ELIZABETHTOWN LANDFILL
RESPONSE TO USEPA COMMENTS ON
DRAFT REMEDIAL INVESTIGATION REPORT
DATED MAY 1993

Submitted to:
SCA Services of Pennsylvania, Inc.
1121 Bordentown Road
Morrisville, Pennsylvania 19067

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October 1993

Project No.: 923-6053
October 19, 1993

SCA Services of Pennsylvania, Inc.
1121 Bordentown Road
Morrisville, PA 19067

Attn: Mr. Glen Schultz

RE: ELIZABETHTOWN LANDFILL
RESPONSE TO EPA COMMENTS ON
DRAFT REMEDIAL INVESTIGATION REPORT

Gentlemen:

Golder Associates Inc. is pleased to submit our Response to EPA Comments on the Draft RI Report. This document should be read in conjunction with the Final RI report provided separately.

We have attempted to address all of the comments raised by the EPA and EPA advisors. If you should have any questions, please do not hesitate to contact us.

Very truly yours,

GOLDER ASSOCIATES INC.

Associate

Gary Collison, P.E.
Principal

GRF/drs
Z:RESCOM:CL
ENCLOSURE I
SHERRY GALLAGHER'S COMMENTS
on
ELIZABETHTOWN LANDFILL
REMEDIAL INVESTIGATION REPORT OF MAY 24, 1993

Comment No. 1:

§ 1.2.3 Page 3.

As EPA explained in its comments on SCA's first draft Work Plan, site ownership history is a legal issue that is not relevant to the RI. Modify the language as indicated in Attachment A.

Response to Comment No. 1:

Modification has been carried out as requested.

Comment No. 2:

§ 1.2.3 Page 4.

Item 4 is inaccurate. Modify as indicated in Attachment A.

Response to Comment No. 2:

Modification has been carried out as requested.

Comment No. 3:

§ 1.3 Page 6.

The NPL score is incorrect. EPA noted this same error in its comments on SCA's first draft Work Plan. It is irksome that SCA continues to report inaccurate information. Modify the language as indicated in Attachment A.

Response to Comment No. 3:

Modification has been carried out as requested.
Comment No. 4:

§ 1.3 Page 7.

Re: Phase II Hydrogeologic Study.
The language concerning private well sampling results is somewhat vague. Were VOCs detected in any of the private wells? If so, report how many private wells were sampled and how many contained VOCs.

Response to Comment No. 4:

VOCs were not detected in any of the private wells reported in the Phase II Hydrogeologic Study. The fourth sentence of the second paragraph of the text has been reworded as follows:

"Analytical results of water samples taken from five residential wells on December 12, 1988 by Golder indicated no volatile organic compounds to be present, confirming earlier results of two rounds of sampling conducted by PADER in December 1986 and June 1988."

Comment No. 5:

§ 2.7.1 Page 26.

Re: Sampling and analysis program.
SCA's discussion of the three-phase sampling approach is incomplete and inaccurate. Additionally, its statements concerning EPA's actions mischaracterizes the facts, as EPA has informed SCA previously. Modify the language precisely as indicated in Attachment A.

Response to Comment No. 5:

Modification has been carried out as requested.

Comment No. 6:

§ 2.7.1 Page 27.

Re: Leachate sampling.
SCA's statement is incomplete. Modify the language as indicated in Attachment A.
Response to Comment No. 6:
Modification has been carried out as requested.

Comment No. 7:
§ 2.7.3 Page 32.
Re: Phase 1B analytes.
SCA statements are inaccurate. Its assertions concerning EPA's actions are false. Omit the language as shown in Attachment A.

Response to Comment No. 7:
The first paragraph of Section 2.7.3 has been omitted, as requested.

Comment No. 8:
§ 2.7.5 Page 35.
Re: Pesticide data validation.
SCA's assertion concerning draft functional guidelines for pesticides data validation may be incorrect. Please research the facts concerning this statement and cite a complete reference for this assertion or modify the statement as necessary to make it current. See CH2M-Hill Comment 42.

Response to Comment No. 8:
At the time the Phase 1A, 1B and 1C data was validated, guidelines for Pesticide validation were unavailable. Golder had previously requested Pesticide validation guidelines but as they were still in the draft stage, USEPA Region III would not release them. This information was provided by Cindy Metzger of USEPA Region III-QAB.

Golder was able to obtain copies of the USEPA Region III Draft Pesticide guidelines in August of this year following a discussion with Maryellen Schultz at the Region III-QAB. These guidelines are dated May 1993 and were released by the Region following validation of the data compiled in the Draft RI report.

The specific paragraph will be modified as follows:

"As stated previously, neither National nor EPA Region III functional guidelines for data validation of Pesticide/PCB data were available to the
The issue of pesticide validation methods and USEPA Region III draft functional guidelines was discussed in detail at the meeting with USEPA on August 24, 1993 and the four weeks following the meeting. USEPA have requested that all apparent pesticide detects be included in the Final RI report and thus, all tables, text and figures have been revised to include pesticide results.

Comment No. 9:

§ 2.7.5 Page 35.

Re: Reporting detects below the Contract Required Quantitation Limit.
Cite a complete reference for SCA's assertions or omit the sentences indicated in Attachment A.

Response to Comment No. 9:

The specific sentence will be modified as follows:

"Golder contacted the USEPA Region III-QAB in Annapolis to determine their interpretation of "zero". At the time their response was that they interpreted "zero" to be the laboratory-established MDL for the methodology. Subsequent to receipt of USEPA comments to the Draft RI report, Golder contacted Diane Simms and Maryellen Schultz of the USEPA Region III-QAB. Both individuals agreed that values below the laboratory-established MDL are essentially zero, however, Ms. Schultz stated that as the EPA wants as much information as possible, the laboratories have been known to report these values."

Comment No. 10:

§ 3.1.3 Page 39.

Re: Distance to receptors.
In the RI text, define the term "occupied residential home" and discuss the location of "un-occupied residential homes".

Response to Comment No. 10:

For the purposes of the RI, the term "occupied residential home" is defined as a residence that is lived in regularly and is normally occupied by at least one person
during the evening and overnight or the dwelling is used for the purposes of conducting a business operation during the day (for example, the Veterinarian residence). This definition has been added to the text, as requested. As far as can be ascertained (that is, from the home well survey conducted as part of the Phase II study and from enquiries conducted as part if the RI), there are no un-occupied residential homes in the immediate vicinity of the landfill.

Comment No. 11:

§ 3.1.6 and § 3.2.4 Pages 40, 41, and 45.

Re: Uses of Conoy Creek downgradient of the Site.

SCA appears to have done a fairly extensive investigation concerning the uses of Conoy Creek in areas upgradient of the Site, specifically in Elizabethtown Borough. However SCA does not appear to have applied to the same level of scrutiny to areas adjacent to the Site or down-gradient of the Site. Contact elected officials and/or public servants who have jurisdiction over West Donegal Township and other downstream locations and, in the text of the RI, report the findings of this research concerning water supply, stream use and use of adjoining lands.

Response to Comment No. 11:

As suggested, Golder has contacted officials of Conoy Township, West Donegal Township and PADER to research additional information on the uses of Conoy Creek abutting, and downstream of the site. The contact included telephone conversations with Mr. William Sprague, the Donegal Township Engineer and Mr. Bob Strickland of Conoy Township on September 9, 1993.

The text of the second paragraph on page 40 has been reworded as follows:

"No parks or recreational areas along Conoy Creek outside of the limits of Elizabethtown were known at the Borough Office or indicated on any of the reviewed maps. Mr. William Sprague (Donegal Township Engineer), indicated that Conoy Creek is not deep enough for canoeing and that there are no public recreational facilities along the creek. Mr. Bob Strickland (Conoy Township) stated that Conoy Creek is not used as a public water supply and knows of no industry that makes use of the creek. Furthermore, he indicated that it is not used for tubing or canoeing. It is, however, possible that small children wade or play in the creek. Patton's map highlights a point of interest/historical area adjacent to and northwest of the Site. This area is associated with the Masonic Home, school and surrounding area."
The text of the third sentence of the second paragraph of Section 3.2.4 has been reworded as follows:

"The following sources of information were used:

- Interview on September 4, 1992 with Elizabethtown Borough Office personnel Jackie Beinhauer and Nick Viscome; and
- Phone discussion on September 3, 1992 and September 8, 1993 with Pader Regional office representative Mr. Jim Miller; and
- Phone discussion on September 9, 1993 with Mr. William Sprague (Donegal Township Engineer); and
- Phone discussion on September 9, 1993 with Mr. Bob Strickland of Conoy Township.

Any use of Conoy Creek as a water supply was not known by any of the above sources. However, Mr. Bob Strickland stated that it was used for irrigation purposes (probably in the dry season) and that the creek was stocked with trout from the Conoy Township line to the Susquehanna River."

Comment No. 12:

§ 3.2.4 Page 45.

Re: Surface water use.
Contact PADER to determine whether Conoy Creek is used as a water supply downgradient of the Site.

Response to Comment No. 12:

See Response to Comment No. 11 above. All contacted sources indicate that the creek is not used as a water supply downgradient of the site.

Comment No. 13:

§ 3.3 first paragraph. Page 46.

Re: Disposal History.
Omit the language indicated in Attachment A. It is vague, out-dated, and improperly referenced.
Response to Comment No. 13:
Modification has been carried out as requested.

Comment No. 14:
§ 3.3 second and third paragraphs. Page 46.
Re: Disposal History.
This sentence structure is confusing. Modify the language as shown in Attachment A.

Response to Comment No. 14:
Modification has been carried out as requested.

Comment No. 15:
§ 3.4 Pages 47 and 48.
Re: Disposal History.
This language is imprecise and could be misleading. Also, some of SCA's assertions and assumptions are incorrect. Modify the language precisely as shown in Attachment A.

Please note that free phase liquids are not necessarily present at concentrated source areas. Also, groundwater contaminant concentrations, which increase slightly or remain constant over time, at one location under a capped landfill, can be indicative of source areas.

Response to Comment No. 15:
Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA opinion" has been inserted at the top of page 47. The words "it is SCA's/Golder's" has been inserted in the middle of page 47 and near the top of page 48.
Comment No. 16:

§ 3.5.3 Page 66.
Re: Site Hydrogeology
Omit the word "sufficient".

Response to Comment No. 16:
The word "sufficient" has been deleted from the text.

Comment No. 17:

§ 3.5.3 Page 67.
Add the language shown in Attachment A.

Response to Comment No. 17:
As requested, the words "appear to" have been added to the text.

Comment No. 18:

§ 3.7.1 Page 70.
Re: Air quality monitoring.
SCA's statement is incorrect. Modify the language as shown in Attachment A.

Response to Comment No. 18:
Modification has been carried out as requested.

Comment No. 19:

§ 3.7.1 Page 71 and 72.
Re: Groundwater concentrations.
The groundwater concentrations reported in this section of the text are inconsistent with those presented in Figure 3-27. Correct the errors.
Response to Comment No. 19:

The text has been modified to be consistent with the concentrations of analytes reported on Figure 3-27.

Comment No. 20:

§ 3.7.1 Page 72 and 73.

Re: Phase 1B analytes.

SCA's statements are incomplete and incorrect. Omit the language shown on Attachment A.

Response to Comment No. 20:

The last paragraph of Section 3.7.1 has been omitted, as requested.

Comment No. 21:

§ 3.8.1 and § 3.8.2. Page 78.

Re: ARARs

Modify the language as shown in Attachment A.

Response to Comment No. 21:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "SCA/Golder's" has been inserted in the text.

Comment No. 22:

§ 4.1 Page 79.

Omit the language as shown in Attachment A.

Response to Comment No. 22:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The first paragraph of the text under Section 4.1 on page 79 now reads as follows:

"The RI has been carried out to address the data needs and objectives which were outlined in Section 1.4. of this Report. Section 2 described the
investigation activities used to achieve this and Section 3 described the results of these activities. Together with historical groundwater and surface water quality data, it is SCA's/Golder's opinion that the results of the RI have addressed the data needs and objectives and have provided the information to characterize the nature and extent of Site related constituents. In addition, it is SCA's/Golder's opinion that this information has allowed identification of potential migration routes at and in the vicinity of the Site. A discussion of the Site characterization is provided in the following sections of the report."

Comment No. 23:
§ 4.2.1 Page 80.
The groundwater contaminant concentrations reported in the text differ from those presented in Figure 3-27. Correct the errors.

Response to Comment No. 23:
The text has been modified to be consistent with the concentrations of analytes reported on Figure 3-27.

Comment No. 24:
§ 4.2.2 Page 83.
Modify the language as shown in Attachment A.

Response to Comment No. 24:
Modification has been carried out as requested.

Comment No. 25:
§ 4.2.4 Page 87 and 88.
Re: Metals concentrations in surface water.
Compare upstream and downstream concentrations of lead, calcium, magnesium, cyanide, manganese, barium, iron, and aluminum. Include this comparative analysis in the RI test.
Response to Comment No. 25:

As agreed at the meeting with USEPA on August 24, 1993 a qualitative comparative analysis of metals concentrations in upgradient sample SW02 has been made with downstream concentrations along Conoy Creek in samples SW04, SW05 and SW07 and with metals concentrations detected in surface water samples in each of the tributaries to Conoy Creek (SW01 and SW03 and SW06 and SW08).

Comment No. 26:

§ 4.2.5 Page 89.
Re: Metals.
Modify the Language as shown in Attachment A.

Response to Comment No. 26:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text.

Comment No. 27:

§ 4.2.6 Page 90.
Re: Air Releases.
SCA's statement is incorrect. Modify the language as shown in Attachment A.

Response to Comment No. 27:

Modification has been carried out as requested.

Comment No. 28:

§ 4.3 Page 91.
Re: Pesticide detects.
Modify the language as shown in the text.

Response to Comment No. 28:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text.
Comment No. 29:

§ 4.3 Page 93.

Re: Pesticide detections.
SCA's language is vague. Modify the language as shown in Attachment A.

Response to Comment No. 29:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text.

Comment No. 30:

§ 4.4.3 Page 97.

Re: Travel distance of organics.
Please explain the rationale for using a maximum travel time to estimate leachate migration from the southern portion of the landfill, while using an average travel time to estimate migration from northern portions of the landfill.

Response to Comment No. 30:

Landfill operations are known to have commenced in the southern portion of the landfill in early 1961, thus the maximum estimated travel time of leachate constituents emanating from this area would be of the order 30 years. For the northern area of the landfill the exact time of commencement of landfilling is not known, however the landfill operations ceased in 1973, thus the minimum travel time is estimated at 20 years. Based on this limitation, Golder assumed a travel time of 25 years for estimating travel distances for leachate constituents emanating from the northern portion of the landfill.

For clarity the words "an average" have been replaced by "an assumed" travel time in the text.

Comment No. 31:

§ 4.5.2.3 Page 106.

Re: Pesticide detections.
Modify the language as shown in Attachment A.
Response to Comment No. 31:
Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "by SCA/Golder" has been inserted in the text.

Comment No. 32:
Re: Gas Migration.
SCA has not provided sufficient evidence to support its claim. Omit the language shown in the text.

Response to Comment No. 32:
The omission has been made as requested.

Comment No. 33:
§ 4.6.3 Page 109.
Re: Cap integrity.
SCA's statement is inaccurate. Modify the language as shown in Attachment A.

Response to Comment No. 33:
Modification has been carried out as requested.

Comment No. 34:
§ 4.6.3 Page 110.
Re: SCA's language is vague. Modify it as shown in Attachment A.

Response to Comment No. 34:
Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text.
Comment No. 35:

§ 5.2 Page 111.

Modify the language as shown in Attachment A.

Response to Comment No. 35:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "by SCA/Golder to be" has been inserted in the first sentence of Section 5.2 of the text. In addition, the second bullet point of the section now reads:

"Wastes in the northern 12 acres of the Site are covered by a maintained, layered cap system which SCA/Golder believes meets present USEPA RCRA Subtitle D requirements for closed, unlined landfills, and wastes in the southern 4 acres are covered by a soil and gravel cover; and"

Comment No. 36:

§ 5.3 Page 112.

Re: Gas migration.
Some of SCA's statements are incorrect and some are vague. Modify the language as shown in Attachment A.

Response to Comment No. 36:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "by SCA/Golder to be" has been inserted in the text.

Comment No. 37:

§ 5.4 Pages 112 and 113.

Re: Runoff.
SCA's statements are incorrect. Existing runoff controls do not effectively contain surface water runoff at the Site and neighboring properties are impacted. Modify the language as shown in Attachment A.
Response to Comment No. 37:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "by SCA/Golder to be" has been inserted in the text at two locations. In addition, the section will read as follows:

"Erosion is not considered by SCA/Golder to be a potential migration route, under both current and future exposure conditions, for the following reasons:

- Erosion protecting vegetation on the existing landfill cover is well developed, no signs of major erosion were observed during the RI, and this cover is maintained;
- Surface water run-off from the northern capped portion is controlled at the Site by a series of drainage channels which route the surface water to a sedimentation basin; and
- A surface water drainage system for the northern capped portion is maintained to control potential erosion.

It is expected that an evaluation of run-off and erosion control structures will be carried out for the southern uncapped portion of the Site as part of the Feasibility Study for the Site."

It is SCA's/Golder's opinion that erosion and surface water run-off is not impacting off-site (neighboring) properties. Continued cover maintenance and maintenance of the surface water management is expected to keep this potential migration route from becoming an exposure pathway.

Comment No. 38:

§ 5.5 Page 114.

Re: Sample results from Wells EM400 and EM500.

Add the following language to the second paragraph on page 114:

It should be noted that both wells EM400 and EM500 are constructed as drinking water supply or production wells, not ground water monitoring wells. It is plausible that low levels of contamination, even if present in some of the water bearing zones through which these wells are constructed, would not be detected in samples collected from these wells due to possible dilution from uncontaminated water bearing zones through which the wells might also be
constructed. Therefore the contaminant concentrations in and around Wells EM400 and EM500 remain uncertain.

Response to Comment No. 38:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The second paragraph of the text on page 114 now reads as follows:

"Analysis of a sample from the 400-foot well (EM400) did not detect any VOCs or SVOCs. Analyses of a sample from the 500-foot well (EM500) during the RI Phase 1B sampling event detected 0.9 ug/l of 1,1-Dichloroethane. However, this level of detection was below the sample quantitation limit of 1 ug/l. No VOCs or SVOCs were reported in a sample from the 500-foot well during the RI Phase 1C sampling event. It should be noted that both wells EM400 and EM500 are constructed as drinking water supply or production wells, not groundwater monitoring wells. It is plausible that low levels of contamination, even if present in some of the water bearing zones through which these wells are constructed, would not be detected in samples collected from these wells due to possible dilution from uncontaminated water bearing zones through which the wells might also be constructed. Therefore the contaminant concentrations of specific water bearing zones in the area of wells EM400 and EM500 remain uncertain. While exact water bearing zone concentrations remain uncertain, the results indicate that the production water from wells EM400 and EM500 does not contain VOCs above MCLs and is not adversely affecting the health of individuals consuming water from these wells. Because these wells have only been sampled on a limited basis during the RI and because the results do not clearly indicate whether these wells have been impacted or not, SCA will have these wells resampled."

Comment No. 39:

§ 5.5 Page 114.

Re: Moyer Farm.
Add the language shown in Attachment A.

Response to Comment No. 39:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. In addition, the words "it is SCA/Golder's opinion" has been inserted in the text.
October 1993

Comment No. 40:

§ 6.0 Page 116.

Make the changes shown in Attachment A.

Response to Comment No. 40:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text.

Comment No. 41:

§ 6.0 Page 117.

Make the changes shown in Attachment A.

Response to Comment No. 41:

Modification has been carried out as agreed at the meeting with USEPA on August 24, 1993. The words "it is SCA/Golder's opinion" has been inserted in the text. In addition, the following phrase has been added to the end of the first sentence of last paragraph on page 117: "except in the areas north of Conoy Creek."

Comment No. 42:

§ 6.0 Page 119.

Make the changes shown in Attachment A

Response to Comment No. 42:

Modification has been carried out as requested and the reference has been cited for the information given in this paragraph.

Comment No. 43:

§ 6.0 Page 120.

Omit the last paragraph as per Reggie Harris' comment number 20.
Response to Comment No. 43:

The last paragraph on P. 120 has been deleted as requested.

Comment No. 44:

§ 6.0 Pages 121, 122, and 123.

Make the changes shown in Attachment A.

Response to Comment No. 44:

Modifications have been carried out as requested. In addition, the words "by SCA" have been replaced with "by SCA/Golder".
ENCLOSURE II
CH2M-HILL'S COMMENTS

Comment No. 1:

Page 16.

A reference to any chemical testing of the water used for drilling (either in this document or previously provided in others) must be provided.

Response to Comment No. 1:

The detailed results of analyses of the drilling water used during the RI field investigations are provided in Appendix D1.

Comment No. 2:

Page 33.

The text must clearly indicate the number of wells sampled during Phase 1B: it is possible to interpret the current text as including 20 monitoring wells, or 35 monitoring wells plus 9 residential wells, or 55 monitoring wells plus 9 residential wells.

Response to Comment No. 2:

The number of wells sampled during Phase 1B are clearly listed in Table 2-4 as stated in the first sentence of the third paragraph on page 33. In order to avoid any confusion the second paragraph on this page has been deleted.

Comment No. 3:

Pages 26 and 35.

On page 26, the text indicates PCBs were not analyzed per EPA guidance; page 35 indicates PCBs were not detected. The RI must consistently specify if samples were analyzed for PCBs.

Response to Comment No. 3:

Analyses for PCBs were not required for Phases 1B and 1C of the RI as prescribed in the October 28, 1992 letter from USEPA. Because PCBs are analyzed with pesticides according to the CLP method, the laboratory analyzed and reported
PCB results and Golder included these results in the interim deliverables for completeness.

Comment No. 4:

Page 40.

It is not clear what radius or linear distance from site was encompassed by the land-use investigation on Conoy Creek. The RI must specify what was required and if these requirements were completed.

Response to Comment No. 4:

The RI/FS Work Plan Section 4.3 required that the uses of Conoy Creek both upstream and downstream of the Site be investigated and reported in the RI report. (This was described in Section 2.2 of the RI report). No specific linear distance or radius was stipulated however, investigations on these issues were carried out upstream along Conoy Creek beyond Elizabethtown (for a distance of 2.5 miles) and downstream to the confluence with the Susquehanna River (a distance of 6 creek miles).

The results of these investigations are provided in Section 3.2 of the report.

Comment No. 5:

Page 41.

The 5 wells for Elizabethtown are both north and northeast of the site (not "northeast of the Site."); as per Figure 3-1.

Response to Comment No. 5:

The comment is noted and the text has been changed accordingly.

Comment No. 6:

Page 45.

The text does not indicate whether the Masonic Home (and the area where livestock use Conoy Creek for drinking water) is upstream or downstream of the site; the text must be clarified.
Response to Comment No. 6:

The Masonic Homes own large tracts of land upstream, downstream, adjacent and opposite the Site. The Masonic Homes buildings (proper) are on the opposite side of Conoy Creek, directly across from the Site.

According to Mr. Ralph Hunt of the Masonic Home, beef cattle livestock belonging to Masons use Conoy Creek as drinking water downstream of the Site to where Route 241 crosses Conoy Creek near Conoy Church (see Figure 1-2). The text has been modified to incorporate this information.

Comment No. 7:

Page 47.

Temporal trends in contaminant concentrations were not adequately addressed because sampling events were conducted under seasonally low water surface conditions (Phase 1A in July; Phase 1B in November; Phase 1C in December). Seasonal variation (related to high and low water surface conditions) must be evaluated prior to final design by conducting a sampling event in March or April, when high surface water conditions occur. This requirement must be included in the RI Report. Note that water levels are reported to vary by as much as 16 feet on page 57.

Response to Comment No. 7:

The timing of the three sampling events was dictated by the requirements of the schedule as presented in the USEPA-approved RI/FS Work Plan.

SCA/Golder propose to evaluate seasonal variations prior to final design by conducting a sampling event during high surface water conditions as part of the Remedial Design.

Comment No. 8:

Page 49.

"...the Site is located strategically..." based on geology probably should read "...is located stratigraphically...". This text must be explained or corrected.

Response to Comment No. 8:

The text has been corrected by changing the word "strategically" to "stratigraphically".

Golder Associates

AR304380
Comment No. 9:

Figure 3-9 and Table 3-1.

A summary of well data, organized by aquifer, is needed. The summary should provide, for example, a listing of which units are screened (overburden vs. rock), and screen placements (screens at 200-, 300-, 400-ft MSL) to match graphics provided with the RI.

Response to Comment No. 9:

As agreed during a telephone call with CH2M Hill on August 19, 1993, Table 3.1 has been modified to include a column for the mid-point of the screened interval for each well and a column for the formation description.

Comment No. 10:

Page 55.

The RI must explain how one axis of anisotropy can be both strike-parallel and down dip (by definition, these directions are orthogonal).

Response to Comment No. 10:

The wording of the last sentence of the first paragraph in Section 3.5.1 was ambiguous. The last sentence has been reworded as follows:

"The interbedded sandstones and siltstones, together with the joint sets result in an overall anisotropic aquifer with the major axis of hydraulic conductivity along strike (that is, along the bedding planes), of the geologic strata and the minor axis perpendicular to the bedding planes."

Comment No. 11:

Page 58.

The RI must provide the rationale for selecting wells ED16, ED17, P1, RW04, and RW05 for continuous water-level monitoring, and must specify how well depth, geologic unit, and screen interval were included in the selection criteria (or was only proximity considered in selecting these wells?)
Response to Comment No. 12:

As described in Section 4.4.2 of the RI/FS Work Plan, these wells were chosen mainly on the basis of their proximity to each other. That is, ED16, ED17, and P1 were the closest Site wells to residential wells RES04 (RW04-CH2M HILL) and RES05 (RW05-CH2M HILL). This is further explained in Section 3.5.2.5 of the RI text.

Comment No. 12:

Page 58 and Figure 3-16.

Figure 3-16 referenced on this page is a unique presentation of conceptual groundwater flow; however, it does not show differences in flow (refraction) between sandstone and siltstone units as discussed in the text (e.g., Section 3.4.2.6).

Response to Comment No. 12:

Figure 3-16 presents an overall anisotropic conceptual aquifer. A figure showing the detailed differences in refraction between the sandstone and siltstone units would be relatively much more complex than the present figure and could only be reliably constructed with much more detailed data. Golder elected not to present a detailed version of the figure as it was decided that this might only confuse a reader trying to gain an appreciation of the overall concept of an anisotropic aquifer.

Comment No. 13:

Page 58.

Hydraulic conductivity (K) and reported values: also see comments below directed at Appendices H, I, J, and K.

Response to Comment No. 13:

See comments and responses below as appropriate.
Comment No. 14:

Table 3-2.

Fracture index for ED17_01 is missing from this table. ED24_17 fracture index seems high for the reported K value of 10E-6.

Response to Comment No. 14:

The missing fracture index for ED17_01 is 1.35. The fracture index for ED27_17 was miss-typed and should be 2.59 not 5.29.

Comment No. 15:

Page 59.

CH2M HILL does not concur with the generalized trend for siltstone conductivities (that K decreases with depth) as reported. Review of Figure 3-18 indicates K=10E-5 for 6 depths from 60 to 300 ft bgs. There are only 2 deep values available for siltstone. Note this in the RI Report.

Response to Comment No. 15:

It should be noted that Figure 3-18 is a generalized trend. Golder's and SCA's experience in similar geologic environments in Pennsylvania (and in general geologic settings) is that hydraulic conductivities usually tend to decrease with depth (due to a closing of fractures or apertures with an increase in overburden pressure with depth). The comment is noted and the text has been revised to reference only two deep values for siltstone.

Comment No. 16:

Page 60.

The values for K in first paragraph are not listed on Table 3-3; the text needs to correspond with data presented elsewhere.
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Response to Comment No. 16:

The values of K (2.7 x 10^-4 cm/sec and 5.9 x 10^-4 cm/sec) are not listed on Table 3-3 as these values are mathematically derived from the statistical analyses carried out on the hydraulic conductivity values of the field tests (Figure 3-22), whereas Table 3-3 presents the actual field test results.

Comment No. 17:

Page 62.

The scope of the statement "...is not a hydrogeologic feature which controls the groundwater flow regime at the Site" is not clear; does Golder mean to conclude that the diabase dike is not a hydraulic barrier to flow off the ridge to the southeast?

Response to Comment No. 17:

The sentence was specifically referring to the contact zone between the diabase dike and the adjacent sedimentary strata and not the diabase dike itself. In the context of the paragraph, the lack of difference in elevation of water levels in piezometers P1, P2, P3 and EU15A indicate that there is not a permeability contrast across the contact zone. The last sentence of the paragraph has been reworded to clarify this point as follows:

"These water levels show that there is no head difference across the contact zone indicating that the contact zone has a similar hydraulic conductivity as the adjacent sedimentary strata (to the north of the contact zone) and the adjacent fractured diabase dike (to the south of the contact zone). Thus, the dike does not appear to be a hydrogeologic feature which influences the groundwater flow regime at the Site."

Comment No. 18:

Page 63.

Residential well numbers are not consistent between paragraphs on this page and need to be corrected. The graphics indicate that the correct numbers are RW04 and RW05.
Response to Comment No. 18:

CH₂M Hill in their comment have miss-typed RES04 as RW04 and RES05 as RW05. The numbers have been corrected in the paragraph as follows:

• RES04 is 19 Valerie Drive
• RES05 is 27 Valerie Drive

Comment No. 19:

Page 63.

The shallowest monitoring well used for water level measurements (PI=69 ft bgs) is not shown on the figure referenced (Figure 3-11) and must be added.

Response to Comment No. 19:

Water levels in residential wells were monitored over 2, two-week periods - October 8 to 22, 1992 and October 29 to November 16, 1992. Due to technical problems, data from two transducers for the first period were unusable and monitoring was implemented over the second period. However, piezometer P1 was reliably monitored over the first period and showed that water levels remained relatively constant. During the second monitoring period the transducer lead to P1 was severed by a homeowner and data from P1 was not recorded. Thus, data from P1 is not shown on Figure 3-11. However a note has been added to the figure stating the above.

Comment No. 20:

Tables 3-6 to 3-11.

Data validation flags need to be added to the values in the table to allow reader to determine if blanks, estimated, or other qualified values are used. A note must be added to tables indicating the meaning of blank spaces.

Response to Comment No. 20:

Further to discussions at and following the meeting with the USEPA on August 24, 1993 these tables have been reorganized and this has included the addition of data validation flags to the tables and a note to indicate the meaning of the blank spaces.
Comment No. 21:

Page 73.

Figure references don't completely match figures in this section (3.7.2) and need to be corrected.

Response to Comment No. 21:

The comment is noted and the corrections have been made to this section.

Comment No. 22:

Page 75.

Is the text - which seems to state that for some of the detected metals, the MDLs are higher than established MCLs - correct? If so, then the methods of analyses are not acceptable for RI data objectives.

Response to Comment No. 22:

The abbreviation MDL was incorrectly typed and should have been MCL. This has been corrected. In addition, the second sentence of the second paragraph on page 75 (to which this comment applies) is somewhat ambiguous and has been reworded as follows to help clarify it:

"The concentrations of metals detected in the groundwater samples from both upgradient (i.e., background) and downgradient wells are presented on Figure 3-31. As noted earlier in Section 3.4, the metals detected at the Site are commonly present in the Triassic basin rocks that are characteristic of the geologic formation of this area. Furthermore, for those metals with established USEPA maximum contaminant levels (MCLs), the detected concentrations are generally below the MCLs."

Comment No. 23:

Page 85.

Although the argument is plausible that some of the detected metals may be associated with Triassic bedrock "background", their presence in extracted groundwater as part of the remedy for this site may require their treatment if present in sufficient concentration.
Response to Comment No. 23:

Comment noted.

Comment No. 24:

Data tables.

Golder presents only a summary of data in the tables of the report; there is no way to verify completeness/accuracy of these summary tables without laboratory Form Is. Data validation back-up is also missing from the document; EPA will need access to the full validated data base to perform a public health risk assessment for the site. The RI must include these missing data.

Response to Comment No. 24:

The issue of data tables was discussed in detail at and in the four weeks following the meeting with the USEPA on August 24, 1993. It was requested by the USEPA that the detailed results of the Phase 1A, 1B and 1C sampling events be included as part of the Final RI report. This data is now included in the report as Volume 3.

In addition, it was agreed that CH2M Hill should visit the offices of Golder to inspect, check and verify the completeness and accuracy of the reported data against the laboratory Form 1's. This visit was made by Mr. Murray Rosenberg of CH2M Hill on September 9, 1993.

Comment No. 25:

Table 3-6.1.

A comparison between this table and the graphics (Figure 3-27) depicting these results, encountered several discrepancies; specifically, with when the data for wells ED05R and ED10I are compared, discrepancies are found between the table and graphics [CH2M HILL did not check any others]. We must assume that this type of error occurs throughout the report; the data should be reconciled for the final RI and before the nature/extent of contamination can be fully evaluated.

Response to Comment No. 25:

Golder has carried out detailed QA/QC on text, tables, appendices and Figures in an attempt to ensure that any discrepancies have been corrected and that there is
consistency throughout the RI report. Most of the changes were minor in nature and not related specifically to analyte concentrations and therefore did not affect the overall assessment of nature and extent of contamination.

Comment No. 26:

Table 3-6.2.

In a comparison between this table and the graphics (Figure 3-27) depicting these results, there are several discrepancies; specifically, for well ED13D.

Response to Comment No. 26:

Golder has carried out detailed QA/QC on text, tables, appendices and Figures in an attempt to ensure that any discrepancies have been corrected and that there is consistency throughout the RI report.

Comment No. 27:

General.

Because of the discrepancies between tables and graphics, and since quality control data (QC flags and field duplicates) are presented on the graphics, CH2M HILL's evaluation of nature/extent of organics is based on the graphics. The assessment, however, is made with low confidence because the noted discrepancies.

Response to Comment No. 27:

Comment noted. See Responses to Comments 25 and 26 above.

Comment No. 28:

Page 79.

Based on the RI report's definition of representative contaminants (multiple detections in a single well) at the bottom of the page, trans-1,2-dichloroethene and 1,2-dichlorobenzene should be added to discussions.

Criteria for contaminants of concern typically include detection in multiple wells and presence in samples from the source (such as leachate). It is noted that xylenes (MCL of 10,000 ug/l) and ethylbenzene (MCL of 700 ug/l) were detected
in the leachate samples and at low levels in several wells throughout the sampling episodes; they must be included in the RI list of representative analytes.

Response to Comment No. 28:

As agreed at the meeting with the USEPA on August 24, 1993, Golder would apply Region III Risk-Based Concentrations to the data and compounds for which there were detections above risk-based levels would be discussed in Section 4.2.1.

Comment No. 29:

Figure 3-27.

RES03 location is shown twice on the figure and needs to be corrected. The results for 1,2-dichloroethane at ED10I are shown twice and the reported results are different on each line; this needs to be corrected.

Analytical results must be presented in EPA's standard order for ease of interpretation.

Response to Comment No. 29:

The incorrect location of RES03 has been erased from the figure. The results for 1,2-Dichloroethane at ED10I have been corrected.

Analytical results have been reorganized and are presented in USEPA's standard order.

Comment No. 30:

New table.

The RI report should include a statistical table showing frequency of detection of analytes by medium; ranges, stations with the maximum values, and stations where results exceed an ARAR (for example, MCL for groundwater).

Response to Comment No. 30:

As stated by the USEPA at the meeting on August 24, 1993, the USEPA will generate it's own Risk Assessment tables in a very similar format and thus, there is no need to create the new tables requested in this comment.
Comment No. 31:

Page 81.

The term "offsite" needs to be clearly defined. In several discussions, such as the chloroethane discussion on this page, "offsite" appears to be incorrectly used since there are several offsite wells that show contamination.

Response to Comment No. 31:

The terms "offsite" and "on-site" have been clearly defined in Section 1.2.2 and on Figure 1-3B. In the discussion of chloroethane on page 81, the term "off site" is used in the correct context.

Comment No. 32:

Page 82.

cis-1,2-dichloroethane should be ethene.

Response to Comment No. 32:

Comment noted and the correction has been made.

Comment No. 33:

Page 79-88.

References to decreasing trends for analytes (Appendix R) are not convincing since the release of season "slugs" of contamination has not been evaluated. Moreover, the results for Appendix R have not been presented and reviewed with respect to precipitation. The discussions on detected analytes should be verified for accuracy in the final RI.

Response to Comment No. 33:

The graphs presented in Appendix R are included to provide a general representation of concentrations over time. As historical precipitation data is not available for the Site, it is not possible to evaluate if seasonal variations create the potential release of "slugs" at the site.
Comment No. 34:

Page 83.

Based on data presented in Figure 3-27, bis(2-chloroethyl)ether was detected in 12 wells, repeatedly at 11 locations. The discussion in paragraph 4 reports a different breakdown.

Response to Comment No. 34:

The data presented in Figure 3-27 is correct and the text has been amended accordingly.

Comment No. 35:

Page 83.

Based on data presented in Figure 3-27, naphthalene was detected repeatedly in 3 wells at a maximum concentrations of 2 ug/l in ED5R, 1 ug/l in ED12D, and 6 ug/l in ED02R (8 ug/l in the field duplicate). The discussion in paragraph 5 reports a different breakdown.

Response to Comment No. 35:

Naphthalene was detected repeatedly in wells ED02R and ED12R. It was detected only once in ED5R. The figures and text have been amended accordingly.

Comment No. 36:

Page 83.

The presence of phthalates has not been discussed in the RI report.

Response to Comment No. 36:

A discussion of bis(2-Ethylhexyl)phthalate has now been included in Section 4.2.2.
Comment No. 37:

Page 84 and Table 4-1.

Were all values (included B and J flagged data) included in the statistics? Data that were J-flagged (because analyte was detected at less than MDL) could bias background low, whereas data that are B-flagged (found in blanks) and presumed high could bias background higher than actual.

Response to Comment No. 37:

Following discussions with the USEPA on August 24, 1993 and subsequent clarification related to the presentation of metals data in the report, USEPA have requested that the comparison of upgradient metals versus downgradient metals be limited to presentation of maximum upgradient values versus maximum downgradient values. Table 4-1 has been reformatted to present the metals data in this fashion.

Comment No. 38:

Appendices H, I, J, K.

The packer-testing methods applied by Golder Associates, although unconventional (see below), appear acceptable for estimating hydraulic conductivity in low permeability materials. Slug tests using conventional falling head type tests were used and were analyzed using the Hvorslev variable head method. The data quality for packer and slug tests is good; all tests were run with pressure transducers and data loggers. For the packer test, transducers were installed above and below the test section to monitor leakage from poor packer seating or equipment failure. To prevent data loss from transducer failure two transducers were installed in the test section.

Several inconsistencies appear in Appendix H (Packer Test Procedures and Analysis Methods). The section describing the Hvorslev analysis method for the falling head slug tests describes the constant head or basic time-lag method, while Golder actually used a variable head method for which they modified the plot of hydraulic head versus time. Subsequently, the equation and description of the Hvorslev method they actually used is inaccurate and should be corrected to depict the correct method.

The variable head method has also been used to analyze falling head test data from screened wells (Appendix J). Hvorslev's basic time-lag or Bouwer and Rice methods would be more appropriate for this type of test. To accurately review the appropriate slug test method data, the summary sheets documenting these tests should include the well intake depth or elevation.
Golder used the Horner packer test method to check their Hvorslev results. The Horner method is a simple modification of the Theis recovery \( (t/t') \) method for constant rate pump tests. However, rather than plot residual drawdown versus time on a log scale, Golder plots actual hydraulic head versus the log values of time on an arithmetic scale. Although this method of data reduction is acceptable (although convoluted) and should yield accurate results, some description and justification of this deviation from the conventional (Horner) method should be provided.

Response to Comment No. 38:

Golder has had several discussions with USEPA and CH2M Hill regarding the data presentation and the packer test analysis methods, initially at the July 7, 1992 meeting and subsequently via teleconferences with CH2M Hill.

Unfortunately, many of the queries and remarks generated in this comment and in Comment No. 39 below were the direct result of the wrong Hvorslev equation being provided in the description of the Hvorslev method on pages H-5 and H-6 of Appendix H. As noted by CH2M Hill in Comment 41, Golder has since provided CH2M Hill with the correct formula used by Golder. Appendix H has also been modified to present the correct Hvorslev method.

Golder and CH2M Hill have spent considerable time and effort resolving discrepancies, associated with the analysis techniques. Specifically, these efforts have concentrated on reconciling different hydraulic conductivity ("k") values estimated for some test intervals.

In addition, Golder has discussed with CH2M Hill in detail, on September 7, 9, 22 and 24, 1993, outstanding issues related to the interpretation of the recovery section of tests using the Horner method. These issues are understood to be resolved.

Golder understands that CH2M Hill and Golder have good agreement with results for the flow portion of the tests calculated using the Hvorslev method and similar agreement for the recovery portion of the test using the Horner method. Both CH2M Hill and Golder were able to generate results to within acceptable ranges of each other (2-3 times) for each method.

Notwithstanding the above, the upcoming pumping tests will provide a much better indication of the overall performance of the bedrock aquifer at the site.
Comment No. 39:

Appendices H, I, J, K.

CH2M HILL reviewed calculations for 11 out of the 80 total slug and recovery type packer tests and 2 out of the 16 total standard slug tests. Golder has only provided plots of reduced data (time versus the natural log of hydraulic head ratios for the packer tests and head versus the log of t/t' for the standard slug tests). Subsequently, to accurately review and check the data interpretation, raw data or spread sheets featuring raw data and data manipulation should be provided.

Tests were checked by manually selecting an appropriate straight-line segment on the plots for t2-t1 and the corresponding hydraulic head ratios. However, because manipulated head ratios or time ratios were plotted, it is difficult to assume the appropriate line segment that Golder might have used (this is especially true with the Horner and standard slug test Hvorslev methods, where manipulated time ratios were used). It is also not understood why seemingly random test durations (e.g., 58 instead of 60 seconds) were chosen by Golder.

The parameters estimated by CH2M HILL were substituted into the Hvorslev variable head equation and the Horner equation to calculate the hydraulic conductivity for comparison with Golder's results. Our calculations yield hydraulic conductivity values typically higher than and within 5 to 10 times the values calculated by Golder.

However, even when indiscriminately using Golder's manipulated head ratio and slope estimates, our calculations do not match Golder's calculations closely enough to be acceptable (typically only within a factor of 5 to 10). In fact, the number of our calculations using the Hvorslev variable head method resulting in a value 2-3 times greater than Golder's estimates causes us to question whether a simple English-to-metric conversion (inches to centimeters) may have been neglected. Finally, one head ratio estimated by Golder appears to be significantly in error. However, after subsequently checking approximately 10 other head ratios which appeared correctly estimated, it seems that the one incorrect head ration could be an isolated error.

Response to Comment No. 39:

See response to Comment No. 38 above.
Comment No. 40:

CH2M HILL has confirmed with Golder our impression that the test segments chosen for calculations were randomly selected. Although this is acceptable, the calculation procedure is not explained anywhere in the text and this makes our evaluation more difficult. We have requested sample calculations and spreadsheets with raw data. Golder has complied and we will shortly receive this information, which will help answer our remaining questions. We suggest that more accurate and explicit descriptions of the calculation steps be provided in the RI report text.

Response to Comment No. 40:

See response to Comment No. 38 above.

Comment No. 41:

CH2M HILL's review of a complete slug test data, and spreadsheet manipulation package submitted by Golder for boring ED-19, Test 3 (68.0-82.4 ft bgs) has yielded mixed results. For the slug or falling head portion of the test, the availability of the data has enabled CH2M HILL reviewers to essentially duplicate the hydraulic conductivity values generated by Golder. In contrast, data provided for the Horner recovery analysis are not correlative to the plot of transducer head versus the log of t/t' appearing in Appendix H. Golder's hydraulic conductivity value for the 68.0 to 82.4 foot zone is generated from this plot. CH2M HILL reviewers plotted the data submitted for the Horner analysis in the more accepted manner for the Theis recovery method (residual drawdown Δs; versus log of t/t'). The hydraulic conductivity value generated from the CH2M HILL analysis is approximately 4 times the Golder value. The incompatibility of Golder's recovery data and graphed data from the single package submitted casts some doubt on the validity of the remainder of the analyses.

Response to Comment No. 41:

See response to Comment No. 38 above.

Comment No. 42:

The pesticide validation method indicates that there were no validation guidelines available at the time of sample validation. The RI report should note, however, that draft functional guidelines are now available from EPA.
Response to Comment No. 42:

As previously stated in Response to Comment No. 8 of Ms. Sherry Gallagher's comments, pesticide validation guidelines were not available at the time validation was performed. Section 2.7.5 of the RI refers to the availability of the current draft guidelines.

The issue of pesticide validation methods and USEPA Region III draft functional guidelines was discussed in detail at the meeting with USEPA on August 24, 1993 and the four weeks following the meeting. USEPA have requested that all apparent pesticide detects be included in the Final RI report and thus, all tables, text and figures have been revised to include pesticide results.

Golder has also presented the uncensored qualified data in the table and figures of this report.
ENCLOSURE III
REGINALD F. HARRIS' COMMENTS

Comment No. 1:

Omit the second paragraph on page 26 of the report. It is not reflective of discussions related to sampling and analysis.

Response to Comment No. 1:

Modification to the text of Section 2.7.1 has been carried out as agreed at the meeting with USEPA on August 24, 1993.

Comment No. 2:

Correct the first paragraph on page 33. EPA felt that at least two rounds of sampling should be conducted before decisions could be made concerning contaminants, since there may be seasonal fluctuations in groundwater quality that may not give a true picture of groundwater quality after only a single round of sampling. Additionally, some contaminants in several classes of the compounds being sampled were reported at levels exceeding risk based criteria which made the elimination of entire classes of compounds unwarranted. It should be noted that the sampling regimen at the site and selection of contaminants of concern are separate issues. There needs to be some continuity and a body of data accumulated before decisions are made regarding the selection of contaminants of concern for risk assessment purposes.

Response to Comment No. 2:

The first paragraph on page 33 will be reworded as follows:

"As stated in the Work Plan, Phase 1B of the field investigation program was intended to define the extent of contamination at the Site, and to collect additional information for use in the risk assessment and the feasibility study based on the COPC identified during Phase 1A. However, as discussed in Section 2.7.1, the USEPA advised that the complete TAL/TCL indicator parameter list (excluding PCBs) should be used for the Phase 1B and 1C sampling events."

Comment No. 3:

Use standard laboratory qualifiers and do not use the non-standard qualifiers discussed on page 36.
Response to Comment No. 3:

Comment noted. Standard USEPA Region III laboratory qualifiers are now used throughout the revised RI report tables, text and figures. In addition, as recently agreed with Ms. Sherry Gallagher, an asterisk has been used to indicate results below MDL for pesticides data only. In conversations with Ms. Sherry Gallagher subsequent to the August 24, 1993 meeting, it was indicated that data would not require re-qualification for table presentation purposes other than the use of "no code" for confirmed identification (A' was previously used to denote acceptable data).

Comment No. 4:

In the second paragraph on page 70 the word should be "re-analyses".

Response to Comment No. 4:

In the context of the sentence, the correct word is "re-analysis".

Comment No. 5:

Please explain the third paragraph on page 72 in more detail.

Response to Comment No. 5:

The third paragraph on page 72 will be rewritten for clarity as follows:

"The concentrations of metals detected in the groundwater samples from both upgradient (i.e., background) and downgradient wells are presented on Figure 3-31. As noted earlier in Section 3.4, the metals detected at the Site are commonly present in the Triassic basin rocks that are characteristic of the geologic formation of this area. Furthermore, for those metals with established USEPA maximum contaminant levels (MCLs), the detected concentrations are generally below the MCLs."

Comment No. 6:

On page 73 there must be clarification. There was a request to eliminate all pesticides from further evaluation, however, it should be noted that several of the pesticides were reported at concentrations which exceeded risk based concentrations according to Regional screening documents. Therefore, it was not
justifiable to remove all pesticides from consideration on that basis before additional sampling had been completed.

Response to Comment No. 6:

The use of the concentration and toxicity-screening methodology recommended by the USEPA in the RAGS Part A document indicated that virtually all the pesticides detected in environmental media at the Site should be excluded from further consideration. However, the levels of some of these pesticides were later found to exceed the USEPA Region III risk-based concentrations, and this fact has been incorporated into the revised RI report.

Comment No. 7:

Clarify the second paragraph on page 75 regarding metals concentrations.

Response to Comment No. 7:

The second paragraph on page 75 will be reworded as follows:

"The concentrations of metals detected in the groundwater samples from both the upgradient and downgradient wells are presented on Figure 3-31. The metals detected at the Site are representative of those commonly found in the Triassic basin rocks of the geologic formation of this area. In addition, the measured concentrations are generally lower than the respective MCL values."

Comment No. 8:

The third paragraph on page 75 contains a blanket generalization that still has not been supported by fact concerning the source of pesticide detections at the site. Provide the information of relevance along with these statements.

Response to Comment No. 8:

Relevant information concerning the anthropogenic source of the detected pesticides at the Site has been provided in Section 4.3 of the RI report.

Comment No. 9:

There is some question about the metals background analysis conducted in this document. It may be appropriate to remove comments on page 75 concerning
this. Please also refer to comments 18 through 23 concerning this and other related issues.

Response to Comment No. 9:

The reference to background concentrations on page 75 of the RI report is site specific. That is, it is a discussion of the reported naturally occurring levels of metals in the Triassic basin of the geographical region of the Site.

Comment No. 10:

In Section 3.7.3 numerical values are used to describe the frequency of occurrence of some contaminants. It is a good idea to continue this approach with the other contaminants and eliminate subject criteria.

Response to Comment No. 10:

Reviewer's comment is noted. Please refer to Response to Comment No. 46 for use of Tables to describe frequency of occurrence of contaminants.

Comment No. 11:

On page 77 the third paragraph repeats comments about metals for the third time which are not clear in intent. Please clarify this language and relate it to some specific point relating to this investigation.

Response to Comment No. 11:

The third paragraph on page 77 will be reworded for clarity as follows:

"The concentrations of metals detected in the groundwater samples from both the upgradient and downgradient wells are presented on Figure 3-31. The metals detected at the Site are representative of those commonly found in the Triassic basin rocks of the geologic formation of this area. In addition, the measured concentrations are generally lower than the respective MCL values."

Comment No. 12:

There may be reasons for acetone being identified upgradient from the site other than the one stated on page 80. Please present data and other support for the statement. If it is speculation, please remove it.
Response to Comment No. 12:
The qualifying statement concerning the source of acetone in off-site upgradient wells has been deleted from the RI report.

Comment No. 13:
What is the significance of stating that, "chlorobenzene was the only organic compound for which there were repeated detections above 100 ppb"? See page 80.

Response to Comment No. 13:
The reference to the 100 ug/L MCL for this compound was ambiguous. The sentence has been reworded as follows:

"Chlorobenzene was detected in several groundwater samples above the USEPA-established MCL of 100 ug/L for this compound."

Comment No. 14:
In Section 4.2.2 each semi-volatile should be discussed separately just as the volatile contaminants were.

Response to Comment No. 14:
As agreed at the meeting with the USEPA on August 24, 1993 semivolatile compounds with detected concentrations in exceedance of USEPA Region III risk-based concentrations will be discussed individually in the RI report.

Comment No. 15:
In the final paragraph at the bottom of page 89, what is the basis for saying that the PAHs do not appear to be related to the landfill? Provide support for the statement or omit it.

Response to Comment No. 15:
The bases or reasons for the assertion that the detected PAHs are not site-related have been provided on page 89 of the RI report as follows:
"It is possible that the PAHs in the sediment samples have been transported to the stream bed via run-off from West Bainbridge Road, which it is understood was resurfaced in recent years, or could be run-off from coal and coke stockpiles at the Masonic Homes Power House located upstream of the Site near where Conoy Creek passes under the Conrail embankment (see Figure 3-1)."

Comment No. 16:

The reasoning for the third paragraph on page 93 is not clear. I fail to see the need for this paragraph and its references regarding low concentration analytical methods.

Response to Comment No. 16:

This paragraph explains that the low concentration analytical method was originally developed as an analysis method for drinking water and its use for leachate and impacted water samples (as was done for this project) would yield matrix interference. The matrix interference observed in the pesticide analysis of groundwater and leachate samples yielded extraneous peaks which fell within pesticide retention time windows. This paragraph explains the premise for SCA's/Golder's opinion that the low parts per trillion detections reported by the laboratory may be false positives caused by matrix interference.

Comment No. 17:

Comments concerning metals in monitoring well samples never seems to differentiate the filtered and unfiltered results. Both sets of results should be presented.

Response to Comment No. 17:

Comments concerning metals in monitoring well samples referred to total (unfiltered) metals results. Results of both total (unfiltered) and dissolved (filtered) metals were presented in Interim Deliverables Reports 2, 4, and 5 which presented the results of Phase 1A, Phase 1B and Phase 1C analyses, respectively. Both total and dissolved metals results will be presented in Volume 3 of the revised RI report which incorporates and reproduces the Phase 1A, 1B and 1C data.
Comment No. 18:

With reference to background levels of metals in soils, it is appropriate to make determinations of background levels based on the upgradient sample results and to compare those results to the data obtained from downgradient analyses. The information presented at the bottom of page 88 and the top of page 89 seem inappropriate.

Response to Comment No. 18:

As recommended in the USEPA RAGS Part A document, it is appropriate to evaluate background metal concentrations in soils at hazardous waste sites by comparing detected levels with reported regional levels from the scientific literature.

Comment No. 19:

The 95th % Upper Tolerance Limit (?) described in Section 4.2.3 seems inappropriate for the evaluation of background. This method inflates background values unreasonably and has no basis for use in this document. Eliminate this methodology, remove the background values calculated by this method from all tables, remove all related discussion, and remove any other material related to this methodology from the document.

Response to Comment No. 19:

The use of the Upper Tolerance Limit methodology for evaluating background levels of environmental media contaminants at hazardous waste sites has been recommended in a number of statistical reference books and some USEPA publications. However, this approach, which in SCA's/Golder's opinion is appropriate, has been deleted from the revised RI report in accordance with the reviewer's comment. Instead, the maximum detected concentrations in background samples have been qualitatively compared to site-related (i.e., downgradient) samples, as requested by the USEPA, Region III.

Comment No. 20:

On page 120 mention is made of the use of site background wells and upgradient off-site wells for the calculation of the 95th % confidence upper tolerance limit for each parameter for statistical comparison to downgradient well contaminant values. There is major concern regarding the validity of the statistical approach used in this analysis. Remove this section from the document.
Please clarify references made to background wells and off-site upgradient off-site wells. Make sure that all wells used in the evaluation of background are similar and can be evaluated together as an appropriate grouping.

Response to Comment No. 20:

Please refer to response to Comment No. 19.

Comment No. 21:

The final paragraph on page 121 makes reference to the background evaluation mentioned in comment #20 and draws conclusions that may not be appropriate in light of the questionable nature of the background analysis.

Response to Comment No. 21:

Please refer to response to Comment No. 19.

Comment No. 22:

The 95% UTL calculations presented in Table 4-1 demonstrate a number of methodological concerns. First of all, arsenic was not detected in any of the background samples, and yet a 95% UTL calculation for arsenic was done which is then used as being representative of site background for arsenic at a concentration of 4.8 ppb. Arsenic was never detected. The detection limits for the samples were either 3 or 4 ppb in all cases, so how could this value of 4.8 ppb be reasonably applied to background? Arsenic was not present at any of the sample locations at levels down to 3 ppb, so please explain how a background level over 50% higher than the lowest non-detect level could reasonably be assumed to be representative of site background when all samples are non-detects? This same procedure was used for all other contaminants that were not detected in any background sample. It should be obvious that if contaminants are not detected in any of the site specific background samples, then any detections downgradient are real and are site related.

It is obvious that this 95th % upper tolerance limit is not appropriate for background evaluation due to its tendency to inflate contaminant concentrations to levels well beyond what is reasonable. Manganese was never detected in any background sample above 236.6 ppb, yet the calculated 95% UTL value used to assess background was 721.964 ppb, more than three times higher than the maximum detected value. It should be noted that even with RME calculations, the maximum value is used if the RME value exceeds it. It is obvious that the UTL technique skews the data in a manner that is not protective of human...
health. The average manganese concentration for the background data set was 148.8 ppb, and yet 721,964 ppb was used to represent background based upon these questionable statistical manipulations.

To further demonstrate concerns related to the statistical technique, the detection limit values for non-detects were used in UTL calculation. Arsenic, which was used in an earlier example was never detected. The two different detection limits cited, 3 and 4 ppb, were inappropriately used to represent detections of arsenic and were then used statistically. These detections limits were used as a background concentration. A standard deviation was based upon the use of two different detection limits, not upon variation in an actual set of data. In other words a standard deviation value was calculated for the detection limits used. This abuse of statistical methodology is disturbing to say the least.

There are numerous other examples which can be found in Table 4-1 which make this procedure and the data obtained unsuitable for the purpose for which it has been intended. This statistical methodology be dropped immediately and all reference to it and statements based upon it, must be removed from this document.

Response to Comment No. 22:

Please refer to response to Comment No. 19.

Comment No. 23:

There are no explanations presented to describe the statistical derivation of the UTL calculation or any of the parameters used in deriving calculations presented. What is the origin of the "k" value in the 95% UTL?

Response to Comment No. 23:

Please refer to response to Comment No. 19.

Comment No. 24:

Please provide documentation for the conclusions presented in the first paragraph under Section 4.5.2.2. The material presented seems to be speculation without justification being presented.

Response to Comment No. 24:
The justification for the conclusion relating to detected PAH compounds at the Site was presented in Section 4.2.5 of the RI report.

Comment No. 25:

In Section 4.5.2.3 please provide the documentation for statements concerning the origin of certain pesticides.

Response to Comment No. 25:

As stated in Section 4.5.2.3 of the RI report, the presence of chlorinated pesticides at the Site was fully discussed in Section 4.3.4 as having been ascribed to off-site anthropogenic (i.e., farming) activities in the area.

Comment No. 26:

Please refrain from addressing site related issues in general terms as has been done in Section 4.5.2.4. There is enough site specific background data available that will provide the desired information with respect to background issues if the data is interpreted properly. Use the site background data for drawing conclusions about the contaminants at the site.

Response to Comment No. 26:

The environmental fate and transport characteristics of detected metals under Site geochemical conditions as they pertain to background levels have been discussed in greater detail in Appendix V of the RI report. It should be noted that background data specific to the Site have been included in this discussion as well.

Comment No. 27:

In Section 4.6.2 specific concentrations of contaminants in the groundwater must be used to illustrate points.

Response to Comment No. 27:

The graphs in Appendix R, as referenced in Section 4.6.2, are plots of specific concentrations of detected chemical compounds versus time from results of historical data (where available) and the three phases of sampling conducted during the RI.
Comment No. 28:

Please provide support for the final statement made in Section 4.6.2 concerning reduction in leachate rates, etc.

Response to Comment No. 28:

As stated in the last two sentences of the first paragraph of Section 4.6.2, Figure 1-5 illustrates that the monthly leachate generation rates have been reduced by a factor of nearly ten since the installation of the cap in April, 1987.

Comment No. 29:

Is there a possibility that trespassers may get on the site even though it is fenced? If so, a trespassing scenario must be included. (Section 5.2)

Response to Comment No. 29:

The potential for future trespassing at the Site has been included in Section 5.2 of the revised RI text.

Comment No. 30:

It may be appropriate to include acetone in an isoconcentration contour. The key issue in risk assessment revolves around which contaminants at the site are present and which contaminants may be sources of exposure for receptors. Upon intake, the receptor can not distinguish site related contaminants from those that are not site related. Risk assessment must be distinguished from risk management issues. A separate contour for acetone would be helpful in its evaluation at the site. Please provide individual contours for all contaminants of significance. This will make evaluation of the site much easier.

Response to Comment No. 30:

It was agreed among participants at the meeting with the USEPA on August 24, 1993 that a separate contour for acetone and/or other detected chemicals at the Site was not necessary.

Comment No. 31:

The last paragraph in Section 5.6 requires additional support.
Response to Comment No. 31:

The last paragraph in Section 5.6 of the RI report will be modified as follows:

"As stated in Section 4.2.5, stream sediment samples indicated the presence of SVOCs, including PAH compounds, that do not seem to be associated with a release from the Elizabethtown Landfill."

Comment No. 32:

Please provide the data and supporting documentation for the argument concerning pesticides in one place instead of repeating general statements continually.

Response to Comment No. 32:

Reviewer's comment is noted.

Comment No. 33:

Please be specific regarding potential migration routes for contaminants at the site with respect to future and current use.

Response to Comment No. 33:

Reviewer's comment is noted. Section 5.0 of the RI report will be revised accordingly to reflect potential current and future use conditions.

Comment No. 34:

Please specify if Table 3-6.1 refers to filtered or unfiltered groundwater samples. This distinction should be made for all groundwater tables which include metals.

Response to Comment No. 34:

Table 3-6.1 refers to total (unfiltered) metals and the table will be modified accordingly.
Comment No. 35:

Does Table 4-1 refer to filtered or unfiltered inorganic groundwater samples?

Response to Comment No. 35:

Table 4-1 refers to total (unfiltered) inorganics for groundwater samples. It should be noted that Volume 3 of this revised RI includes tables for both Total (unfiltered) and Dissolved (filtered) Inorganics for Groundwater.

Comment No. 36:

Table 4-2.1 should have the background information derived by the UTL method removed and separate tables should be created for leachate and groundwater. Tables should also be created for filtered and unfiltered inorganic sample results.

Response to Comment No. 36:

Please refer to response to Comment No. 19.

Table 4-2.1 will be revised accordingly. Total (unfiltered) and dissolved (filtered) results for metals are presented in the new RI Volume 3 which reproduces all data from the Phase 1A, 1B and 1C sampling events.

Comment No. 37:

Please rely on the site specific background data for evaluation in Table 4-3.

Response to Comment No. 37:

Please refer to Response to Comment No. 19.

Comment No. 38:

Surface soils and sediments must be evaluated separately and the site specific background data for each should be presented independently.

Response to Comment No. 38:

With respect to the sedimentary bedrock formation that characterizes the Site area, as discussed in Sections 2.4 and 2.5 of the text, the presence of both soils and sediments media have been separately discussed (in Section 4.25, paragraphs 1...
and 2) relative to this formation. Furthermore, the background concentrations of sediments and soils, as reported in literature sources, has been presented separately, as well, in Table 4.4. It should be noted that site-specific background soil samples were not collected, and in the case of sediments, only one background sample (SED02) was collected. This fact has been stated in the second paragraph on page 94 of the revised RI text.

Comment No. 39:

It may be appropriate for Table 5-1 to consider the migration or expansion of the on-site groundwater plume in any assessment of exposure.

Response to Comment No. 39:

The migration of on-site groundwater plume was taken into consideration in the evaluation of potential future exposure pathways as illustrated on Table 5-1 of the RI report.

Comment No. 40:

Residential wells do not seem to be adequately addressed in this document. Residential well data should be evaluated separately from monitoring well data. Please make separate tables for residential well data. Detection limits for this and all site data must be included in all tables, charts, etc..

Response to Comment No. 40:

Residential well data have been separated out on all tables. Sample Quantitation Limits (Reporting Limits) for all Site data are now provided with results from Phase 1A, 1B and 1C sampling events reproduced in the new RI Volume 3. A discussion of potential impacts to residential wells is provided in Section 5.5 of the text.

Comment No. 41:

Data validation flags must be added to contaminant concentration values in all tables.
Response to Comment No. 41:

The comment is noted and data validation flags have been added to tables as requested.

Comment No. 42:

If MDLs are higher than MCLs, there are serious problems with the analytical program. This problem makes accurate risk assessment and evaluation quite difficult.

Response to Comment No. 42:

Please refer to response to Comment No. 11.

Comment No. 43:

There is a general feeling that it has been assumed that non-site-related contaminants are not to be assessed. Agency guidance directs all risks to receptors to be addressed. Caveats may be applied to information relating to non-site-related contaminants, but all contaminants impacting receptors should be evaluated.

Response to Comment No. 43:

The objective of the RI report was to adequately identify both non- and site-related chemicals which may be used for selecting COPC, and subsequently, used for estimating potential risks and hazards to identified receptors.

Comment No. 44:

All data for the site must be included in the RI complete with standard laboratory qualifiers and other pertinent information. Data for all contaminants sampled for must be included. Those contaminants that were non-detects must be included along with all of the other data. The non-detects must appear with the detection limits, appropriate flags, and a "<" before the numerical value for non-detects.
Response to Comment No. 44:

As requested by USEPA in discussions at and following the August 24, 1993 meeting, the results of Phase 1A, 1B and 1C sampling events are to be reproduced in a new Volume 3 of the RI Report.

Comment No. 45:

Please check Tables 3-6.1, 3-6.2, and Figure 3-27 for consistency.

Response to Comment No. 45:

Reviewer's comment is noted. All tables, text and figures have been checked for consistency.

Comment No. 46:

The RI must include summary tables for each medium which includes the name of the contaminants, number of samples collected, frequency of detection, range of detected concentrations (from minimum to maximum), MCL for groundwater, risk based concentration for all media (from Regional Screening Document-Attachment B), the detection limit for the sample (sample quantitation limit), locations of maximum detected concentration, etc. (see example Table - Attachment C).

Response to Comment No. 46:

It was agreed among participants at the meeting with the USEPA on August 24, 1993 that the Agency and/or its contractor will be responsible for preparing such summary tables for conducting the risk assessment for this Site.

Comment No. 47:

Please clarify the use of the term off-site.

Response to Comment No. 47:

Reviewer's comment is noted. The terms "off-site" and "on-site" have been defined in Section 1.2.2 of the text and Figure 1-3B.
Comment No. 48:

Phthalates were not discussed in the report in the same manner as other contaminants.

Response to Comment No. 48:

The only phthalate compound, bis(2-ethylhexyl) phthalate, found to be present at concentrations in exceedance of USEPA Region III risk-based concentrations in groundwater has been discussed in Section 4.2 of the text.

Comment No. 49:

There are serious concerns related to the coherence of this document. Much of the wording is awkward and lacks continuity.

Response to Comment No. 49:

SCA/Golder believe that the RI report has been presented in a concise, logical, and articulated format that facilitates comprehension. Certain sections and sentences of the text have been restructured to improve clarity.

Comment No. 50:

Tables containing filtered and unfiltered monitoring well data are critical to the assessment of risk at this site. All data should be presented.

Response to Comment No. 50:

Reviewer's comment has been noted. See Response to Comments No. 36 and No. 44.

Comment No. 51:

Please check all MCLs and other standards cited in this and all related documents for accuracy.

Response to Comment No. 51:

Regulatory standards such as MCLs, and other criteria values have been checked in the revised RI text, as requested.
Comment No. 1:
Section 3.4.1 Regional Geologic Setting

The document states on page 49 in the second paragraph that the site is "strategically" located in the New Oxford Formation. This appears to be a spell check error.

Response to Comment No. 1:
The word "strategically" will be replaced by the word "stratigraphically".

Comment No. 2:
Section 3.5.2.2 Deep Groundwater Potential Levels

The cross-sections on Figure 3-13 need to include any data available on the wells north of Conoy Creek. This will help support the model of the creek acting as a northern barrier to groundwater flow.

Response to Comment No. 2:
Wells EM400 and EM500 have been added to the hydrogeologic section C-C on Figure 3-13. However, they are projected a considerable distance onto the cross-section. Only limited data (such as approximate water levels) are available for these wells.

Comment No. 3:
Section 3.5.2.5 Influence of the Diabase Dike and Residential Wells on the Groundwater Flow Regime

The description of the residential well water level monitoring program on page 63 must include a statement of the time of year that the monitoring took place and include a discussion of results in terms of season water level fluctuations.

Response to Comment No. 3:
The text in Section 3.5.2.5 has been amended to reference the time of year of the monitoring and a brief discussion of the results in terms of seasonal water level...
variations. It should be noted that a similar discussion was presented in the last paragraph of Section 3.5.2.1 of the text.

Comment No. 4:

Section 4.2.1 Volatile Organic Compounds in Groundwater

A figure similar to Figure 3-13 needs to be included to show the distribution of contaminants in the vertical plans.

Response to Comment No. 4:

This representation is provided in Figures 4-1 and 4-2.

Comment No. 5:

Section 4.2.3 Metals in Groundwater

1. The present statistical analysis of metals is inappropriate. The statistical analysis for metals must use the range of background concentrations and compare them to on site wells using the Test of Significance.

2. The metals tables need to clearly state that these are Total metals analysis.

3. The analytes and their concentration found to be above background need to be highlighted on Figure 3-31.

4. It appears that a number of analytes are found at elevated levels adjacent to the landfill in wells that also show organic contamination. The discussion of the distribution metals in groundwater above background must be discussed spatially in relation to the landfill.

Response to Comment No. 5:

Following discussions with the USEPA on August 24, 1993 and subsequent clarification related to the presentation of metals data in the report, USEPA have requested that the comparison of upgradient metals versus downgradient metals be limited to presentation of maximum upgradient values versus maximum downgradient values. Table 4-1 has been reformatted to present the metals data in this fashion.

Figure 3-31 has been revised showing metals concentrations above maximum background levels as "shaded" results.
Comment No. 6:

Section 4.6.2 Control of Leachate Generation

For SCA's argument to be convincing, a graph showing the decrease in chemical concentrations over time could be included. This will help to demonstrate the effect of the cap and leachate collection system on groundwater contamination. The graph should show the point in time when this work was done. If possible a rate of attenuation should also be calculated.

Response to Comment No. 6:

Appendix R presents graphs illustrating the variation in concentration of key organic components in near-landfill monitoring wells over the period mid-1986 through January 1993. These graphs have been annotated to show when the cap for the northern portion of the landfill was installed. As discussed in the text in Section 4.6.2 many of the graphs illustrate decreasing trends in constituent concentrations since the completion of the installation of the cap in April 1987. Calculation of rates of attenuation were considered inappropriate.

Comment No. 7:

Section 5.8 Groundwater

Moyer's Farm needs to be described as side gradient on page 114 and 123.

Response to Comment No. 7:

Moyer Farm will be described as side gradient as requested.
ENCLOSURE V
ROBERT S. DAVIS' COMMENTS

Comment No. 1:

Section 2.7.3 Environmental Sampling, Phase 1B, pages 33 & 34.

Our request for information on organic carbon and grain size was answered with lab data and data sheets. Usually, such information is accompanied by analyses, but the information forwarded did not include any such attempt.

For grain size, we suggest normalizing the data. That can merely involve the academic exercise of determining whether or not any of the reported data falls outside the normal distribution that would be expected in that stream system. Often, the upstream background or a generic station is used as a basis. This exercise tells us if the sediment stations are comparable depositional zones.

The TOC (Total Organic Carbon) should also be normalized using the same approach. Again, this indicates comparability among stations with regard to organic contaminant levels. For these simple statistical tests, any statistical handbook or text will suffice. The should be cautioned against trying to manipulate data into complicated schemes such as the sediment triad because of the limited amount of data collected.

A crucial omission is noted in the tabular presentation of the TOC data: the units are missing. We cannot tell if they are reported in micrograms or milligrams without cross-referencing the graphical information and often this is difficult from the reviewer standpoint.

Response to Comment No. 1:

Further to BTAG's request for organic carbon and grain size results, Golder has incorporated these results, plus the results of field tests, in Appendix N3. The units for the Total Organic Carbon (TOC) data are micrograms per kilogram.

Golder Associates has had several telephone conference calls with Mr. Bob Davis of BTAG since the August 24, 1993 meeting with USEPA, in an attempt to clarify BTAG requirements regarding normalization procedures and other appropriate methodologies. Mr. Davis kindly forwarded several papers on normalization of results based on grain size and TOC.

Golder reviewed the literature and attempted to normalize metals data with respect to grain size, and eventually came to the conclusion that for the data set collected at the Site, it was inappropriate to normalize metals results with respect to grain size for the following reasons:
The grain size of the sediments was too coarse to apply the methodology outlined by Horowitz (1991) in "A Primer on Sediment-Trace Elementary Chemistry". The method is most applicable and works best with fine grained soils where the percentage of fines is at least 30 - 50%. (The samples taken in Conoy Creek and its tributaries were sands, coarse sands and gravels with little fines content. The percentage of fines in the samples ranged from 1 to 17 percent).

The attempt to normalize data was limited by the fact that there is only one upgradient sample and this occurs in Conoy Creek. With two samples taken in each of the tributaries to Conoy Creek on either side of the landfill, it is considered inappropriate to compare these samples with a background sample from a different sedimentary environment (that being upgradient in Conoy Creek).

When attempts were made to normalize metals data based on grain size the normalized results were dominated by those samples with the lower fines content and their correspondingly highest correction factors. After several attempts at normalization using different grain sizes and median grain size (as suggested by Horowitz) were unsuccessful, Golder abandoned the approach.

On the basis of the above, Golder is unable to provide metals results normalized to grain size. For qualitative comparison of grain size (evaluation of origin on depositional zone) for the different sampling points the corresponding curves are plotted on two graphs which are also presented with the results of the grain size analysis, TOC results and results of field measurements in Appendix N3. Discussion of the above is provided in Section 4.2.5 of the text.

Discussion of normalization of organics results for TOC is provided in response to Comment No. 5.

Comment No. 2:

Section 3.6 Wetlands & Cultural Assessment, page 68.

The BTAG finds that Appendix M of this report does address BTAG's November 6, 1992 comments.

Response to Comment No. 2:

Comment noted.
Comment No. 3:

Section 3.7.2 Environmental Sampling Results, Phase 1-B, page 73.

Again, the sediment total organic carbon results should have been provided in either narrative or table form. This is associated with the first of the specific comments, above, regarding analyses. These data have been offered in table form, but no analyses have been carried out.

Response to Comment No. 3:

See Response to Comments No. 1 and No. 5.

Comment No. 4:

Section 3.8.1 Location and Action Specific ARARs, page 77.

This section references Table 3-13 entitled, "Preliminary List of Location Specific ARARs". The table fails to include the Fish & Wildlife Coordination Act and the Executive Orders on Floodplains and Wetlands.

Response to Comment No. 4:

Table 3-13 has been revised to include the above mentioned Act and Order.

Comment No. 5:

Section 4.2.5 Chemicals in Environmental Media, Soils and Sediments, pages 88-90.

Analysis of sediment results for metals, semi-volatile organic compounds, and pesticides should have included results from the TOC and grain size analyses discussion in comments on Sect. 2.7.3 (see first specific comment, above). The results should have been correlated to the normalized TOC and grain size results. This correlation would determine if the sediment sample locations were taken in depositional areas.

Response to Comment No. 5:

Normalization of metals results using grain size analysis was discussed in Response to Comment No. 1. Volatile organic compounds were not detected in any of the stream sediment samples.
For the reasons discussed in Section 4.2.5 of the text, the Polycyclic Aromatic Hydrocarbons (PAHs) found in the sediment samples along Conoy Creek do not appear to be associated with a release from the landfill and thus, these semi-volatile organic compounds (SVOCs) were not normalized using TOC.

Pesticide results for stream sediment samples have not been normalized using TOC because, as explained in Section 4.3.1, pesticide detections are ascribed to either anthropogenic non-point sources or false positive laboratory data (below MDLs).

Comment No. 6:

Section 4.6.1 Effectiveness off Existing Response Actions, Landfill Cover, page 107.

The BTAG offers comments on the final landfill cover to be considered in the design of the cover. BTAG recommends that proposals to revegetate the final landfill incorporate plantings to provide habitat for the variety of wildlife species detailed in the wetlands and cultural assessment study and found in the area as well as adjacent to the landfill. If an impermeable cap is included in the final landfill design, the revegetation should use native grasses and shrubs. Maintenance of the grass and shrubs should also be planned to maximize their value to area wildlife species. The BTAG recommends that mowing of the landfill be done in the early fall and that no more than 1/3 of the landfill be mowed annually.

If the final landfill design does not include an impermeable cap, then revegetation of the landfill should start with grasses and shrubs, but also include some trees. However, no mowing is required for this landfill cover as the goal is to allow the vegetation to proceed through natural succession towards the climax ecosystem. The BTAG understands that recreational facilities may be developed on the final landfill and that may preclude revegetation with the natural grass, shrubs or trees. The BTAG recommends that where feasible, natural revegetation still be carried out, even on limited portions of the landfill.

Post-ROD Monitoring:

We note that detection limits for water and sediment sampling failed to reach detection limits in the lower ranges, especially for pesticides. While we realize that these may be associated with agricultural activities in the area, they are reported in high numbers in the seep that we believe is fed by waters from the landfilled area. Post-ROD monitoring should include the seep, the background (upstream), station, and the first depositional area downstream from the
confluence of the seep drainage ditch and Conoy Creek. At least one station upstream of this confluence should also be tested.

- We are concerned with levels of specific pesticides that have been included in the contaminants reported. These are DDT, Dieldrin, Endrin, and Toxaphene and should be targeted in the post-ROD monitoring plans. Both surface water and sediments should be included in this monitoring plan.

- Surface water monitoring should strive to reach the ambient water quality criteria (AWQC) chronic numbers. These numbers are readily available from a variety of sources.


- If results indicate contamination above these conservative levels, the PRP should undertake to identify and verify sources and if associated with the site measures should be carried out to control these sources.

- It is not recommended that PAH's be included in the monitoring plans, as PAH contaminants appear to be as high, or higher, in the background samples as in samples from stations associated with the site.

Response to Comment No. 6:

Comment noted.
ENCLOSURE VI
JOHN W. SMITH'S COMMENTS

Comment No. 1:

Page 55, 1st full paragraph states; "Within the region, water supply wells are typically screened in the deeper section of the bedrock." The statement that the wells are screened does not agree with the information on the home wells, shown on the drillers logs, in Appendix F and page 43 of this report. The home water supply wells are constructed with surface casing through the unconsolidated material and 5 to 30 feet into the top of bedrock. The total length of casing varies from 42 to 104 feet deep. The water bearing part of the home wells are open hole, without inner casing or well screen. Total depth of home wells varies from 125 to 375 feet deep.

Response to Comment No. 1:

In the context used in the sentence, the word screened should have more accurately been typed as "screened" since it was used in a very general rather than hydrogeologically technical manner. This addition has been made to the text. (Note however that it is common practice to say that an open borehole is "screened" over its entire depth).

Comment No. 2:

Page 114 and 133; - When will wells EM400 and EM500 be resampled to determine if these wells have been impacted by the site?

Response to Comment No. 2:

The wells will be resampled at a date to be agreed upon between USEPA and SCA, but will most likely occur in the Spring of 1994.

Comment No. 3:

Fig. 4-2; - Some shading, chlorobenzene concentrations above 100 (ug/l) is missing in the Isometric Block Diagram at the 300 foot elevation.

Response to Comment No. 3:

Comment noted. The shading has been added to the diagram.