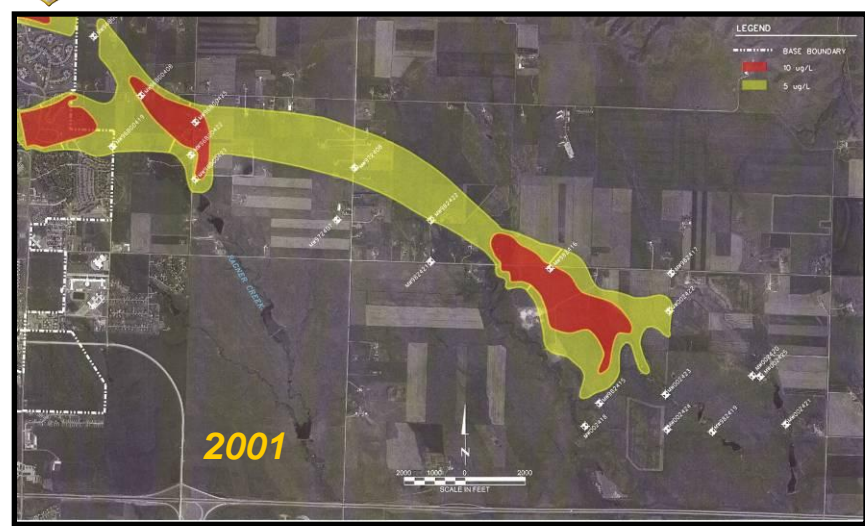


- **Site History**
 - Record of Decision (April 1997), Monitored Natural Attenuation selected as remedy
 - Groundwater extraction and treatment at Base boundary and areas of high contaminant concentration (started pumping in Nov. 1997)
 - Off-Base plume investigated and extent of plume delineated (completed investigation between 1997 and 1998)
- **TCE Concentration Trends – Generally decreased over time with occasional small rebounds**
- **Water Level Trends – Water levels have generally decreased over the past 8 to 9 years because of drought**



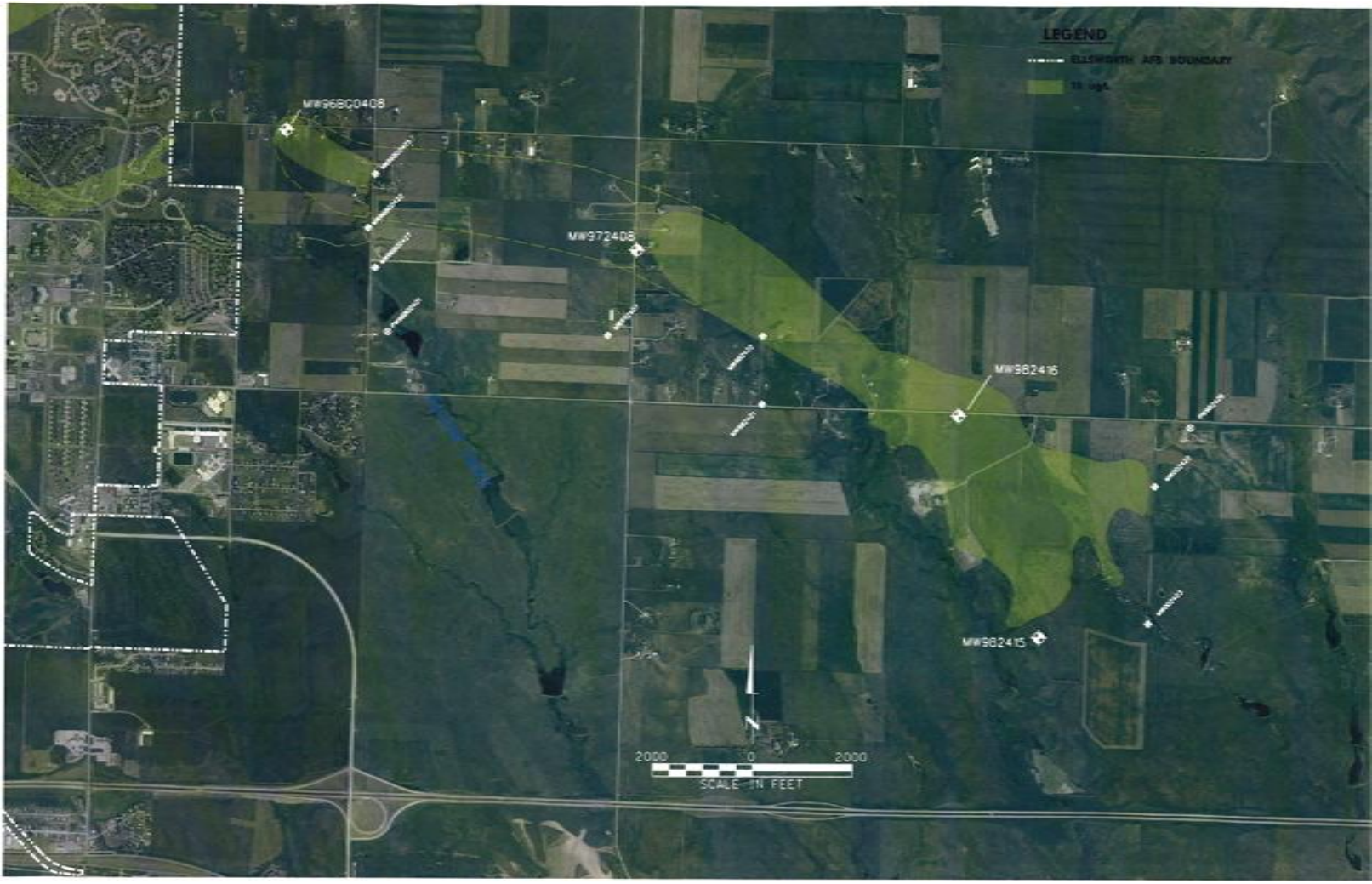


Off-Base Plume Maps



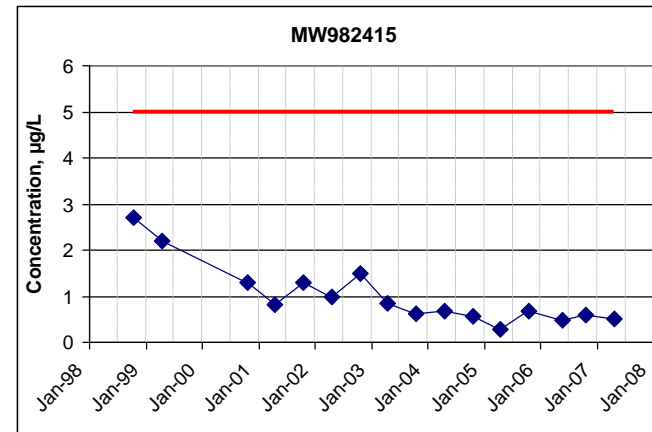
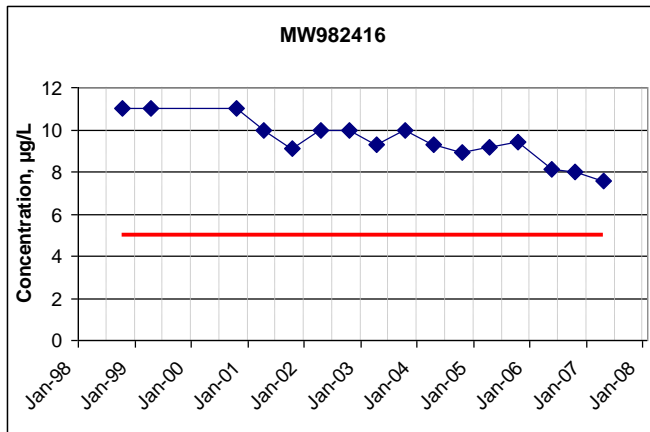
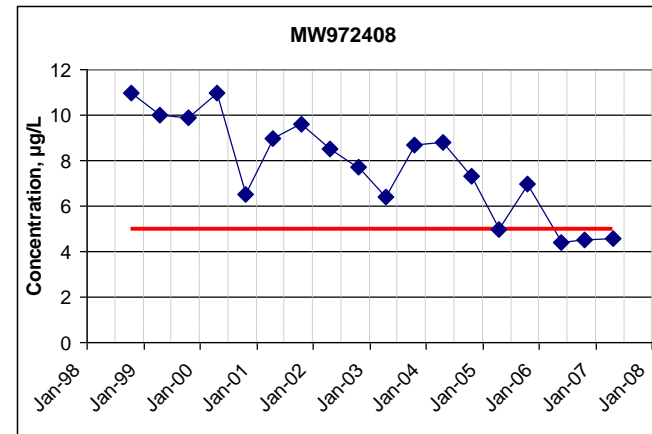
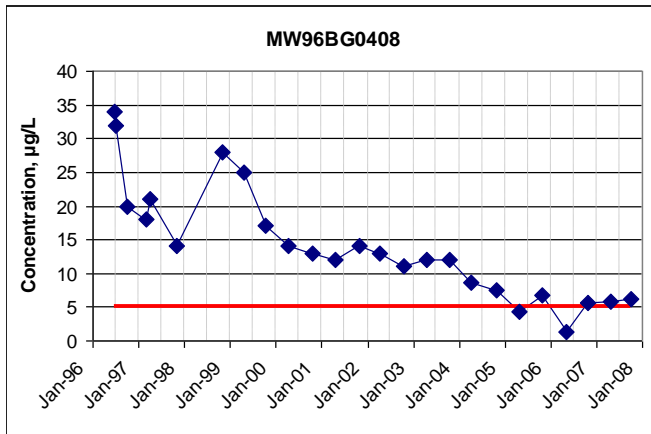


Off-Base Wells for TCE Trends



TCE Trends in Off-Base Wells

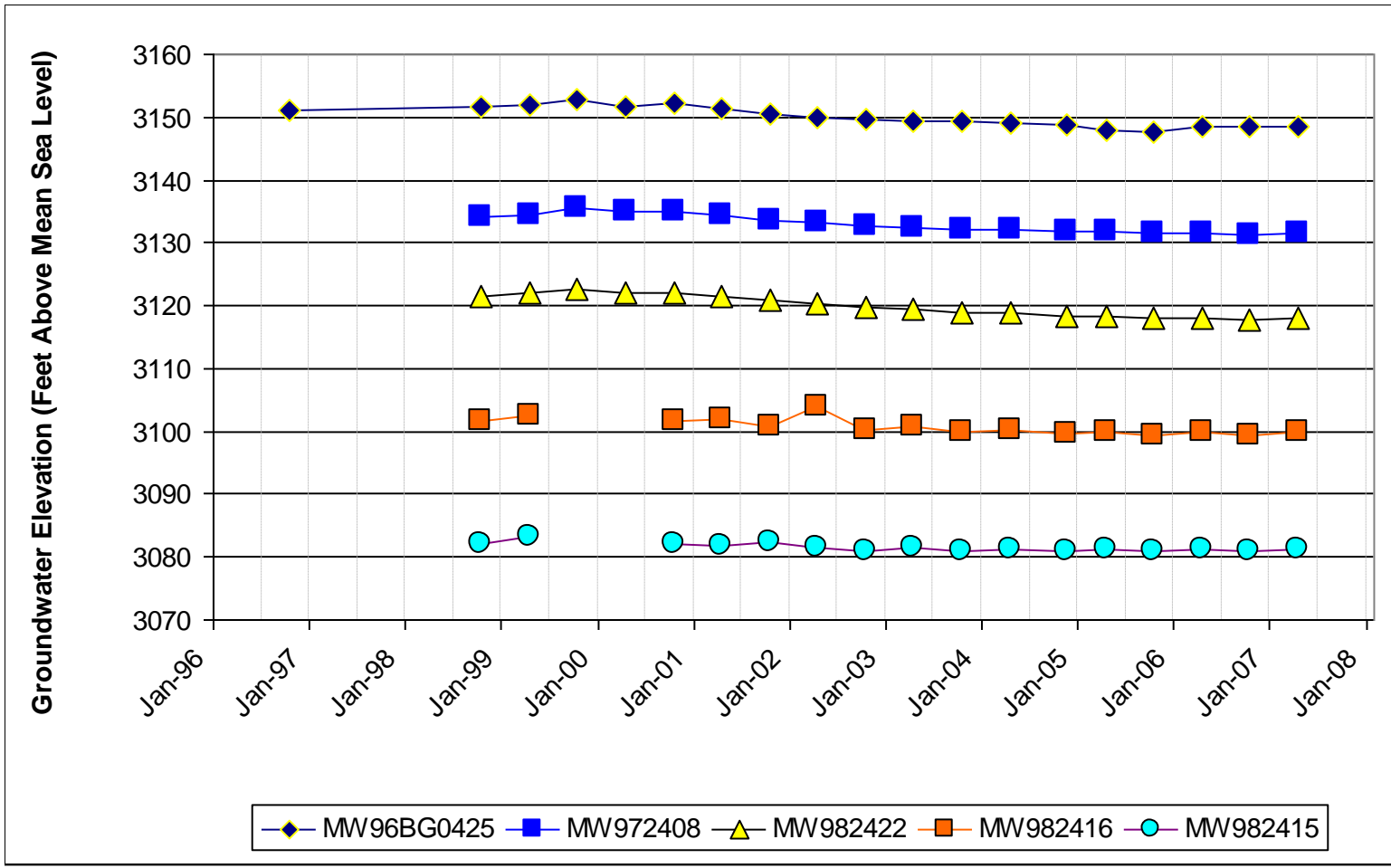
Upgradient
Northwest



Downgradient
Southeast



Water Level Trends in Off-Base Wells



Upgradient (Northwest)



Downgradient (Southeast)





SUMMARY



- **Landfill sites**
 - Remedies are in place and in good shape.
 - Will continue to inspect and monitor.
- **Petroleum release sites**
 - Free product mostly cleaned up
 - Plan to continue clean up action at 80 Row and OU-1
 - Plan to collect additional data at FRA
 - Sites will be monitored until No Further Action status is granted by the SDDENR.
- **Chlorinated plume sites**
 - Are currently contained by pumping from extraction wells.
 - Initial phase of injections for in-situ treatment was completed in 2007.
 - Second phase of injection planned to start in June 2008.
 - In the long-term (2010), plan to amend the ROD to shut down extraction wells.

