

IMPROVE
Particle Monitoring Network:
Status Report to
IMPROVE Steering Committee

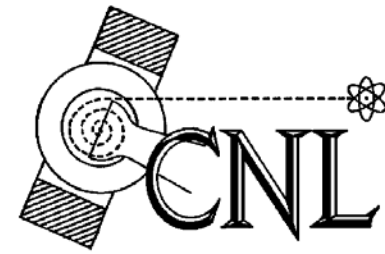
Chuck McDade
Crocker Nuclear Laboratory
University of California, Davis
Durango, Colorado
September 2007



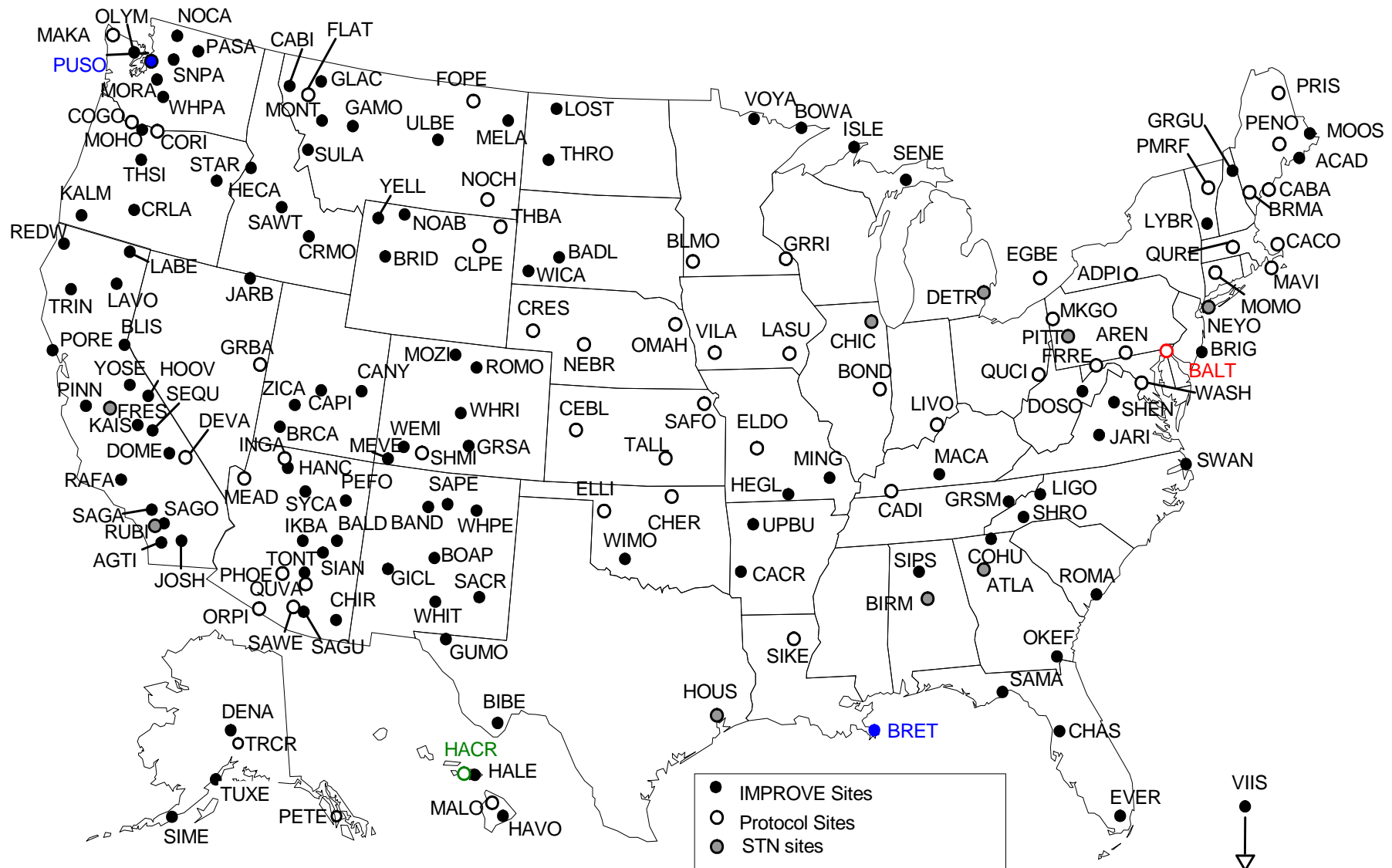
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IMPROVE Network Summer 2007

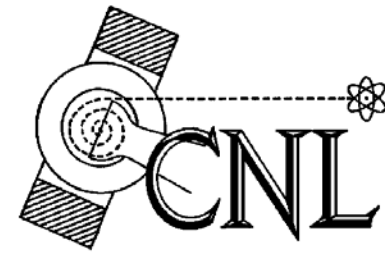


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Haleakala Crater, HI Installed January 2007

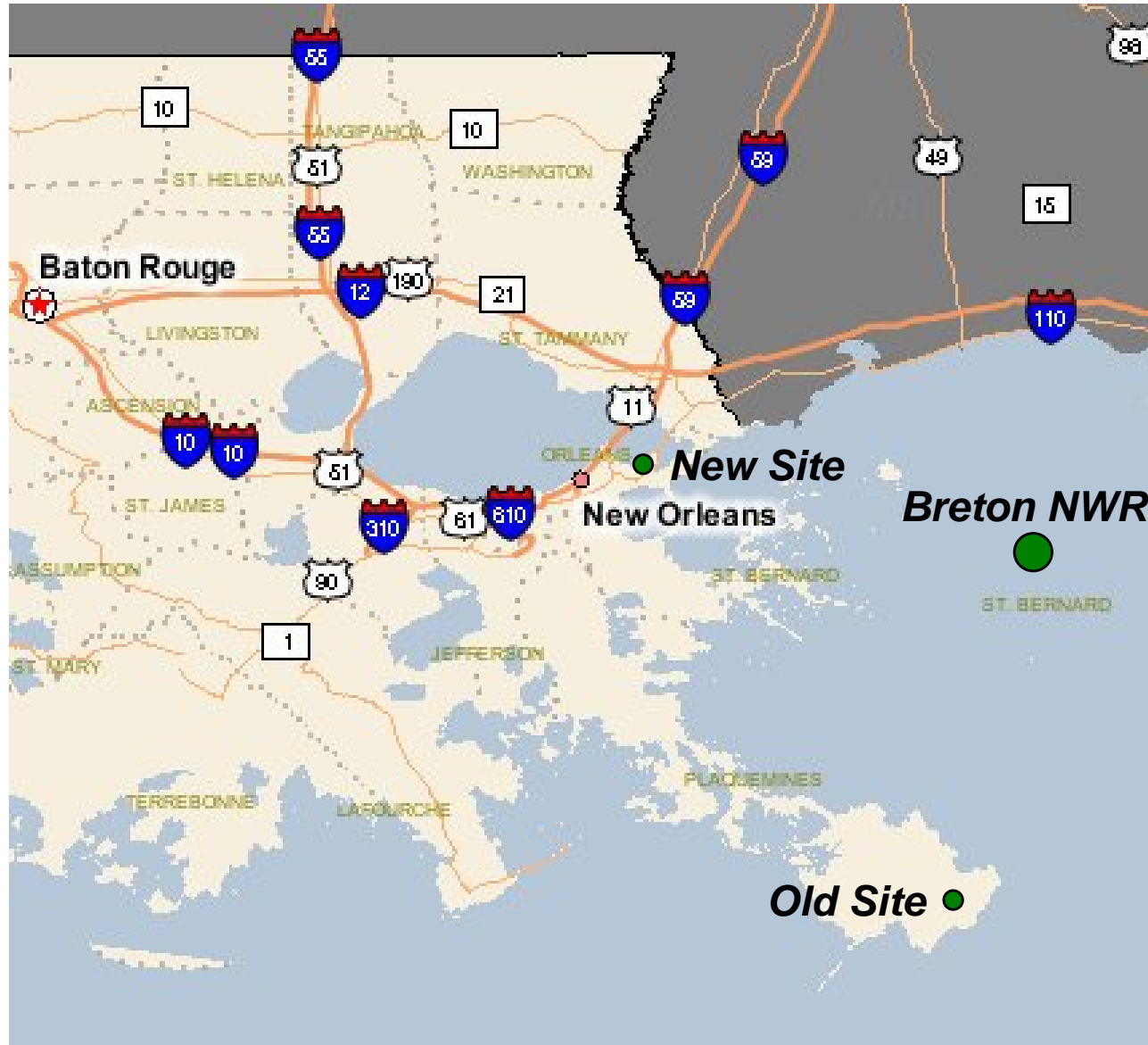
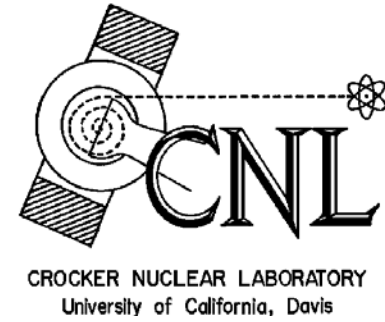


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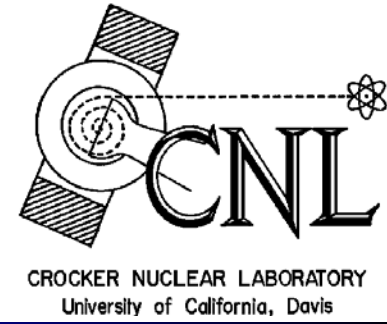


New Breton, Louisiana, Site



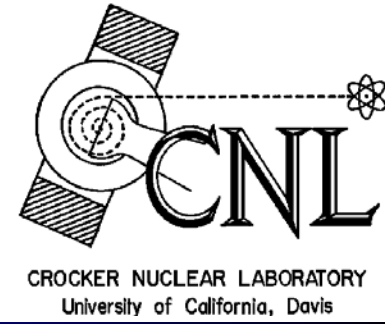


New Breton, Louisiana, Site



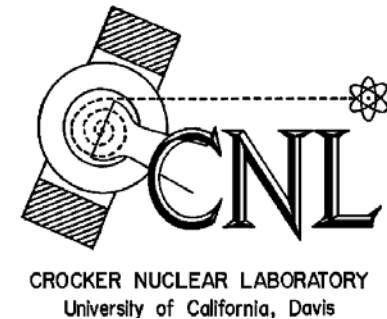


New Breton, Louisiana, Site





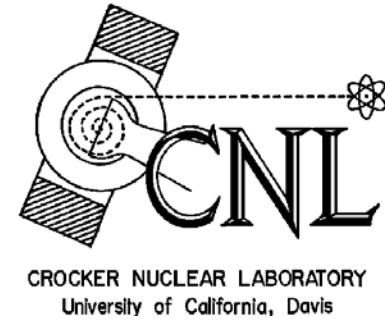
2006 Sample Recovery (A Channel, PM_{2.5} Teflon)



- 96% Q1
- 94% Q2
- 92% Q3
- 94% Q4
- 94% Annual A Channel
2005 was 95%



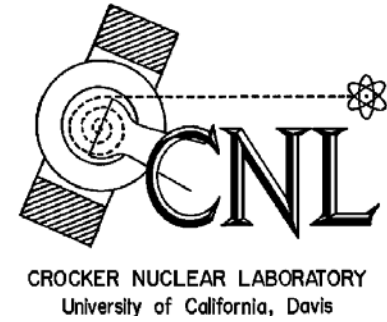
2005 Sample Recovery (All channels, ABCD)



- 95% Q1
 - 93% Q2
 - 90% Q3
 - 92% Q4
 - 92% Annual ABCD
- 2005 was 93%



Reasons for Sample Losses

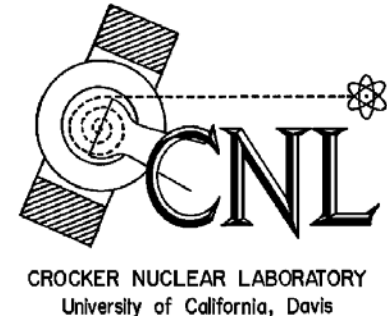


Of the 8% of lost samples (ABCD):

- 36% Equipment problems
- 24% Operator no-show
- 17% Power outages
- 12% Incorrect filter cassette installation
- 11% Torn or damaged filter



Regional Haze Rule Requirements



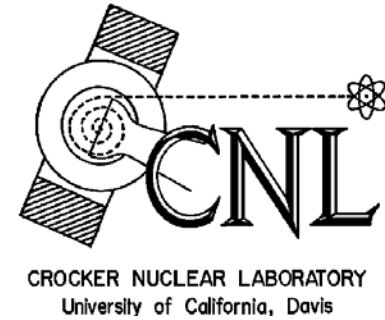
A “complete” site has, for ABCD:

- >75% annual recovery
- >50% recovery in each quarter
- <11 consecutive missed samples

4 sites failed in 2006 (8 in '03, 5 in '04, 6 in '05)



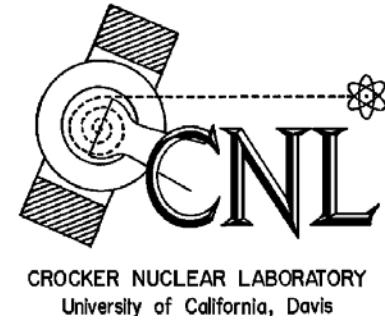
Sites Failing Regional Haze Rule Requirements



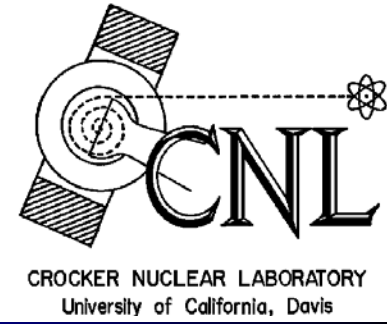
- Cadiz, KY (Protocol)
 - Failed due to 11 consecutive missed samples
 - Operator failed to report pump failure promptly, then waited a week to replace pump when received
- Cohutta, GA (IMPROVE)
 - Failed annual (72%)
 - Over 20 missed samples because operator was told by supervisor that IMPROVE was not a priority
 - 5 missed samples due to lightning
 - 6 missed samples because the power bill was not paid



Sites Failing Regional Haze Rule Requirements (cont.)



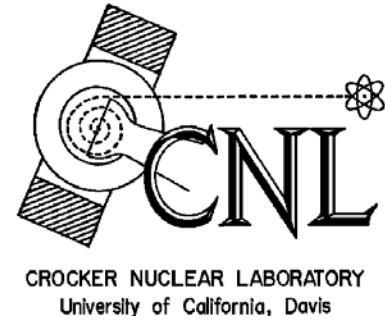
- Dome Land, CA (IMPROVE)
 - Failed annual (69%)
 - Operator difficult to contact for questions or equipment repairs; there only on Tuesdays and often doesn't return calls
 - Backup operators, substituted without our knowledge, made a number of errors
- Sierra Ancha, AZ (IMPROVE)
 - Failed annual (74%)
 - Firefighters often called away



DATA MANAGEMENT AND DELIVERY



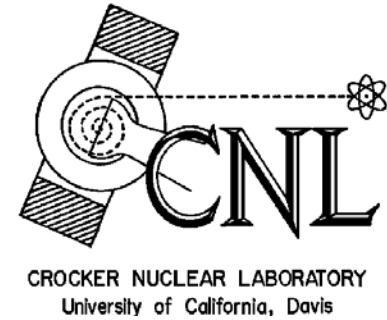
Data Status and Schedule



- Data delivered through September 2006
- October, November 2006 delivery soon
- Preliminary data (no XRF) submitted through February 2007
- Accelerated delivery schedule:
 - Dual XRF systems is allowing us to catch up
 - Should achieve 6 month lag in early 2008
 - Will cease preliminary data once we catch up



New Relational Database at UC Davis

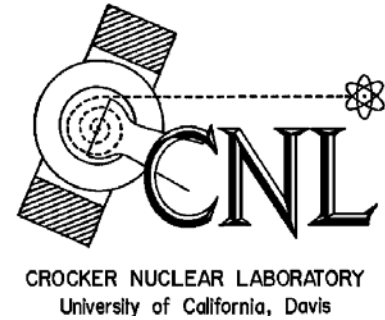


Active Development in 2006-07

- Full-time database developer/manager
- SQL server hardware in place, including testing & development servers
- Migration to SQL server has begun, will continue
- Database being designed to meet present & future IMPROVE needs
- Staff trained in SQL programming & queries



New Relational Database at UC Davis



Some Advantages

- Tracking and documentation of changes to data and software
- Secure files, protected from unauthorized users
- Readily accessible sorting and relational analysis
- Access to multi-year or other combinations of data