FT. McCLELLAN BCT MINUTES
PARTNERING MEETING #69
ANNISTON, ALABAMA
MAY 9-10, 2007

AGENDA ITEM	RESPONSIBILITY	NOTES
Check In Guest Introduction and Roles	Host: Scott Bolton Leader: Mike Kelly Recorder: Troy Winton	See Attendees List – Attachment A.
Ground Rules	BCT	Attachment B provides the ground rules, as revised in January 2001.
Agenda	BCT	Attachment C provides the agenda outline. Attachment D provides the May 2007 meeting summary.
Accept Previous Minutes	BCT	The team reviewed and approved the draft February 2007 minutes.
Action Items	BCT	Action items were reviewed and updated, as indicated in Attachment D.
Long-Term Planning (BCP)	BCT	IT (Shaw) provided a final BCP on December 21, 2001.
Goals/Metrics Update	BCT	The team began brainstorming this topic during the June 1998 meeting, and also began development of preliminary goals for consideration by the group. This topic requires the BCT to set aside schedule time to address.
Facilitator Observations	David Smith	See Attachment E.

ATTACHMENT A

LIST OF PARTICIPANTS
BCT PARTNERING MEETING #69
MAY 9-10, 2007

Participants:

Name	**Agency/Company**	**Telephone**	**E-mail**
Scott Bolton	Fort McClellan TF	256-848-3847	scott.j.bolton@us.army.mil
Lisa Holstein	Fort McClellan TF	256-848-7455	lisa.holstein@us.army.mil
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Ellis Pope	USACE-Mobile	251-690-3077	ellis.c.pope@usace.army.mil
Mike Kelly	AEC	410-436-1506	michael.kelly@aec.apgea.army.mil
Mark Krivansky	AEC	410-436-0542	mark.krivansky@us.army.mil
Brandi Little	ADEM	334-274-4226	blittle@adem.state.al.us
Britney Stroup	ADEM	334-271-7797	bstroup@adem.state.al.us
Kaneshia Townsend	ADEM	334-394-4356	ktownsend@adem.state.al.us
Doyle Brittain	EPA, Region 4	404-562-8549	brittain.doyle@epa.gov
Sharon Thoms	EPA, Region 4	404-562-8666	thoms.sharon@epa.gov
Tim Frederick	EPA, Region 4	404-562-8598	frederick.tim@epa.gov
Rich Henry	USFWS	732-906-6987	richard_henry@fws.gov
Peter Tuttle	USFWS	251-441-6633	peter.tuttle@fws.gov
Steve Moran	Shaw Environmental	865-694-7361	steve.g.moran@shawgrp.com
Troy Winton	Shaw Environmental	865-670-2698	james.winton@shawgrp.com
Rich Prann	Shaw Environmental	610-742-2229	rich.prann@shawgrp.com
Michelle Klomp	Matrix Environmental	256-847-0780	michelle_klomp@matrixdesigngroup.com
David Smith	Smith/Associates	918-625-9024	CorpPsych@aol.com

ATTACHMENT B

BCT GROUND RULES

General:

1. Leave rank and title at the door, and have a free and open discussion on any subject affecting the BCT.
2. Work smarter, not harder: create ways to simplify and streamline the BCT process.
3. Identify and express individual team members' sensitive issues, and agree to keep them within the team.
4. Alert other team members of any changes in cost or schedules.
5. Rotate meeting leaders.
6. Have fun.

Meeting Behavior:

1. Come prepared; do your homework.
2. Participate fully: offer your perspective and advice for the benefit of the whole team.
3. Listen to others' views and opinions, try to understand their needs, respect them, and work to resolve differences, and support team decisions.
4. Draw out other members: be open to other ideas and different perspectives.
5. Avoid interruptions and side conversations.
6. Call time out when necessary.
7. Make decisions by consensus: all in agreement, all owning the decision.
8. Turn off cell phones.

ATTACHMENT C

BCT MEETING AGENDA

1. Check In

2. Guest Introduction/Role in Meeting

3. Review Ground Rules (Attachment B to these minutes)

4. Finalize Agenda with additions and/or subtractions (Item 9 of this Attachment)

5. Accept Previous Meeting Minutes

6. Review Action Items from Previous Minutes (Attachment D to these minutes)

7. Review Long-Term Planning (BCP)

8. Goals/Metrics Update

9. Accomplish Agenda Items (Item 9 of this Attachment)

10. Meeting Summary Review

    - Set next meeting date
    - Set next meeting agenda
    - Set time and date for conference call
    - Set meeting dates for next six months
    - Review action and consensus items
    - Review and evaluate Partnering Process

ITEM #9
BCT MEETING AGENDA
MAY 9-11, 2007

Wednesday, May 9th		
1:00 – 1:30	Check in/finalize meeting minutes/review action items	All
1:30 – 2:30	Review Preliminary Former Tank Range Data	Shaw
2:30 – 2:45	Break	
2:45 – 3:45	Particle Ingestion Model	EPA
3:45 – 4:00	Break	
4:00 – 5:00	Statistics	EPA

Thursday, May 10th		
8:00 – 11:30	BGR RI Comments (Breaks as Needed)	All
11:30 – 1:00	Lunch	
1:00 – 5:00	BGR RI Comments (Breaks as Needed)	All

Friday, May 11th		
8:00 – 9:00	Final Lines of Evidence Table	Shaw
9:00 – 10:00	Range Cross-Walk Table	Lisa

ATTACHMENT D

MEETING SUMMARY
With
ACTION ITEMS

Next BCT Meeting: August 8-10, 2007.

Primary Agenda: See Item #9

Meeting Summary for May 9-10, 2007:

Check-In – Participants introduced themselves and are listed on Attachment A.

Finalize Agenda and Minutes – The team approved the February 2007 meeting minutes without changes.

Action Items – The team reviewed the action items. The updated list is provided herein.

Document Status Tracking – Lisa provided the team with the latest version of the document status tracking spreadsheet. Bold entries are priority.

Former Tank Ranges Supplemental Data Review

Shaw provided a handout and summary of the supplemental soil sampling data. The data indicate that the previous elevated cadmium detection was spurious and that the supplemental data are consistent with but lower than the SI data. EPA and USFWS indicated their agreement that NFA is appropriate for this site based on the additional data. ADEM will respond to the Army regarding their decision for this site.

Revised Lines of Evidence Table

Shaw distributed the revised Lines of Evidence table to be included in RI reports. The table was revised based on input from the BCT during the February 2007 meeting. The team agreed with the revised table without any changes; however, it was suggested that specifics (e.g., frequency of detection, concentrations) be added wherever possible.

Particle Ingestion

EPA presented a status update of work being done by its Office of Research and Development. Intent of presentation was to decide whether or how to include info currently being developed by ERASC in FTMC risk assessments. A copy of the presentation is included as Attachment F.

Statistics

EPA provided an overview of work done by Evan Englund. A copy of the presentation is included as Attachment G.

Bain Gap Road Ranges RI Comment Resolution

The group reviewed ADEM comments requiring clarification:

- General Comment 3 – Will add general statement that historical activities may have caused contamination.
- General Comment 14 – response is acceptable.
- Specific Comment 4 – Add response info to RI text.
- Specific Comment 7 – Add distance fired and impact area(s) to text.
- Specific Comment 9 – Add response info to RI text.
- Specific Comment 12 – Add response info to RI text.
- Specific Comment 20 – Add response info to RI text.
- Specific Comment 23 – response is acceptable.
- Specific Comment 24 – response is acceptable.
- Specific Comment 27 – Add more detail to RI text.
- Specific Comment 44 – response is acceptable.
- Specific Comment 48 – Add rationale to text.
- Specific Comment 49 – Add response info to RI text.
- Specific Comment 56 – Add response info to RI text.
- Specific Comments 66-70 – Add response info to RI text.
- Specific Comment 78 – response is acceptable.
- Specific Comment 79 – response is acceptable.
- Specific Comment 99 – Add response info to RI text.
- Specific Comment 108 – Add correct value to RI text.
- Specific Comment 112 – Resolved as is.
- Specific Comment 144 – To be discussed during conference call.
- Specific Comment 146 – Resolved as is.
- Specific Comment 152 – To be discussed during conference call.
- Specific Comments 161-165 – Add clarification to RI text.

The group reviewed EPA comments:

- Vol. 1 Text General Comment 1 – Response is OK; use content of response to ADEM #13.
- Vol. 1 Text Specific Comment 1 – Modify response to include broader range.
- Vol. 1 Text Specific Comment 2 – OK.
- Vol. 1 Text Specific Comment 3 – Response is OK; use content of response to

ADEM #13.

- Vol. 1 Text Specific Comment 4 – Army and EPA agree to disagree.
- Vol. 1 Tables Specific Comment 1 – OK.
- Vol. 1 Tables Specific Comment 2 – OK.
- Geochemistry Vol. IV Specific Comment 1 – Change response to "Agree".
- Geochemistry Vol. IV Specific Comment 2 – To be addressed during conference call.
- Vol. IV Appendix K General Comment 1 – OK
- Vol. IV Appendix K General Comment 2 – OK
- Vol. IV Appendix K General Comment 3 – OK
- Vol. IV Appendix K Specific Comment 1 – OK
- Vol. IV Appendix K Specific Comment 2 – OK
- Vol. IV Appendix K Specific Comment 3 – Shaw to modify response.
- Vol. IV Appendix K Specific Comments 4-10 – OK
- Vol. IV Appendix K Specific Comment 11 – Rich and Sharon to resolve.
- Vol. IV Appendix K Specific Comments 12-21 – OK
- Vol. IV Appendix K Specific Comment 22 – Shaw will add info
- Vol. IV Appendix K Specific Comments 23-25 – OK.
- Vol. IV Appendix K Tables Specific Comments 1-11 – OK.

After discussing BGR comments, the group identified the steps remaining to finish the RI:

1. Resolve ADEM comments during conference call.
2. Address FWS comments to be received by June 1, 2007.
3. Confirm white phosphorus conclusions.
4. Discuss lingering EPA geochem issues during conference call.

Shaw will provide a tentative schedule for completion of the RI to the team.

The feasibility study for the BGR Ranges will be discussed during the August 2007 meeting.

<u>Upcoming Meetings</u> – August 8-10, 2007; November 14-16, 2007.

The following items were tentatively identified for the August 2007 meeting agenda:

1. BGR FS Scoping – develop RGOs
2. Status of Other FTMC RIs (e.g., IMR Ranges, T-5 Sites)
3. Range Crosswalk

ACTION ITEMS

Item	Action	Responsibility	Status
1	Sub-group to convene and discuss “problem” metals in background data set (Sb, Cd, Se, Ag, Tl).	Karen, Sharon, Paul, Rich P.	Complete
2	Send USFWS letter agreeing with approach for 81mm Mortar Range RI based on BCT meeting discussions.	Rich H.	Open
3	Send 95% UTL protocol to Evan Englund.	Karen	Complete
4	Provide tentative schedule for completion of BGR RI report to project team.	Steve	Complete

ATTACHMENT E
FACILITATOR NOTES AND OBSERVATIONS

Team: Fort McClellan Tier I

1. **Meeting Location:** Ft McClellan

2. **Dates:** May 9-10, 2007

3. **Purpose of the visit:** __ Partnering Workshop _X_ Partnering Meeting __Planning Session __ Coaching __ Issue Resolution _X_ Other (BCT)

4. **Facilitator:** David G. Smith, **SMITH**/Associates

5. **Number of attendees and organizations:** 21 participants. See minutes for organizations

6. **Guests and Link and their organizational affiliations:**
   None.

7. **Stage of Team Development:**
   ___ Forming:___Storming: __ Norming:_X_ Performing:___High Performing

8. Significant issues and/or events:
Goals and Successes: All agenda issues were discussed and solutions were agreed upon or processes established to address details and/or strategies.

9. Partnering Performance and Training:
The meeting tone was businesslike and cordial. Conversations were **issue** driven with little or no personal conflict. The meeting agenda encouraged progress and the complex technical issues were addressed clearly but with only limited resolution. Agreement to disagree will likely be the outcome on some of these topics.

10. **Summary**:
This meeting ran smoothly and evidenced continuing cooperative effort. Difficult Clean-up issues and anticipated funding decreases will continue to test participants' temperament and patience over the next several months. Privatization may provide a partial solution to these issues.

11. Recommendations:
The Fort McClellan Tier I team will do well to continue their format of **regularly scheduled meetings** with significant advanced notice and participant pre-meeting preparation. Tightly focused, issue driven conference calls should be used as necessary. Pre-meeting review and comment submission for relevant documents will be critical to keeping the process moving.

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12. Goals/Plans/Actions for Next Meeting:.

Continue current processes. Advance notice and preparation for items on critical path.

12. Next meeting dates

August 8-9-10, 2007
November 14-15-16, 2007

ATTACHMENT F
PARTICLE INGESTION PRESENTATION BY EPA

Estimating Risk to Birds From Ingestion of Lead Fragments at Former Firing Ranges

Sharon Thoms, Ph.D., EPA Region 4, Atlanta, GA
Richard S. Bennett, Office of Research and Development (ORD) Duluth, MN
Dale Hoff, EPA, EPA ORD Duluth, MN
Mike Kravitz, EPA ERASC, ORD Cincinnati, OH

May 9, 2007

Objectives

- Explain what scientist know about soil and grit ingestion by birds
- Review published approaches
- Examine sources of uncertainty
- Discuss how approaches can be improved

ERASC

- Ecological Risk Assessment Support Center, National Center for Environmental Assessment www.epa.gov/erasc/
- Region 4 request submitted April 2005
- Draft response completed by ORD January 2007
- Region 4 comments submitted March 2007

Expected Outcomes

- Informational
- Decide whether or how to include information currently under development by the ERASC in the risk assessment at Bains Gap Road Ranges

Purpose

- Evaluate effectiveness and utility of the European Plant Protection Organization's Risk Assessment Scheme for Plant Protection Products for its ability to estimate the degree of exposure to songbirds from contaminants in soil
- Provide a better means to estimate particle ingestion
- Incorporate the influence of retention time on dose

Soil & Grit Ingestion

- Inadvertent – feeding, nest building
- Advertent – soothe gastric disturbances, aide in digestion
- Considerable variation in amounts among species
- Considerable variation in grit preference among species – size, shape, texture, color
- Hard to measure
  - Soil/grit particles in gizzards at time of necropsy
  - Acid-insoluble ash in scat samples

How Much? How Long?

- Gizzards maintain a certain amount of grit presumably to maximize digestion efficiency
- The rate of grit ingestion by birds is linked with the rate of grit excretion to maintain optimal grit numbers
- When grit is freely available turnover of grit can be rapid
- When grit availability is restricted, birds can retain grit in their gizzard for extended periods
- Turnover is not constant but can occur all at once when birds replace their grit stores

Risks to Birds

- Ingestion of soils containing chemical residues
- Mistakenly identifying a lead fragment or spent lead shot as grit or food
- Lead fragments must erode in the gizzard over days or weeks to become toxic
- Pesticide granules erode rapidly releasing toxic chemicals

Existing Approaches

1. European Plant Protection Protocol
   - Conservative screening approach
   - Multiplies estimate of number of grit particles in gizzard of necropsied bird by a conversion factor equal to the inverse of the grit retention time
   - Grit turnover rate (retention time) is from a study on house sparrows and is very conservative, 0.24 days
   - Fisher and Best (1995) study that derived the short retention time did not appropriately consider the relationship between grit consumption and grit retention

Existing Approaches (Continued)

2. Luttik and de Snoo (2004)
   - Estimates the probability of a bird ingesting one or more pesticide granules per day
   - Binomial distribution expressing the probability that a bird chooses a pesticide granule from a set containing a mixture of harmless grit particles and toxic pesticide granules
   - Depends on rate of ingestion and proportion of toxic particles among available particles
   - Does not consider grit retention time

Existing Approaches (Continued)

3. Peddicord and LaKind (2002)
   - Estimates the probability a bird will ingest at least one lead shot over their lifetime
   - Accounts for foraging area and grit retention time
   - Does not consider the number of particles typically contained in the gizzard when estimating the grit ingestion rate, which results in severe underestimation of the number of particles selected and retained
   - Overestimates risk to a population by modeling the maximum lifetime

Grit Retention Time

- Used to estimate the grit ingestion rate in models
- Greatly influences estimate of risk
- A particle retained a long time is more likely to cause lead poisoning than if voided after a few days
- Retention time is characterized as an exponential random variable
- Most particles are eliminated rapidly; a few particles are retained for extended periods
- Grit retention time is highly variable among birds and from day to day for a single bird
- When grit availability is not limited, birds routinely replace grit
- Limited data show that the medium retention times range from less than 1 day to several days

What it Means

- When picking retention time avoid studies where grit availability was experimentally contrived such that grit use does not reflect conditions in the field
  - Birds force-fed abundant grit but did not require grit for soft diet
  - Restricted grit availability can alter bird's tendency to replace grit
  - Consider probabilistic nature of particle retention

What it Means Continued

- Particle retention time affects risk once a lead fragment has been ingested
  - The shorter the retention time the greater the likelihood of ingesting lead
  - Once in the gizzard a lead particle can be retained long enough to cause toxicity and death even when median retention time is short
- There is some concern as to whether the P & L model accurately assesses risk

Next Steps

- Rick Bennett in ORD Duluth will address deficiencies in P & L model
- Dale Hoff is summarizing and interpreting literature studies
  - Dietary class
  - Size preferences
  - Number of particles
  - Recommendations for risk assessment

ATTACHMENT G
WRS/STATISTICS PRESENTATION BY EPA

Wilcoxon Rank Sum Test As A Background Screen

BCT Meeting

Fort McClellan Site in Anniston, AL

Sharon Thoms

Evan J. Englund

5/9/07

Expected Outcome

- Present work by Evan Englund
- Background to tomorrow’s discussion of BGR comments
- Resolve issue of alpha related to problematic background metals

Methodology

- Tier 1

  Two times average background compared to site maximum detected concentration (MDC)

- Tier 2

  Background Threshold Comparison

  Wilcoxon rank sum test (WRS)

- Tier 3

  Geochemistry evaluation

Wilcoxon Rank Sum Test

- Army expressed a desire to return to an alpha value of 0.05 because too many metals fail the test that are subsequently identified as background in the geochemistry evaluation.
- EPA is concerned that metals expected at firing ranges were too often identified as naturally occurring by WRS test.

Non-ideal Data

- Levels of metals tended to be higher at the sites than in the background data set
- Unequal sample sizes
- Unequal variance
- Skewed distributions
- Hot spot contamination
- Detection limits for background data set is different

Case Study

- Choccolocco Corridor RI Report
- Null Hypothesis was that there was no difference between metal concentration at the site and background.
- Alternative hypothesis was that the site was greater than background.

Error Types

- False Positive error occurs when site samples represent background but the test tells you that the site is contaminated.
- False Negative error occurs when the site is actually contaminated but the test falsely concludes that the concentrations represent background.

Significance

- Hypothesis tests tend to favor the null hypothesis by setting strict requirements to reject default assumption, i.e., alpha
- If background data represents the range of conditions at the site, the false-positive error rate will be equal to the significance of the test, alpha
- EPA raised alpha from 0.05 to 0.2, which relaxed the test’s stringent limits on rejecting the null hypothesis
- Army and State wish to return to using alpha of 0.05

Wilcoxon Rank Sum Test Assumptions

- Random samples
- Independent sample populations
- Distributions or shapes of the two populations being compared are the same
- Populations differ by a constant
- Power is diminished when too many values are the same

Approach

1. **Generate a simulated background population**
   - Arithmetic mean = 100
   - Log-normally distributed
   - Specified log standard deviation

Approach (Continued)

2. **Generate a simulated contaminant population**
   - Both zero and non-zero values in specified proportion
   - Non-zero values represent contamination
   - Log-normally distributed
   - Log standard deviation of contaminant population was 1.5
   - Arithmetic mean of entire population is the specified true difference, D
   - Set D to zero to simulate no contamination

Approach (Continued)

3. **Add the two distributions to create the site population**

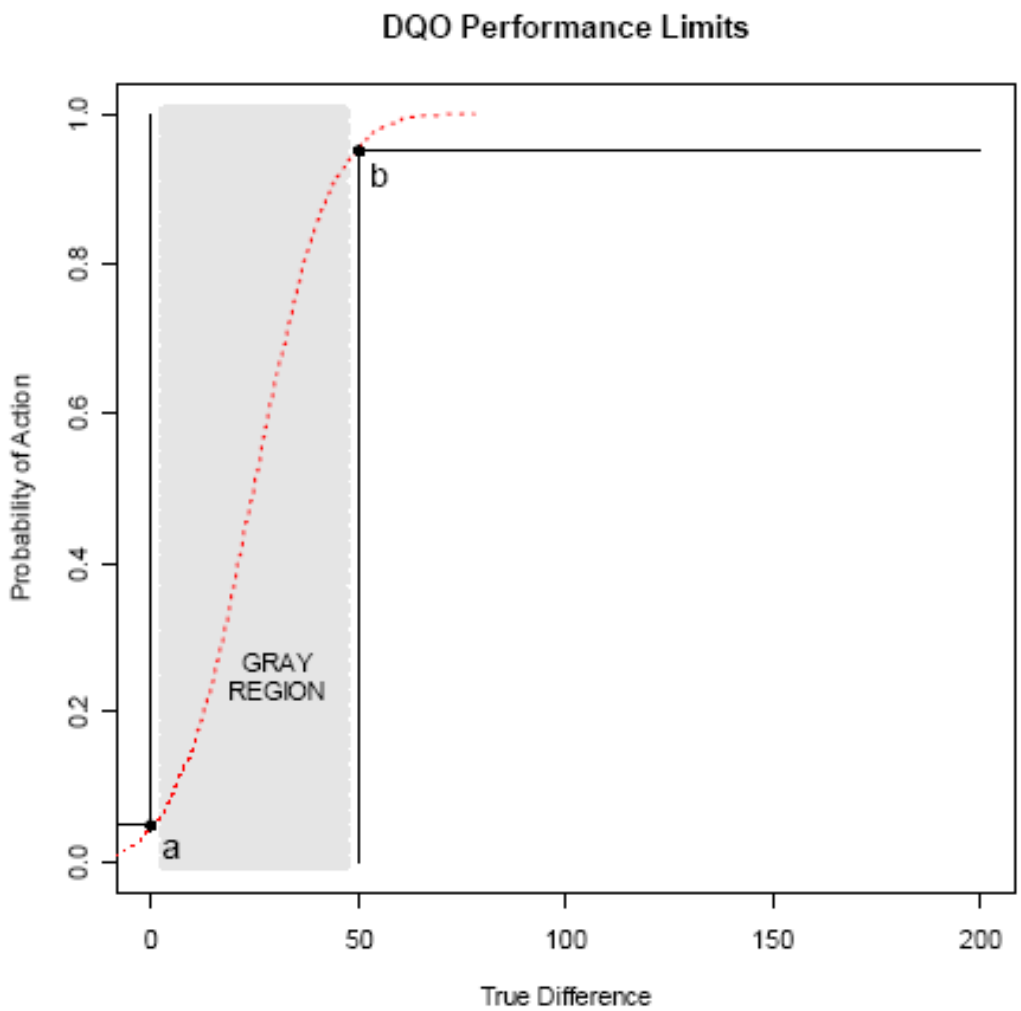
Simulation Algorithm

1. **Draw a random background sample and a random site sample**
   - 67 background samples; 139 site samples
   - 30 background samples; 30 site samples
2. **Perform WRS test and Student's t Test**
3. **Repeat many times, recording the fraction of positives (p-value<alpha)**
4. **Repeat for a series of D values**
5. **Plot the performance (fraction of positives) as a function of the true difference, D**

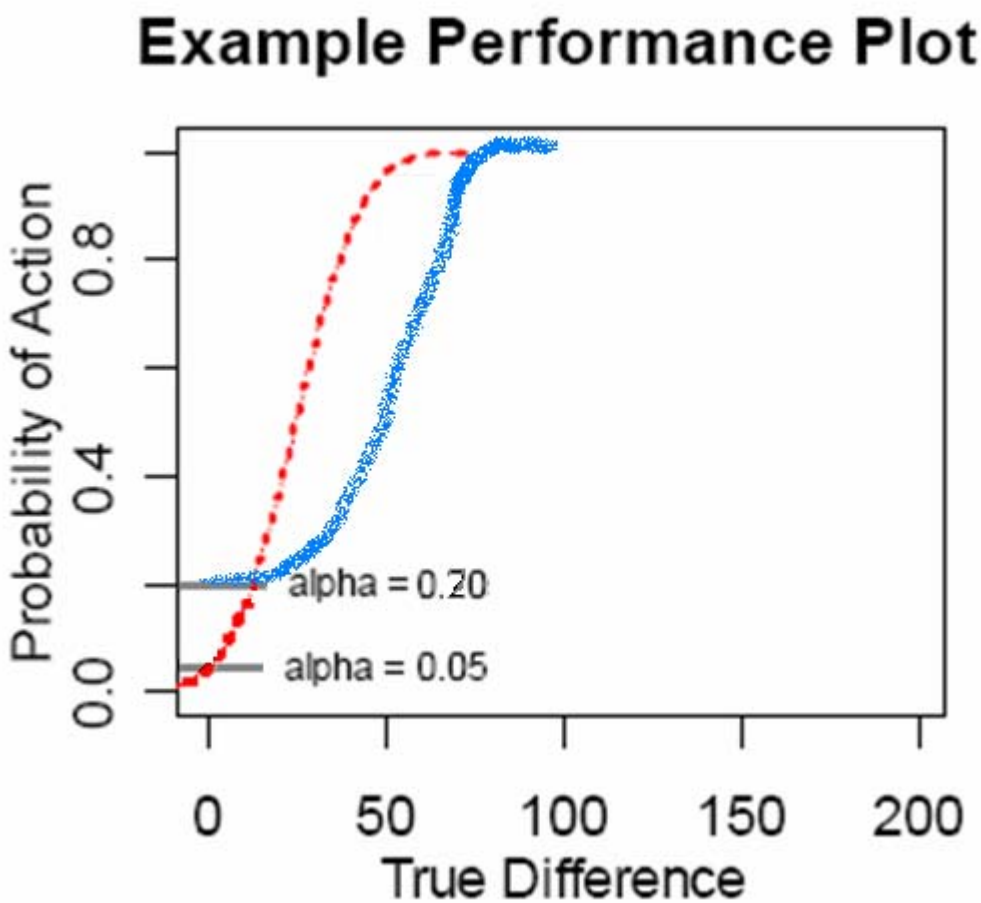
Scenarios

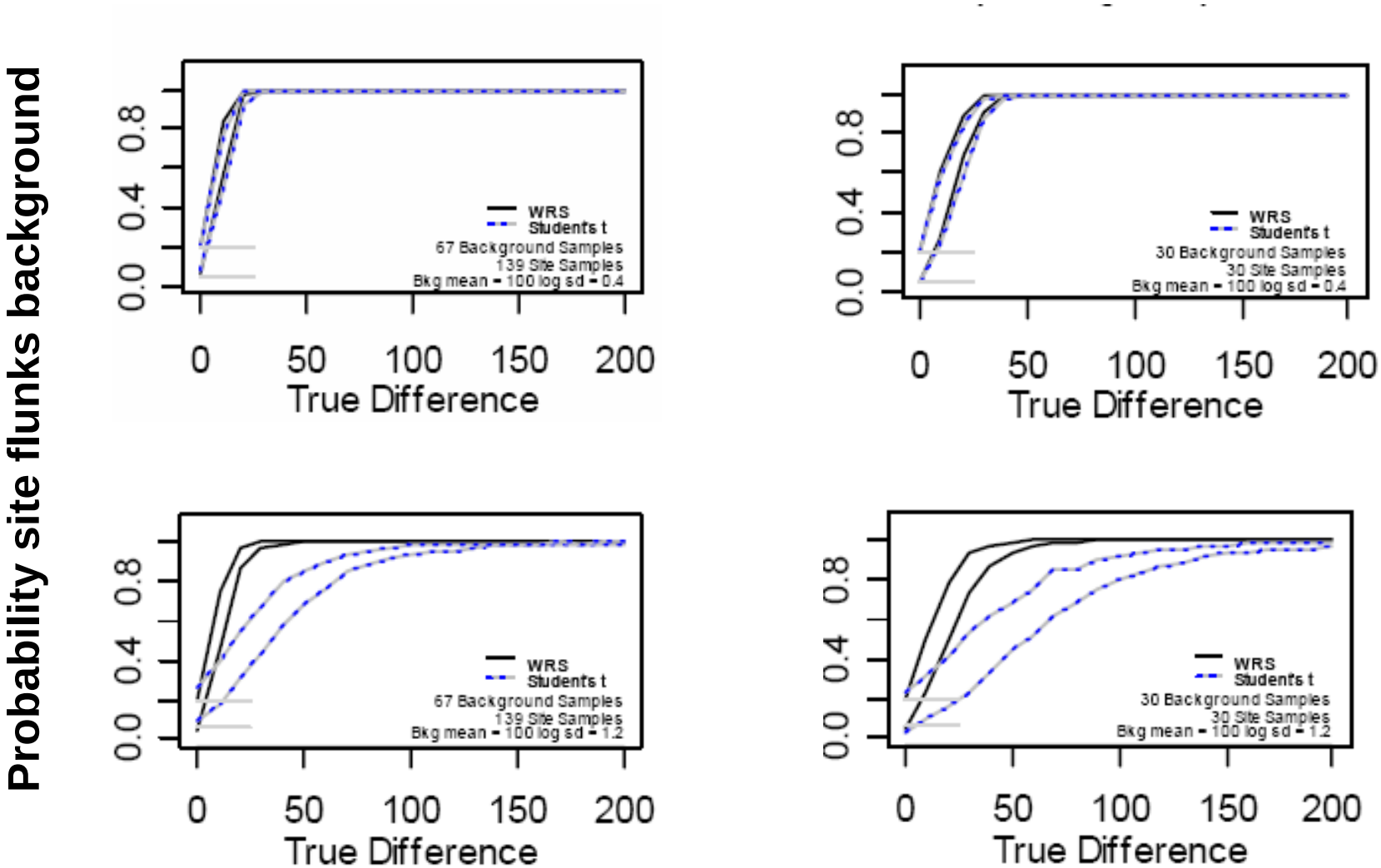
1. Site equals background plus constant
2. 100% of site is contaminated
3. 50% of site is contaminated
4. 20% of site is contaminated
5. 10% of site is contaminated

DQO Diagram


DQO Performance Limits
Probability of Action
0.0
0.2
0.4
0.6
0.8
1.0
GRAY
REGION
a
b
0
50
100
150
200
True Difference

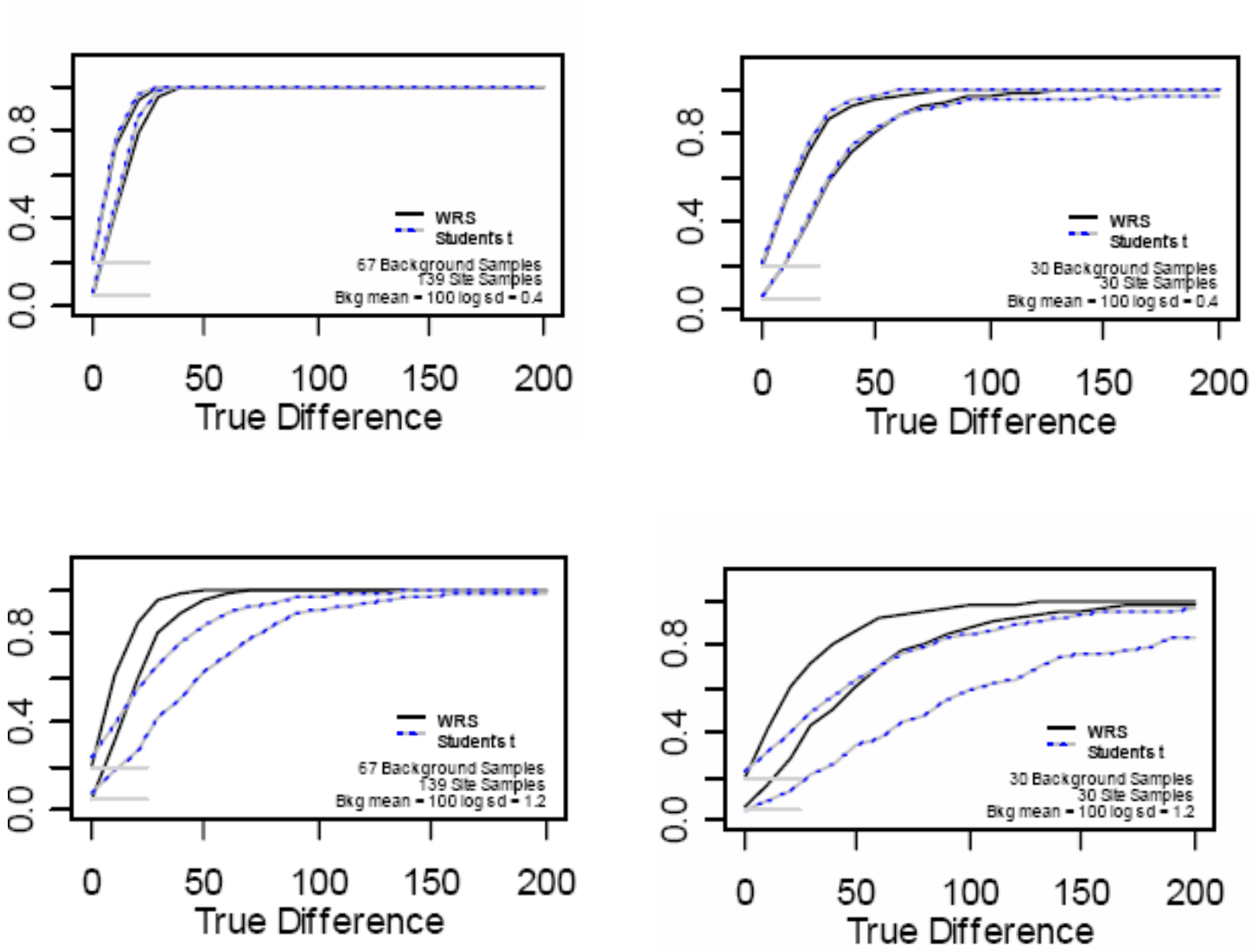
Simplified DQO Diagram



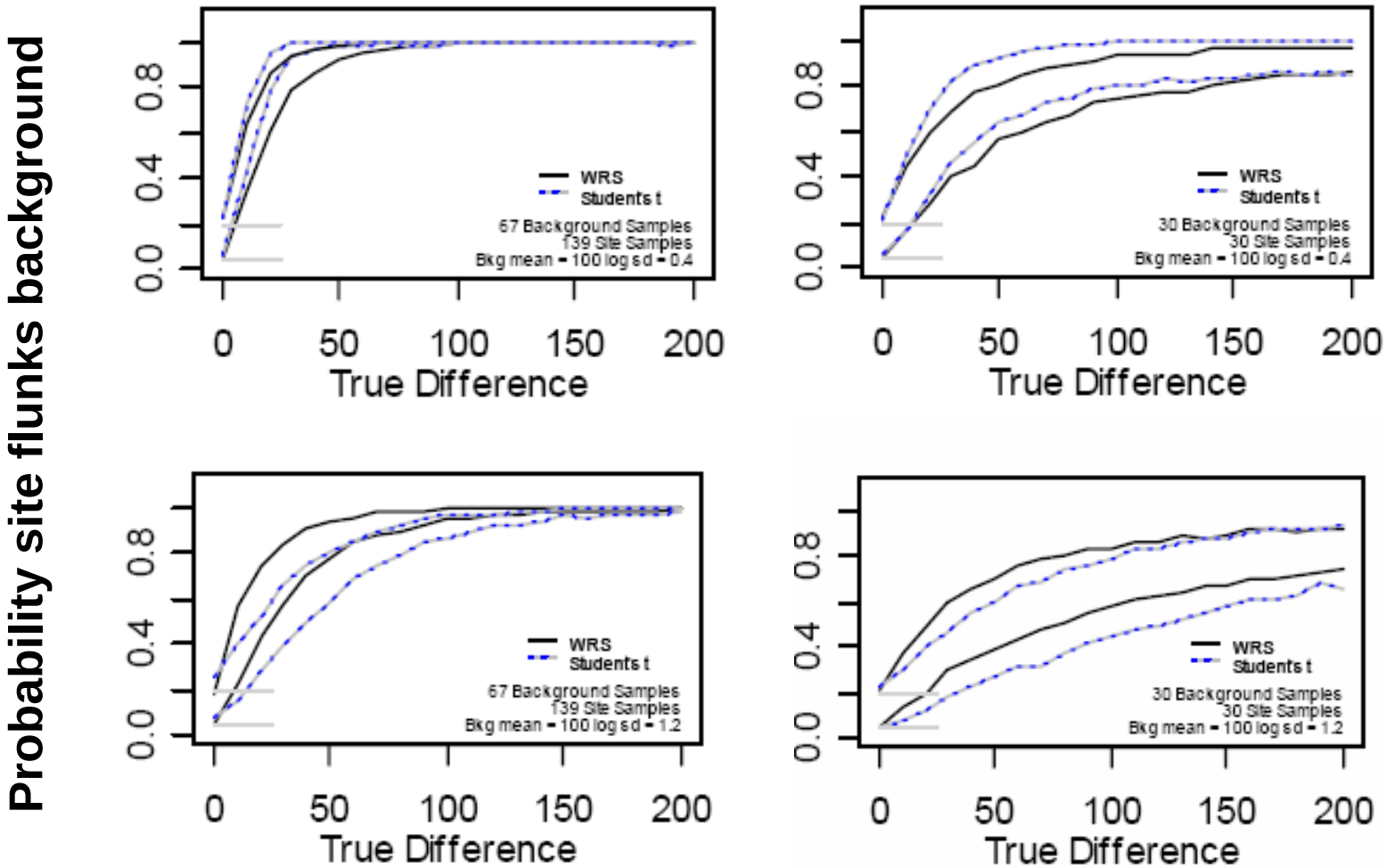


1. Site equals background plus a constant

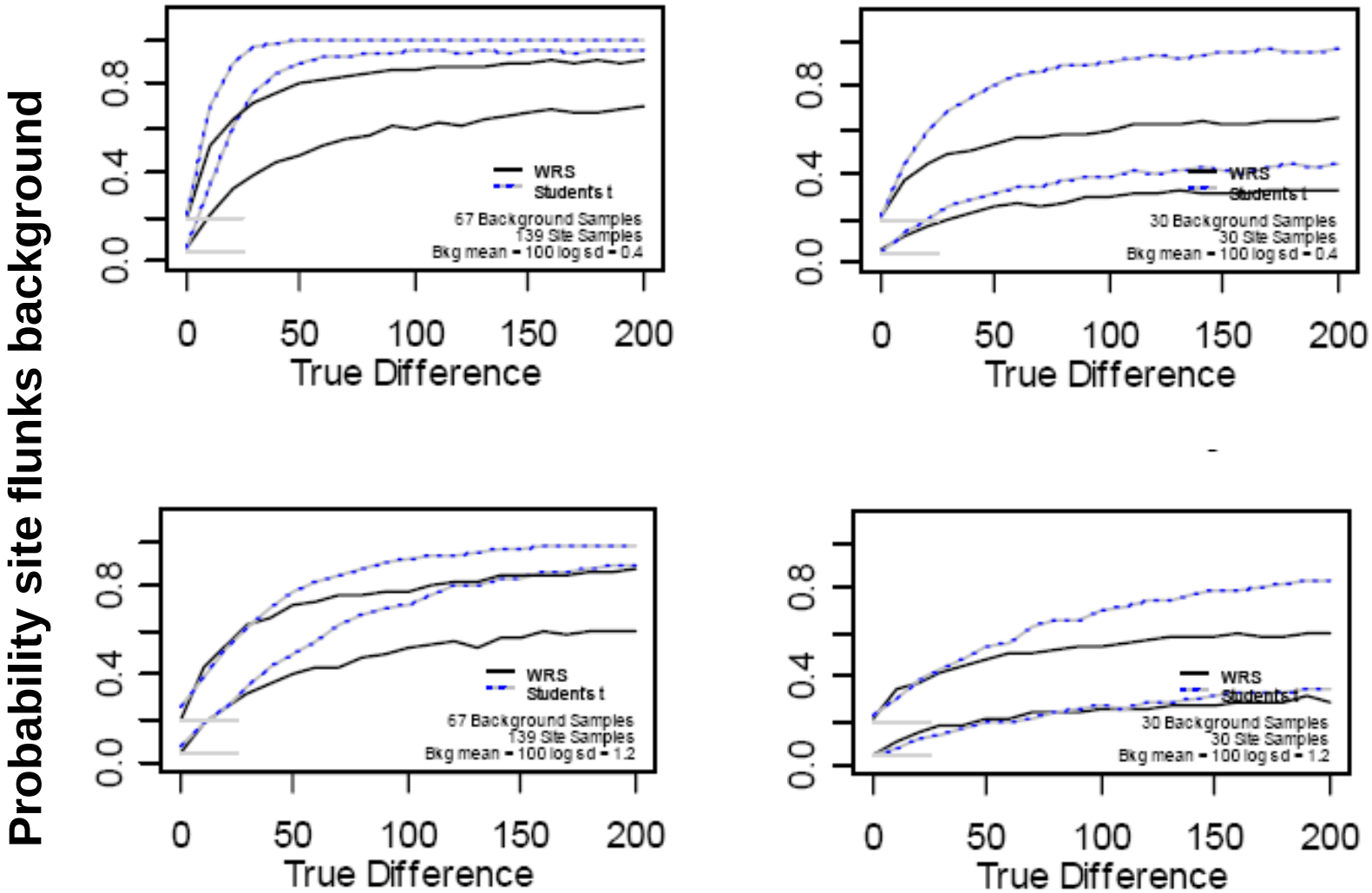
Probability site flunks background



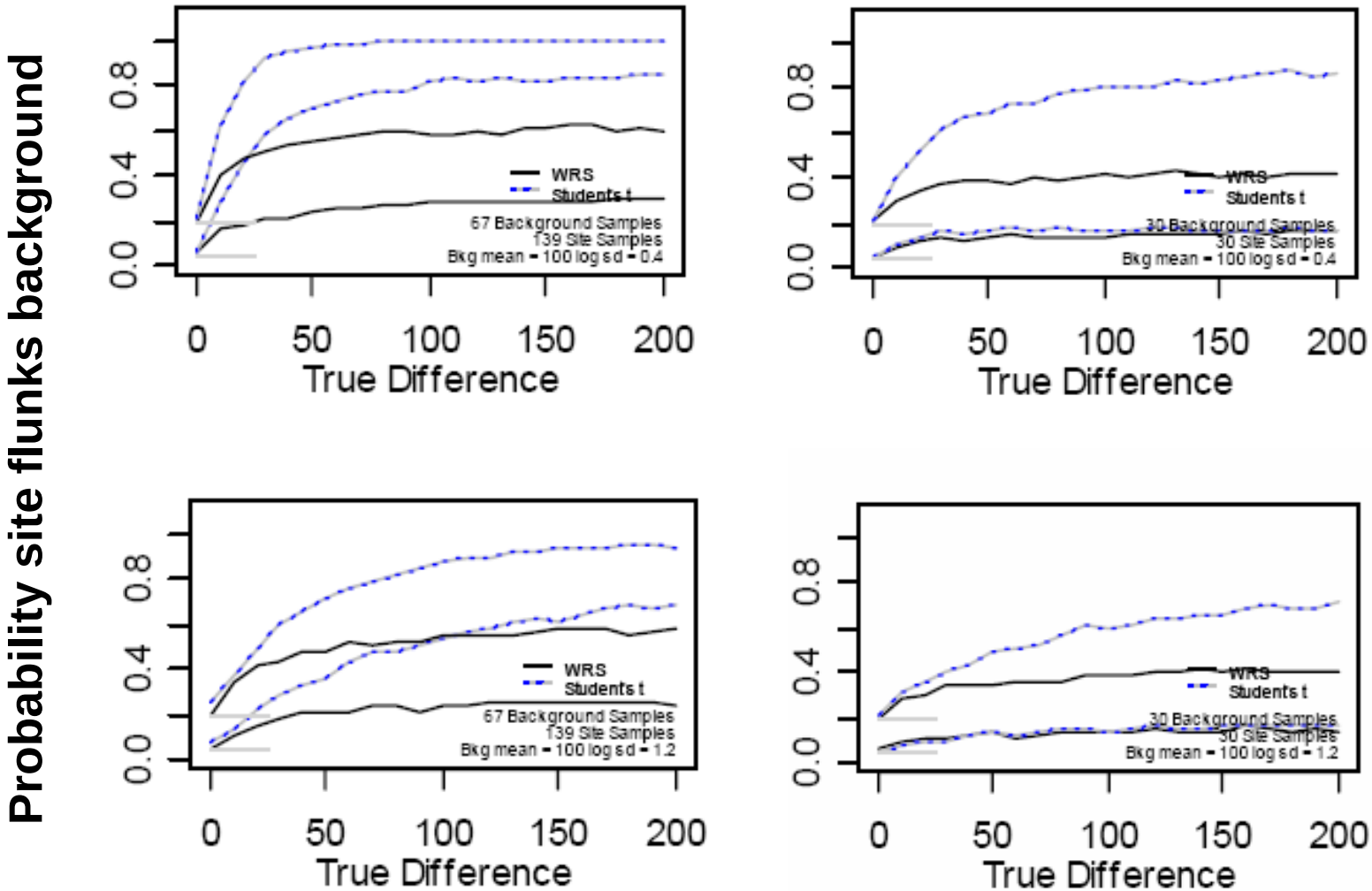
2. 100 % of site is contaminated



3. 50 % of site is contaminated



4. 20 % of site is contaminated



5. 10 % of site is contaminated

Conclusions

- The WRS test is not as reliable as desired.
- Statistical background evaluations should be interpreted with care.
- As long as one has a decent background dataset, WRS test will provide a false-positive error rate approximately equal to alpha.
- WRS was unable to identify “hot spot” contamination even when 20% of the site was contaminated.
- Raising alpha helped but could not overcome test difficulties.
- Neither WRS nor Student’s t test was consistently superior.
- Poorly performing WRS test gave high false negative results.
- Student’s t test was better at identifying “hot spot” contamination.
- Background evaluations should consider the capabilities of available statistical tests when designing sampling strategies.

Some Other Tests Tried

- Arithmetic means test
  - The difference in means is tested against a threshold set to half the significant difference level.
  - If the site mean minus background mean is greater than 25, the metal is considered to be above background.
- Student's t test performed on log-transformed sample data
- Test Form 2 (swapping null and alternative hypotheses)
- No method was consistently superior.

Solutions

- Geochemistry Evaluation
- Lines of Evidence Table