DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Amphenol Aerospace
Facility Address: 40-60 Delaware Street, Sidney, Delaware County, New York
Facility EPA ID #: NYD981133184

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   __X__ If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ if data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Groundwater monitoring data: TCE, TCA
Air (indoors)[2]		X		No residences or buildings over plume
Surface Soil (e.g., <2 ft)		X		Source remediated at closure
Surface Water		X		Current plume does not migrate to surface water at detectable concentrations
Sediment		X		No known releases to surface water
Subsurf. Soil (e.g., >2 ft)		X		Source remediated at closure
Air (outdoors)		X		Groundwater concentrations not reasonably expected to impact outdoor air quality

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): Groundwater is contaminated by volatile organic contaminants, principally Trichloroethylene (TCE) and Trichloroethane (TCA). Historical/pre-remedial groundwater quality data are summarized in a report titled "Addendum Report - Ground Water Assessment at Amphenol Wastewater Treatment Lagoons" (June, 1987). Data collected post-soil remediation, during active groundwater remediation, and post-groundwater remediation are presented in quarterly, semi-annual, and annual groundwater monitoring reports, which have been submitted as a requirement of the facility's Post-Closure Permit. Maximum concentrations of key contaminants in the plume have been reduced from a pre-remediation high of approximately 3000 parts-per-billion to current maximum levels of approximately 20 parts-per-billion.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	YES	YES	YES	YES	NO	NO	NO
~~Air (indoors)~~							
~~Soil (surface, e.g., <2 ft)~~							
~~Surface Water~~							
~~Sediment~~							
~~Soil (subsurface e.g., >2 ft)~~							
~~Air (outdoors)~~							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s): Groundwater represents the only known potential exposure pathway remaining for this site. Although indicated as complete pathways, groundwater exposure in residential or day care settings is improbable and if actually present would be at levels far below drinking water standards, and not verifiable by available analytical methods. Exposure to workers or during construction, however limited, would be possible during excavation work within the residual plume area. Appropriate personal protective measures would be adequate to protect workers. Documentation of contamination within the groundwater medium has been submitted to the NYSDEC on a continuing basis since first identified in the early 1980s. Studies conducted in the mid 1980s documented the extent and significance

of the groundwater plume and demonstrated that a portion of the groundwater plume may be within the reach of the Village of Sidney's water supply wells, under expected pumping scenarios. See the following documents: "Addendum Report - Ground Water Assessment at Amphenol Wastewater Treatment Lagoons" (June, 1987), "Corrective Action Plan for the Amphenol Wastewater Treatment Lagoons" (August 27, 1986), "Soil Remediation at theAmphenol Wastewater Treatment Lagoons" (February 17, 1987). The results of modeling done for the aquifer indicated that under worst case conditions (without active remediation) the contribution of volatile organic compounds, from the plume, would at most cause contaminant levels near analytical detection limits and below groundwater and drinking water standards within the Sidney water supply wells. A combination of active soil remediation and hydraulic containment through groundwater pumping (pumping ceased in May, 1995) have provided added protection to the village wells and have resulted in over a 100 fold reduction in the maximum plume concentrations. As a result, the residual minimal groundwater contamination can not reasonably be expected to cause a measurable impact on the village wells. Monitoring of the groundwater conditions continues.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

__X__ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s): See discussion and references under question number 3, above.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):_____

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_X_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Amphenol Aerospace** facility, EPA ID #**NYD981133184**, located at **40-60 Delaware Street, Sidney, Delaware County, New York** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature) Gary D. Casper Date 9/24/99
(print) Gary D. Casper
(title) Senior Engineering Geologist

Supervisor (signature) Edward P. Miles Date 9/24/99
(print) Ed Miles
(title) Associate Engineering Geologist
(EPA Region or State) New York State

Locations where References may be found:

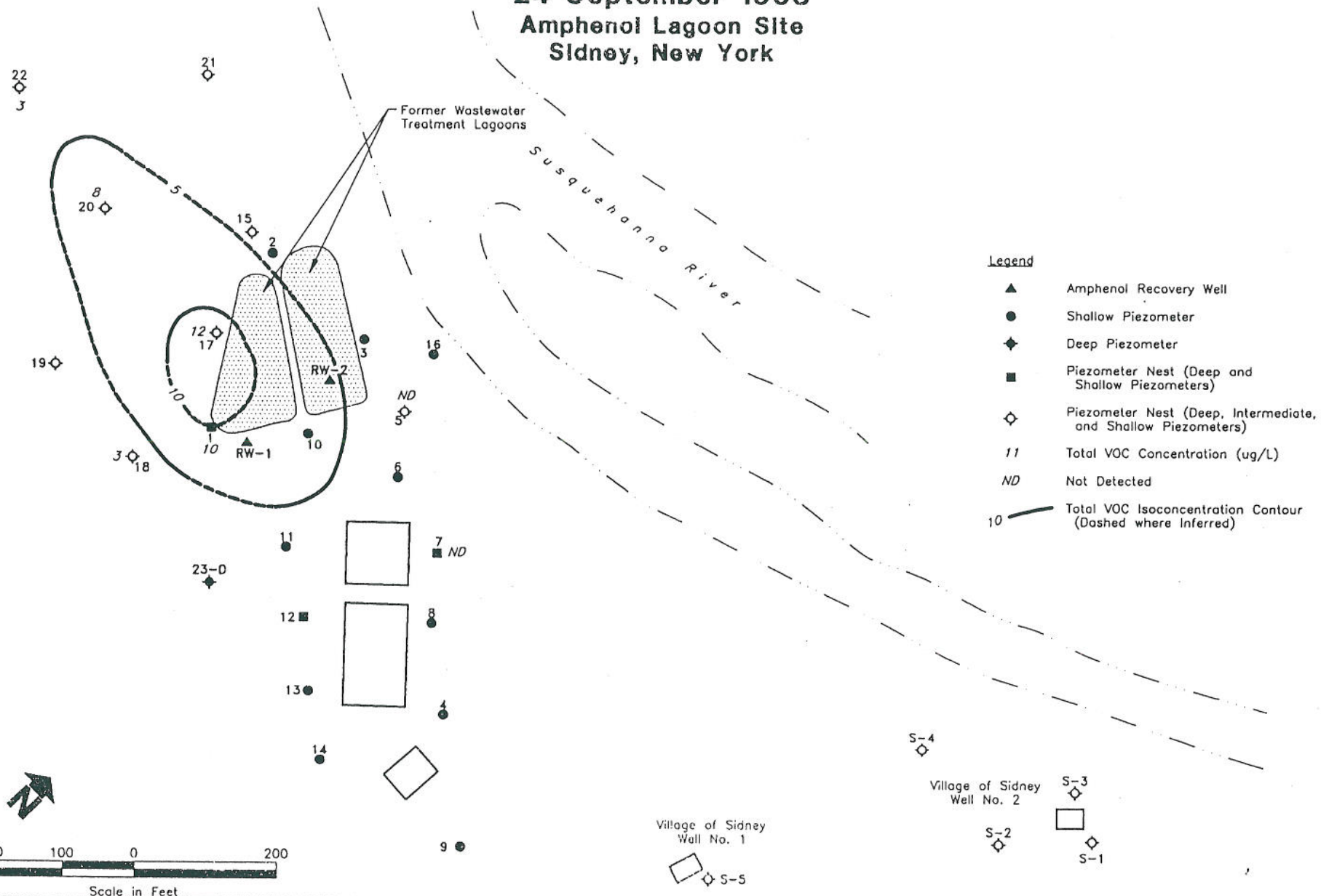
NYSDEC
50 Wolf Road - Rm 462
Albany, New York 12233

Contact telephone and e-mail numbers

(name) Gary D. Casper
(phone #) (518) 457-9253
(e-mail) gdcasper@gw.dec.state.ny.us

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

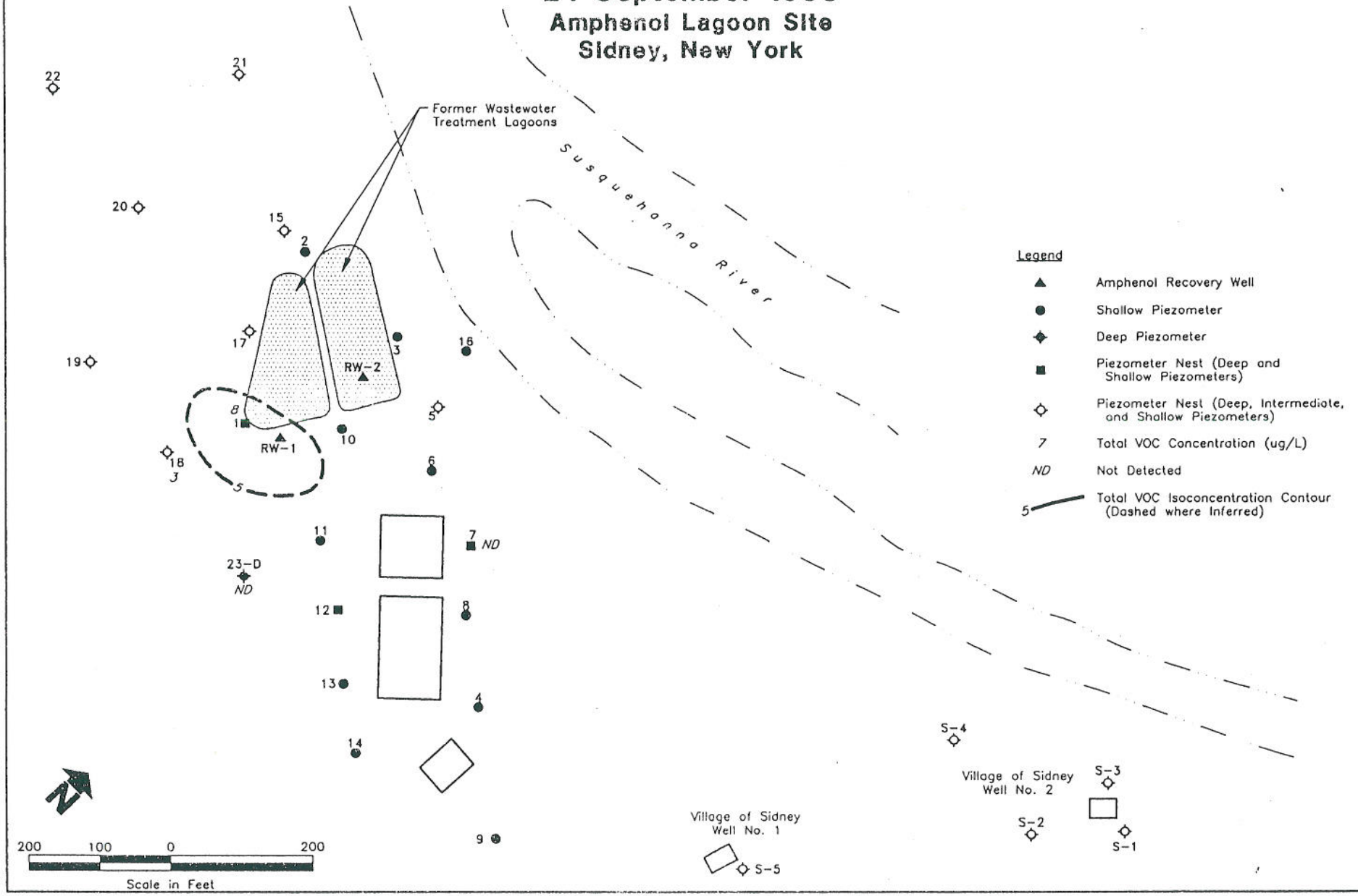
Figure 10
Total VOC Isoconcentration Map
Shallow Ground Water
24 September 1998
Amphenol Lagoon Site
Sidney, New York



ERM

30166.04.01/03.15.99-SCH/03.17.99-SCH/A109 -1A

Figure 12
Total VOC Isoconcentration Map
Deep Ground Water
24 September 1998
Amphenol Lagoon Site
Sidney, New York



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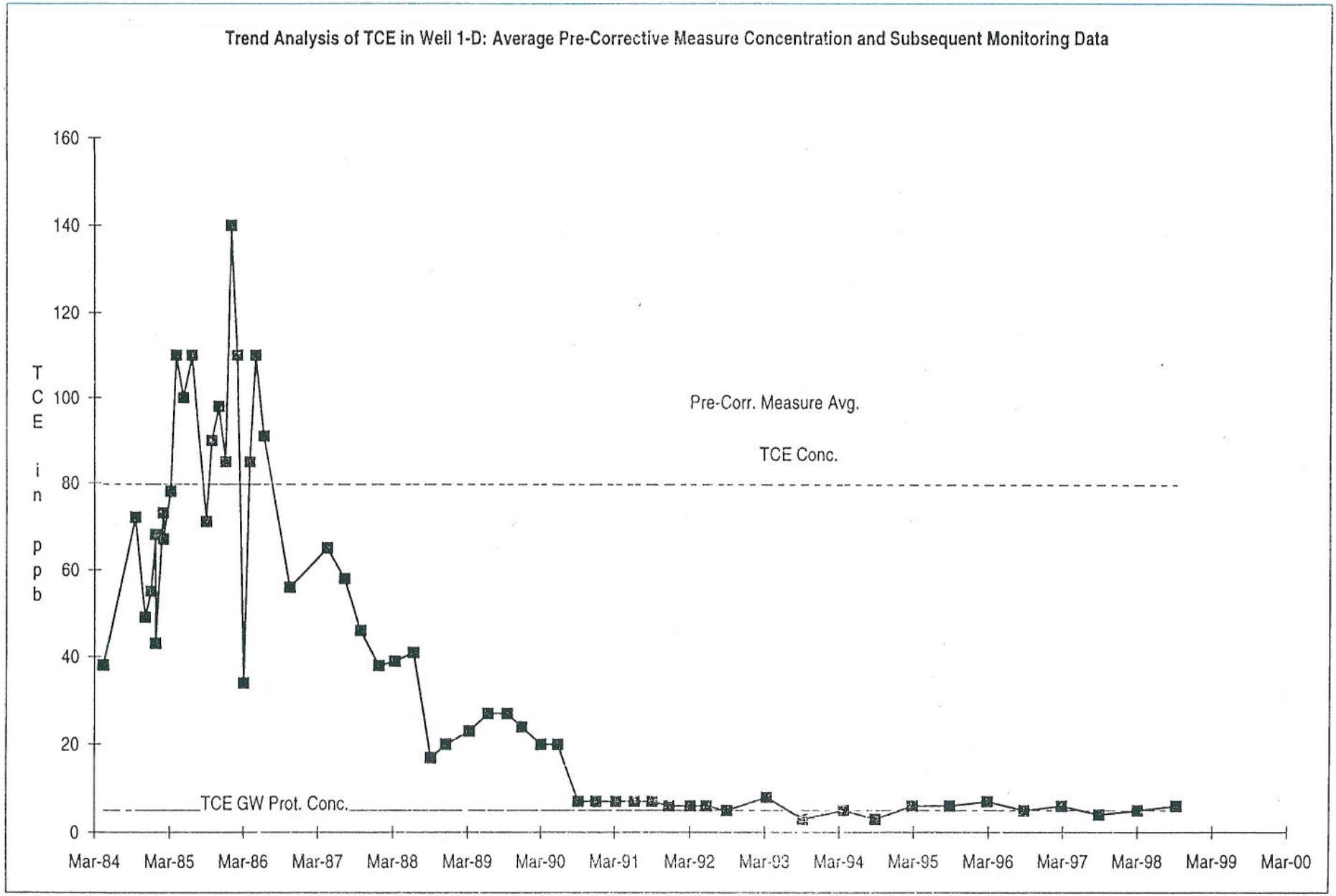
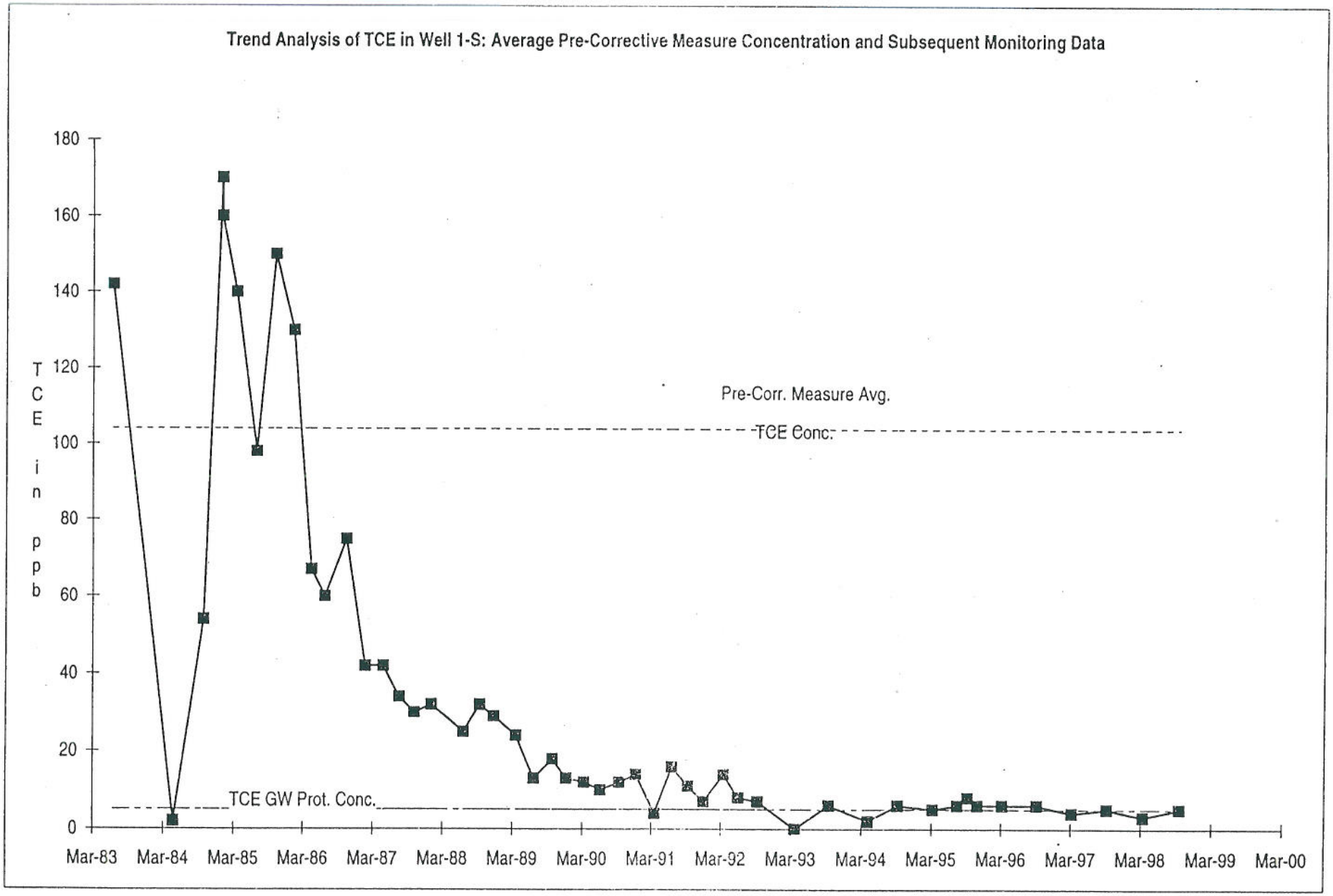
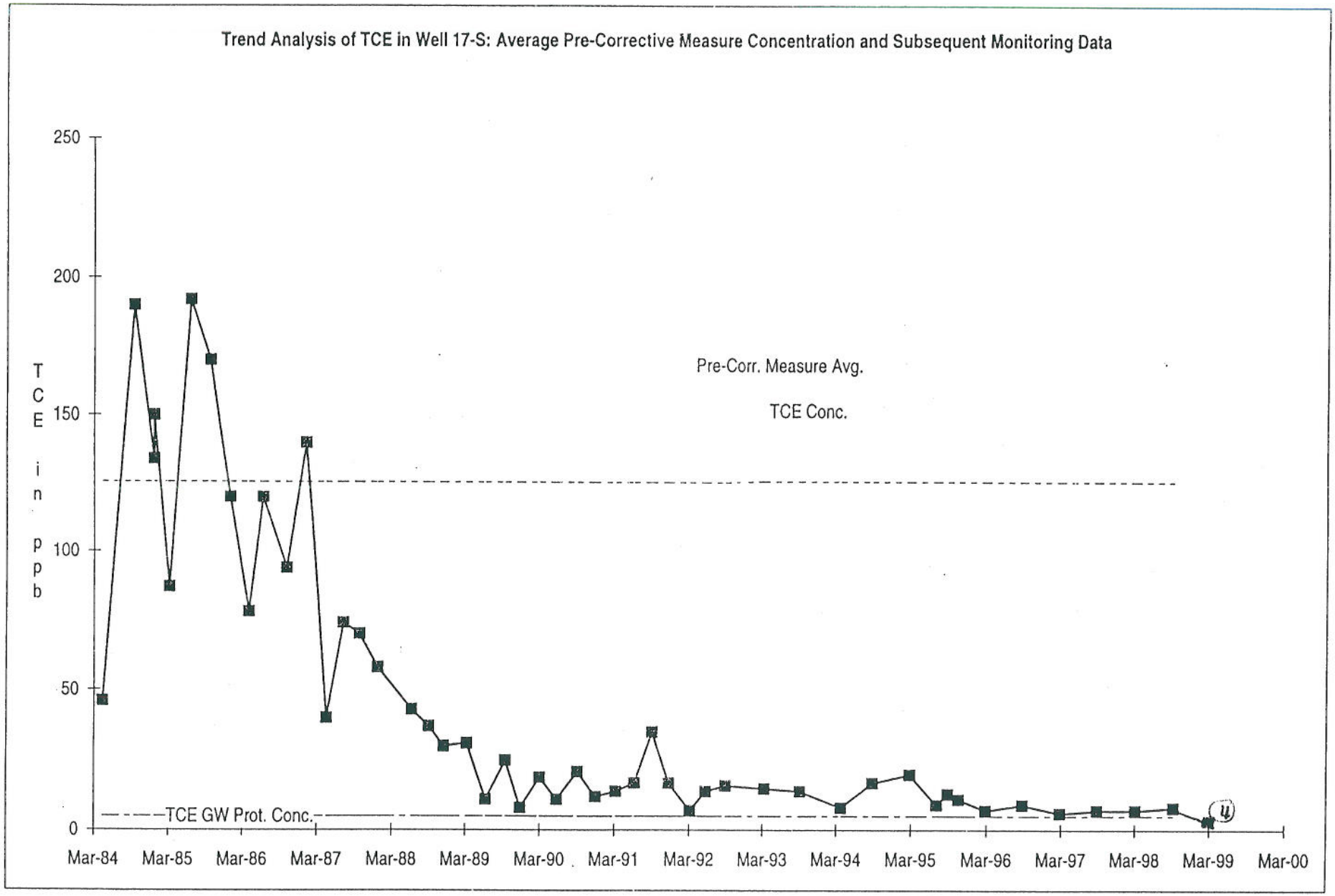
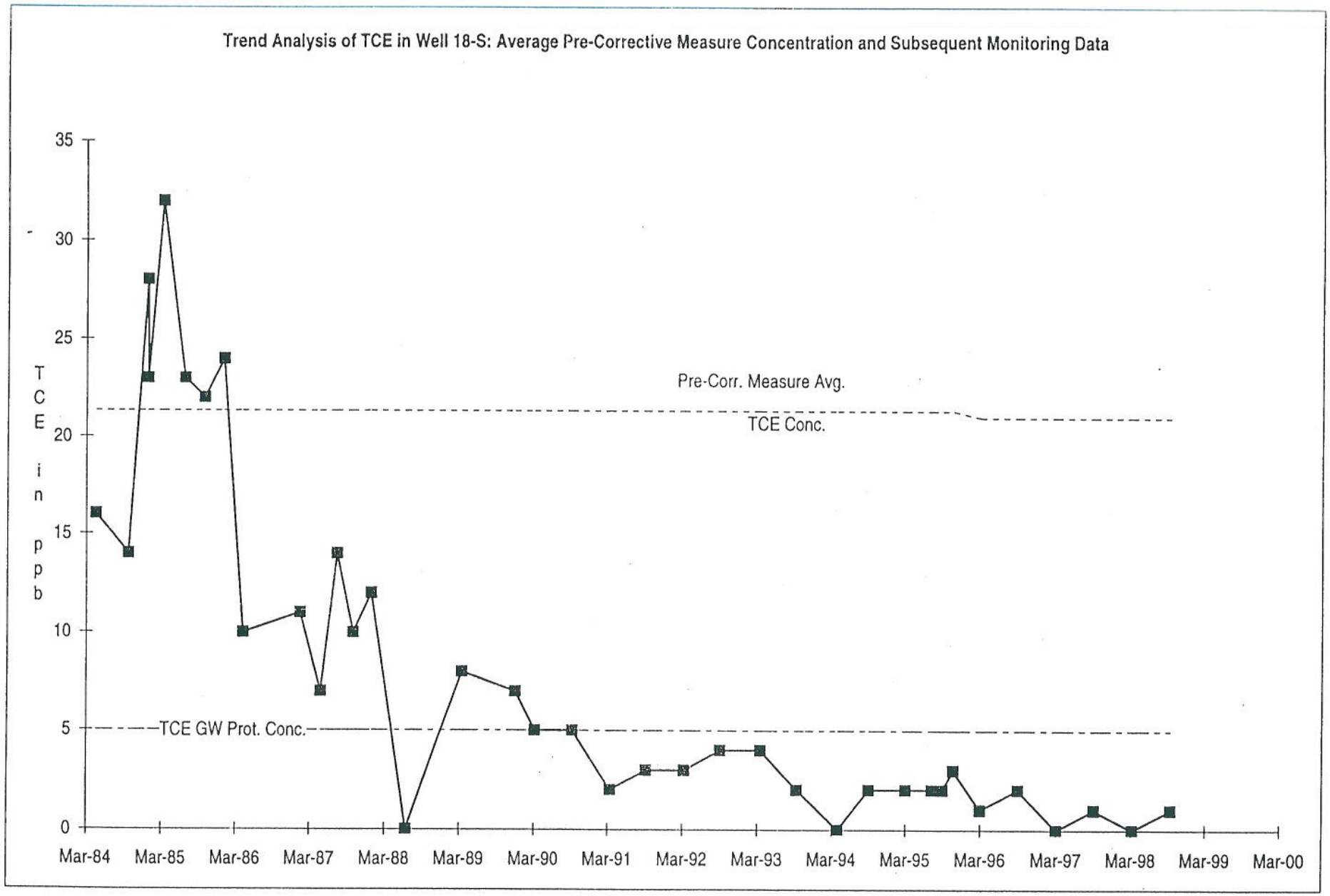
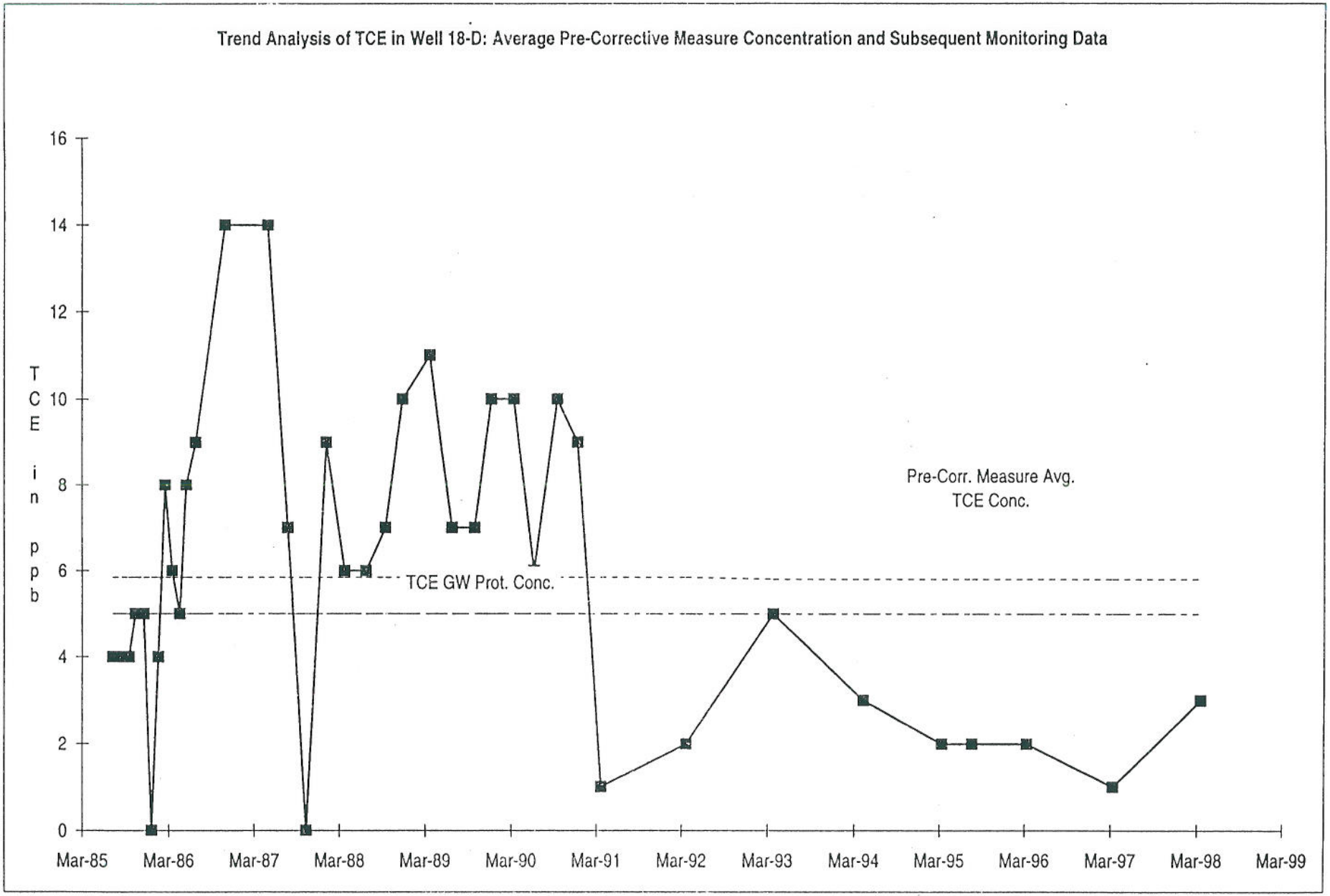
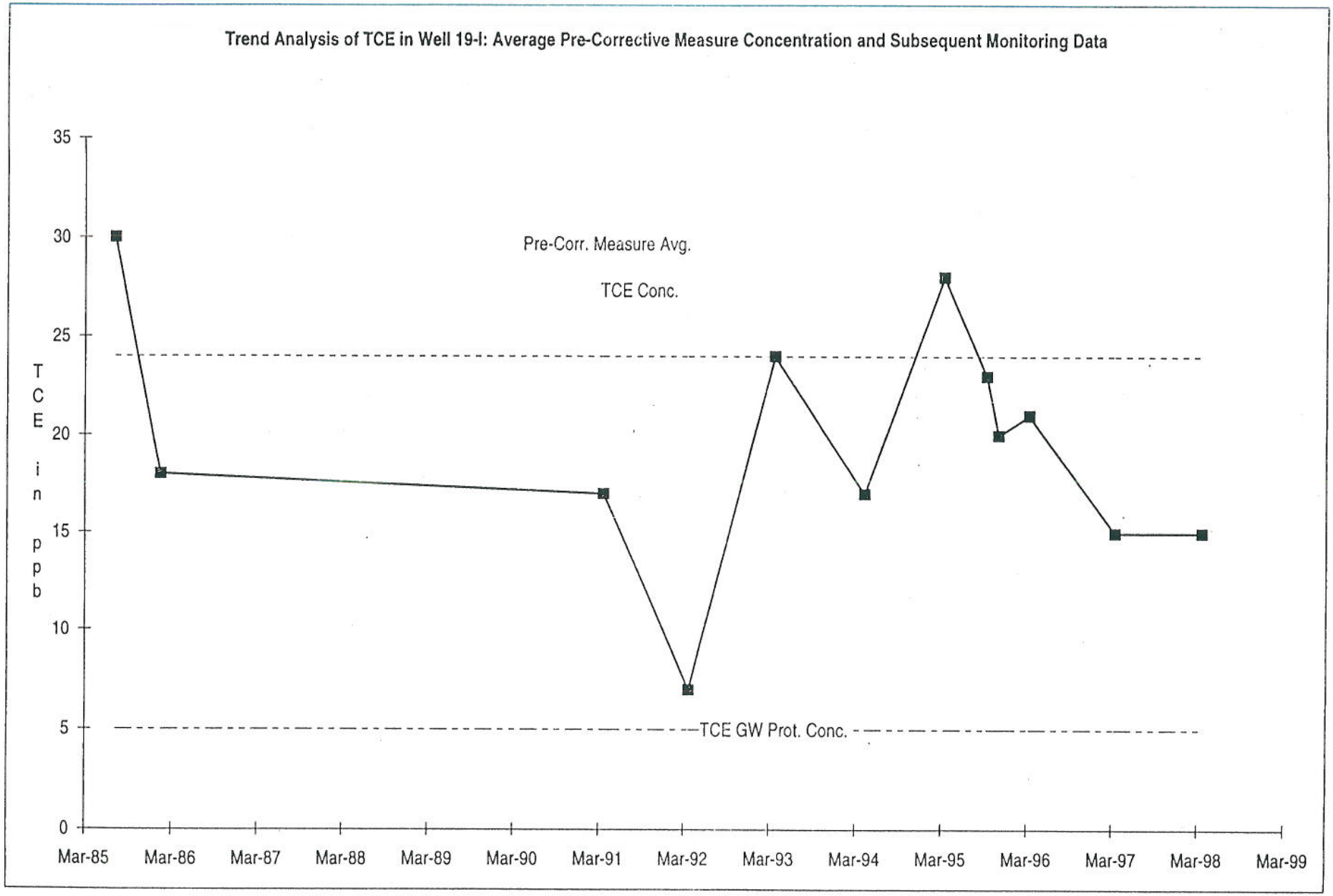

Trend Analysis of TCE in Well 1-D: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
TCE in ppb
160
140
120
100
80
60
40
20
0
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
Mar-84
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
Mar-00

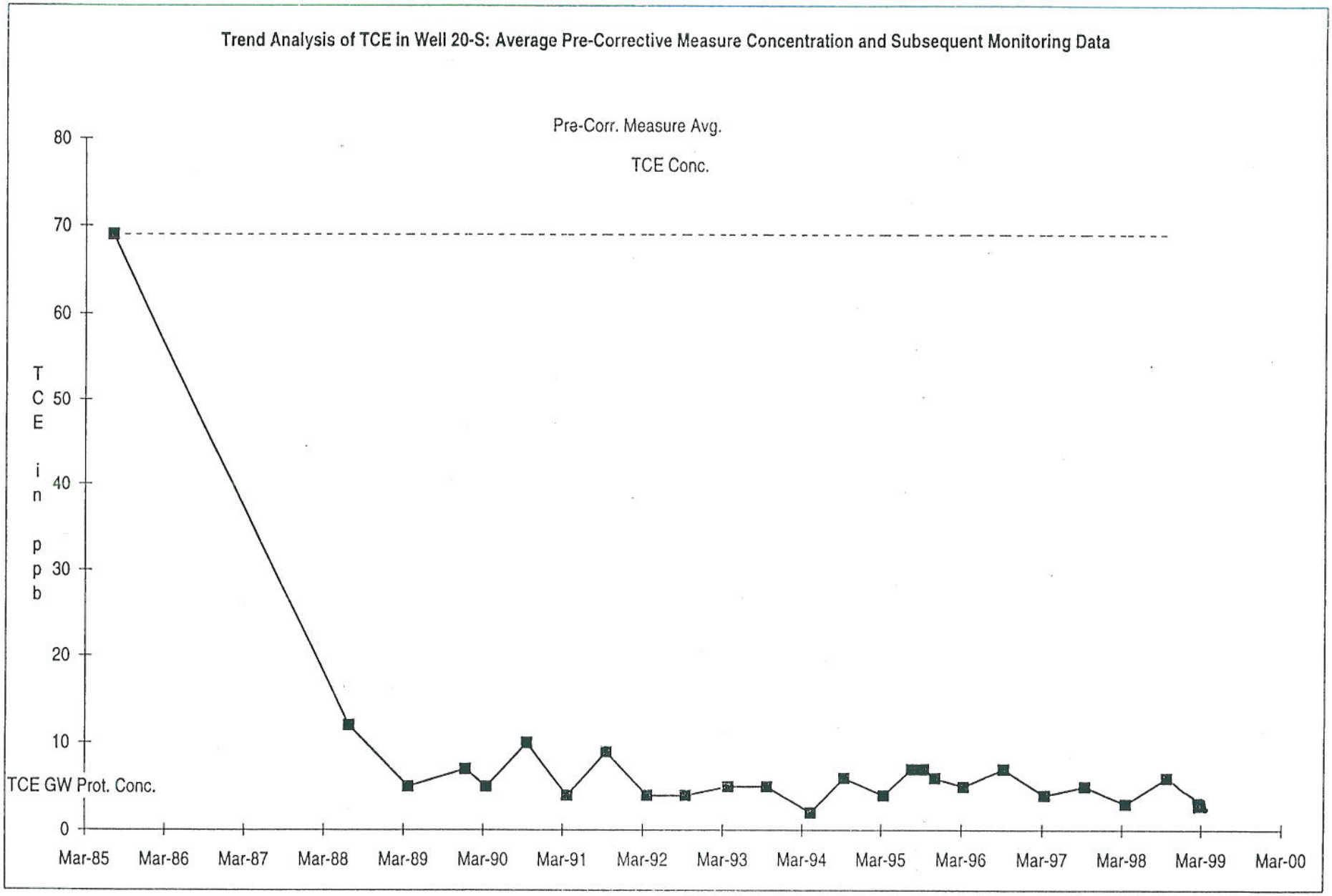

Trend Analysis of TCE in Well 1-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
TCE in ppb
180
160
140
120
100
80
60
40
20
0
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
Mar-83
Mar-84
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
Mar-00

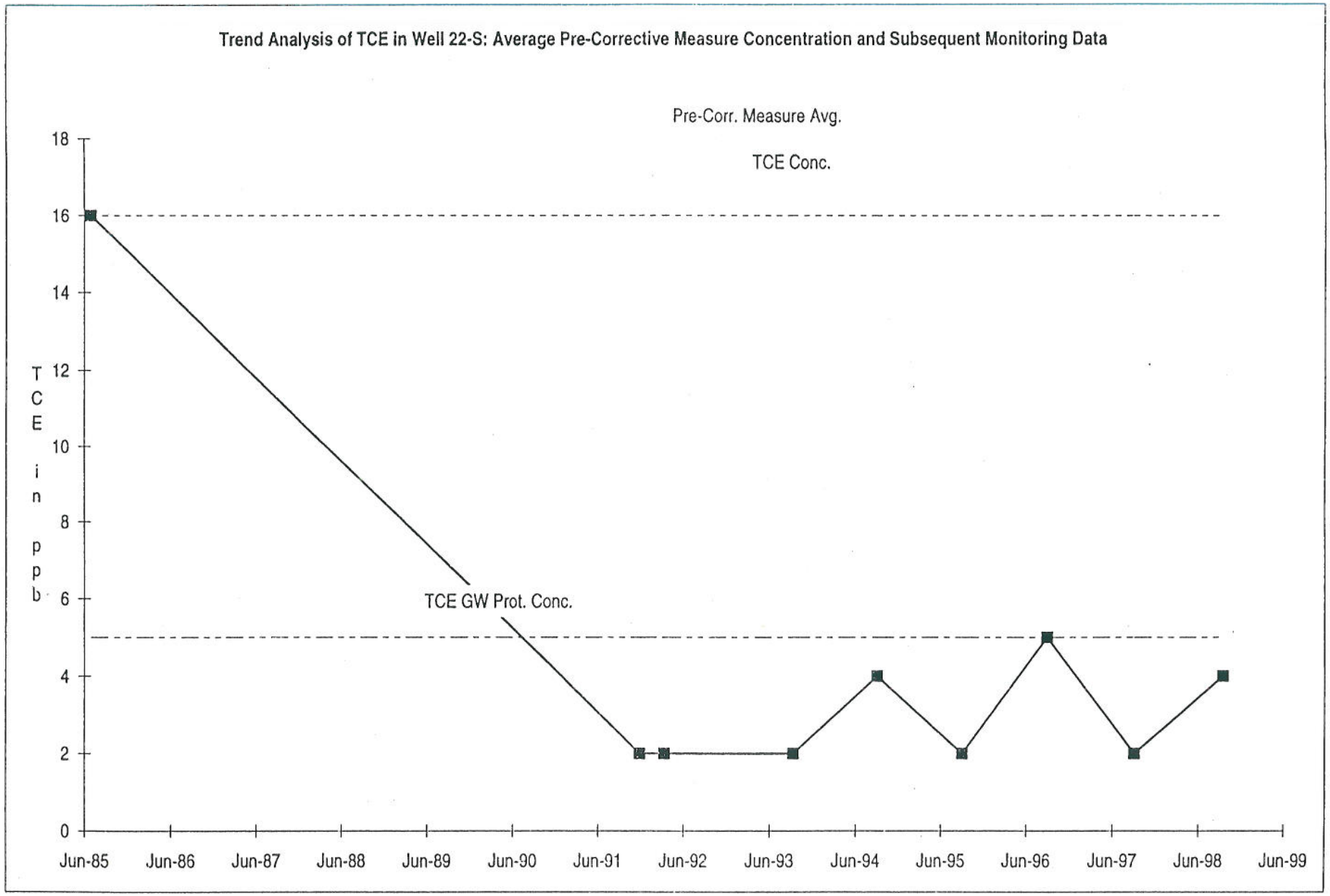

Trend Analysis of TCE in Well 17-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
250
200
150
100
50
0
TCE in ppb
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
Mar-84
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
Mar-00


Trend Analysis of TCE in Well 18-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
TCE in ppb
35
30
25
20
15
10
5
0
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
Mar-84
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
Mar-00


Trend Analysis of TCE in Well 18-D: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
TCE in ppb
16
14
12
10
8
6
4
2
0
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
TCE GW Prot. Conc.
Pre-Corr. Measure Avg.
TCE Conc.


Trend Analysis of TCE in Well 19-I: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
35
30
25
20
15
10
5
0
TCE in ppb
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99


Trend Analysis of TCE in Well 20-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
Pre-Corr. Measure Avg.
TCE Conc.
TCE in ppb
80
70
60
50
40
30
20
10
0
TCE GW Prot. Conc.
Mar-85
Mar-86
Mar-87
Mar-88
Mar-89
Mar-90
Mar-91
Mar-92
Mar-93
Mar-94
Mar-95
Mar-96
Mar-97
Mar-98
Mar-99
Mar-00


Trend Analysis of TCE in Well 22-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data
Pre-Corr. Measure Avg.
TCE Conc.
TCE GW Prot. Conc.
TCE in ppb
18
16
14
12
10
8
6
4
2
0
Jun-85
Jun-86
Jun-87
Jun-88
Jun-89
Jun-90
Jun-91
Jun-92
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Jun-99