

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater 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 the groundwater media, 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?

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

If no - re-evaluate existing data, or

if data are not available, skip to #8 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 "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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).

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2. Is **groundwater** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

If unknown - skip to #8 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. Groundwater and Drinking Water Standards are 5 parts-per-billion for the each of the key site contaminants.

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 appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

 X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"².

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): 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. Vertical migration of contaminants is limited to the base of the aquifer as defined by a basal till unit described and mapped in the referenced reports. Horizontal migration of the contaminant plume of significantly contaminated groundwater was restricted through active groundwater pumping measures from January, 1986 to May, 1995. Concentrations of key contaminants have reduced such that they are not reasonably expected to migrate at detectable levels beyond the original defined plume boundaries. Routine monitoring continues to verify this and the corrective measures program is in standby mode. In the unlikely event that increasing concentrations are observed the system can be quickly restarted.

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

If yes - continue after identifying potentially affected surface water bodies.

If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): Discharge of groundwater, that is potentially contaminated with key contaminants from the Amphenol Site, to the Susquehanna River occurs downgradient of the facility. The probability of measurable concentrations at the point of discharge is extremely remote based on both the historical and the current groundwater concentrations within the plume, however the pathway exists under current conditions. See documents referenced previously.

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5. Is the **discharge** of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

 X If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s): The discharge of contaminated groundwater into the Susquehanna River is likely to be insignificant. The maximum concentration of each key contaminant discharging into this body is less than 10 times its groundwater standard, based on the actual groundwater concentrations also being less than 5 times applicable groundwater standards (actual \leq 25ppb vs. standard =5ppb). There are no other conditions which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations. See documents referenced previously.

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

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6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s): _____

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

If no - enter "NO" status code in #8.

If unknown - enter "IN" status code in #8.

Rationale and Reference(s): Monitoring of the site groundwater quality and piezometric data will continue under the facility's Part 373 Post-Closure Permit, as necessary to provide acceptable evaluations of water quality trends and direction of migration. Monitoring under the current Permit includes water quality sampling at the following Wells: 1-S, 1-D, 5-S, 7-S, 7-D, 17-S, 17-I, 18-S, 18-I, 18-D, 19-I, 20-S, 22-S, and 23-D. Water level monitoring and evaluation continues at 41 monitoring wells.

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8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Amphenol facility, EPA ID # NYD981133184, located at 40-60 Delaware Street, Sidney, Delaware County, New York. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO - Unacceptable migration of contaminated groundwater is observed or expected.

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

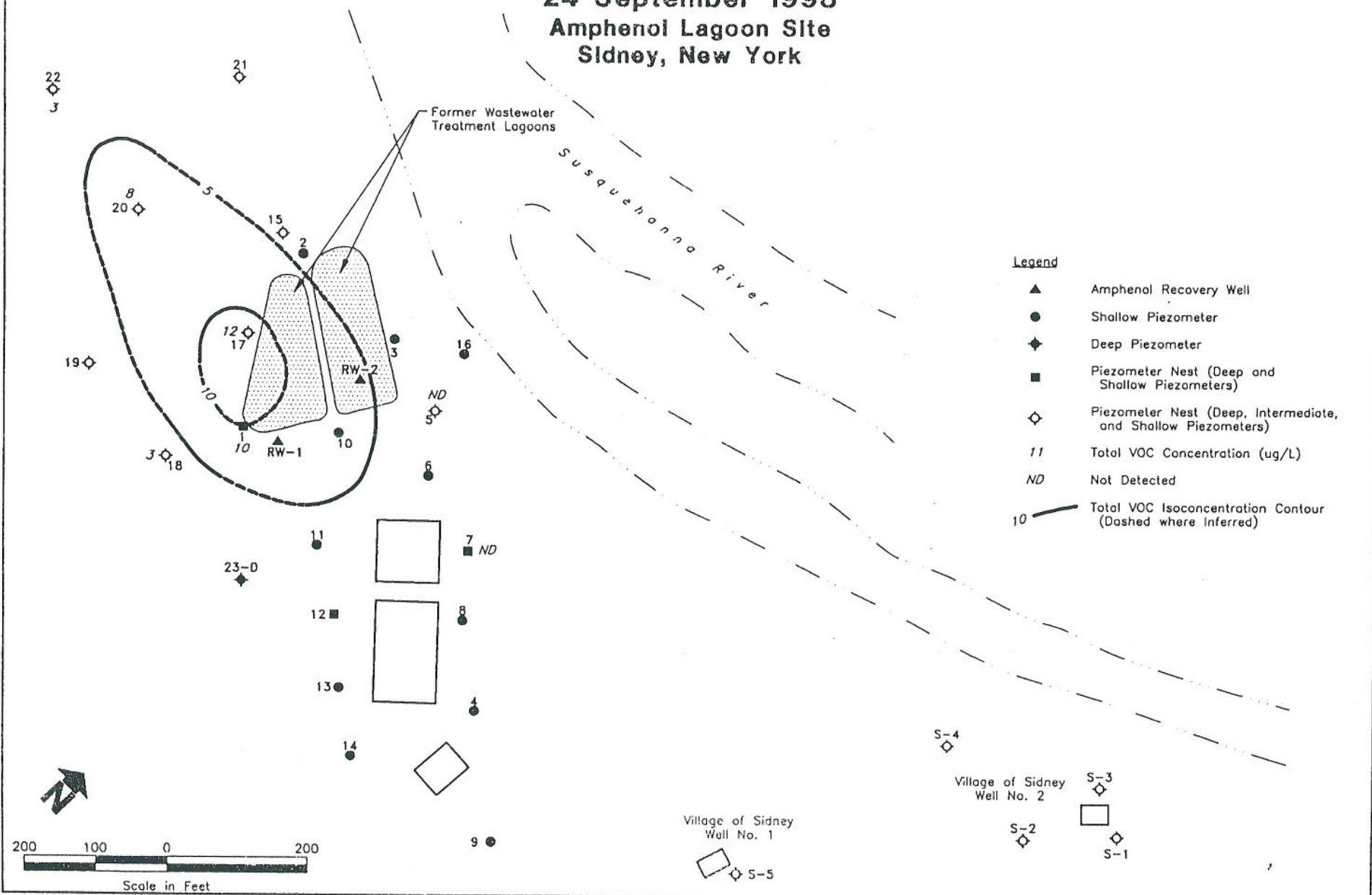
Locations where References may be found:

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

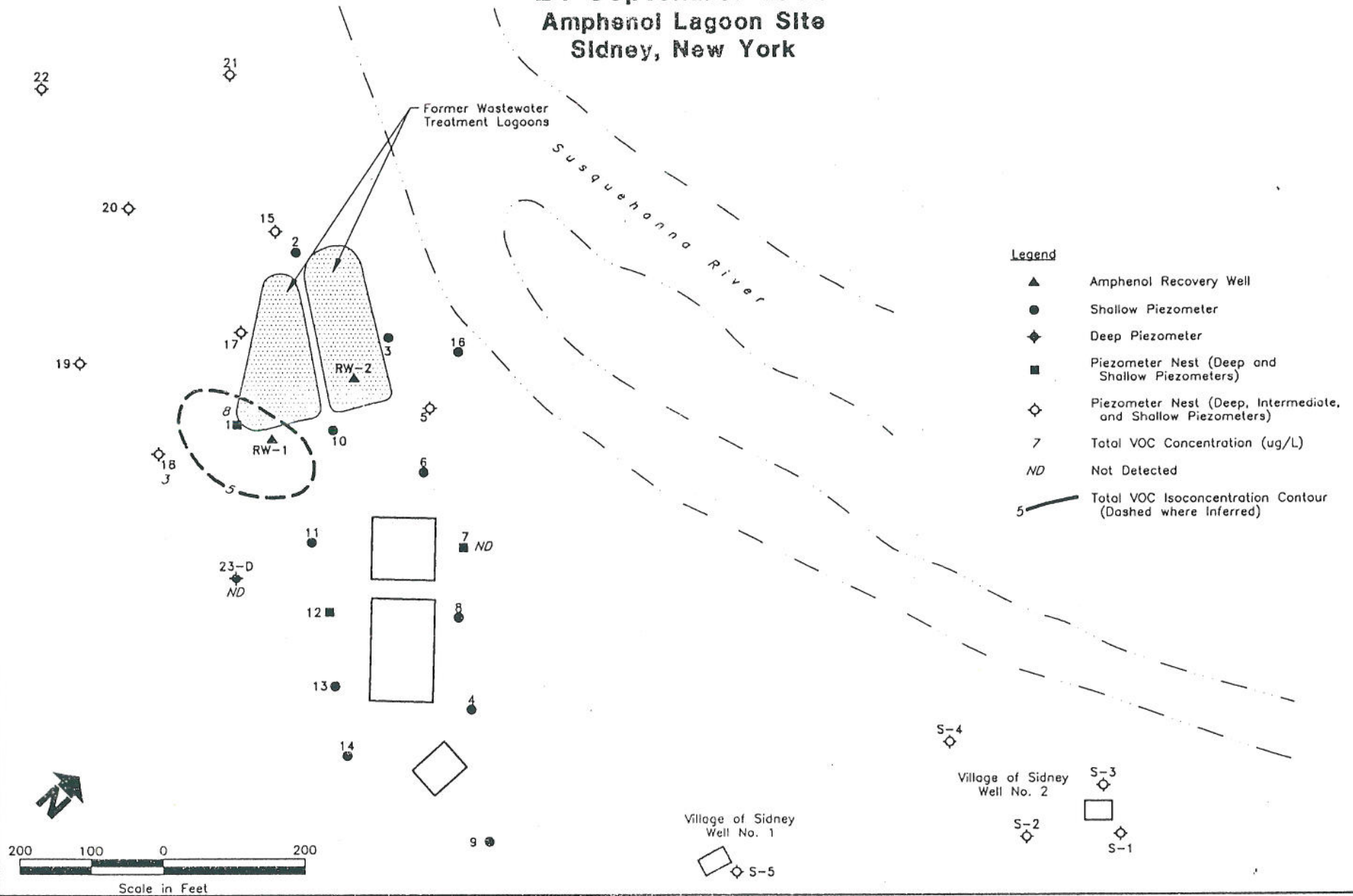
Figure 10
Total VOC Isoconcentration Map
Shallow Ground Water
24 September 1998
Amphenol Lagoon Site
Sidney, New York



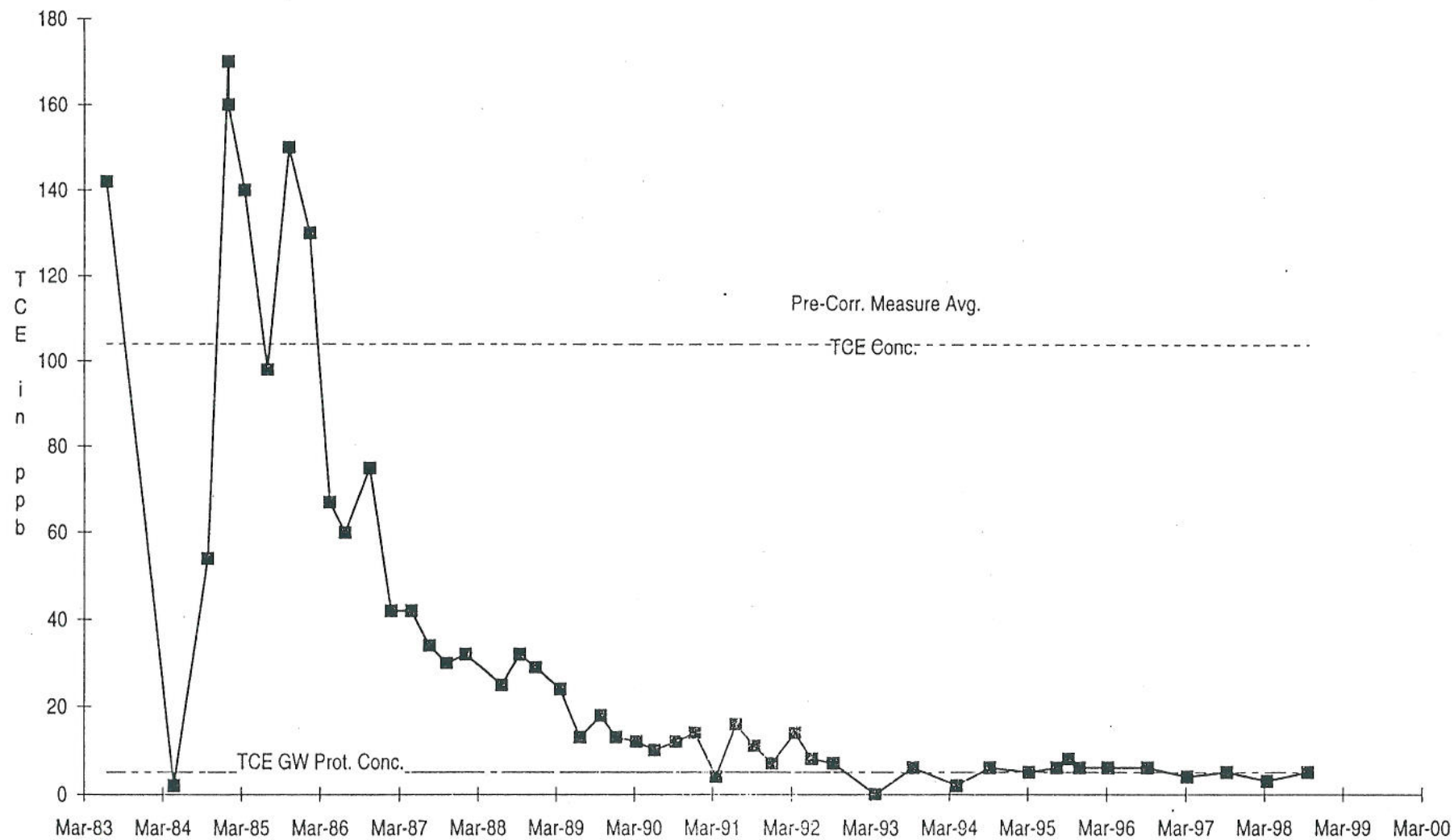
Legend

- ▲ Amphenol Recovery Well
- Shallow Piezometer
- ◆ Deep Piezometer
- Piezometer Nest (Deep and Shallow Piezometers)
- ◇ Piezometer Nest (Deep, Intermediate, and Shallow Piezometers)
- 11 Total VOC Concentration (ug/L)
- ND Not Detected
- 10 — Total VOC Isoconcentration Contour (Dashed where Inferred)

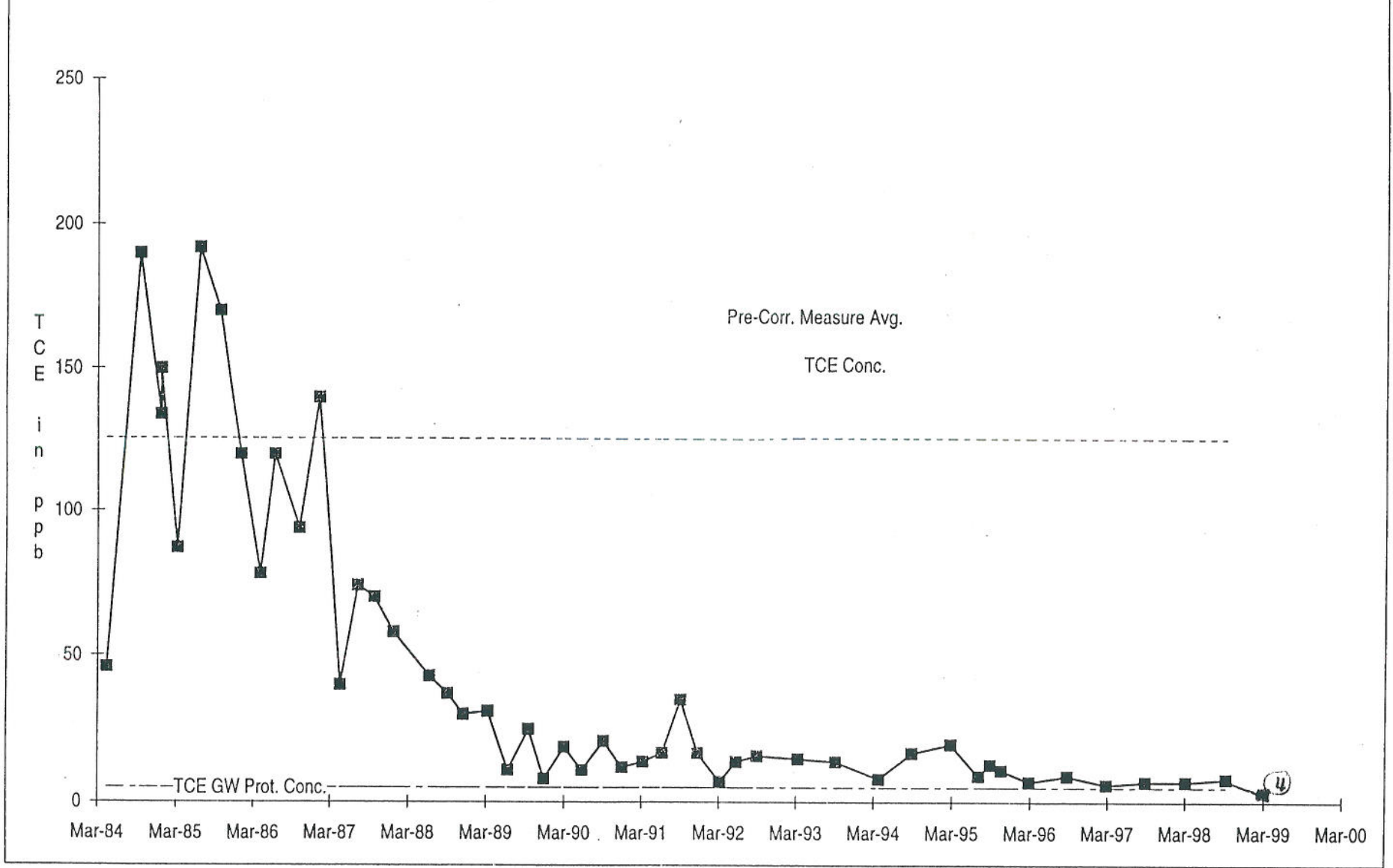
Figure 12
Total VOC Isoconcentration Map
Deep Ground Water
24 September 1998
Amphenol Lagoon Site
Sidney, New York



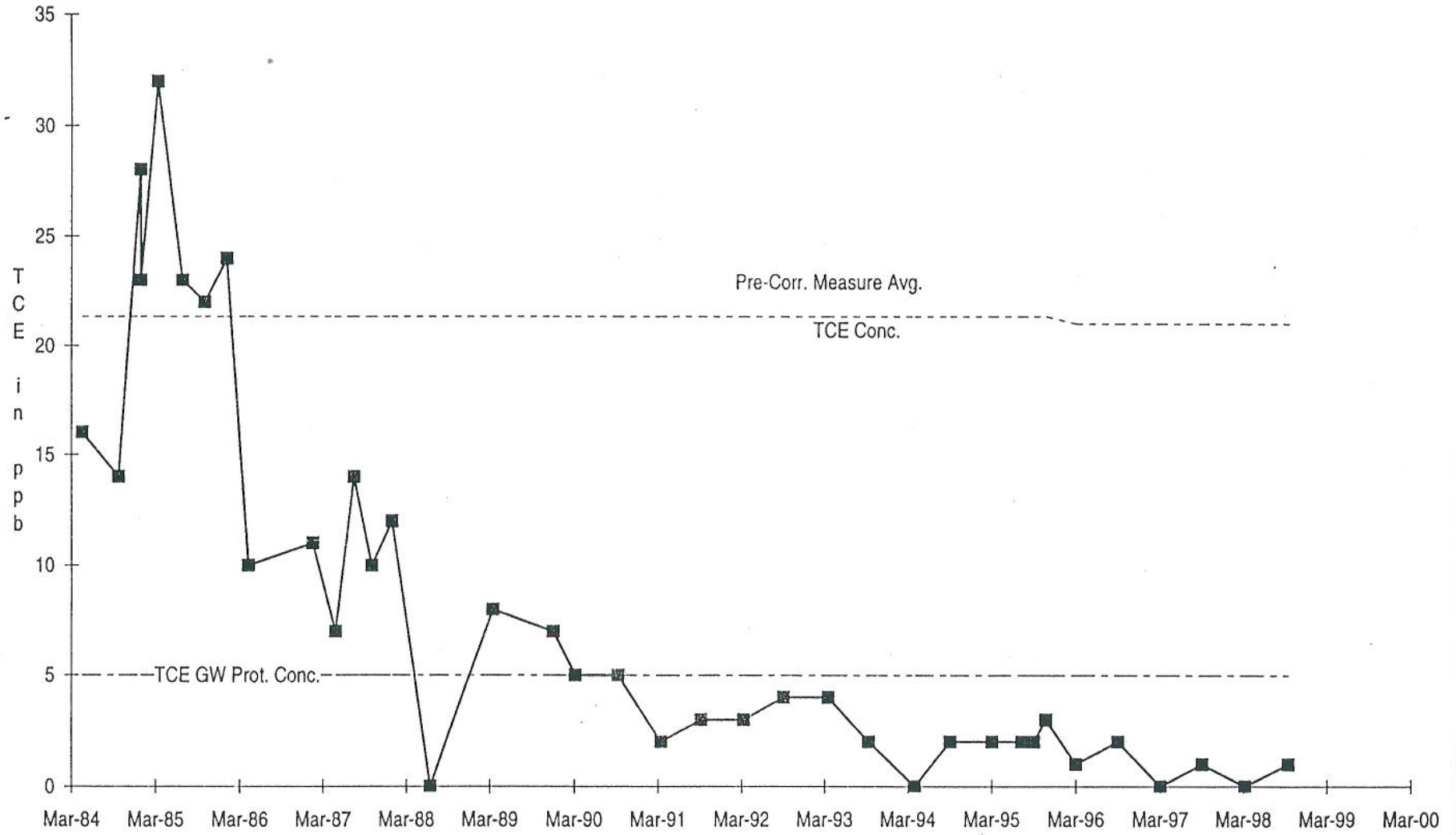
Trend Analysis of TCE in Well 1-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data



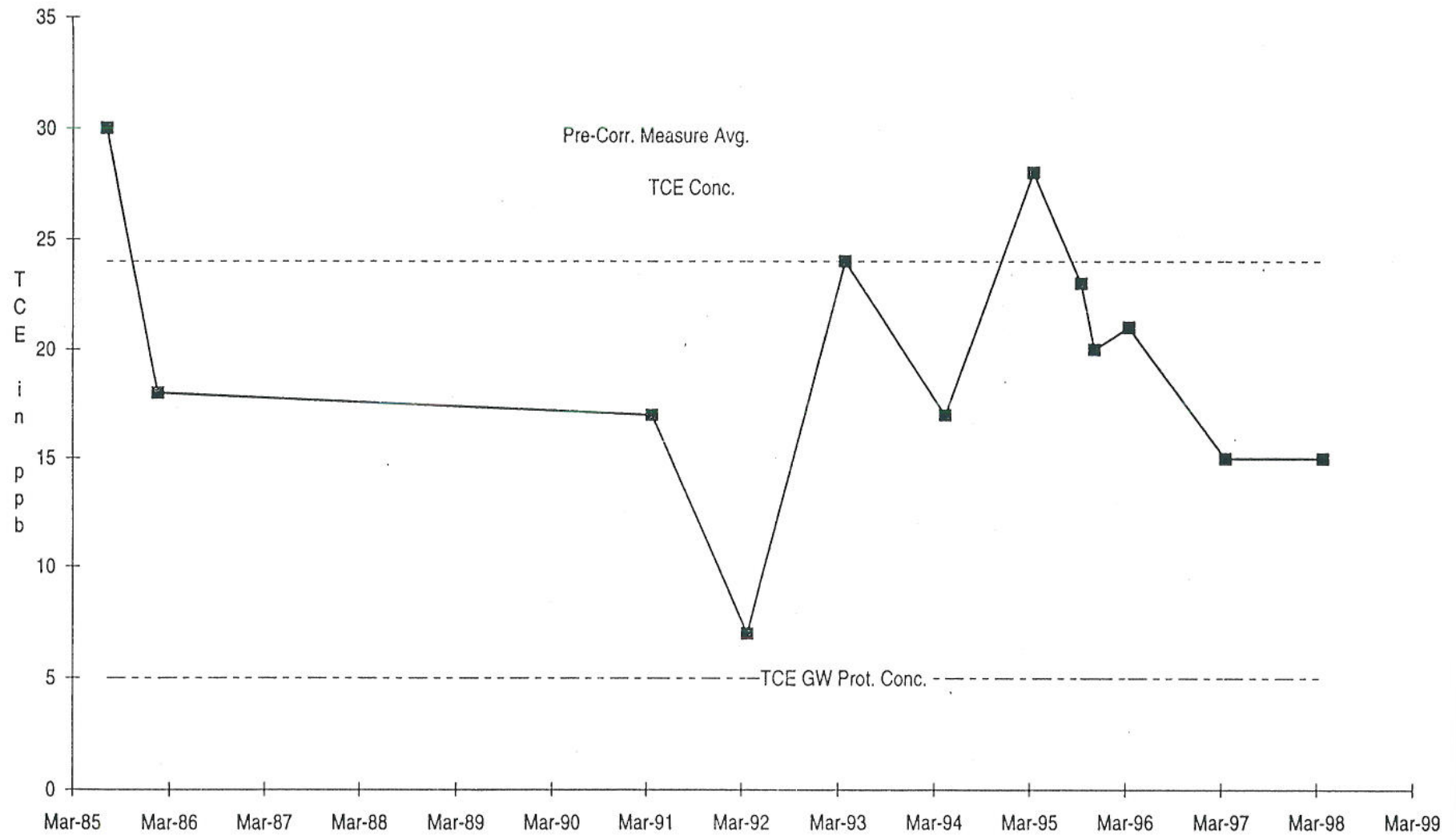
Trend Analysis of TCE in Well 17-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data



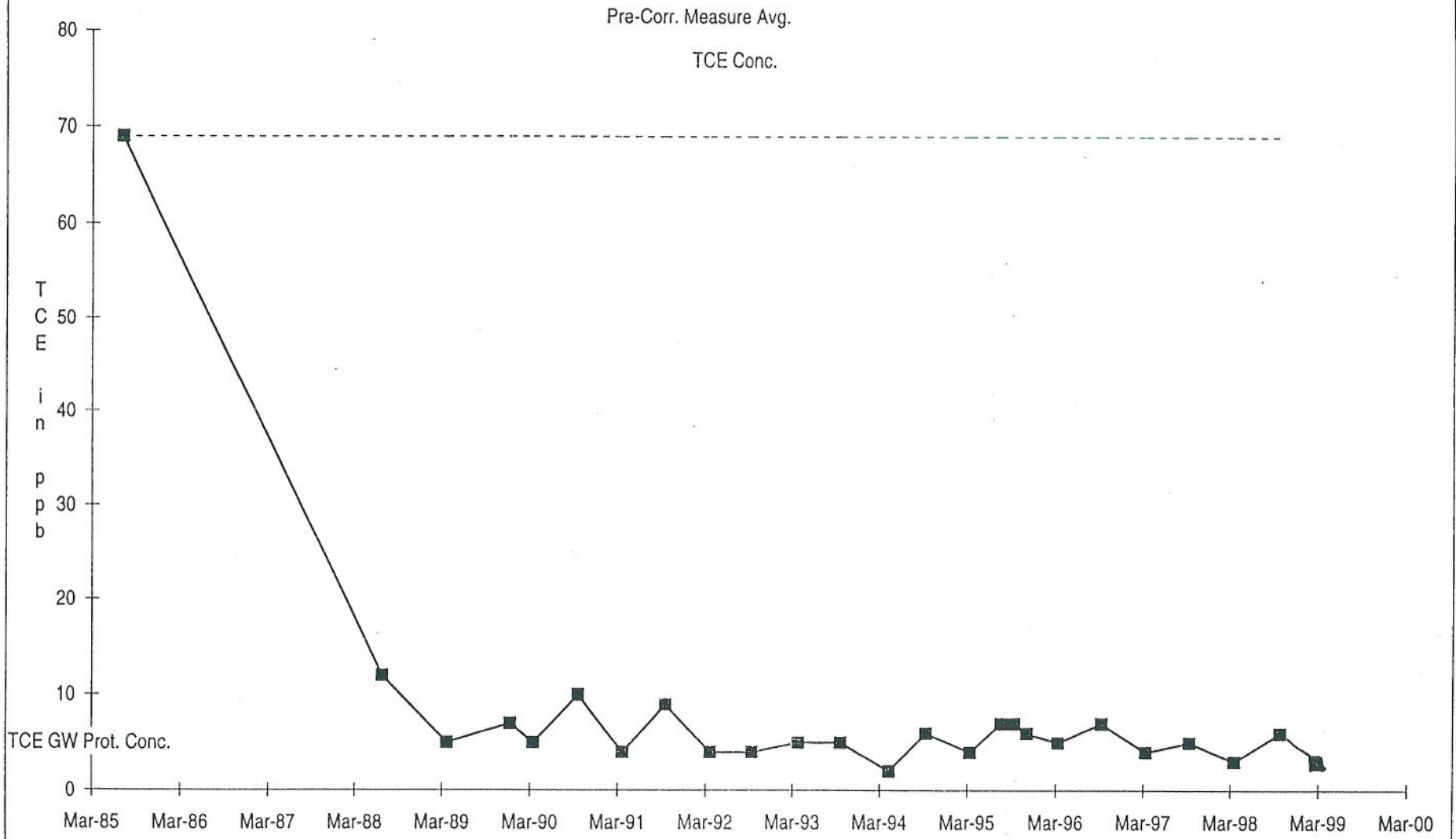
Trend Analysis of TCE in Well 18-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data



Trend Analysis of TCE in Well 19-l: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data



Trend Analysis of TCE in Well 20-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data



Trend Analysis of TCE in Well 22-S: Average Pre-Corrective Measure Concentration and Subsequent Monitoring Data

