

Appendix I4 Sediment

Memorandum

To: Alison Dunn, Debbie Howard
From: Barbara Jones
Date: 12/09/03
Subject: Peterson/Puritan Data Validation Review, 300-1821, Task 0400
SDG B1378 – Sediment

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1378, Sediment. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria. Based on the established protocol, three samples from this SDG, SE-006-UI, SE-FD01, and SE-ER01, were submitted for PAH SIM analysis. The results are to be provided in SDG B1405.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases the qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. Numerous samples have been qualified based on this review, although no results were rejected. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ.

In one case, corrected information was requested from the laboratory. Samples aliquots for VOA, TCO, and TOC analyses were not freeze-dried to increase the sample aliquot taken for analysis. However, the VOA results for the four samples in this SDG that required freeze-drying for other analyses were erroneously calculated using the final percent moistures rather than the as-received moistures. The laboratory provided the corrected Form Is and calculation sheets on December 8, 2003.

The qualifier "T" for trip blank was applied to VOA results for affected samples for those constituents detected in the trip blanks (carbon disulfide, 1,1-DCE, and methylene chloride). The "F" qualifier for field blank (equipment rinsate) was added to various VOA and inorganic sample results due to detection in the rinsate blank.

TCO/TOC results were reviewed in the context of QA/QC, although a separate review table has not been prepared as part of this report. TOC raw data included results for the method blank, calibrations, laboratory control samples, matrix spikes, duplicates, and field duplicate. The results met the QC criteria established by the laboratory for TOC. TCO is a gravimetric method and does not involve the same time of QA/QC parameters, however, all results were supported by log book entries and raw data.

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: <u>B1378 (Sediment)</u>		Completion Date: <u>11/24/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	VOA samples were not frozen or freeze-dried. Results were to be calculated based on as-received moisture content. Replacement sheets for SE-001-UI, SE-002-UI, SE-004-UI, and SE-007-UI were provided by laboratory on 12/08/03 because original sheets in data package used moisture content from freeze-dried samples.
3.	GC/MS tuning	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	Yes	Acetone qualified as J (detects) or UJ (non-detects) where not already qualified as estimated (J) in all field samples but SE-ER-01.
Blanks:			
5.	5A - Laboratory blanks	Yes	Sample detects for acetone that were <10X blank concentration were qualified as U (reporting limit dependent on sample concentration).
	5B - Trip blanks	Yes	T-qualifier added to detects in affected samples for carbon disulfide, 1,1-DCE, and methylene chloride. Affected samples: SE-001-UIMS; SE-001-UIMSD; SE-005-UI; SE-006-UI; SE-007-UI; SE-FD-01.
	5C - Equipment rinsates	Yes	F-qualifier added to methylene chloride detects in all field samples. Affected samples: SE-004-UI; SE-007-UI; SE-FD-01.
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	No	-
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	No	Note: VOA sample results (detected) for SE-003-UI and SE-FD-01 were below quantitation limit.
10.	Internal standards performance	Yes	SEI-004-UI: Positive results J, non-detects UJ due to IS are greater than upper QC limit.
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: <u>B1378 (Sediment)</u>		Completion Date: <u>11/24/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified Yes / No	Samples Qualified
1.	Data completeness	No	See SDGB1405 for SIM-PAH analysis for SE-006-UI, SE-FD01, SE-ER01
2.	Preservation/holding time	No	<i>Note:</i> Samples were frozen to suspend holding time per pre-approved lab protocol. SE-001-UI, SE-002-UI, SE-004-UI, SE-007-UI (≥50% moisture as received) SVOA analyses were performed on samples that had been freeze-dried to increase sample aliquot taken for analysis. Final results were calculated using final percent moisture.
3.	GC/MS tuning	No	-
Calibration:			
	4A - Initial	No	
4.	4B - Continuing	Yes	Detects J-qualified; non-detects UJ for multiple constituents. Affected samples: SE-001-UI; SE-001-UIDL; SE-001-UIMS; SE-001-UIMSD; SE-002-UI; SE-004-UI; SE-005-UIDL; SE-007-UI; SE-007-UIDL; SE-008-BR; SE-008-BRRE; SE-ER-01; SE-FD-01.
Blanks:			
5.	5A - Laboratory blanks	No	-
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	NA	Not analyzed
8.	Matrix spike/matrix spike duplicates	Yes	SE-001-UI: J-qualify pyrene in unspiked sample
9.	Field duplicates	No	-
10.	Internal standards performance	Yes	Low IS area, J-/UJ-qualified affected compounds: SE-001-UI; SE-001-UIMS; SE-001-UIMSD; SE-007-UI; SE-008-BR. High IS area, J-qualify affected compound detects only: SE-008-BRRE.
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: <u>B1378 - Sediment</u>		Completion Date: <u>12/03/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mittkem</u>			
Review Criteria		Data Qualified Yes / No	Samples Qualified
1.	Data completeness	No	-
2.	Preservation/holding time	No	<i>Note: Samples were frozen to suspend holding time per pre-approved lab protocol. SE-001-UI, SE-002-UI, SE-004-UI, SE-007-UI (≥50% moisture as received). Pest/PCB analyses were performed on samples that had been freeze-dried to increase sample aliquot taken for analysis. Final results were calculated using final percent moisture.</i>
3.	Instrument Performance	Yes	Analyte resolution below QC limits for methoxy-chlor, Endosulfan I, and 4,4'-DDE. J-qualified detected analytes in SE-001-UIDL, SE-003-UI-DL.
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	No	-
Blanks:			
5.	5A - Laboratory blanks	No	-
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	Yes	Surrogate recoveries exceeded upper QC limit for 1 to 3 spikes, depending on sample. Positive results for associated compounds J-qualified, non-detects accepted. Affected samples: SE-001-UI; SE-002-UI; SE-003-UI; SE-004-UI; SE-005-UI; SE-006-UI; SE-007-UI; SE-008-BR.
7.	Matrix spike/matrix spike duplicates	No	Spiked sample: SE-001-UI. RPDs okay, 3 of 12 spikes out of limits. Positive results already J-qualified, no additional qualifiers added to unspiked sample. LFBs within QC limits.
8.	Field duplicates	No	Field duplicates (SE-003-UI, SE-ID-01) compare poorly; however, no additional qualifiers added because positive results for both samples already qualified as estimated. One constituent detected in SE-FD-01, 8 constituents detected in SE-003-UI. Results may reflect sample heterogeneity.
9.	Florisisl cartridge performance check	No	-
10.	Compound quantitation and reporting	No	-

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: B1378 - Sediment		Completion Date: 12/04/03	
Project No.: 300-1821		Reviewer: Barbara Jones	
Laboratory: Mitkem			
Review Criteria		Data Qualified Yes / No	Samples Qualified
1.	Data completeness	No	-
2.	Preservation/holding time	No	<i>Note:</i> Samples were frozen to suspend holding time per pre-approved lab protocol. SE-001-UI, SE-002-UI, SE-004-UI, SE-007-UI (≥50% moisture as received). Inorganic analyses were performed on samples that had been freeze-dried to increase sample aliquot taken for analysis. Final results were calculated using final percent moisture.
3.	Calibration	Yes	ICV/CCV okay; quantitation limit check standard CRI low for Ag, resulting in J- (estimated, low) qualifier for Ag in: SE-003-UI; SE-004-UI; SE-005-UI; SE-006-UI; SE-007-UI; SE-008-BR; SE-FD-01. UJ qualifier for Ag in SE-ER-01.
Blanks:			
4.	4A - Laboratory	Yes	Various metals (Na, K, Cu, Co, Mg, Ni) qualified as U at the reporting limit due to detection in ICB and/or CCB. Affected samples: SE-001-UI; SE-002-UI; SE-003-UI; SE-004-UI; SE-005-UI; SE-006-UI; SE-007-UI; SE-008-BR; SE-ER-01; SE-FD-01.
	4B - Equipment rinsates	Yes	All field samples were flagged with F due to detection in field blank (SE-ER01) for the following metals, where detected: Ba, Fe, Mn, Ni, Zn.
5.	Interference check sample	No	ICP for Na, K out of limits (high); results already qualified on basis of blanks.
6.	Lab-fortified blank	No	-
7.	Laboratory duplicate sample	No	-
8.	Field duplicate sample	No	-
9.	Matrix spike sample analysis	No	-
10.	ICP serial dilution	No	-
11.	Sample quantitation and reporting	No	-

Memorandum

To: Alison Dunn, Debbie Howard
From: Barbara Jones
Date: 12/12/03
Subject: Peterson/Puritan Data Validation Review, 300-1821, Task 0400
SDG B1405 -- Sediment

Enclosed are five tables and marked Form Is that summarize the Tier II data validation process for B1405, Sediment. The data package reviewed reflected standard and acceptable analytical practices. Each table (VOA, SVOA, PAH-SIM, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases the qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or U, the more restrictive qualifier is applied. Numerous samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ. No results were flagged as R for rejected in this SDG.

This SDG included PAH-SIM results for the field samples in this SDG, and also for SE-FD-01, SE-ER-01, and SE-006-UI from SDG B1378, and SE-FD-03, SE-ER-03, and SE-029-BR from SDG B1428. According to the SDG narrative provided by the laboratory, samples SE-023-BR and SE-026-BR were to be analyzed again using the full-scan SVOC method and the PAH-SIM extracts. This is because the detected PAH concentrations using PAH-SIM were much higher than reported for the original full-scan SVOC analysis. Different aliquots were used for the original full-scan analysis and the PAH-SIM analysis, and sample heterogeneity may account for the differences.

The qualifier "T" for trip blank was applied to VOA results for affected samples for various constituents detected in the trip blanks. The "F" qualifier for field blank (equipment rinsate) was added to inorganic sample results due to detection of Fe, Mn, V, and Zn in the rinsate blank.

TCO/TOC results were reviewed in the context of QA/QC, although a separate review table has not been prepared as part of this report. TOC raw data included results for the method blank, calibrations, laboratory control samples, matrix spikes, duplicates, and field duplicate. The results met the QC criteria established by the laboratory for TOC. TCO is a gravimetric method and although the chain of custody transferring the samples from Mitkem to the contract laboratory doing the TCO analysis stated that a blank, LCS, and MS/MSD was to be done, the QC sample analyses were not distinguishable in the raw data. However, all results were supported by log book entries and raw data. Chloride analysis was performed on one sample only in this data set, SE-ER02, and the appropriate QA/QC documentation was provided.

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: <u>B1405 - Sediment</u>		Completion Date: <u>12/12/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	GC/MS tuning	No	-
Calibration:			
	4A - Initial	No	-
4.	4B - Continuing	Yes	J/UJ qualifiers due to D>25% for various compounds, depending on calibration run, for: SE-009-WT; SE-010-WT; SE-011-WT; SE-012-WT; SE-013-WT; SE-014-WT; SE-014-WTRE; SE-015-WT; SE-016-WT; SE-017-WT; SE-018-WT; SE-019-LF; SE-020-LF; SE-021-NP; SE-022-BR; SE-023-BR; SE-024-BR; SE-025-BR; SE-026-BR; SE-027-BR; SE-028-BR; SE-TB-04; SE-TB-05; SE-TB-07; SE-TB-08; SE-TB-09; SE-FD-02; SE-ER-02.
Blanks:			
5.	5A - Laboratory blanks	Yes	Various compounds detected in method blanks. Detects below the blank 5X or 10X action levels in the associated samples were qualified as U at the reporting level (if result was < reporting level), or at the result concentration (if result was > reporting level). All samples qualified except for SE-021-NP, SE-027-BR, SE-TB-07, SE-TB-08.
	5B - Trip Blanks	Yes	Various compounds detected in SE-TB-04, SE-TB-07, SE-TB-08, SE-TB-09. Where detected in the associated field samples detected compounds were flagged with T.
	5C - Equipment rinsates	No	-
6.	Surrogate recovery	No	Recoveries out (high) for SE-014-WTRE; results already qualified, and no additional qualifiers were added.
7.	Lab-fortified blank	No	-
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	No	-
10.	Internal standards performance	Yes	J/UJ qualifications for associated fractions due to IS areas below QC limits for SE-013-WT, SE-014-WT, SE-014-WTRE.
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

Tier II
SVOA Organic Data Review Summary - PAH SIM

SDG No./Matrix: <u>B1405 - Sediment</u>		Completion Date: <u>12/12/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	Samples frozen before extraction to suspend holding time.
3.	GC/MS tuning	No	-
Calibration:			
4.	4A - Initial	Yes	2-Methyl naphthalene qualified as UJ for SE-ER-01 (%RSD exceeds QC limits).
	4B - Continuing	No	-
Blanks:			
5.	5A - Laboratory blanks	No	-
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	No	Not analyzed
8.	Matrix spike/matrix spike duplicates	Yes	J-qualify positive results, accept non-detects in unspiked SE-028-BR for RPD exceeding limit in 10 of 34 spikes.
9.	Field duplicates	Yes	For 15 of 17 compounds, RPD between SE-FD-02 and SE-026-BR was greater than 100%. Difference may reflect sample heterogeneity. Positive results for all constituents but naphthalene and methyl naphthalene in both samples qualified as J, except where flagged by the laboratory as E.
10.	Internal standards performance	No	-
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	NA	Not analyzed

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: <u>B1405 - Sediment</u>		Completion Date: <u>12/12/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	SDG narrative states that PAH-SIM extracts for samples SE-023-BR and SE-026-BR will be analyzed using full-scale SVOC analysis, because of difference in results between original full-scale analyses and PAH-SIM results. Results have not been received.
2.	Preservation/holding time	No	Samples were frozen prior to extraction to suspend holding times.
3.	GC/MS tuning	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	Yes	All samples had multiple J/UJ qualifiers due to >25%D. Specific constituents qualified varied with continuing calibration run.
Blanks:			
5.	5A - Laboratory blanks	Yes	Bis(2-ethylhexyl)phthalate qualified as U in all field samples except SE-ER-02, SE-027-BR, and SE-027-BRDL.
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	No	Recoveries slightly exceeded QC limits for SE-022-BR, SE-028-BR, but results accepted.
7.	Lab-fortified blank	No	Not analyzed
8.	Matrix spike/matrix spike duplicates	No	Phenol spike recovery slightly exceeded QC limit; non-detect result accepted.
9.	Field duplicates	No	-
10.	Internal standards performance	Yes	IS areas low in some samples, higher than QC limit in other samples. Appropriate fractions J- or A/UJ-qualified in the following samples: SE-013-WT; SE-014-WT; SE-015-WT; SE-015-WTRE; SE-018-WT; SE-019-LF; SE-019-LFRE; SE-020-LF; SE-021-NP; SE-024-BR; SE-024-BRRE; SE-025-BR; SE-027-BR.
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: <u>B1405</u>		Completion Date: <u>12/12/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	
		Yes / No	
Samples Qualified			
1.	Data completeness	No	-
2.	Preservation/holding time	No	Samples frozen prior to extraction to suspend holding time.
3.	Instrument Performance	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	No	-
Blanks:			
5.	5A - Laboratory blanks	No	-
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	Yes	DCB recovery >150% in 14 samples. TCX recovery >150% in 1 sample. Blanks okay. May reflect co-eluting interferences. Positive results in affected fraction qualified as J, non-detects accepted. Qualified samples: SE-010-WT; SE-011-WT; SE-012-WT; SE-014-WT; SE-015-WT; SE-019-LF; SE-020-LF; SE-021-NP; SE-023-BR; SE-024-BR; SE-025-BR; SE-026-BR; SE-027-BR; SE-FD-02.
7.	Matrix spike/matrix spike duplicates	No	-
8.	Field duplicates	No	Field duplicate RPDs (SE-FD-02, SE-026-BR) exceeded 100% in all cases. May reflect sample heterogeneity. All detects already flagged as estimated for both samples; no additional qualifiers added.
9.	Florisil cartridge performance check	No	-
10.	Compound quantitation and reporting	No	When D was >25% between two columns, the result was flagged by the laboratory with P. The lower value was reported.

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: <u>B1405 A/B</u>		Completion Date: <u>12/12/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	Calibration	Yes	CRI outside of QC range resulted in J+ (estimated high) qualifier for Cr, SE-015-WT; J- (estimated low) qualifier for Ag in: SE-023-BR; SE-024-BR; SE-025-BR; SE-027-BR; SE-028-BR.
Blanks:			
4.	4A - Laboratory	Yes	Numerous metals were detected in method blanks in low concentrations below the reporting limit. Where detected in corresponding samples below the reporting limit, the results were qualified as U at the reporting limit. This qualification applied to one or more metal in all field samples.
	4B - Equipment rinsates	Yes	Fe, Pb, Mn, V, Zn detected in field blank SE-FD-02 at concentrations below the reporting limit. These constituents were flagged as F in the field samples.
5.	Interference check sample	No	-
6.	Lab-fortified blank	No	-
7.	Laboratory duplicate sample	Yes	Pb and Mn in SE-028-BR and Pb in SE-025-BR J-qualified due to lab duplicate QC. Laboratory placed * flag on these constituents as applicable throughout SDG. Other samples were not qualified as J because of likely sample heterogeneity.
8.	Field duplicate sample	Yes	Se in SE-FD-02, SE-026-BR qualified as UJ/J due to RPD of 192%. Raw data checked to confirm difference.
9.	Matrix spike sample analysis	Yes	SE-025BR: CN qualified as UJ due to matrix spike QC.
10.	ICP serial dilution	Yes	J-qualify As, Mn, and Zn in SE-025-BR; Mn, Zn in SE-028-BR due to serial dilution QC.
11.	Sample quantitation and reporting	No	-

Memorandum

To: Alison Dunn, Debbie Howard
From: Barbara Jones
Date: 12/09/03
Subject: Peterson/Puritan Data Validation Review, 300-1821, Task 0400
SDG B1428 – Sediment

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1428, Sediment. The data package reviewed reflected standard and acceptable analytical practices. Part of the SVOA data package was missing (QC summary, Forms Is and raw data for two samples), and was requested from the laboratory. Mitkem provided the missing information electronically on December 8, 2003. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria. Based on the established protocol, three samples from this SDG, SE-029-BR, SE-FD03, and SE-ER03, were submitted for PAH SIM analysis. The results are to be provided in SDG B1405.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases the qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied. Numerous samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ.

The qualifier "T" for trip blank was applied to VOA results for affected samples for those constituents detected in the trip blanks (carbon disulfide, 2-butanone, toluene). The "F" qualifier for field blank (equipment rinsate) was added to inorganic sample results due to detection of Fe, Mn, and V in the rinsate blank.

TCO/TOC results were reviewed in the context of QA/QC, although a separate review table has not been prepared as part of this report. TOC raw data included results for the method blank, calibrations, laboratory control samples, matrix spikes, duplicates, and field duplicate. The results met the QC criteria established by the laboratory for TOC. TCO results were supported by log book entries and raw data. For SDG B1478, SE-029-BR, SE-030-BR, SE-031-BR, and SE-033-BR had < 1% TCO. However, TOC was performed on -029, -030, -ER03 only. The laboratory was notified of this discrepancy and on December 12, 2003, stated that these analyses would be preformed on frozen samples of SE-031-BR and SE-033-BR.

Rejected Data

In SVOA analyses, atrazine results were qualified as R for rejected in samples SE-029-BR, SE-030-BR, SE-031-BR, SE-032-BR, SE-033-BR, SE-034-BR, and SE-FD03. This was due to low RRF and %D out of QC limits during continuing calibration.

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: <u>B1428 - Sediment</u>		Completion Date: <u>12/05/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	GC/MS tuning	No	-
Calibration:			
	4A - Initial	No	-
4.	4B - Continuing	Yes	Dichlorodifluoromethane non-detects qualified as UJ in the following samples due to %D >QC limit: SE-029-BR; SE-030-BR; SE-031-BR; SE-032-BR; SE-033-BR; SE-034-BR; SE-FD-03. For SE-ER-03, the following compounds were qualified as UJ due to %D >QC limits: dichlorodifluoromethane, chloromethane, vinyl chloride, trichlorofluoromethane.
Blanks:			
	5A - Laboratory blanks	Yes	Acetone and/or methylene chloride were qualified as U in the following samples due to presence in the method blank, either at the reporting limit or result concentration, depending on reported concentration: SE-TB-10; SE-TB-11; SE-TB-12; SE-029-BR; SE-030-BR; SE-031-BR; SE-032-BR; SE-033-BR; SE-034-BR; SE-FD-03.
5.	5B - Trip blanks	Yes	A "T" flag was placed by detected constituents in trip blanks that were also detected in the associated samples. For SE-TB-10 (carbon disulfide, 2-butanone, toluene), the flagged samples were: SE-029-BR; SE-030-BR; SE-FD-03. For SE-TB-11 (2-butanone, toluene), the flagged samples were: SE-031-BR; SE-032-BR; SE-033-BR.
	5C - Equipment rinsates	No	-
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	No	-
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	No	Field duplicates were SE-FD-03 and SE-029-BR. The only detected VOAs in these samples were qualified by the laboratory as J for estimated, and also were detected in the associated method or trip blanks; therefore a quantitative comparison was not possible.
10.	Internal standards performance	No	-
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: B1428 - Sediment		Completion Date: 12/05/03	
Project No.: 300-1821		Reviewer: Barbara Jones	
Laboratory: Mitkem			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	Information missing from SVOA documentation was requested from laboratory; provided electronically on 12/08/03.
2.	Preservation/holding time	No	Samples were frozen prior to extraction to suspend holding time. Information missing; was requested from laboratory.
3.	GC/MS tuning	No	-
Calibration:			
	4A - Initial	No	-
4.	4B - Continuing	Yes	SE-ER-03: Two constituents qualified as UJ due to high %D. For SE-029-BR, SE-030-BR, SE-031-BR, SE-032-BR, SE-033-BR, SE-034-BR, SE-FD-03: Several non-detects qualified as UJ due to %D exceeding QC limits. Atrazine qualified as R (rejected) due to low RRF and %D out of QC limits.
Blanks:			
5.	5A - Laboratory blanks	Yes	Naphthalene and bis(2-ethyl-hexylphthalate) were qualified as U in the following samples, either at the reporting limit or result concentration, depending on reported concentration: SE-029-BR; SE-029-BRD; SE-030-BR; SE-031-BR; SE-031-BRD; SE-032-BR; SE-033-BR; SE-034-BR; SE-FD-03-BR.
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	NA	Not analyzed
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	Yes	SE-FD-03: Pyrene and di-n-octylphthalate J-qualified
10.	Internal standards performance	No	-
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: <u>B1428</u>		Completion Date: <u>12/08/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	Samples frozen before extraction to suspend holding time.
3.	Instrument Performance	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	No	-
Blanks:			
5.	5A - Laboratory blanks	No	Appropriate method and instrument blanks run.
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	Yes	Recoveries exceeding QC limits for DCB on both columns for SE-032-BR. Detected compounds in affected fraction J-qualified; non-detects accepted.
7.	Matrix spike/matrix spike duplicates	No	LCS okay. SE-034-BR: one spike out of limits for Endrin, RPDs out for Endrin and Dieldrin. Unspiked sample non-detect for Endrin and not further qualified.
8.	Field duplicates	Yes	SE-FD-03 and SE-029-BR were field duplicates. All results non-detectable for SE-029-BR (16% moisture); four compounds (Dieldrin; 4,4'DDD; gamma-chlordane; Aroclor 1254) detected in SE-FD-03 (8% moisture). Sample non-homogeneity probably contributed to differences. Detected compounds in SE-FD-03 J-qualified.
9.	Florasil cartridge performance check	No	See Forms X-1 and X-2. When D between the two columns was 25%, the laboratory flagged the result with a P. The lower of the two values was reported. Differences potentially due to interfering compounds and/or co-elution.
10.	Compound quantitation and reporting	No	-

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: <u>B1428</u>		Completion Date: <u>12/09/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	
		Yes / No	
Samples Qualified			
1.	Data completeness	No	-
2.	Preservation/holding time	No	Samples were frozen to suspend holding time.
3.	Calibration	No	-
Blanks:			
4.	4A - Laboratory	Yes	Various metals (K, P, V, Ba) qualified as U at the reporting limit due to detection in ICB and/or CCB. Affected samples: SE-029-BR; SE-030-BR; SE-031-BR; SE-032-BR; SE-033-BR; SE-034-BR; SE-FD-03; SE-ER-03.
	4B - Equipment rinsates	Yes	These metals were flagged with F in all field samples due to detection in the rinsate blank SE-ER-03: Fe, Mn, V.
5.	Interference check sample	No	-
6.	Lab-fortified blank	No	-
7.	Laboratory duplicate sample	No	-
8.	Field duplicate sample	No	-
9.	Matrix spike sample analysis	Yes	In spiked sample SE-030-BR only: As (J), Pb (J), Mn (J), Sb (JJ).
10.	ICP serial dilution	Yes	SE-030-BR: Fe, V qualified as J.
11.	Sample quantitation and reporting	No	-

Appendix I5 Surface Soil



Memorandum

To: Alison Dunn, Debbie Howard
From: Barbara Jones
Date: 11/07/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1309 (Soil)

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1309, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

Numerous samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ. Exceedances of QC criteria in a large part reflect matrix interferences in soils, including background samples. Nondetect SVOAs were qualified as rejected (R) in one sample, SO-007-UI, due to internal standards performance. The corresponding dilution, SO-007-UIDL, was accepted for this criterion.

As we have discussed, data flags also need to be applied to reflect low-level detections of constituents in trip blanks or equipment rinsates. These flags should be applied as instructed on the marked Form Is by the Kentucky group managing the electronic data base.

Thank you for the opportunity to perform this data review.

Tier II
VOA Organic Data Review Summary

SDG No./Matrix: <u>B1309 (Soil)</u>		Completion Date: <u>11/06/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	GC/MS tuning	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	No	-
Blanks:			
	5A - Laboratory blanks	No	-
5.	5B - Trip blanks	Yes	SO-TB-01; SO-TB-2; SO-TB-05: Flag all sample detects associated with corresponding trip blanks as TB. TO BE FLAGGED by SHIELD KY - see ATTACHED FORM IS p.0074 to 0082.
	5C - Equipment rinsates	Yes	SO-ER-01: Flag associated sample detects EB. TO BE FLAGGED BY SHIELD KY - SEE ATTACHED FORM I p.83.
6.	Surrogate recovery	No	SO-008-NP affected but results in same qualifiers as applied due to IS QC.
7.	Lab-fortified blank	No	-
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	No	-
10.	Internal standards performance	Yes	SO-008-NP; SO-008-NPRE; SO-014-UI
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

Tier II
SVOA Organic Data Review Summary

SDG No./Matrix: B1309 (Soil)		Completion Date: 11/06/03	
Project No.: 300-1821		Reviewer: Barbara Jones	
Laboratory: Mitkem			
Review Criteria		Data Qualified Yes / No	Samples Qualified
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	GC/MS tuning	No	-
Calibration:			
4.	4A - Initial	No	
	4B - Continuing	Yes	Numerous samples for various compounds, depending on calibration run. Typically J-qualified.
Blanks:			
5.	5A - Laboratory blanks	Yes	Bis(2-ethylhexyl); phthalate detected in method blank, and qualified as U in: SO-001-BG; SO-001-BGRE; SO-002-BG; SO-002-BGRE; SO-003-BG; SO-003-RE; SO-004-BG; SO-004-BGRE; SO-005-BG; SO-005-BGRE; SO-009-NPDL; SO-010-UI; SO-010-UIDL; SO-011-UI; SO-011-UIRE; SO-012-UI; SO-012-UIRE; SO-013-UI; SO-015-UI; SO-015-UIDL; SO-016-UI; SO-016-UIRE. Reporting level depends on result concentration compared to blank concentration.
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	No	-
7.	Lab-fortified blank	No	-
8.	Matrix spike/matrix spike duplicates	No	-
9.	Field duplicates	No	Bis(2-ethylhexyl)phthalate out of limits for SO-004-BG; already J-qualified due to IS QC
10.	Internal standards performance	Yes	Multiple samples qualified as J or UJ. For one sample, SO-007-UI, non-detects were rejected (R); dilution results (SO-007-UIDL) were accepted. Qualified samples: SO-001-BG; SO-001-BGRE; SO-002-BG; SO-002-BGRE; SO-003-BG; SO-003-BGRE; SO-004-BG; SO-004-BGRE; SO-005-BG; SO-005-BGRE; SO-006-UI; SO-FD01RE; SO-007-UI; SO-008-NP; SO-009-NP; SO-009-NPDL; SO-010-UI; SO-010-UIDL; SO-011-UI; SO-0011-UIRE; SO-012-UI; SO-015-UIDL.
11.	Compound quantitation and reporting	No	-
12.	Tentatively identified compounds	No	-

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: B1309 (Soil)		Completion Date: 11/06/03	
Project No.: 300-1821		Reviewer: Barbara Jones	
Laboratory: Mitkem			
Review Criteria		Data Qualified	
		Yes / No	
Samples Qualified			
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	Instrument Performance	No	-
Calibration:			
4.	4A - Initial	No	-
	4B - Continuing	No	-
Blanks:			
5.	5A - Laboratory blanks	No	-
	5B - Equipment rinsates	No	-
6.	Surrogate recovery	Yes	SO-010-UI; positive results qualified by J
7.	Matrix spike/matrix spike duplicates	No	-
9.	Florisil cartridge performance check	No	-
10.	Compound quantitation and reporting	No	(Laboratory has flagged results as P when values from two columns differ by more than 25%; lower value has been reported)

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: <u>B1309 (Soil)</u>		Completion Date: <u>11/06/03</u>	
Project No.: <u>300-1821</u>		Reviewer: <u>Barbara Jones</u>	
Laboratory: <u>Mitkem</u>			
Review Criteria		Data Qualified	Samples Qualified
		Yes / No	
1.	Data completeness	No	-
2.	Preservation/holding time	No	-
3.	Calibration	No	-
4.	Blanks:		
	4A - Laboratory	Yes - ICB/CCB	B (estimated) results reported as U for Al, Sb, Ba, Cu, K, Ag, Na, Mg, Mn for all samples
	4B - Equipment rinsates	Yes	Flag all samples associated with SO-ER-01 as EB for Equipment Blank, for Ca, Cr, Fe. TO BE FLAGGED BY SHIELD KY - SEE ATTACHED FORM I p. 0231.
5.	Interference check sample	Yes	Se in all samples in SDG: report as UJ
6.	Lab-fortified blank	No	-
7.	Laboratory duplicate sample	Yes	SO-001-BG: positive Cr result qualified as J
8.	Field duplicate sample	No	-
9.	Matrix spike sample analysis	Yes	SO-001-BG: positive Pb and Mn results qualified as J- (estimated low)
10.	ICP serial dilution	Yes	SO-ER-01: flag Zn as UJ

Memorandum

To: Alison Dunn, Barbara Jones, Debbie Howard
From: Steve Simonsen
Date: 11/21/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1330 (Soil)

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1330, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

Numerous samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ. Exceedances of QC criteria in a large part reflect matrix interferences in soils, including background samples. Nondetect SVOAs were qualified as rejected (R) in one sample, SO-007-UI, due to internal standards performance. The corresponding dilution, SO-007-UIDL, was accepted for this criterion.

As we have discussed, data flags also need to be applied to reflect low-level detections of constituents in trip blanks or equipment rinsates. These flags should be applied as instructed on the marked Form Is by the Kentucky group managing the electronic data base.

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified Yes / No	Samples Qualified	
1. Data completeness	No		
2. Preservation/holding time	No		
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	No ¹		
5. Blanks:			
5A - Laboratory blanks	Yes	ER-02 (Methylene Chloride) SO-029-LF, SO-027-LFRE, SO-032-LF/LFMS/LFMSD, TB-10 (Acetone, superseded by equipment rinsate flag)	
5B - Trip blanks	Yes	SO-019-LF, SO-021-LF, SO-028-LF	
5C - Equipment rinsates	Yes	Acetone flagged in all samples except SO-030-LF	
6. Surrogate recovery	No		
7. Lab-fortified blank	No		
8. Matrix spike/matrix spike duplicates	No		
9. Field duplicates	No		
10. Internal standards performance	Yes	SO-027-LF flagged for compounds associated with chlorobenzene-d5; SO-027-LFRE (reanalysis) acceptable	
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds			

1 1,2,4-Trichlorobenzene was outside the %D QC limits. No qualifications were necessary as this compound was not detected in the affected sample, SO-029-LF.

Tier II
SVOA Organic Data Review Summary

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekern			
Review Criteria	Data Qualified	Samples Qualified	
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	Yes	SO-032-LF/LFMS/LFMSD, to be resampled and included in SDG B1485	
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	Yes	(1)	
4B - Continuing	Yes	(2)	
5. Blanks:			
5A - Laboratory blanks	Yes	bis(2-ethyhexyl)phthalate flagged in all samples	
5B - Equipment rinsates	No		
6. Surrogate recovery	Yes	SO-024-LF re-analyzed	
7. Lab-fortified blank	No		
8. Matrix spike/matrix spike duplicates	N/A	MS/MSD to be resampled	
9. Field duplicates	No		
10. Internal standards performance	Yes	SO-024-LF reanalyzed	
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds	No		

- High detects for 2,4-dimethylphenol; dibenzo-(a,h)-anthracene; and benzo(g,h,i)-perylene were flagged "J" in the following samples: SSTD0501N, SBLK1D, S1DLFB, SSTD0501O, SO-017-NP, SO-019-LF, SO-022-LF, SO-FD-03, SSTD0501Q, SO-023-LF, SO-024-LF, SSTD0501R, SO-020-LS, SO-021-LF, SO-025-LF, SO-026-LF, SO-027-LF, SO-028-LF, SO-029-LF, SO-030-LF, SO-018-LF, SO-019-LFDL, SO-023-LFDL. High detects for pentachlorophenol were flagged "J" in samples SSTD0501V, SO-020-LFDL, SO-021-LFDL, SO-025-LFDL, SSTD0501W, SBLK1G, SO-024-LFRE, SSTD0501X, SO-024-LFRED, SO-024-LFDL, SSTD0501Y, SO-032-LF, SO-032-LFMS, and SO-032-LFMSD.
- All results for benzo(g,h,i)perylene were flagged "J" or "UJ" in samples SO-017-NP, SO-019-LF, SO-022-LF, and SO-FD-03.
All results for dibenzo-(a,h)-anthracene and benzo(g,h,i)perylene were flagged "J" or "UJ" in samples SO-020-LS, SO-021-LF, SO-025-LF, SO-026-LF, SO-027-LF, SO-028-LF, SO-029-LF, SO-030-LF, SO-018-LF, SO-019-LFDL, SO-023-LFDL.
All results for 2,4-dimethylphenol were flagged "J" or "UJ" for samples SBLK1G, SO-024-LFRE,

SO-032-LF, SO-032-LFMS, and SO-032-LFMSD.

All results for pentachlorophenol and pyrene were flagged "J" or "UJ" for samples SO-024-LFRED and SO-024-LFDL.

Results for pentachlorophenol in samples SBLK4B and SO-ER-02 were flagged "J" or "UJ"; results for atrazine in these two samples were flagged "J" or "R".

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003
Project No.: 300-1821		Reviewer: Steve Simonsen
Laboratory: Mitkem		
Review Criteria	Data Qualified	Samples Qualified
	Yes / No	
1. Data completeness	No	
2. Preservation/holding time	Yes	SO-032-LF/LFMS/LFMSD, to be resampled and included in SDG B1485
3. Instrument performance	No	
4. Calibration:		
4A - Initial	No	
4B - Continuing	No	
5. Blanks:		
5A - Laboratory blanks	No	
5B - Equipment rinsates	No	
6. Surrogate recovery	Yes	(1)
7. Matrix spike/matrix spike duplicates	No	
8. Field duplicates	No	
9. Compound quantitation and reporting	No	
10. Florisil cartridge performance check	No	

1. Detected compounds associated with the surrogate compound decachlorobiphenyl were flagged "J" in all samples except SO-017-NPDL, SO-018-LF, and ER-02.

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. Calibration	No		
4. Blanks:			
4A - Laboratory	No		
4B - Equipment rinsates	No		
5. Interference check sample	No		
6. Lab-fortified blank	No		
7. Laboratory duplicate sample	No		
8. Field duplicate sample	No		
9. Matrix spike sample analysis	Yes		Antimony and Selenium flagged "N"
10. ICP serial dilution	Yes		Calcium flagged "E"
11. Sample quantitation and reporting	No		

Appendix I6 Waste and Subsurface Soil

Memorandum

To: Alison Dunn, Barbara Jones, Debbie Howard
From: Steve Simonsen
Date: 12/11/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1316 (Soil)

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1330, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

Samples SO-W06-DF, SO-W07-DF, and SO-W08-DF were extracted outside the allowable holding times for SVOAs and Pesticides/PCBs. These sites have been resampled and included under SDG B1485.

Non-detect results for SVOC compounds associated with IS compounds phenanthrene-d10, chrysene-d12, and perylene-d12 were rejected due to poor IS performance.

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: SDG B1316/ Soil		Completion Date: December 12, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	Yes	(1)	
5. Blanks:			
5A - Laboratory blanks	Yes	(2)	
5B - Trip blanks	Yes	(3)	
5C - Equipment rinsates	No		
6. Surrogate recovery	No	(4)	
7. Lab-fortified blank	No		
8. Matrix spike/matrix spike duplicates	No		
9. Field duplicates	No		Includes FD04 from 1365
10. Internal standards performance	Yes	(5)	
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds	No		

- 1,2,4-Trichlorobenzene detects would be flagged "J" in samples SO-W06, W07, W08, TB08, W04MS, W04MSD, and W08DFRE. None contained detects, however so no flags were added.
- Detects of methylene chloride and toluene were flagged "B" in samples SO-W01 and SO-W02, and in blank V5BLFB. Detects of acetone, methylene chloride, and toluene were flagged "B" in samples W06, W07, W08, TB08, W04MS, W04MSD, W08DFRE, and blank V5KLFB. Detects of methylene chloride were flagged "B" in the equipment rinsate ER03 and its associated trip blank TB03.
- Detects of carbon disulfide were flagged "t" in samples W03, W04, FD02, W04MS, W04MSD, ER03, W06, W07, and W08. Detects of 1,1-dichloroethane were flagged "t" in samples ER03, W06, W07, and W08.
- Samples W04, W04MS, W08, and W08RE were not flagged, although the surrogate recoveries were slightly out of range.

5. Compounds corresponding to the internal standard compound chlorobenzene-d5 were flagged "J" and "JJ" in samples SO-W04-UI and SO-W08-DFRE.

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: SDG B1316/ Soil		Completion Date: December 12, 2003
Project No.: 300-1821		Reviewer: Steve Simonsen
Laboratory: Mitkem		
Review Criteria	Data Qualified	Samples Qualified
	Yes / No	
1. Data completeness	No	
2. Preservation/holding time	Yes	(1)
3. GC/MS tuning	No	
4. Calibration:		
4A - Initial	Yes	(2)
4B - Continuing	Yes	(3)
5. Blanks:		
5A - Laboratory blanks	Yes	Detects of bis-2-ethylhexyl phthalate were flagged in all samples.
5B - Equipment rinsates	No	
6. Surrogate recovery	No	
7. Lab-fortified blank	No	
8. Matrix spike/matrix spike duplicates	No	
9. Field duplicates	Yes	Phenanthrene, chrysene, and fluoranthene in samples W04 and FD02 were flagged "J"
10. Internal standards performance	Yes	(4)
11. Compound quantitation and reporting	No	
12. Tentatively identified compounds	No	

1. Samples SO-W06-DF, SO-W07-DF, and SO-W08-DF were extracted outside the holding time of 14 days. The resampled results are included in SDG B1485.
2. The response factor curve for 2,-dimethylphenol is non-linear at high concentrations. Detects greater than 120 ug/kg are flagged "J" in samples W01, W02, W03, W04, W04MS, W04MSD, and FD02.
3. High detects (>120 ug/kg) for dibenzo(a,h)anthracene and benzo(g,h,i)perylene are flagged "J" in sample W03. High detects (>120 ug/kg) for benzo(g,h,i)perylene are flagged "J" in samples W02, W04MS, W04MSD, and FD02. High detects (>120 ug/kg) for 2,4-dimethylphenol, dibenzo(a,h)anthracene and benzo(g,h,i)perylene are flagged "J" in samples W01 and W04. High detects (>120 ug/kg) for 2,4-dimethylphenol are flagged "J" in sample W01DL.
4. The following table summarizes data flags resulting from IS performance. An "H" indicates that detected SVOC compounds associated with a particular IS compound were flagged "J," while an "L" indicates associated SVOCs were flagged "J" or "UJ". An "LL" indicates that detects of associated

compounds were flagged "J", while non-detects were rejected.

Sample	IS 1	IS 2	IS 3	IS 4	IS 5	IS 6
W02		H	H		L	L
W04 MS	H	H	H	H		
W04 MSD	H	H	H	H		
FD02	H	H	H	H		
W06	H	H	H	H		L
W06RE						L
W07					LL	LL
W07RE				L	LL	LL
W08					L	L
W08DL						L

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: SDG B1316/ Soil		Completion Date: December 12, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	Yes		(1)
3. Instrument performance	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	No		
5. Blanks:			
5A - Laboratory blanks	No		
5B - Equipment rinsates	No		
6. Surrogate recovery	No		(2)
7. Matrix spike/matrix spike duplicates	No		
8. Field duplicates	No		
9. Compound quantitation and reporting	No		
10. Florisil cartridge performance check	No		

1. Samples SO-W06-DF, SO-W07-DF, and SO-W08-DF were extracted outside the holding time of 14 days. The resampled results are included in SDG B1485.
2. Positive detects associated with DBC in samples SO-W02-UI, SO-W03-UI, SO-W04-UI, SO-W04-UIMS, SO-W04-UIMSD, and SO-FD02 were flagged "J." All results associated with TCX in sample S)-W02-UI were flagged J/UJ.

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: SDG B1316/ Soil		Completion Date: December 12, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. Calibration	No		
4. Blanks:			
4A - Laboratory	No		
4B - Equipment rinsates	Yes		All samples flagged "P" for lead.
5. Interference check sample	No		
6. Lab-fortified blank	No		
7. Laboratory duplicate sample	No		
8. Field duplicate sample	No		Includes FD04 from 1365
9. Matrix spike sample analysis	No		
10. ICP serial dilution	No		
11. Sample quantitation and reporting	No		

Memorandum

To: Alison Dunn, Barbara Jones, Debbie Howard
From: Steve Simonsen
Date: 12/10/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1365 (Soil)

Enclosed are two tables and marked Form Is that summarize the Tier II data validation process for B1330, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, Inorganics) has a column titled Data Qualified (Yes/No). This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

Several samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ. Results for silver in all samples except SO-W05-DF were rejected due to low CRDL check standards. Because the response factor for all samples was below 50%, all results less than two times the CRQL were rejected.

Several samples for Semivolative compounds and PCB/Pesticides were extracted outside of the required holding time, and were re-sampled and submitted as SDG B1485.

Note that although a field duplicate (sample FD-04) was included in this SDG, it corresponds to a sampling site (SO-W06-DF) that is part of SDG B1316. The results for this sample were validated as a normal sample site; the comparison to the results of SO-W06-DF will be addressed with SDG B1316.

Tier II
VOA Organic Data Review Summary

SDG No./Matrix: SDG B1365/ Soil		Completion Date: December 1, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified	Samples Qualified	
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	Yes	1,2,4-trichlorobenzene flagged "J/UJ" in samples SO-TB09, SO-W05-DF, W05-DFMS, W05-DFMSD, SO-W10-DF, SO-W11-DF, SO-W12-DF	
5. Blanks:			
5A - Laboratory blanks	Yes	(1)	
5B - Trip blanks	No		
5C - Equipment rinsates	No		
6. Surrogate recovery	Yes	SO-W11-DFRE, and SO-W12-DFRE	
7. Lab-fortified blank	No		
8. Matrix spike/matrix spike duplicates	No		
9. Field duplicates	N/A	No field duplicate for this SDG, FD-04 addressed with SDG B1316	
10. Internal standards performance	Yes	(2)	
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds	No		

- Acetone, methylene chloride, and toluene detected in method blank VBLK5K, affecting samples SO-TB09, SO-W05-DF, W05-DFMS, W05-DFMSD, SO-W10-DF, SO-W11-DF, SO-W12-DF. Positive detects in these samples were flagged "J" unless detected levels were 10X greater than blank levels. Acetone was detected in method blank VBLK5L, affecting samples SO-W09-DF, SO-W11-DFRE, and SO-W12-DFRE. Methylene chloride was detected in method blank VBLK6M (water), affecting the equipment rinsate SO-ER04.
- Sample SO-W11-DF and SO-W12-DF was below QC limits for DFB and CBZ, and sample SO-W12-DF was low for CBZ. The samples were reanalyzed and results were within QC limits with the exception of SO-W11-DFRE, which was low for CBZ (chlorobenzene-d5). Associated compounds (per Table App.A.VII-1) were flagged J/UJ.

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: SDG B1365/ Soil		Completion Date: December 10, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekem			
Review Criteria	Data Qualified Yes / No	Samples Qualified	
1. Data completeness	No		
2. Preservation/holding time	No		
3. Calibration	Yes	Cr was flagged "J" in all compounds; Ag was flagged "J" in SO-W05-DF, and "R" in all remaining samples.	
4. Blanks:			
4A - Laboratory	No		
4B - Equipment rinsates	No		
5. Interference check sample	No		
6. Lab-fortified blank	No		
7. Laboratory duplicate sample	No		
8. Field duplicate sample	N/A	No field duplicate for this SDG, FD-04 addressed with SDG B1316	
9. Matrix spike sample analysis	Yes	Antimony, Selenium, and Copper are flagged J/UJ	
10. ICP serial dilution	No		
11. Sample quantitation and reporting	No		

Memorandum

To: Alison Dunn, Barbara Jones, Debbie Howard
From: Steve Simonsen
Date: 12/17/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1419 (Soil)

Enclosed are four tables and marked Form Is that summarize the Tier II data validation process for B1330, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

Numerous samples have been qualified based on this review. The typical qualification applied to detected constituents is J for estimated; the J qualifier has also been applied to nondetects in some cases, resulting in a designation of UJ. Exceedances of QC criteria in a large part reflect matrix interferences in soils, including background samples. Nondetect VOAs were qualified as rejected (R) in one sample, SSO-01-NP, due to internal standards performance. The matrix spike and matrix spike duplicate analyses performed with this sample showed acceptable internal standard results. Data flags have also been applied to reflect low-level detections of constituents in trip blanks or equipment rinsates

**Tier II
VOA Organic Data Review Summary**

SDG No./Matrix: SDG B1419/ Soil		Completion Date: December 16, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	No		
5. Blanks:			
5A - Laboratory blanks	Yes		(1)
5B - Trip blanks	Yes		(2)
5C - Equipment rinsates	No		
6. Surrogate recovery	Yes		(3)
7. Lab-fortified blank			
8. Matrix spike/matrix spike duplicates	Yes		1,1-dichloroethene and toluene flagged "J" in sample SSO-01-NP
9. Field duplicates	Yes		2-Butanone flagged "J" in samples SSO-01-NP and SSO-FD01.
10. Internal standards performance	Yes		(4)
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds	No		

1. Detects of acetone were flagged "B" in the following samples: SO-W13-NP, SO-W14-NP, SO-W15-NP, SO-TB-11, SO-034-NP, SO-035-NP, SO-037-NP, and SO-TB-10. Detects of acetone and 1,2,4-trichlorobenzene were flagged "B" in samples SO-W16-NP, SO-033-NP, SO-036-NP, SSO-01-NP, SSO-01-NPMS, SSO-01-NPMSD, and SSO-FD01.
2. Detects of trichlorofluoromethane and methylene chloride were flagged "t" in samples SO-W13-NP, SO-W14-NP, SO-W15-NP, and SO-W16-NP. Detects of trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, and methylene chloride were flagged "t" in samples SO-033-NP, SO-034-NP, SO-035-NP, SO-036-NP, SO-037-NP, SO-ER-05, SSO-01-NP, SSO-01-NPMS, SSO-01-NPMSD, and SSO-FD01.
3. In sample SSO-01-NPMSD, the following compounds were flagged "J" or "UJ": 2-hexanone; 4-methyl-2-pentanone; tetrachloroethene; 1,1,2,2-tetrachloroethane; toluene; chlorobenzene; ethylbenzene; styrene; and xylene (total). Detects associated with target compounds bromochloromethane and 1,4-difluorobenzene were flagged "J" in sample SO-W13-NP.

4. Compounds associated with chlorobenzene-d5 (2-hexanone; 4-methyl-2-pentanone; tetrachloroethene; 1,1,2,2-tetrachloroethane; toluene; chlorobenzene; ethylbenzene; styrene; and xylene, total) were flagged "J" or "UJ" in samples SO-W13-NP and SO-W14-NP. In sample SSO-01-NPMSD, all detected compounds were flagged "J" and all non-detects flagged "R", due to low IS area results.

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: SDG B1419/ Soil		Completion Date: December 16, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. GC/MS tuning	No		
4. Calibration:			
4A - Initial	Yes		(1)
4B - Continuing	Yes		(2)
5. Blanks:			
5A - Laboratory blanks	Yes		(3)
5B - Equipment rinsates	No		
6. Surrogate recovery	No		
7. Lab-fortified blank	No		
8. Matrix spike/matrix spike duplicates	No		(4)
9. Field duplicates	Yes		(5)
10. Internal standards performance	Yes		(6)
11. Compound quantitation and reporting	No		
12. Tentatively identified compounds	No		

- Results for pentachlorophenol were flagged "J" or "UJ" in the following samples: SO-ER05, SO-W14-NP, SO-W15-NP, SO-033-NP, SO-W15-NPDL, SO-033-NPDL, SO-034-NPDL, SO-W16-NP, SO-035-NP, SO-W14-NPRE, SO-W13-NP, SO-036-NP, SO-037-NP, SSO-01-NP, SSO-01-NPMS, SSO-01-NPMSD, SO-FD01, and SO-034-NP.
- Results for 2,4-dimethylphenol were flagged "J" or "UJ" in the following samples: SO-ER05, SO-W14-NP, SO-W15-NP, and SO-033-NP. Results for pyrene were flagged "J" or "UJ" in the following samples: SO-W15-NPDL, SO-033-NPDL, SO-034-NPDL, SO-W16-NP, SO-035-NP, SO-W14-NPRE, SO-W13-NP, SO-036-NP, SO-037-NP, SSO-01-NP, SSO-01-NPMS, SSO-01-NPMSD, SO-FD01, and SO-034-NP.
- Detects of bis-(2-ethylhexyl)-phthalate were flagged "B" in samples SO-W13-NPDL, SO-037-NPDL, and SO-036-NPRE.
- The MS and MSD results for pentachlorophenol and pyrene exceeded QC limits for % recovery. However, the results for these two compounds were flagged "E" by the lab, and are already qualified "J" due to initial calibration problems. No additional qualifications were made because these compounds are already flagged in the unspiked sample SSO-01-NP.

5. Bis-(2-ethylhexyl)-phthalate was flagged "J" in samples SSO-01-NP and SSO-FD01.
6. Compounds associated with internal standard compounds 1,4-dichlorobenzene-d₄, naphthalene-d₈, and acenaphthene-d₁₀ were flagged in samples SO-W14-NP and SO-034-NP.
Compounds associated with internal standard compound phenanthrene-d₁₀ were flagged in sample SO-W14-NP.
Compounds associated with internal standard compound chrysene-d₁₂ were flagged in samples SO-W14-NP, SO-W15-NP, SO-033-NP, SO-034-NPDL, and SO-036-NPRE.
Compounds associated with internal standard compound perylene-d₁₂ were flagged in samples SO-W14-NP, SO-W15-NP, SO-034-NPDL, SO-W14-NPRE, SO-036-NP, SSO-01-NP, SSO-01-NPMS, and SO-034-NP.

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: SDG B1419/ Soil		Completion Date: December 16, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitkem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. Instrument performance	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	No		
5. Blanks:			
5A - Laboratory blanks	No		
5B - Equipment rinsates	No		
6. Surrogate recovery	Yes		Detected compounds in samples SO-033-NP, SO-034-NP, and SO-W15-NP were flagged "J"
7. Matrix spike/matrix spike duplicates	No		
8. Field duplicates	No		
9. Compound quantitation and reporting	No		
10. Florisil cartridge performance check	No		

**Tier II
Inorganic Data Review Summary**

SDG No./Matrix: SDG B1419/ Soil		Completion Date: December 16, 2003
Project No.: 300-1821		Reviewer: Steve Simonsen
Laboratory: Mitkem		
Review Criteria	Data Qualified	Samples Qualified
	Yes / No	
1. Data completeness	No	
2. Preservation/holding time	No	
3. Calibration	Yes	Silver results flagged "J"
4. Blanks:		
4A - Laboratory	No	
4B - Equipment rinsates	Yes	Detects of chromium and iron were flagged "f"
5. Interference check sample	No	
6. Lab-fortified blank	Yes	Detects of cadmium were flagged "J"
7. Laboratory duplicate sample	No	
8. Field duplicate sample	No	
9. Matrix spike sample analysis	No	
10. ICP serial dilution	No	
11. Sample quantitation and reporting	No	

Memorandum

To: Alison Dunn, Barbara Jones, Debbie Howard
From: Steve Simonsen
Date: 12/10/03
Subject: Peterson/Puritan Data Validation Review, 3001821, Task 0400
SDG B1485 (Soil)

Enclosed are two tables and marked Form Is that summarize the Tier II data validation process for B1485, Soils. The data package reviewed was complete, and reflected standard and acceptable analytical practices. Mitkem performed re-analyses or dilutions as specified in the QA/QC protocols when results exceeded certain QC criteria.

Each table (VOA, SVOA, Pest/PCB, Inorganics) has a column titled *Data Qualified (Yes/No)*. This reflects whether or not our review process has resulted in an additional flag or qualifier on the data, beyond flags or qualifiers that may already have been applied by the laboratory. In some cases qualifiers overlap. For example, a sample could be qualified based on internal standard results and surrogate recovery. If it is the same qualifier, such as J, it is only applied one time. If different qualifiers apply, such as J or R, the more restrictive qualifier is applied.

SVOA and PEST/PCB results for several samples have been flagged based on laboratory blank detects, internal standard limits, and surrogate recoveries.

**Tier II
SVOA Organic Data Review Summary**

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003
Project No.: 300-1821		Reviewer: Steve Simonsen
Laboratory: Mitkem		
Review Criteria	Data Qualified	Samples Qualified
	Yes / No	
1. Data completeness	No	
2. Preservation/holding time	No	
3. GC/MS tuning	No	
4. Calibration:		
4A - Initial	No	
4B - Continuing	No	
5. Blanks:		
5A - Laboratory blanks	Yes	bis (2-ethylhexyl) phthalate in all samples flagged "B"
5B - Equipment rinsates	N/A	
6. Surrogate recovery	No	
7. Lab-fortified blank	No	
8. Matrix spike/matrix spike duplicates	N/A	
9. Field duplicates	No	
10. Internal standards performance	Yes	SO-W08-DF, SO-W12-DF outside QC limits for area on IS4, IS5, and IS6. Subsequent dilutions acceptable. Use SO-W08-DFDL and SO-W12-DFDL
11. Compound quantitation and reporting	No	
12. Tentatively identified compounds	No	

**Tier II
Pest/PCB Organic Data Review Summary**

SDG No./Matrix: SDG B1330/ Soil		Completion Date: November 21, 2003	
Project No.: 300-1821		Reviewer: Steve Simonsen	
Laboratory: Mitekem			
Review Criteria	Data Qualified		Samples Qualified
	Yes / No		
1. Data completeness	No		
2. Preservation/holding time	No		
3. Instrument performance	No		
4. Calibration:			
4A - Initial	No		
4B - Continuing	No		
5. Blanks:			
5A - Laboratory blanks	No		
5B - Equipment rinsates	N/A		
6. Surrogate recovery	Yes		Detected compounds in SO-W08-DF and SO-W12-DF flagged "J"
7. Matrix spike/matrix spike duplicates	N/A		
8. Field duplicates	No		
9. Compound quantitation and reporting	No		
10. Florisil cartridge performance check	No		

1.

J Appendix J