June 8, 1994
Job No: 192-1204-5
CNI1550R.ENV

REPORT
OF

UNDERGROUND STORAGE TANK REMOVAL PROJECT
LIMITED ENVIRONMENTAL SITE ASSESSMENT
UPTOWN SHOPPING CENTER

Richland, Washington

Prepared for:
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Underground Storage Tank Removal Project
Uptown Shopping Center Richland, Washington
Job# 192-2104-5

Table of Contents

Table of Contents continued:

APPENDICES

EXECUTIVE SUMMARY

Environmental data obtained during the Uptown Shopping Center underground storage tank environmental site assessment indicates there are subsurface impacts resulting from petroleum hydrocarbon (#2 fuel oil) and chlorinated solvent contamination. Thirty-two heating oil underground storage tanks (UST) locations were identified in the service alley of Uptown Shopping Center and adjacent properties prior to this project. A total of 19 tanks were removed from City right-of-way and one was abandoned in place (tank #7). Three additional tanks were removed from adjacent properties in the shopping center at the owner's request for a total of 22 tanks removed during the project. Fifteen excavations were opened to access the 23 USTs (incl. tank #7). Tank numbers 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 25, 26, and 27 showed apparent signs of leakage and TPH impacts to soil above WDOE Method A action levels.

Seven test pits (in addition to the UST pits) were completed adjacent to inaccessible tanks located beneath adjoining properties to assess impacts in soils within the subject site boundary. Of the seven pits excavated soil samples from pit #19/20 (adjacent to 1364 Jadwin Ave.) revealed TPH concentrations above WDOE Method A action levels. A sample from pit #28/29 revealed TPH levels below WDOE Method A action levels. Samples from the remaining pits were below practical quantitation limits. One tank location (#9) was not excavated or evaluated due to extensive underground utilities.

Impacted soils removed from excavations were transported to the Richland Landfill for treatment pending analytical results. Composite samples were collected in accordance with WDOE regulations and analyzed to determine landfill suitability. Laboratory results indicate TPH levels were well below the maximum allowable concentrations of 30,000 mg/kg for acceptance into the landfill.

Tetracholorethene (PCE) was detected in a groundwater sample collected from the tank #17 test pit between a former and existing laundry cleaner site. Analyses from sludge sample collected from a large 8,000 gallon UST at the adjoining site at 1375 George Washington

Way were negative for PCE and confirmed the presence of TPH in the tank. The WDOE notified the owner of the tank to remove the tank.

The 8,000 gallon tank was removed from the 1375 George Washington Way site during a concurrent UST removal assessment for the owner of the property. The owner retained another UST removal contractor who in turn retained Chen-Northern to perform the assessment.

Groundwater has been visibly impacted in four areas in the north part of the alley as evidenced by floating product observed in the excavations of tanks #10-#16, #18, #19/#20, and #21/#22. Laboratory analytical results indicate groundwater is also impacted by VOCs above WDOE Method A action levels between two known dry cleaner sites at the north end of the subject site. Groundwater contamination was not confirmed in some excavations and test pits that were terminated above the water table. Confirmation of potential groundwater contamination should be determined by groundwater monitoring at strategic locations.

1.0 INTRODUCTION

This report presents the results of the Uptown Storage Tank Removal Project completed for the City of Richland (City). Assessment and tank removal activities were conducted from August 9, 1993 through August 30, 1993.

1.1 Purpose

The purpose of this project was to provide environmental assessment services for the removal of all accessible heating oil tanks from City right of way in the service alley of the Uptown Shopping Center. The removals were conducted in general compliance with current U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (WDOE) regulations and guidelines under Chapter 173-360 WAC for the safe removal and decommissioning of USTs (Ecology, 1992).

1.2 Scope of Work

As requested, Huntingdon provided professional services for the removal of accessible heating oil USTS that included the following scope of work:

- Prepare technical specifications for the decommissioning of the underground storage tanks at the subject property.

- Prepare a Site Specific Health and Safety Plan for the project.

- Attend a pre-construction meeting on-site to address health and safety issues and the work plan with concerned parties.

- Perform assessment activities for compliance with applicable WDOE regulations including:

    - oversight and observation of the removals and/or in-place decommissioning; and,

- soil sampling from the sidewalls and base of the tank excavations for head-space analysis and laboratory analysis.

- Prepare a report summarizing the findings of the limited environmental assessment.

Additional SOW was included at the request of the City during tank removal activities to collect groundwater and soil samples from select excavations for volatile organic compound (VOC) analysis for cursory assessment of potential chlorinated solvent contamination from two nearby dry cleaner sites. Section 1.3.1 below describes these sites. VOC and TPH analysis was also requested to evaluate sludge content from a large UST located on a former drycleaners at 1375 George Washington Way, adjacent to the subject site.

1.3 Background

1.3.1 Phase I Report

Huntingdon completed a Phase I site assessment at the Uptown Shopping Center during March, 1993. We identified thirty UST sites in and adjacent to the service alley during the assessment. Each of the USTs were reportedly used to store heating oil. Two additional tank sites were located by the City in the spring of 1993, after debris and snow were removed.

Environmental concerns were also addressed regarding the use and storage of chlorinated solvents at former and operating laundry dry cleaners. Dry cleaning operations have historically been recognized as potential sources of VOC contamination. There are four known locations of former and operating dry cleaner sites in the greater Uptown Shopping Center area. These establishments are described as:

- The Soap Opera Laundry (currently operating at 1370 Jadwin Avenue),

- The Velvet Touch and Launderland Laundries (formerly operated at the existing Welcome Aboard Travel service, 1375 George Washington Way, during the 1980s and 1970s),

- The Sudden Service Cleaners (formerly operated at 1317 George Washington Way in the 1970s), and

- The Uptown Cleaners (formerly operated at 285 Williams Boulevard in the 1970s and 1980s).

1.3.2 Concurrent Adjacent Site UST Assessment

Upon completion of field work for this project we conducted a UST environmental site assessment for an 8,000 gallon UST located the 1375 George Washington Way site. The timing of this work was related to a WDOE request for the owner to take action to decommission the unregistered UST. The owner retained Mike Johnson Inc., to remove the tank. Huntingdon was retained by Mike Johnson Inc., to perform the assessment. Relevant information from the assessment is included in this report. For brevity, this property is referred to as the GW Way site throughout the remainder of this report. The tank removed during the assessment at the GW Way site is described in this report as tank #32.

2.0 SITE DESCRIPTION

The Uptown Shopping Center is located in Richland's central business district in the SE 1/4, SW1/4, Section 2, Township 9N, Range 28E, Willamette Base and Meridian. Latitudinal and longitudinal coordinates for the site are: Latitude 49° 17' 15" and Longitude 119° 16' 30". Figure 1, Appendix 1 is a U.S.G.S topographic map showing the site location and vicinity.

The site consists of Lot 30, Block 708, Plat of Richland as recorded in documents on-file at the Benton County Court House, Prosser, Washington. The site is bounded by Jadwin Avenue to the west, Symons Street to the north, George Washington Way to the east, and

Williams Boulevard to the south. Figure 2, Appendix 1 is a site and vicinity map showing the bounding streets and other features of interest. Work completed during this project was concentrated in the asphalt covered service alley of the shopping center behind the surrounding businesses.

2.1 GEOLOGY

The City of Richland is situated on the central portion of the Columbia Plateau physiographic province. The Columbia Plateau is comprised of a series of flood basalts which cover most of central and eastern Washington. The basalt flows of the Columbia Basalt Group are Miocene in age, forming an extensive volcanic plateau (Camp, et. al., 1982). The Columbia River flood basalts are overlain by Pliocene alluvial deposits of the Ringold Formation within the study area.

The Ringold Formation consists of clay, silt, fine to coarse grained sand, and granule to cobble gravel. The depositional setting of the Ringold Formation consists of fluvial, lacustrine and alluvial environments (Study Guide, 1991). Some fill material was encountered, reportedly resulting from the grading of a pre-existing stream channel/swale during construction of the shopping center.

Subsurface material in the service alley is generally characterized by clean sand, gravelly sand, and moderately silty sand in the northern half. The southern half consists of moderately plastic clay to nonplastic silt overlain by fine silty sand interstratified with thin gravel layers in the southern half.

The site is situated near the confluence of the Columbia and Yakima Rivers. The Columbia River is located approximately 0.4 miles east of the site. The Yakima River is located approximately 4.0 miles south of the site.

2.2 HYDROGEOLOGY

Depth to groundwater varies across the site from about eight feet below ground surface (bgs) in the north portion to about eleven feet bgs in the south. The groundwater flow direction in the northern portion of the site is about S,60°E with a hydraulic gradient of about 0.004 ft/ft (Chen-Northern, 1993). Near the southwest corner of Jadwin Avenue and Williams Boulevard groundwater flows to the south with a hydraulic gradient of about 0.007ft/ft. Estimated groundwater velocities are less than 1 ft/yr (Delta Environmental Consultants, 1989). Little information has been developed regarding the effects of seasonal variations in groundwater elevation on flow directions and gradients near the site. The most dramatic changes are likely to occur at recharge and discharge areas such as the Columbia River and drainage ditches south of the site. Figure 2, Appendix 1 shows groundwater flow directions using water level data obtained during September, 1993 at the north end of the site and near the drainage ditch southeast of the site gaged December, 1988 (Delta Environmental Consultants, 1989). Figure 3 shows groundwater levels (bgs) in excavations across the site.

3.0 SITE HISTORY/LAND USE

Businesses that have operated in the Uptown Shopping Center have historically been retail operations, personal/professional services, and restaurants. Available records indicate private ownership at Uptown Shopping Center began in the late 1950s and early 1960's. The land was previously owned by the U.S. Government. We understand the City of Richland presently owns the parking lot and service alley encompassing the Uptown Shopping Center. Ownership history compiled from recent title information is presented in **Appendix 2**.

3.1 Hazardous Substance\Handling Practices

Potential sources of on site environmental contaminants include:

- Documented and undocumented leakage from the many heating oil fuel USTs installed at the shopping center during the late 1950's and 1960's.

- The four laundry dry cleaner locations described in Section 1.3.

Other past or present businesses that may have stored or used hazardous materials in the Uptown Shopping Center include print shops, camera shops, paint stores, and automotive supply stores. Figures 2 and 3, Appendix 1 show the locations of existing and former laundry cleaning sites.

4.0 METHODS

We conducted our field investigation in accordance with WDOE regulations and practices commonly used in the environmental profession. Field activities were conducted whereby site conditions, tank removal activities and stockpiled/ soil conditions were documented. Additionally, a cursory groundwater evaluation for the presence of chlorinated solvents was completed.

Extensive underground and structural barriers prevented the complete removal and assessment of impacted subsurface soils. Our current groundwater remedial investigation will further characterize soil and groundwater contamination.

4.1 Preconstruction/Site Safety Meeting

Prior to the commencement of work, a preconstruction meeting was held with the tank removal contractor, the City, and Huntingdon regarding project objectives and site safety issues. Huntingdon compiled a site safety plan addressing anticipated physical hazards, chemical hazards and emergency response procedures. The plan was reviewed with workers on-site, and signed by project personnel acknowledging its contents and provisions.

4.2 Tank Removal Contractor

E.P. Johnson Inc., a licensed tank removal contractor in the state of Washington, was retained by the City to remove and decommission the heating oil tanks. They excavated and removed the tanks with two 'track-hoe' type excavators; a small Kubota (model KX 101), and a larger Kobelco (model Mark III SK 200 LC). Soil stockpiles were loaded into a dump truck for transport using a Ford 555C rubber-tire backhoe. They compacted backfill soil with a vibratory compaction apparatus attached to the backhoe boom.

4.3 Site Observation and Documentation

We measured, and photographed, each of the USTs and their excavations and documented work activities completed at each tank site. Underground utilities and structures prevented over-excavation at many tank sites. We excavated test pits adjacent to several tanks that

were inaccessible beneath buildings to check for the presence of contaminated soils or floating product. Physical data of the removed USTs is summarized in Table 1, Appendix 3. Excavation dimensions, and individual UST site observations are summarized on tank closure field forms presented in Appendix 4. Photographs of the removed tanks and tank sites are presented in Appendix 5. Photographs of tanks #14 through #17 are not presented due to a camera malfunction.

4.4 Soil Screening

Unsaturated soil samples obtained from the tank excavations were screened for volatile organic compounds (VOC) using the "headspace" method. This method of analysis provides qualitative field data for determining if petroleum hydrocarbon contaminants have been released to the subsurface and can be used to direct soil removal activities. Headspace screening was performed by scanning soil samples with a photoionization detector (PID), Microtip Model 102 using the following procedures:

- Soil samples were placed in a clean glass container, to approximately 1/2 full and sealed with aluminum foil
- The samples were warmed to about 75 degrees Fahrenheit; and,
- Volatile organic vapor concentrations in the headspace of each sample were measured with the PID.

PID measurements taken during the project are summarized on the tank closure forms in Appendix 4.

4.5 Soil Removal

Excavated soil was temporarily stockpiled on-site, visually examined and screened using the headspace techniques. Odors noted during sampling and excavation activities were also used

to indicate the presence of impacted soils. Soil considered to be clean using these methods were used as backfill. Petroleum impacted soil was transported to the City of Richland Municipal Landfill for storage and treatment pending laboratory analytical results.

Five composite samples were collected from stockpiled soil at the landfill for TPHD analyses by method 8015 modified. Analytical results are presented in Table 1 Appendix 3. Laboratory analytical results were used to determine landfill suitability.

4.6 Soil Sampling and Analysis

Soil sampling methods were conducted in accordance with the WDOE Guidance for Site Checks and Site Assessments for Underground Storage Tanks. We collected two sample composites from adjacent excavation sidewalls and the base of each excavation. Grab samples were collected where access was limited. Base samples were collected above the soil/groundwater interface in the unsaturated zone.

Soil samples were collected in laboratory-certified clean glass jars with teflon lined lids. The samples were collected using appropriately cleaned hand tools or by backhoe in cases where excavation entry appeared unsafe. Representative soil samples were collected in a manner to minimize cross-contamination and preserve sample integrity. The sample jars were labeled, and placed in cooled ice chests for delivery under chain of custody to the laboratory. All soil samples collected from excavations and stockpiled soil at the heating oil tank sites were analyzed by Methods WTRPH 418.1 or WTPHD Method 8015 Modified. The WTPH-HCID Method was used to identify the type of petroleum fuel in the tanks. The solid and liquid fractions from sludge samples were analyzed for TPH by EPA Methods 8260 and 624 respectively.

4.7 Groundwater Sample Collection

We collected groundwater samples from open excavations for VOC analysis using a disposable polyethylene bailer. The bailer was lowered into the exposed groundwater to obtain the sample. The samples were properly sealed in 40 ml vials for shipment to the

laboratory. The samples were labeled and placed in cooled ice chests for delivery under chain of custody to the laboratory.

4.8 Floating Product Sampling and Analysis

Floating petroleum product samples were collected from excavations where the water table was visibly impacted by petroleum hydrocarbons. We measured and recorded the product thickness. The samples were then sealed and stored.

Floating petroleum product was observed in four excavations on site, all located in the northern part of the service alley. Product thicknesses ranged from about one-tenth to one-quarter inch. Figure 4, Appendix 1 shows the locations of excavations where free product was observed. Table 2 Appendix 3 summarizes free petroleum product thickness.

4.9 VOC Sampling

We collected samples of soil and groundwater analysis as described in sections 5.6 and 5.7. The following samples were collected for laboratory analysis of VOCs:

- One groundwater sample from test pit #17 (located at the existing Schwinn bicycle shop) between the existing Soap Opera and the GW Way site.
- A sludge sample from inside tank #32.
- A groundwater sample from a test pit completed near the west end of tank #32.
- A soil sample from stockpiled soils from the tank #32 test pit.

Figure 3, Appendix 1 shows the locations of tank #17 and tank #32.

4.10 Laboratory Methods

Samples collected during the assessment were stored immediately in cooled ice-chests and shipped to our WDOE certified laboratory in Billings, Montana. Table 3, Appendix 3 summarizes the methods and matrices of analysis.

5.0 RESULTS

Laboratory analytical results indicate the subject site has been impacted by petroleum hydrocarbons and chlorinated solvents. Appendix 6 contains laboratory technical reports for soil and groundwater samples collected during the project. Free product observed at the locations described in section 5.2.4 indicate groundwater has been impacted by fuel oil.

5.1 Petroleum Hydrocarbon Results

Method WTPH-HCID results indicate the heating oil tanks contained #2 fuel oil. Higher boiling point petroleum compounds (HBP) typical of heavier fuels such as Bunker C, were detected in soil samples from tank excavation #30 by Method WTPH-D at concentrations below WDOE Method A action levels. Table 4, Appendix 3 summarizes the sites where WDOE action levels for TPH have been exceeded. Figure 4, Appendix 1 shows the locations of the heating oil tank excavations including sample depths and the corresponding TPH concentrations that exceeded WDOE Method A action levels.

All petroleum contaminated soils from the site were transported for temporary storage at the City of Richland Municipal Landfill pending sample collection for laboratory analysis. Analytical results from several samples of PCS collected from stockpiles indicated TPH concentrations below 30,000 mg/kg. The mean TPH concentration from the sample collection points was about 4,900 mg/kg in the north half of the stockpile and 124 mg/kg in the south half.

5.2 VOC Results

Methylene chloride concentrations of 400 μg/L were detected in soils from the tank #32 test pit. Total xylenes were detected at 6 μg/L. Both of these concentrations are below WDOE method A action levels.

Volatile organic compounds consisting of PCE and TCE, were detected above WDOE Method A action levels in groundwater samples from the tank #17 test pit. Concentrations of PCE and TCE were 5,700 μg/L and 400 μg/L respectively. No VOCs were detected in

groundwater samples from test pit #32 excavated on the subject property near the GW Way site. Table 5, Appendix 3 summarizes the VOC analytical results of soil, groundwater and sludge samples collected from the test pits near tanks #17 and #32. Figure 4, Appendix 1 shows the locations and concentrations of PCE groundwater samples.

The methods used for collecting representative groundwater samples during this project are not recognized by the EPA or WDOE. The results may not accurately reflect in-situ groundwater conditions due to potential cross-contamination by contaminated soils, excavating equipment or other unforeseen sources. Samples are typically considered representative when collected from a properly completed monitoring well following appropriate sampling protocols.

6.0 ASSESSMENT FINDINGS AND DISCUSSION

Analytical results from soils and groundwater sampled during tank removal indicate that petroleum and chlorinated solvent releases have occurred on the subject property.

6.1 TPH Soil Contamination

Several tank excavations contained TPH levels well above WDOE Method A action levels. Figure 4, Appendix 1 shows the maximum TPH concentrations reported (sidewall or base samples). **Note:** The values of laboratory results recorded for TPH in Figure 4 are in thousands of mg/kg.

Some of the excavations advanced adjacent to tanks buried beneath buildings on adjoining properties showed levels of TPH below practical quantitation limits. These sites are identified as tank #s 17, 24 and 25. The laboratory results suggests impacted soils would be limited to a small zone around the tanks if leakage occurred.

The degree of visible impact to soils appears to show a relation to the permeability of the soils. The sandy and gravelly soils toward the north end of the alley typically appeared more visibly impacted than the finer grained soils toward the south end. This may suggest that TPH contamination may be more locally confined in the less permeable silts and fine sands at the south end of the site.

6.2 TPH Groundwater Contamination

Free product observed in several tank excavations confirms the release of petroleum fuel to groundwater. Preliminary observations of monitoring well data from our ongoing remedial investigation suggest the concentration of TPH in groundwater may diminish fairly rapidly away from the individual tank sites. This may be a function in part of a relatively flat hydraulic gradient and low conductivity of the formational material.

6.3 Chlorinated Solvent Soil Contamination

A soil sample analyzed from the test pit near tank #32 indicates methylene chloride is present in the soil above the water table. No methylene chloride was detected groundwater samples. The origin of methylene chloride detected in the soil is uncertain. Methylene chloride has the following common uses:

- As a solvent in paint removers (23%),
- A processing solvent for pharmecuticals (20%),
- A degreasing/dewaxing agent (8%), and
- In aerial sprays (20%).

Other miscellaneous uses combine for the remaining 29 percent (WDOE, 1992).

6.4 Chlorinated Solvent Groundwater Contamination

A cursory evaluation of laboratory results suggest that groundwater concentrations of PCE and TCE are present at higher concentrations on the west side of the service alley than the east side (near the dry cleaner site at 1375 George Washington Way). Based on our preliminary groundwater gradient information it appears that the solvent plume may be emanating from areas west of the alley. Possible sources may include the existing Soap Opera Laundry or heating oil tank #17. Insufficient subsurface information has been obtained to verify assumptions. Subsequent subsurface investigations will address these concerns.

6.5 Tank #32 Contents and Subsequent Site Assessment

Analytical results of sludge contained in tank #32 suggests the contents were heating oil fuel. The sludge sample contained 120,000 mg/kg of TPH, and no VOCs. The subsequent assessment conducted during the removal of the tank showed TPH levels below WDOE

Method A action levels in the soil beneath the tank. No VOC samples were collected during the tank #32 decommissioning and assessment.

6.6 Soil Treatment

It appears based on analytical results that the approximately 500 cubic yards of soil removed from the subject site is suitable for treatment at the Richland Landfill. All TPH concentrations in stockpile samples were below the maximum allowable levels of 30,000 mg/kg for acceptance into the landfill.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Environmental data obtained while completing this project indicate that the site has been impacted by petroleum hydrocarbons and by chlorinated solvents. The following conclusions are presented from information obtained during the tank removal project:

- Known UST locations in the City of Richland right-of-way have been assessed and tanks removed or decommissioned in place. A total of 22 tanks were removed and one was abandoned in place (tank #7).

- Several known USTs beneath adjacent buildings were not decommissioned nor fully assessed. Partial characterization at several of these sites revealed that some of these tanks are or have been leaking fuel oil into the environment. The tank locations showing signs of apparent leakage are evidenced by impacted soils at tank locations #19/#20 and #28/29. No excavation was completed adjacent to tank #9 due to underground utilities.

  Other tanks under buildings may not have indicated petroleum fuel contamination because they either are not leaking or were too far away from adjacent excavations to show evidence. The latter possibility is demonstrated at the tank #25 location where a test pit was initially advanced on the subject site near a UST on the adjoining property at Beatitudes Salon, 1340C Jadwin Avenue. Soil samples from the test pit were below practical quantitation limits. Subsequently, the owner demolished the foyer of the business to make access for tank removal. The tank was removed and soil sample analyses indicated concentrations of TPH above WDOE Method A action levels.

- Soil on the subject site have been impacted by fuel oil leaking from numerous heating oil USTs in the service alley. Tank numbers 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15,16, 18, 19, 20, 21, 22, 23, 25, 26, and 27 (see Figures 3 and 4, and Table 4) showed signs of leakage and impacts to soils above WDOE Method A action levels.

- Groundwater has been visibly impacted in four areas in the north part of the alley as evidenced by free product observed in the excavations of tanks #10-#16, #18, #19/#20, and #21/#22.

- Laboratory results indicate groundwater has been impacted by chlorinated solvents between two known dry cleaner sites at the north end of the site.

We recommend that the SOW proceed as planned in our proposal dated September 28, 1993 for the groundwater characterization of petroleum hydrocarbon and chlorinated solvent contamination.

Additionally, we recommend that:

- A coordinated effort by the City and adjacent property owners be taken to decommission, by removal or abandonment in-place, the remaining heating oil USTs or solvent USTs buried under adjacent properties to minimize future impacts to the subject property.

- The appropriate subsurface investigations be coordinated at the adjacent sites for VOC and petroleum fuel contamination during UST decommissioning at the remaining heating oil tank locations and dry cleaner sites.

8.0 LIMITATIONS

This work was performed in accordance with the generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area. Huntingdon observed a degree of care and skill generally exercised by other consultants under similar circumstances and conditions. Huntingdon's findings and conclusions must be considered not as scientific certainties, but as opinions based on our professional judgement concerning the significance of the data gathered during the course of monitoring. Other than this, no warranty is implied or intended.

REFERENCES:

American Petroleum Institute (1987), Recommended Practice for Abandonment or Removal of Used Underground Service Station Tanks, API Bulletin 1604.

Atkinson, Ellen, 1992, Chemicals of Special Concern in Washington State, Washington State Department of Ecology Toxics Cleanup Program.

Camp, V.E., P.R. Hopper, D.A. Swanson, and T.L. Wright. "1982 Columbia River Basalt in Idaho: Physical and Chemical Characteristics, Flow Distribution, and Tectonic Implications." Cenozoic Geology of Idaho: Idaho Bureau of Mines and Geology Bulletin 26 (1982): 55-75.

Chen-Northern, Inc., 1993, Phase I Environmental Site Assessment for Uptown Shopping Center Parking Lot, Richland, Washington

Delta Environmental Consultants, Inc., March 3, 1989, Preliminary Hydrogeologic Assessment, 421 Williams Blvd, Richland, Washington

Department of Ecology (1991, February), The Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC. Toxics Cleanup Program. Olympia, Washington: State document.

Department of Ecology (1991, October), Underground Storage Tank Regulations, Chapter 173-360 WAC. Underground Storage Tank Program. Olympia, Washington: State document.

Department of Ecology (1992, October), Guidance for Site Checks and Site Assessments for Underground Storage Tanks. Underground Storage Tank Program. Olympia, Washington: State document.

APPENDIX 1

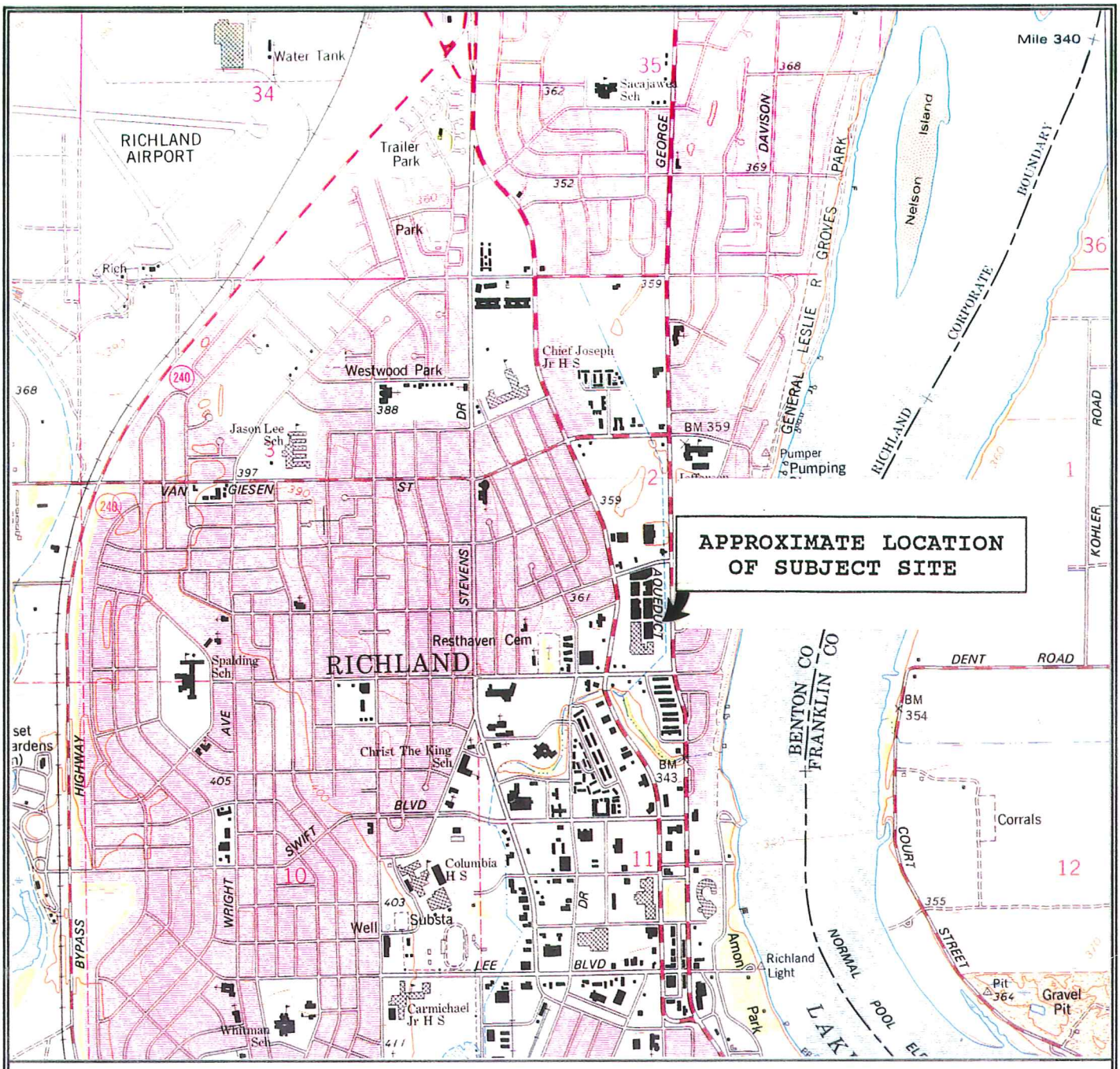
Figures:

Figure 1 Site Location Map

Figure 2 Site and Vicinity Map

Figure 3 Tank Sites and Groundwater Levels

Figure 4 Excavation Map



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CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

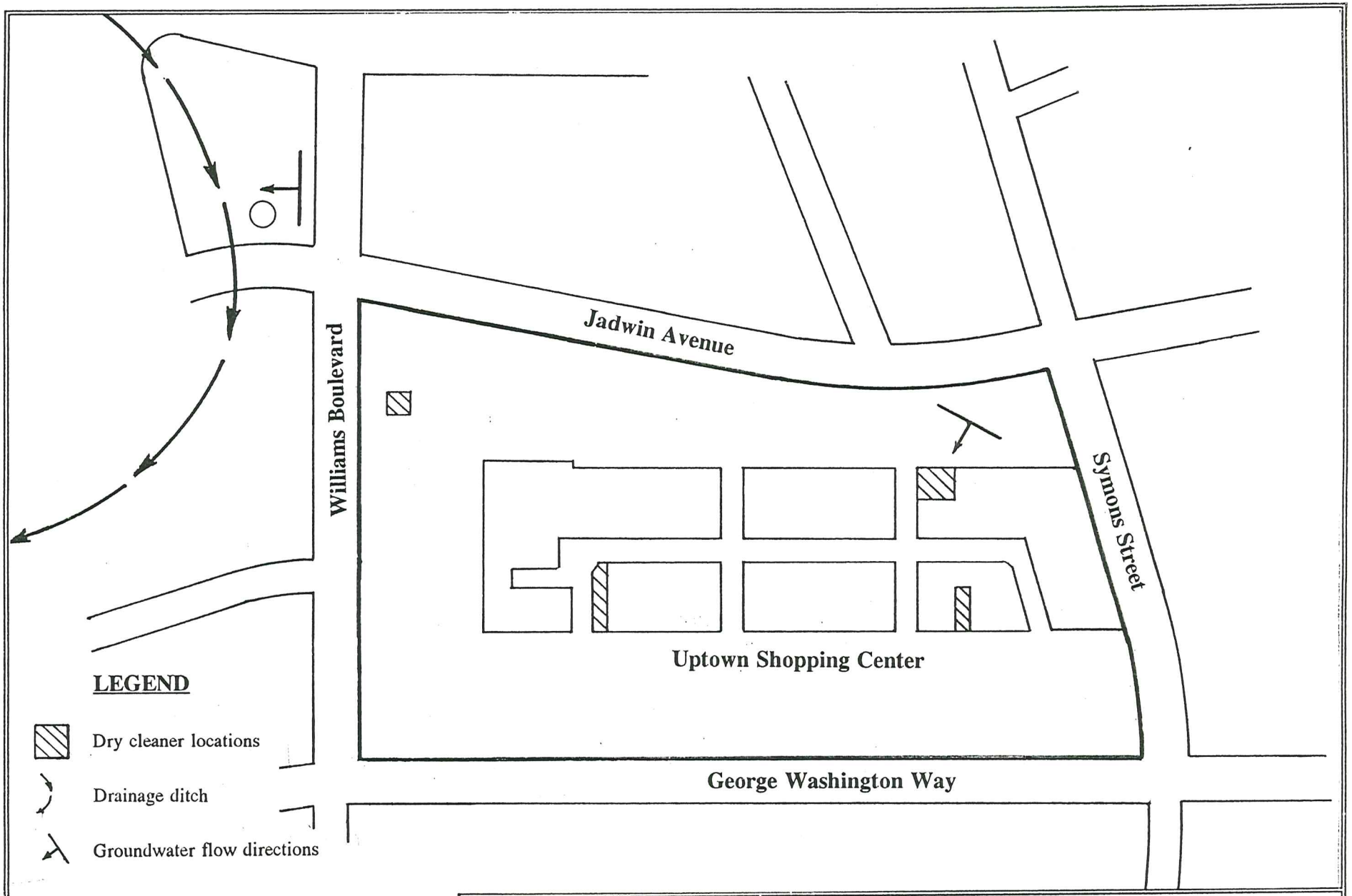
-N-

HUNTINGDON
CHEN-NORTHERN

Job No.: 192-2104-5

Site Location Map
Uptown Shopping Center
Richland, Washington
USGS 7.5 Minute Series (Richland-Washington)

DATE:	Mounted By:	Reviewed By:	SCALE:	FIGURE NO.
12/93	DU	GH	As Shown	1



CHEN-NORTHERN, INC.

Job No.: 192-2104-5

Site and Vicinity Map

Uptown Shopping Center
Richland, Washington

DATE:	Mounted By:	Reviewed By:	SCALE:	FIGURE NO.
12/93	DU	GH	As Shown	2

PARKING LOT

Soap Opera Cleaners

Richland Schwinn

SYMONS STREET

Service Alley

Some Bagels, Inc.
(previous location of Sudden Service Cleaners)

Welcome Aboard Travel
(previous Velvet Touch and Launderland Cleaners)

LEGEND

- 21 / 10 — Tank Number / Water Level (bgs)
- ○ Fuel Tanks removed
- ● Fuel Tanks left in-place
- ⊕ Fuel Tanks abandoned in-place
- □ potential locations of dry cleaning solvent tanks

PARKING LOT

GEORGE WASHINGTON WAY

Approximate Scale 1"=80'

80 40 0 80 160

Tank Sites and Ground Water Levels
Uptown Shopping Center
Richland, Washington

Huntingdon
Chen-Northern, Inc., Division

Drawn: DU/MB	Scale: AS SHOWN	Figure No. 3
Checked: GH	Date: 12/14/93	

PARKING LOT

SYMONS STREET

9b/62 8b/26 10b/0.85 Service Alley 9.5b/18 10.5 b/1.9 8b/0.22 10.5b/3.8 PCE 5700 PCE5 5s/18 8.5b/12

5.5b/140 6b/35 5.5/1.2 6.5b/14 6.5b/23 7s/26

LEGEND

6b,s / 12	Depth in feet of sample: b, for base; s, for sidewall
f	In-situ TPH levels from excavations in thousands of mg/kg
	Approximate limits of excavation: f, for floating product
*	Data obtained from separate Chen Northern project
PCE5700	Tetrachloroethene groundwater concentration in µg/L

PARKING LOT

GEORGE WASHINGTON WAY

Approximate Scale 1"=80'

80 40 0 80 160

Excavation Location Map showing Depths and Maximum Subsoil Detection Levels
Uptown Shopping Center
Richland, Washington

Huntingdon
Chen-Northern, Inc., Division

Drawn: DU/MB	Scale: AS SHOWN	Figure No. 4
Checked: GH	Date: 12/14/93	

APPENDIX 2

Ownership History

TRANSAMERICA TITLE INSURANCE COMPANY

1100 Jadwin, Suite 275

Richland, WA 99352

January 12, 1993

Chen Northern
Attn: Dan
2214 No. 4th Avenue
Pasco, WA 99301

Order No. 96494
#192-2104-2

In the matter of ownerships and easements in all of Block 708, Plat of Richland, the owners of the properties are as follows:

B-53	Eastgate Theatre, Inc. Medical Science Building 919 S. W. Taylor Portland, OR 97205
B-19	Richland Thrifty Drug, Inc. 10010 - 14th Avenue SW Seattle, WA 98146-3703
B-5071	Ronald D. & Madeline R. Thornhill 1324 Jadwin Richland, WA 99352
B-5072	The Book Place, Inc. 1330 Jadwin Richland, WA 99352
B-17	Steven M. & Marilyn O. King J. Keith & Pat M. Christensen 718 Jadwin Richland, WA 99352
B-5073, B-52, B-47, B-49 B-50, B-18, B-51	James C. & Luisita T. Go 325 Hanford St. Richland, WA 99352
B-29	Jay Min & Ying Chun Lee 1908 Hoxie Richland, WA 99352

continued

B-55	Dawson, Dawson & Anderson 1350 Jadwin Richland, WA 99352
B-45, B-5075, B-56	L. R. Bailey, Inc. 803 W. 22nd Avenue Kennewick, WA 99336
B-5074	Gary A. & Donna White 34005 Caballo Place Kennewick, WA 99337
B-54	Patricia J. Chvatal 1385 George Washington Way Richland, WA 99352
B-5076	Volpentest Investment Associates 224 Broadmoor Richland, WA 99352
B-48	Kenneth Cook Post No. 7952 Veterans of Foreign Wars 1369 George Washington Way Richland, WA 99352
B-5077	Ernest W. & Gladys M. Ellis 1367 George Washington Way Richland, WA 99352
B-5078	Lester Vern & Tammy Nguven Crisp 1507 Jadwin Richland, WA 99352
B-5079	Shields & Associates P. O. Box 490 Pasco, WA 99302
B-5080	Janice M. Dorchak 1020 George Washington Way Richland, WA 99352
B-46	Robert & Barbara H. Ternavan 232 Eastland Avenue Pelham, New York 10803

continued

B-5081

Lewis B. & Betty H. Ghirardo
1410 Alder Avenue
Richland, WA 99352

B-5082

H. D. & Marjorie J. Watkins
101 Cullum Street
Richland, WA 99352

B-6950

Sidney & Barbara Marks
203 E. Main Street
Spartanburg, S.C. 29319-0006

B-5083

39.2858% interest

City of Richland
P. O. Box 190
Richland, WA 99352

Attached are copies of all deeds and easements and percentage of interest in Lot 30, Block 708, Plat of Richland.

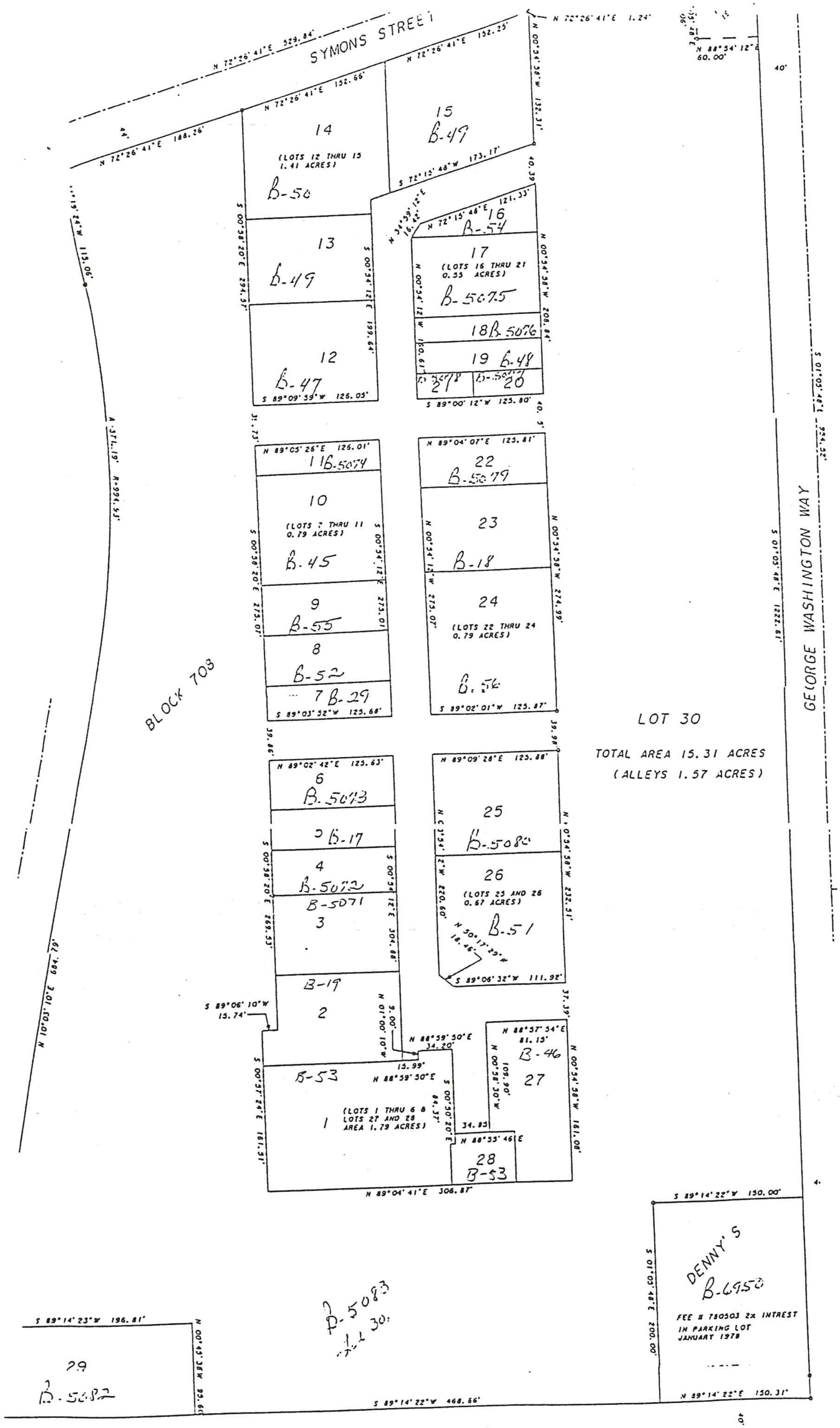
Information furnished is based upon our tract indices without regard to sufficiency of tile or extent of encumbrances thereon, and no liability is assumed for errors and omissions, if any.

TRANSAMERICA TITLE INSURANCE COMPANY

By Patty Braaten
Patty Braaten

PB/pb

d/10


SYMONS STREET
GEORGE WASHINGTON WAY
BLOCK 708
LOT 30
TOTAL AREA 15.31 ACRES
(ALLEYS 1.57 ACRES)
14
(LOTS 12 THRU 15
1.41 ACRES)
B-50
15
B-47
13
B-49
12
B-47
16
B-54
17
(LOTS 16 THRU 21
0.55 ACRES)
B-5075
18 B-5076
19 B-48
20
21
11 B-5074
10
(LOTS 7 THRU 11
0.79 ACRES)
B-45
9
B-55
8
B-52
7 B-29
22
B-5079
23
B-18
24
(LOTS 22 THRU 24
0.79 ACRES)
B-56
6
B-5073
5 B-17
4
B-5072
B-5071
3
B-19
2
25
B-5080
26
(LOTS 25 AND 26
0.67 ACRES)
B-51
B-53
1
(LOTS 1 THRU 6 &
LOTS 27 AND 28
AREA 1.79 ACRES)
B-46
27
28
B-53
29
B-5082
B-5083
DENNY'S
B-6958
FEE # 780503 2x INTREST
IN PARKING LOT
JANUARY 1978
N 72°26'41"E 529.84'
N 72°26'41"E 152.25'
N 72°26'41"E 152.66'
N 72°26'41"E 188.26'
N 72°26'41"E 1.24'
S 72°15'48"W 173.17'
N 72°15'48"E 121.33'
S 89°09'39"W 125.05'
S 89°00'12"W 125.80'
N 89°05'26"E 126.01'
N 89°04'07"E 125.81'
S 89°03'52"W 125.68'
S 89°02'01"W 125.87'
N 89°02'42"E 125.63'
N 89°09'28"E 125.88'
S 89°06'32"W 111.92'
S 89°06'10"W
15.74'
N 88°59'50"E
34.20'
N 88°57'54"E
81.15'
N 88°55'46"E
N 89°04'41"E 306.87'
S 89°14'22"W 150.00'
S 89°14'23"W 196.81'
S 89°14'22"W 468.66'
N 89°14'22"E 150.31'
N 88°54'12"E
60.00'
N 10°03'10"E 684.79'

APPENDIX 3

Tables

Table 1

Physical Data of Tanks
Uptown Shopping Center Richland, Washington
Job# 192–2104–5

HUNTINGDON
Job No. 192–2104–5

TANK No.	CONSTRUCTION MATERIALS	DIAMETER IN FEET	LENGTH FEET	CAPACITY GALLONS	Est. AGE YEARS	CONTENTS	STATUS
1	STEEL	3.75	12	991	30–45	#2 FUEL OIL	R
2	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
3	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
4	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
5	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
6	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
7	STEEL	5.3	12	1980	30–45	#2 FUEL OIL	A
8	STEEL	3.5	4.1	295	30–45	#2 FUEL OIL	R
9	–	–	–	–	30–45	–	U
10	STEEL	3.2	12	722	30–45	#2 FUEL OIL	R
11	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
12	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
13	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
14	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
15	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
16	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
17	–	–	–	–	30–45	–	U
18	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
19	–	–	–	–	30–45	–	U
20	–	–	–	–	30–45	–	U
21	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
22	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
23	STEEL	3.2	4.7	283	30–45	#2 FUEL OIL	R
24	–	4	12	1128	30–45	–	U
25*	STEEL	3.75	6.7	554	30–45	#2 FUEL OIL	R
26	STEEL	3.3	4	256	30–45	#2 FUEL OIL	R
27	STEEL	3.3	4	256	30–45	#2 FUEL OIL	R
28	–	–	–	–	30–45	–	U
29	–	–	–	–	30–45	–	U
30	STEEL	3.8	8	679	30–45	#2 FUEL OIL	R
31	–	–	–	–	30–45	–	U
32**	STEEL	8	21.3	8008	30–45	#2 FUEL OIL	R

NOTES:

1. R means removed from ground.
2. A means abandoned in place.
3. U means unknown; buried beneath structures.
4. * Data obtained from existing blueprints.
5. ** Tank #32 removed during subsequent project.

Table 2
Free Product Thicknesses Measured in Tank Excavations
Uptown Shopping Center Richland, Washington
HUNTINGDON
Job #192-2104-5

Date	Tank Site	Approximate Thickness (inches)
8/19/93	10-16	0.15
8/24/93	18	0.10
8/19/93	19/20	0.25
8/18/93	21/22	0.10

Table 3
Analytical Methods
Uptown Shopping Center, Richland, Washington
HUNTINGDON
Job# 192-2104-5

Environmental Protection Agency Washington State Department of Ecology Method Number					
Matrix	HCID	WTPH-D (418.1)	WTPH-D (8015 mod.)	VOCs (8260)	VOCs (624)
Soil	●	●	●	●	
Water					●
Sludge			●		●

Table 4
Subsoil Analytical Results
Uptown Shopping Center Richland, Washington
Job# 192–2104–5

HUNTINGDON
Job No. 192–2104–5

SAMPLE DATE	SAMPLE NUMBER	SAMPLE LOCATION	DEPTH (ft.)	REMOVED TANK (Y/N)	WTRPH 418.1	WTPHD 8015 MOD	WTPH HCID	HBP
08/09/93	1	T3 BASE	5.5		1,200	–	–	–
08/09/93	2	T3 SIDEWALL	4.0	Y	7	–	–	–
08/10/93	3	T1 BASE	5.5		140,000	–	–	–
08/10/93	4	T1 SIDEWALL	4.0	Y	42	–	–	–
08/10/93	5	T2 BASE	6.0		35,000	–	–	–
08/10/93	6	T2 SIDEWALL	4.0	Y	8	–	–	–
08/10/93	7	T4 BASE	6.5		14,000	–	–	–
08/10/93	8	T4 SIDEWALL	5.5	Y	5,700	–	–	–
08/10/93	9	T5 BASE	6.5		23,000	–	–	–
08/10/93	10	T5 SIDEWALL	4.5	Y	850	–	–	–
08/11/39	11	T8 BASE	8.5	Y	12,000	–	–	–
08/13/93	12	T7 TANK CONTENTS	–		8	–	–	–
08/13/93	13	T7 SIDEWALL	6.5		23	–	–	–
08/13/93	14	T7 BASE	8.0	N	220	–	–	–
08/13/93	15	T6BASE	10.0		690	–	–	–
08/18/39	16	T6 SIDEWALL	7.0	Y	26,000	–	–	–
08/18/39	17	NO SAMPLE	–	–	–	–	–	–
08/18/39	18	T21/22 SIDEWALL	8.0		–	13,000	–	–
08/18/39	19	T21/22 BASE	9.5	Y	18,000	6,400	#2 DIESEL	–
08/18/39	20	T17 GROUNDWATER	–		See VOC results, Table 5			
08/18/39	21	T17 SIDEWALL	5.5		–	<12	–	–
08/18/39	22	T17 BASE	8.5	N	–	<12	–	–
08/18/39	23	T19/20 SIDEWALL	9.0		–	14	–	–
08/19/93	24	T19/20 BASE	10.5	N	–	1,400	–	–
08/19/93	25	T23 SIDEWALL	7.0		–	<12	–	–
08/19/93	26	T23 BASE	10.0	Y	–	850	–	–
08/19/93	27	T10–16 BASE	8.0		–	310	–	–
08/19/93	28	T10–16 SIDEWALL	5.0	Y	–	18,000	–	–
08/23/93	29	T26 SIDEWALL	5.0		–	3,100	–	–
08/23/93	30	T26 BASE	9.0	Y	–	6,200	–	–
08/23/93	31	T27 SIDEWALL	5.0		–	29	–	–
08/23/93	32	T27 BASE	9.0	Y	–	4,700	–	–
08/23/93	33	T28/29 SIDEWALL	5.0		–	88	–	–
08/23/93	34	T28/29 BASE	8.0	N	–	<13	–	–
08/23/93	35	T30 SIDEWALL	4.0		–	<13	–	45
08/23/93	36	T30 BASE	7.0	N	–	<13	–	39
08/23/93	37	T31 SIDEWALL	6.0		–	<13	–	–
08/23/93	38	T31 BASE	8.0	Y	–	<12	–	–
08/24/93	39	T18 SIDEWALL	6.5		–	2,100	–	–
08/24/93	40	T18 BASE	10.5	Y	–	3,800	–	–
08/24/93	41	T24 SIDEWALL	6.0		–	<12	–	–
08/24/93	42	T24 BASE	10.5	N	–	<12	–	–
08/24/93	43	T25 SIDEWALL	6.5		–	<12	–	–
08/24/93	44	T25 BASE	10.5	N	–	<12	–	–
08/25/93	45	T32 SLUDGE	–		–	120,000	See VOC results, Table 5	
08/25/93	46	T32 GROUNDWATER	–		See VOC results, Table 5			
08/25/93	47	T32 STOCKPILE	–	N	See VOC results, Table 5			
08/30/93	48	T25 SIDEWALL	5.0		–	9,100	–	–
08/30/93	49	T25 BASE	8.0	Y	–	26,000	–	–
09/01/93	50	NO SAMPLE	–	–	–	–	–	–
09/01/93	51	RLF SE STOCKPILE	–	–	–	190	–	–
09/01/93	52	RLF SW STOCKPILE	–	–	–	58	–	–
09/01/93	53	RLF NW STOCKPILE	–	–	–	4,500	–	–
09/01/93	54	RLF NC STOCKPILE	–	–	–	4,700	–	–
09/01/93	55	RLF NE STOCKPILE	–	–	–	5,500	–	–
WDOE ACTION LEVELS					200	200	–	200
UNITS OF DETECTION					mg/kg	mg/kg	–	mg/kg

NOTES:

1. A dash (–) means no laboratory analysis performed.
2. HBP means higher boiling point compounds (i.e., bunker fuel)
3. A less than (<) value indicates levels were below instrument detection limits.
4. RLF means RICHLAND LANDFILL

Table 5
Laboratory Analytical Results
VOC Levels in Soil, Groundwater and Sludge Samples
Uptown Shopping Center, Richland, Washington
HUNTINGDON
Job# 192-2104-5

Sample Date	Sample I.D.	Sample Location	Matrix	Organic Compound	Concentration (μg/L)	WDOE Method A Action Levels
8/18/93	T17GW	Tank 17 Test Pit	Water	PCE	5,900	5 μg/L
				TCE	400	5 μg/L
8/25/93	T32GW	Tank 32 Test Pit	Water	PCE	<1	5 μg/L
				TCE	<1	5 μg/L
8/25/93	T32SPC	Tank 32 Test Pit	Soil	Methylene Chloride	400	500 μg/kg
				PCE	<5	5 μg/L
				TCE	<5	5 μg/L
8/25/94	T32 Sludge	Tank 32	Sludge Solids	PCE	<2,500	N/A
				TCE	<2,500	N/A

APPENDIX 4

Tank Closure Field Forms

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/9/93 Completed 9/10/93

Facility ID#: n/a

Tank No.: 1

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1317 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 1000
3. What Substance was last stored in the tank? #2 Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/10/93

6. Type of Closure:
a) Removed from ground? Yes
b) Closed in place?
if b, please describe fill material used:

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated Cracked X Rusted Crushed
Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel X Galvanized Steel Fiberglass Reinforced Plastic
Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	FS -0.5	0 ppm	n/a
2	Fillspout -1.5	4.2	n/a
3	Sivewall Comp 4'	0.0	418.1
4	Base N End 5.5	175	418.1
5	Backfill Composite	0.0	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: Est. 11'

(c) Subsurface Profile: See excavation log

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon St
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel Discoloration Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	Fillspout, -1'	3 ppm	n/a
2	SW Comp 4.5	19	418.1
3	Base, Composite 6.5	100	418.1
4	Backfill	20	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Domino,s pizza-east, Alley-west

(b) Depth to groundwater: Est. 11'-12'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water:

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson at end day for cleaning & Pacific Steel for scrap

(b) Contaminated Soil: Near N end of tank at bottom. Leaky Weld. No overet to avoid destabilizing footing.

(c) Contents of Tank: Heating Oil, 480 Gallon BTM/EXN

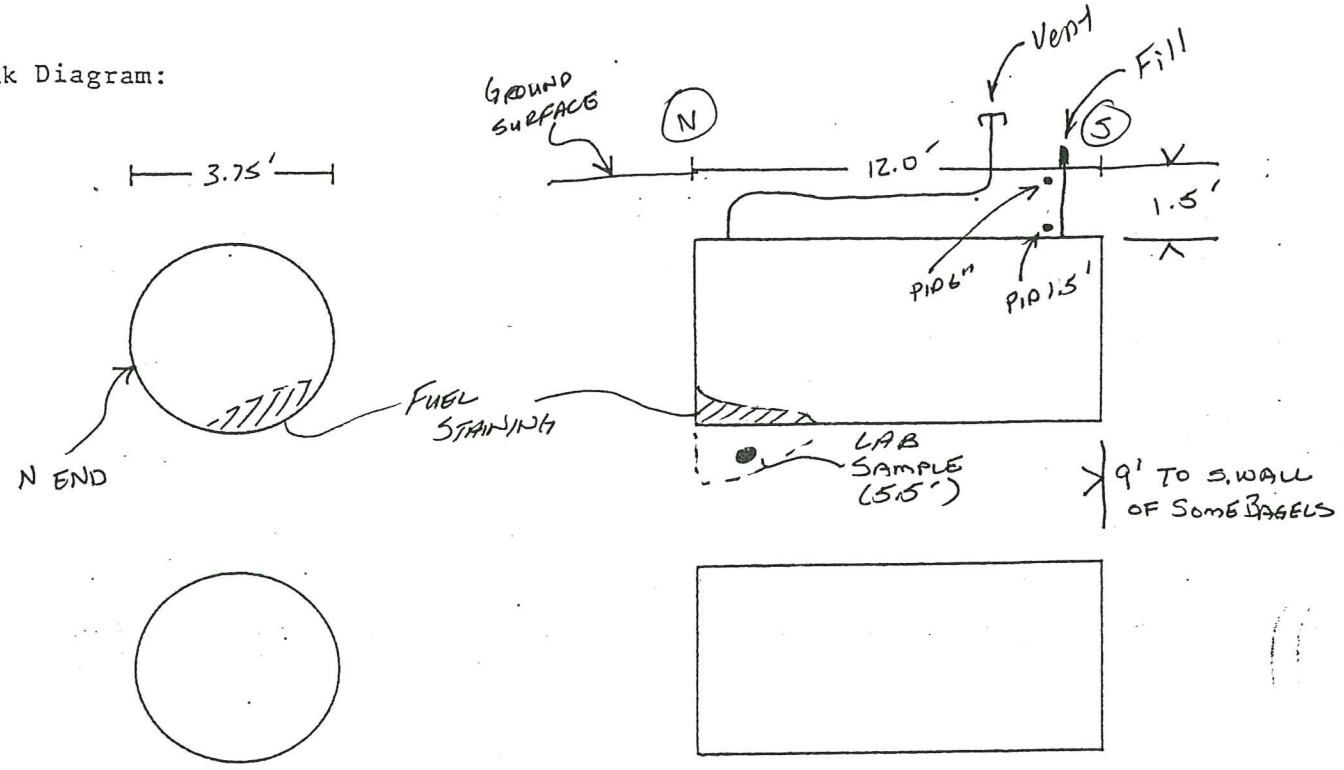
18. Excavation subsoil Log:

Surface	___	___ 3" Al Gravelly silt, yellow brown moist
1	___	___
2	___	___ Sandy silt, yellow brown, moist
3	___	___
4	___	___
5	___	___Silty, Tan, Very moist
6	___	___
7	___	___
8	___	___
9	___	___
10	___	___

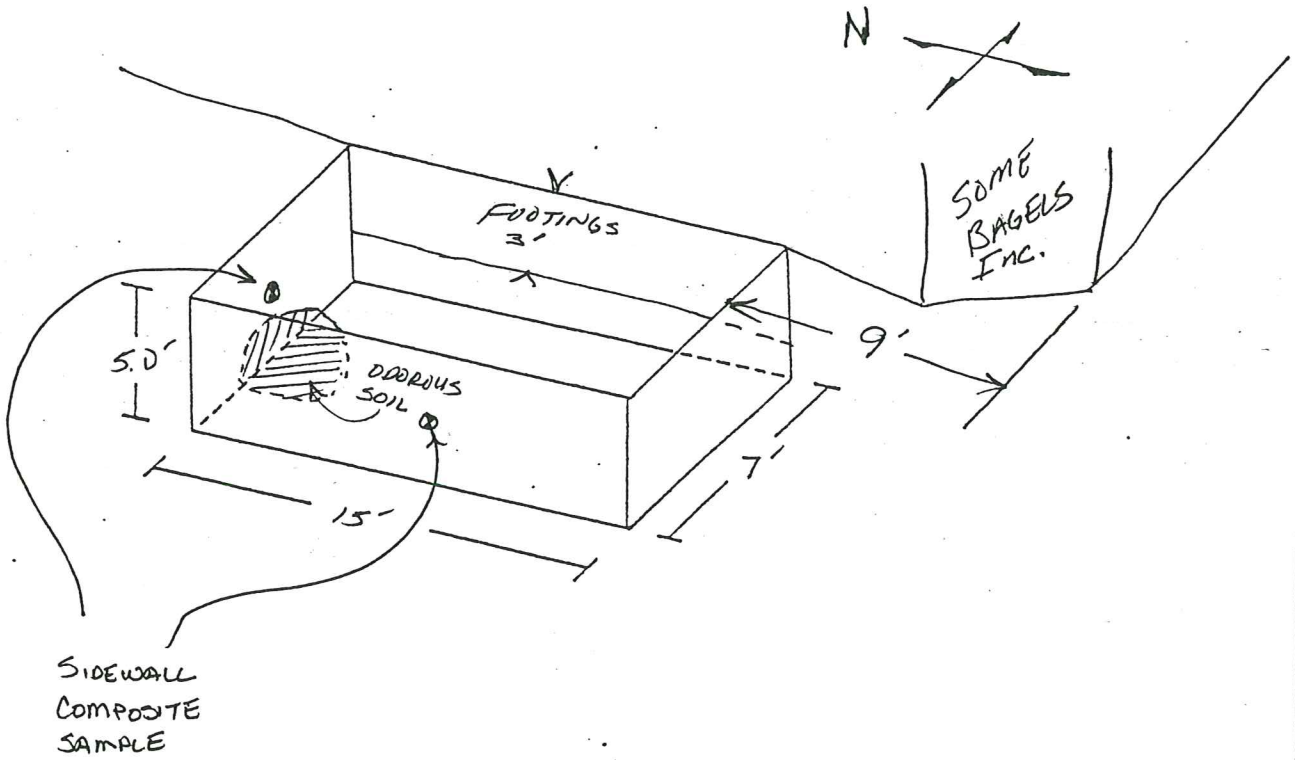
19. General Observations and Comments:
(Please mark diagrams on next page)

Some visible rust and odors near N end of tank took some sample there on bottom

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/10/93

Facility ID#: n/a

Tank No.: 2

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1319 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/10/93

6. **Type of Closure:**
   a) Removed from ground? X
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed
Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good X

Material of Construction:
Steel X Galvanized Steel Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	Sidewalls, 4' comp	0 ppm	418.1
2	Backfill	0	n/a
3	Base, Composite 6'	110	418.1

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Town Crier-east, Alley-west

(b) Depth to groundwater: Est. 11'-12'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River about 1500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson clean

Pacific Steel for scrap

(b) Contaminated Soil: None. Removed

(c) Contents of Tank: 150 gal Heating Oil

18. Excavation subsoil Log:

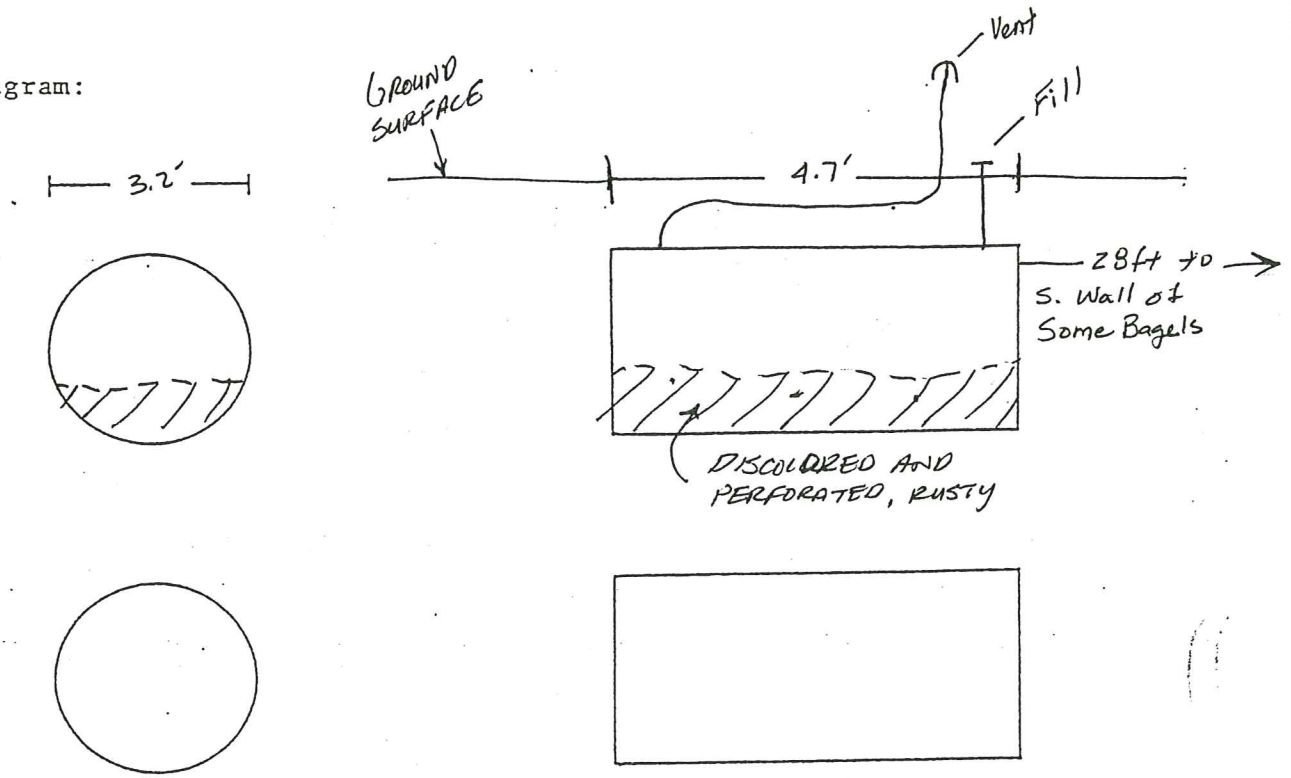
Surface ___ ___ 3" AC

		Gravely silty sand
1	___	___
		Silty sand, yellow brown, moist
2	___	___
3	___	___
4	___	___
5	___	___
		Silt, moist tan
6	___	___
7	___	___
8	___	___
9	___	___
10	___	___

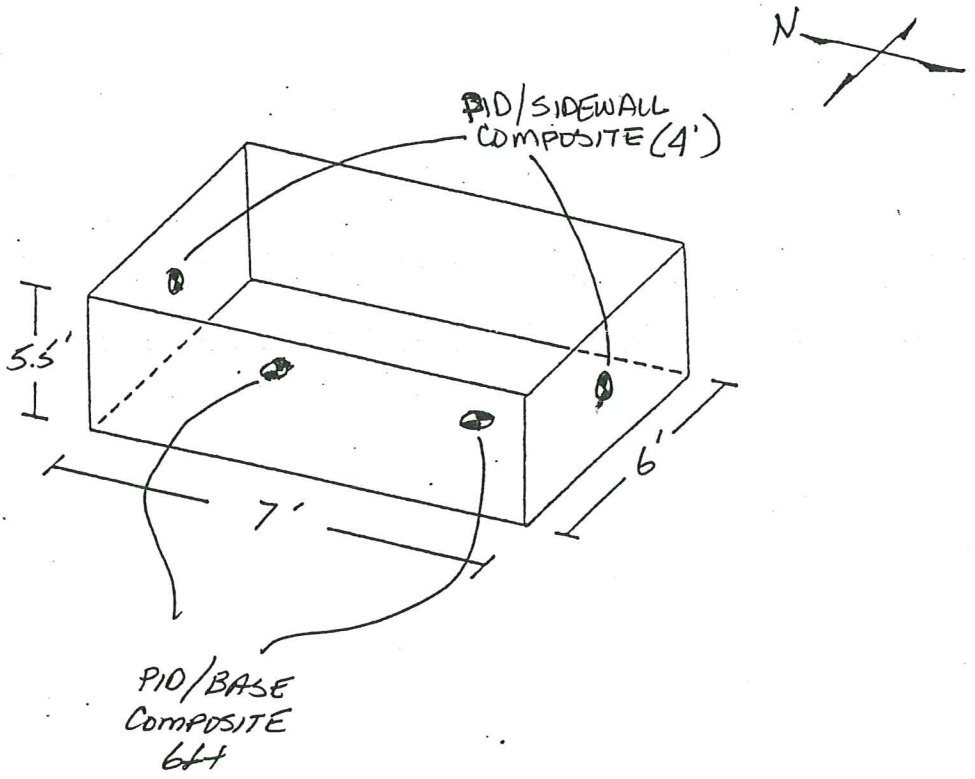
19. General Observations and Comments:
(Please mark diagrams on next page)

Holes in tank bottom to +/- quarter size, oxidized staining +/- 3" beneath tank turns to native color below.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.	Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/9/93

Facility ID#: n/a

Tank No.: 3

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center\Behind
1319 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/09/93

6. **Type of Closure:**
   a) Removed from ground? X
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated Cracked X Rusted X Crushed
Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good X

Material of Construction:

Steel Galvanized Steel X Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
Roger Weight (City of Richland)

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	FS 1.5	27ppm	n/a
2	Base 5.5 Comp	138	n/a
3	Backfill/Comp	13	418.1

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: Estimate +/- 15'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Estimate +/- 1500'

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson clean

Pacific Steel for scrap

(b) Contaminated Soil: None. Removed

(c) Contents of Tank: None

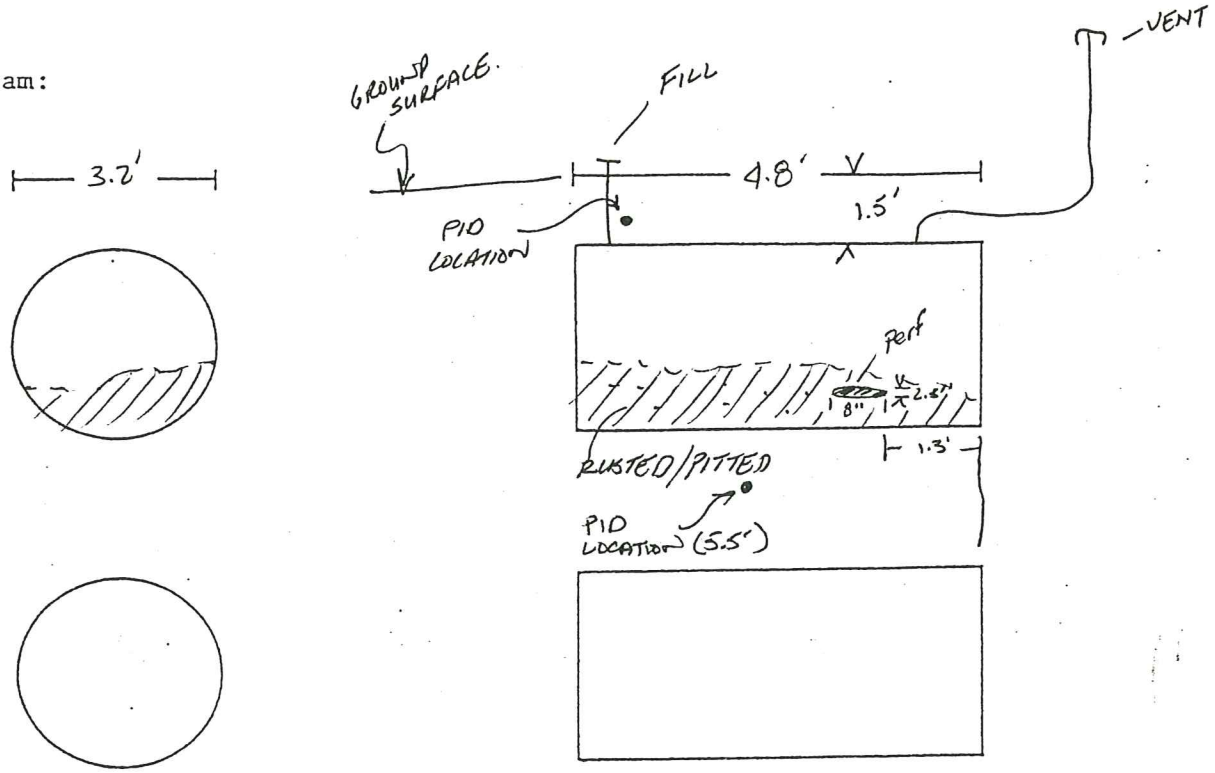
18. Excavation subsoil Log:

Surface			3" AC
			Silty sand w/gravel
	1		
	2		
	3		Silty Sand
	4		
BTM/EXN	5		Silt B 045.5'
	6		
	7		
	8		
	9		
	10		

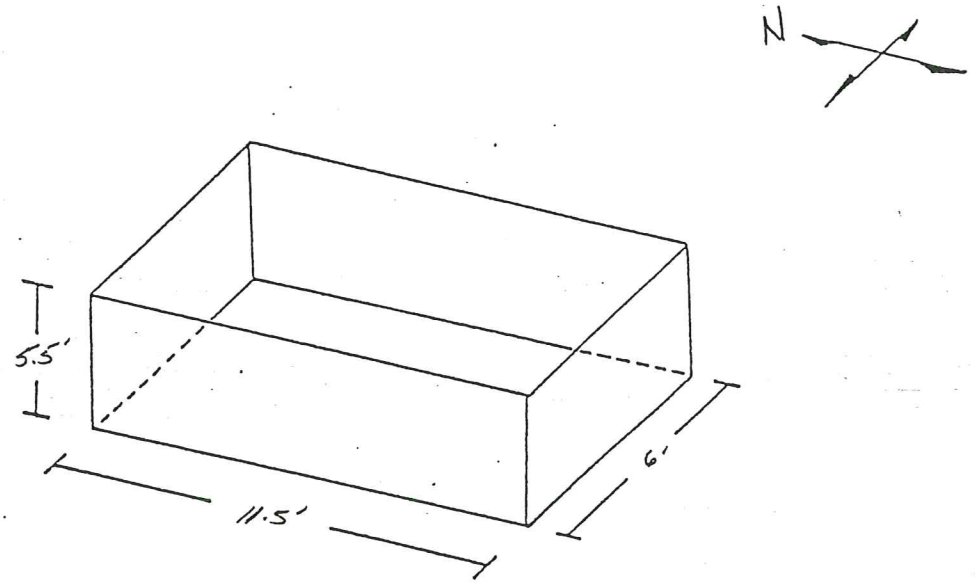
19. General Observations and Comments:
(Please mark diagrams on next page)

Some PCS may be in bottom of EXN, too close to footings however for removing

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/10/93

Facility ID#: n/a

Tank No.: 4

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1323 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/10/93

6. **Type of Closure:**
   a) Removed from ground? X
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:

Pitted X	Perforated X	Cracked	Rusted	Crushed
Good				

Material of Construction:

Steel X	Concrete	Fiberglass Reinforced Plastic
Other		

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:

Pitted X	Perforated	Cracked	Rusted X	Crushed
Good				

Material of Construction:

Steel	Galvanized Steel X	Fiberglass Reinforced Plastic

Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel Discoloration Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	FP -1.5	0.5 ppm	n/a
2	SW Comp 5.5	150	418.4
3	Base, Composite 6.5	110	418.1
4	Backfill, Comp.	3.0	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater:

(c) Subsurface Profile: See Excavation Sub Soil Log:

(d) Location of nearest surface water:

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank:

(b) Contaminated Soil:

(c) Contents of Tank: 150 gal Heating Oil

18. Excavation subsoil Log:

Surface ___ ___ 2" AC

Silty sand w/gravel yellow brown, moist

1 ___ ___

2 ___ ___

Silty sand, yellow brown, moist

3 ___ ___

4 ___ ___

5 ___ ___

Silt, moist tan

6 ___ ___

7 ___ ___

8 ___ ___

9 ___ ___

10 ___ ___

19. General Observations and Comments:
(Please mark diagrams on next page)

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/10/93

Facility ID#: n/a

Tank No.: 5

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1325 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/10/93

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place?
if b, please describe fill material used:

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:

Pitted X	Perforated X	Cracked	Rusted	Crushed
Good				

Material of Construction:

Steel X	Concrete	Fiberglass Reinforced Plastic
Other		

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:

Pitted X	Perforated	Cracked	Rusted X	Crushed
Good				

Material of Construction:

Steel	Galvanized Steel X	Fiberglass Reinforced Plastic
Other Minor perforations and leakage		

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: E.P. Johnson for cleaning;
Pacific Steel for scrap.

(b) Contaminated Soil: None

(c) Contents of Tank: Pumped to Portland for recycling

18. Excavation subsoil Log:

Surface ___ ___ 2" AC

Silty sand w/gravel, yellow brown, moist

1 ___ ___

2 ___ ___

Silty sand, yellow brown, moist

3 ___ ___

4 ___ ___

5 ___ ___

Silt, yellow brown, moist

6 ___ ___

7 ___ ___

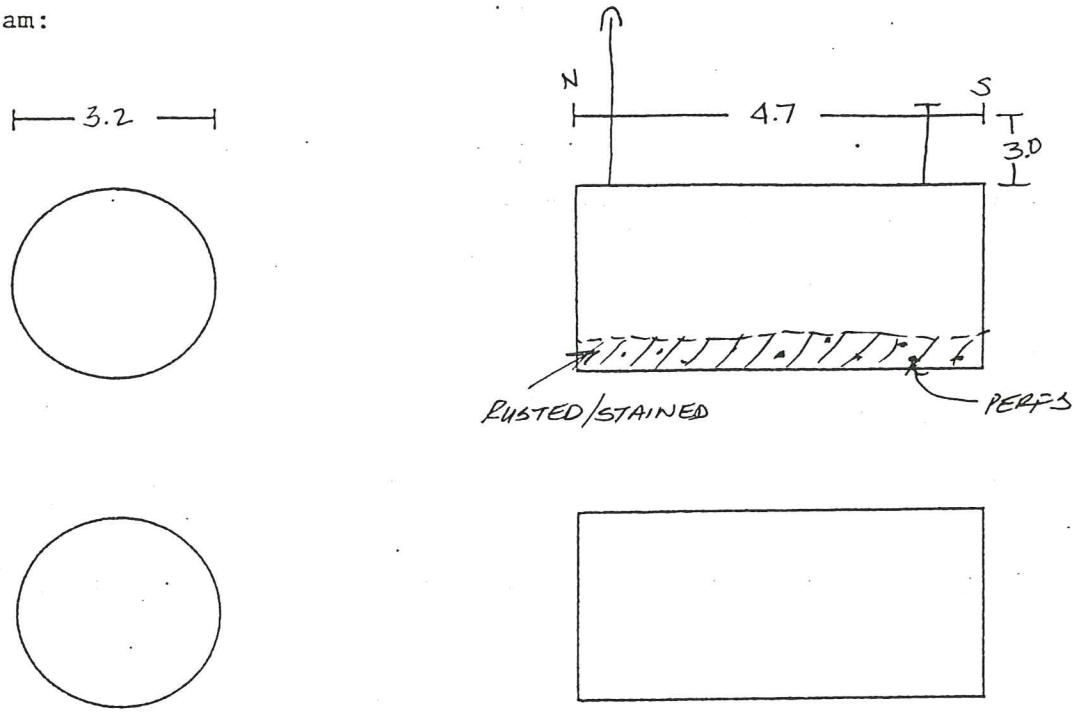
8 ___ ___

9 ___ ___

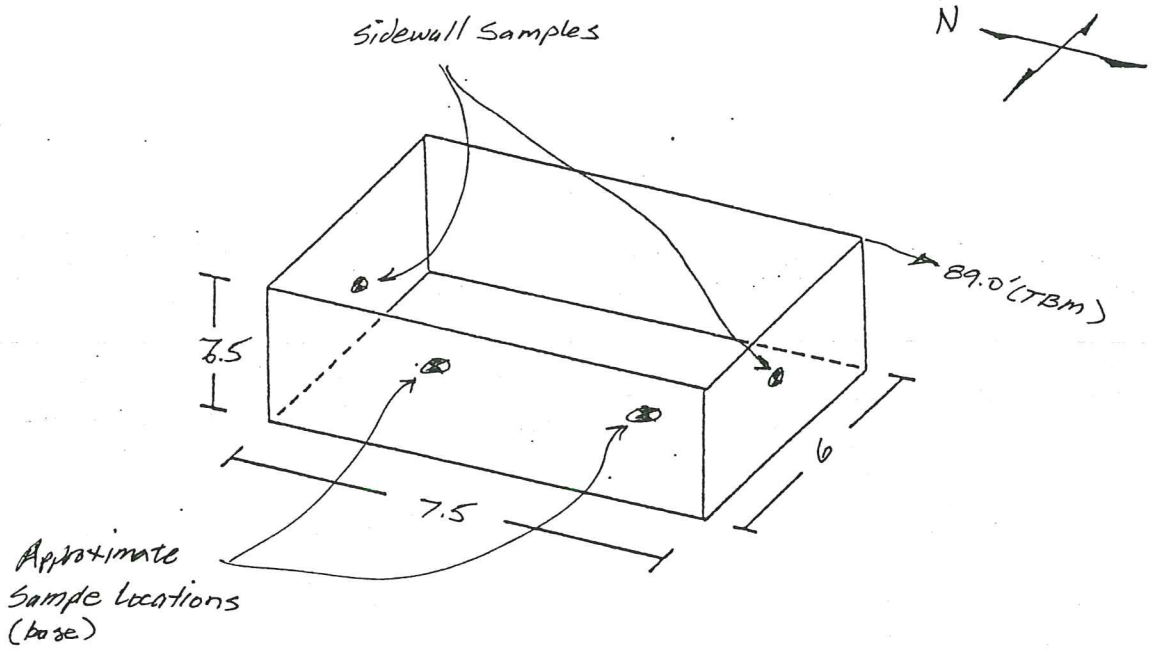
10 ___ ___

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/11/93

Facility ID#: n/a

Tank No.: 6

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1327 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure?

6. **Type of Closure:**
   a) Removed from ground?
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed
Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel X Galvanized Steel X Fiberglass Reinforced Plastic

Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	FP. 2.0		0 ppmn/a
2	Backfill, Comp	70	n/a
3	SWC, 5.0	5	418.1
4	BC 6.5	380	418.1
5	SSW 7.0	110	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: Estimate 12'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Estimate 1500'

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson clean

Pacific Steel for scrap

(b) Contaminated Soil: Stockpiled in parking area E.

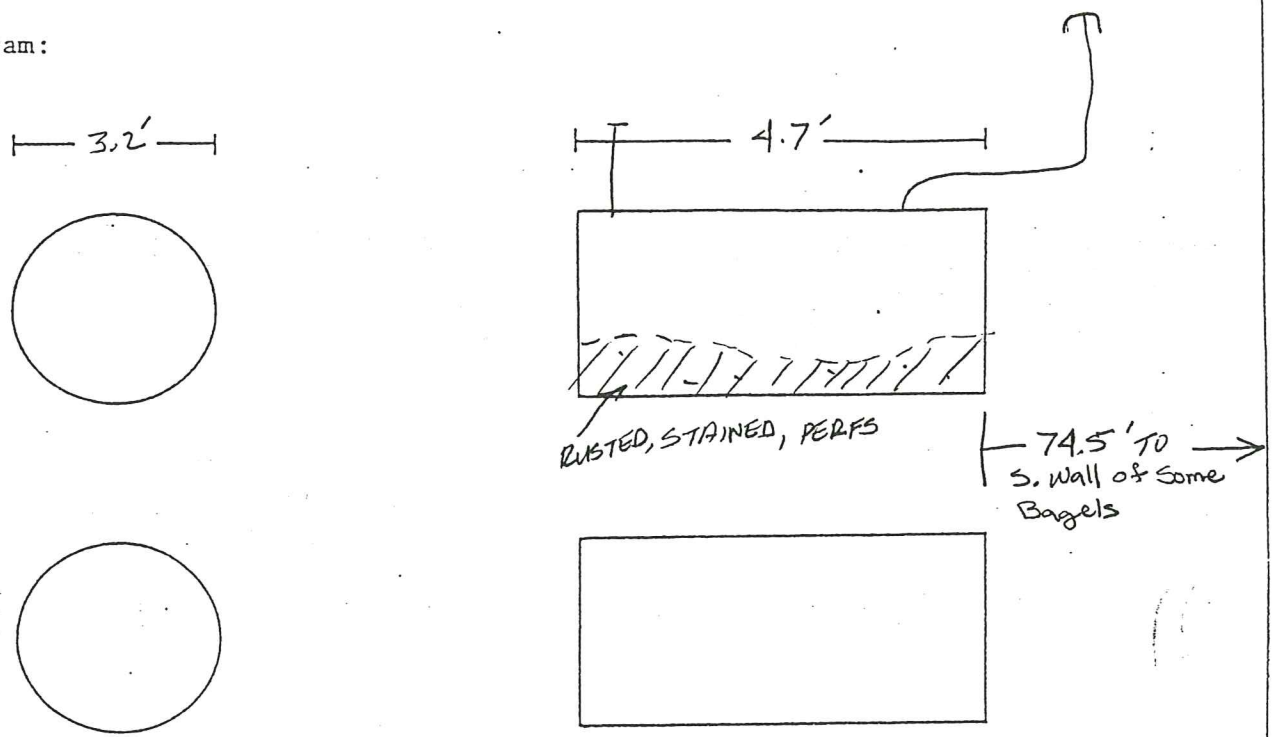
(c) Contents of Tank: Pumped and hauled to recyclers

18. Excavation subsoil Log:

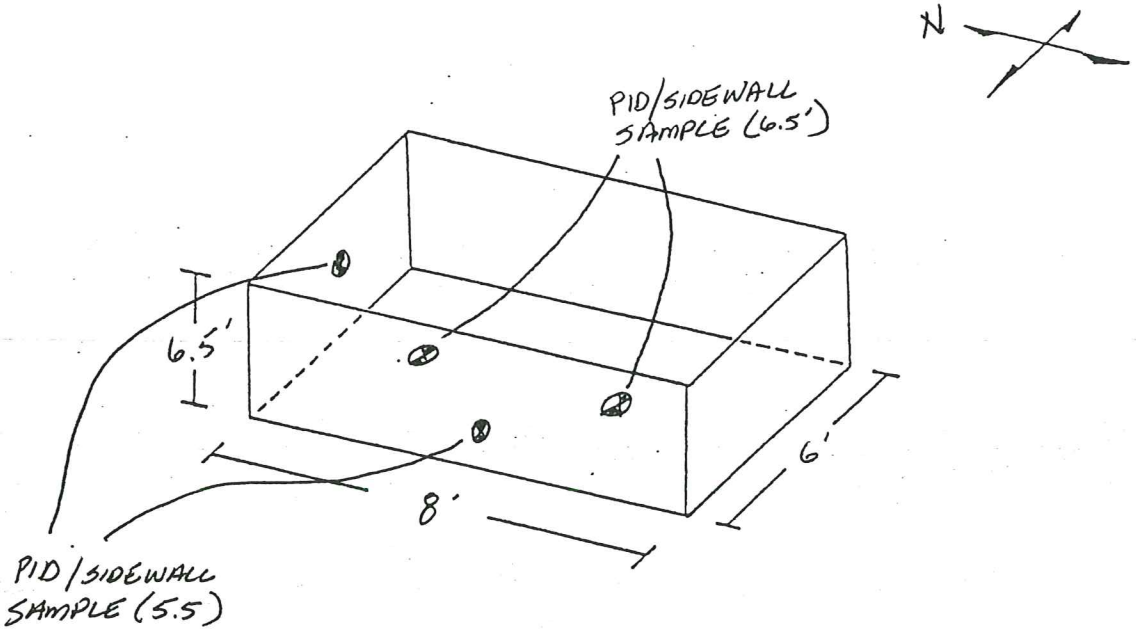
Surface	___	___ 2" AC
		Silty sand w/gravel
1	___	___
		Gravely silt
2	___	___
3	___	___
4	___	___
		Coke bottle @ 4'
5	___	___
6	___	___
7	___	___
8	___	___
9	___	___
10	___	___

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:

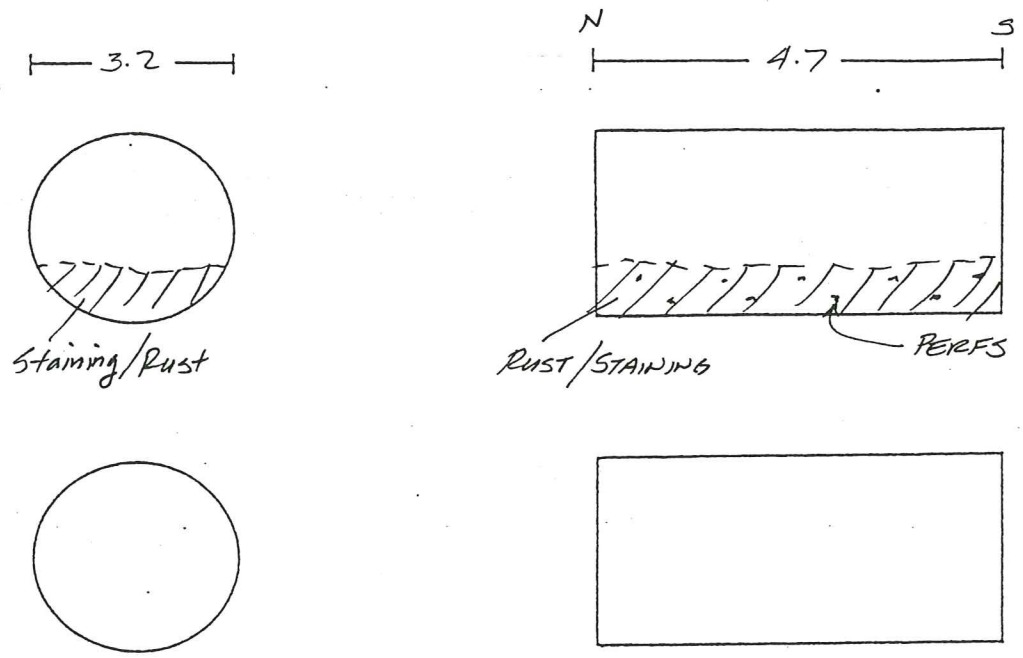


Excavation Diagram:

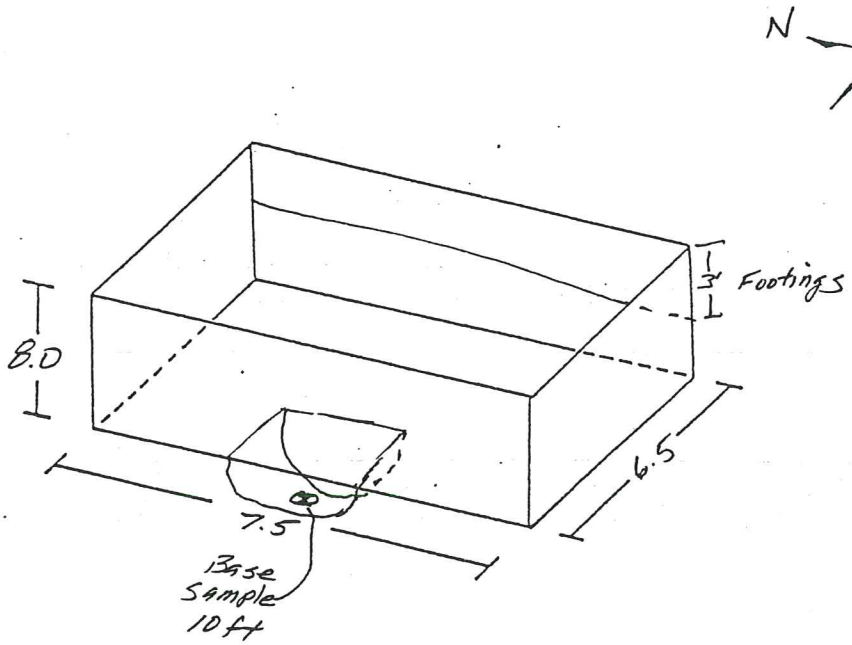


	Chen Northern, Inc.		Fig.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/11/93

Facility ID#: n/a

Tank No.: 7

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1365 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 2000
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure?

6. Type of Closure:
a) Removed from ground? No
b) Closed in place? Yes
if b, please describe fill material used: Grout, per Richland specifications

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic
Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None Cathodic Ext. Coating X Int. Lining Double Wall
Other Red primer on surface

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	T7 BF	20 ppm	n/a
2	Tank Contents	400	418.1

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Shields Office Supply-east, Alley-west

(b) Depth to groundwater: Estimate 10'-11'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

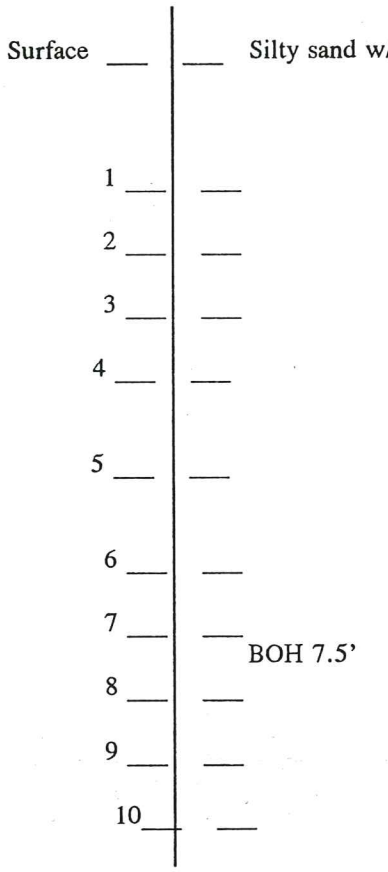
17. Disposal

(a) Tank:

(b) Contaminated Soil:

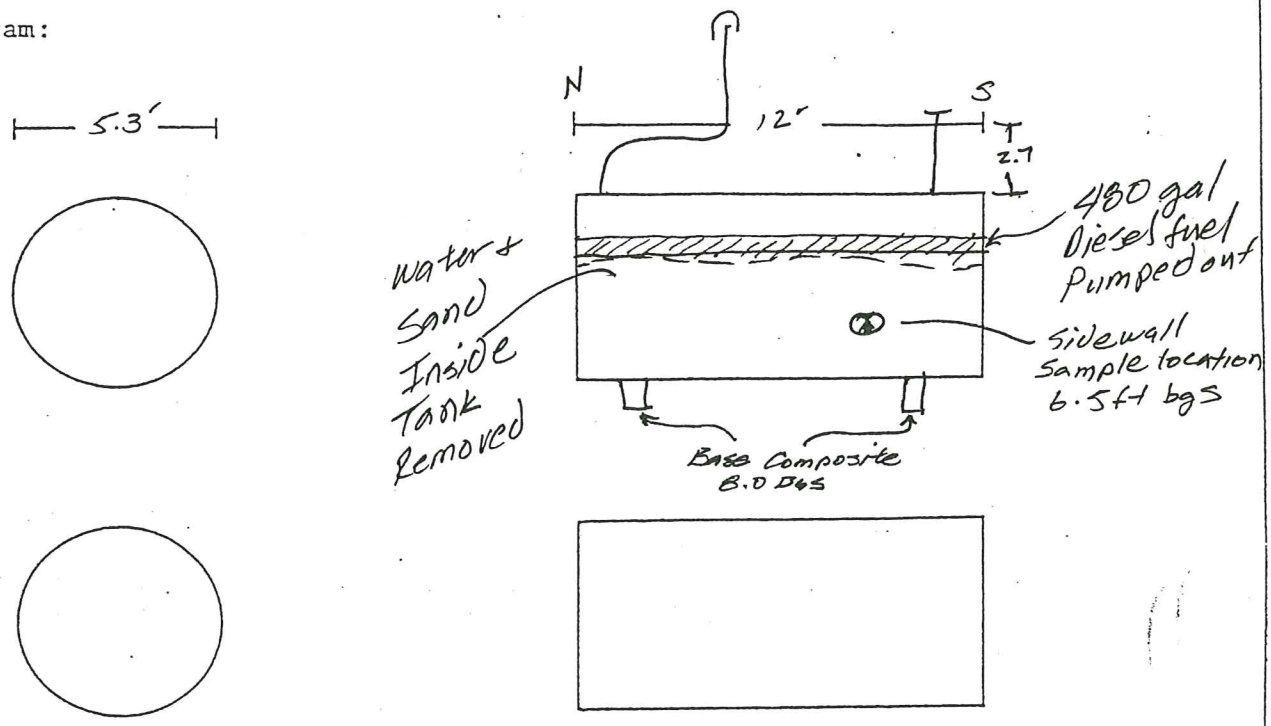
(c) Contents of Tank: 480 gallons heating oil; recycled

18. Excavation subsoil Log:

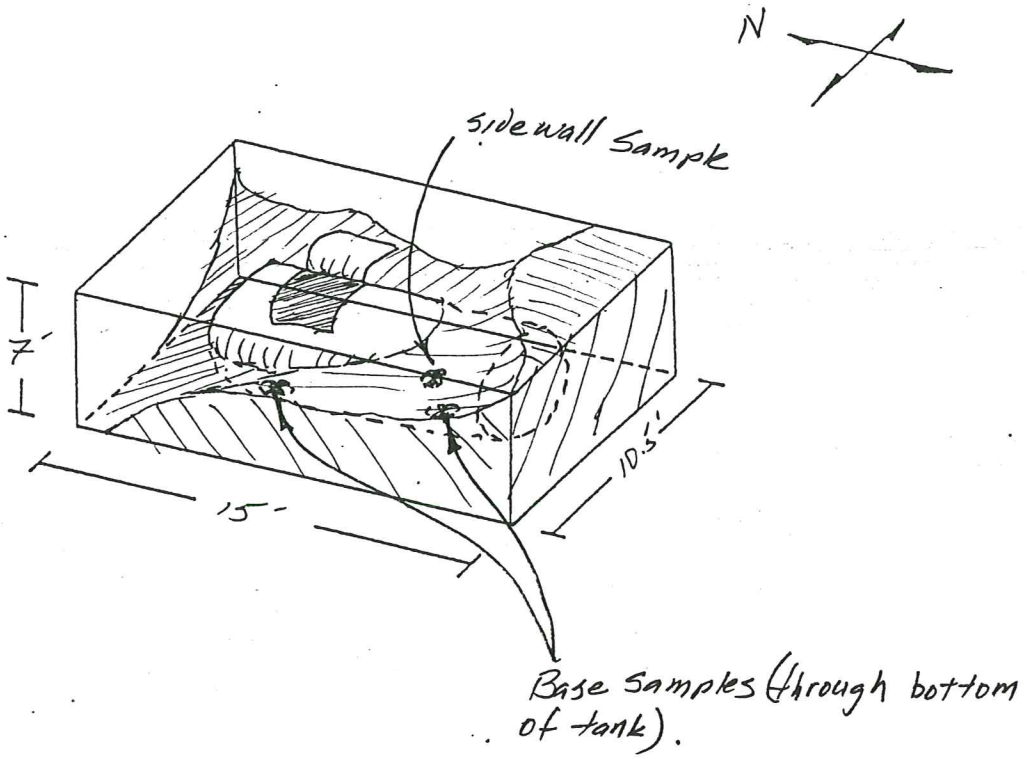


19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/11/93

Facility ID#: n/a

Tank No.: 8

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behing
1367 C George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40 Years
2. Tank Capacity (gallons) 295
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure?

6. **Type of Closure:**
   a) Removed from ground? X
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No X
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	T8 FP 1.5	1.0ppm	n/a
2	T8 BF	15	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: Estimate 12'

(c) Subsurface Profile: See Excavation Sub Soil Log:

(d) Location of nearest surface water: Columbia 1500'

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

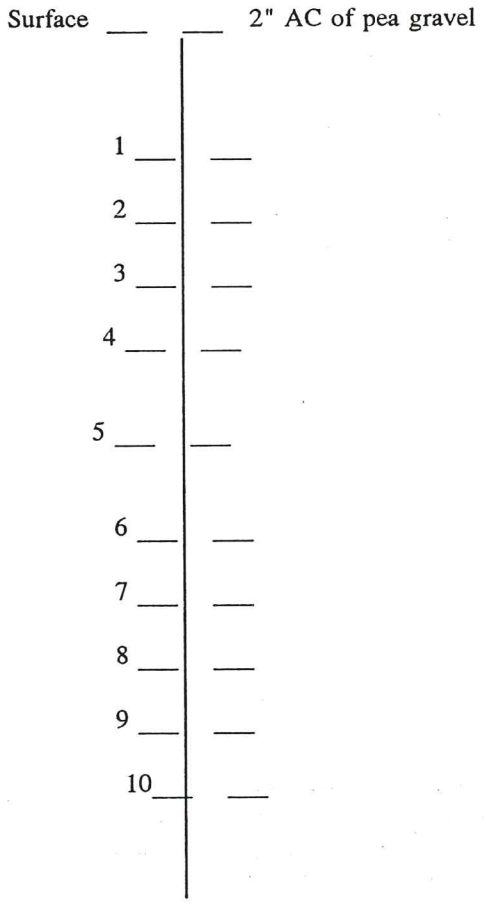
17. Disposal

(a) Tank: E.P. Johnson for cleaning
Pacific Storage for scrap

(b) Contaminated Soil:
Stockpiled on site for removal to landfill

(c) Contents of Tank:
Heating oil fuel to Portland for recycling.

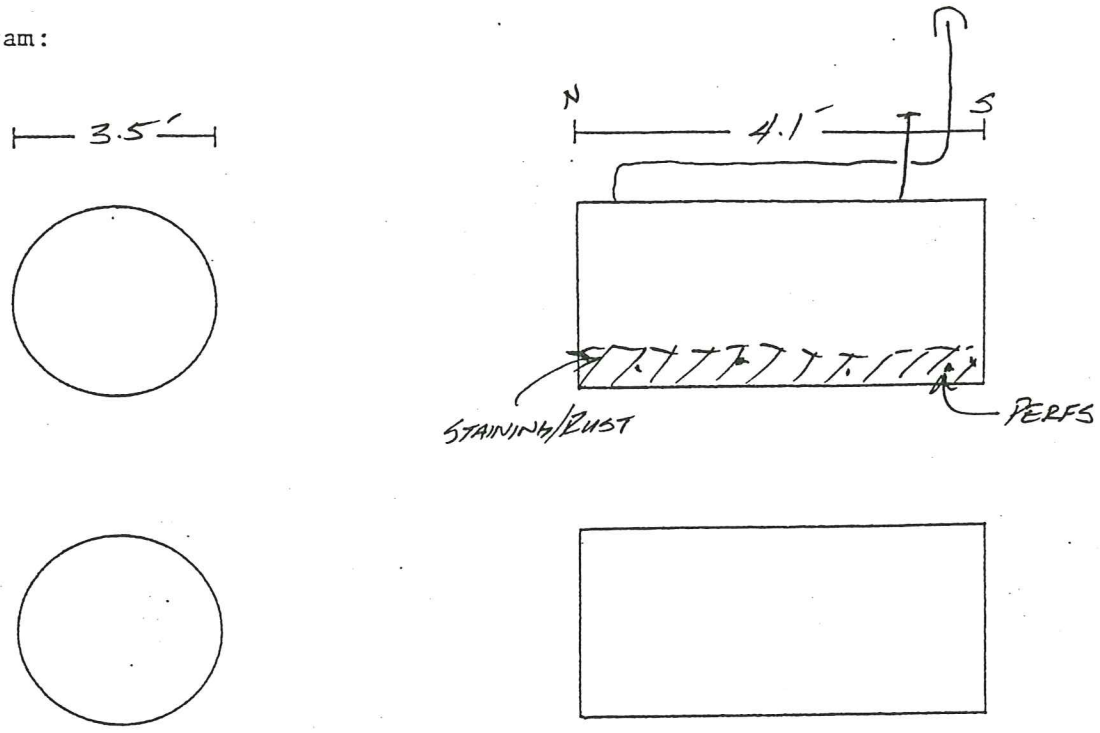
18. Excavation subsoil Log:



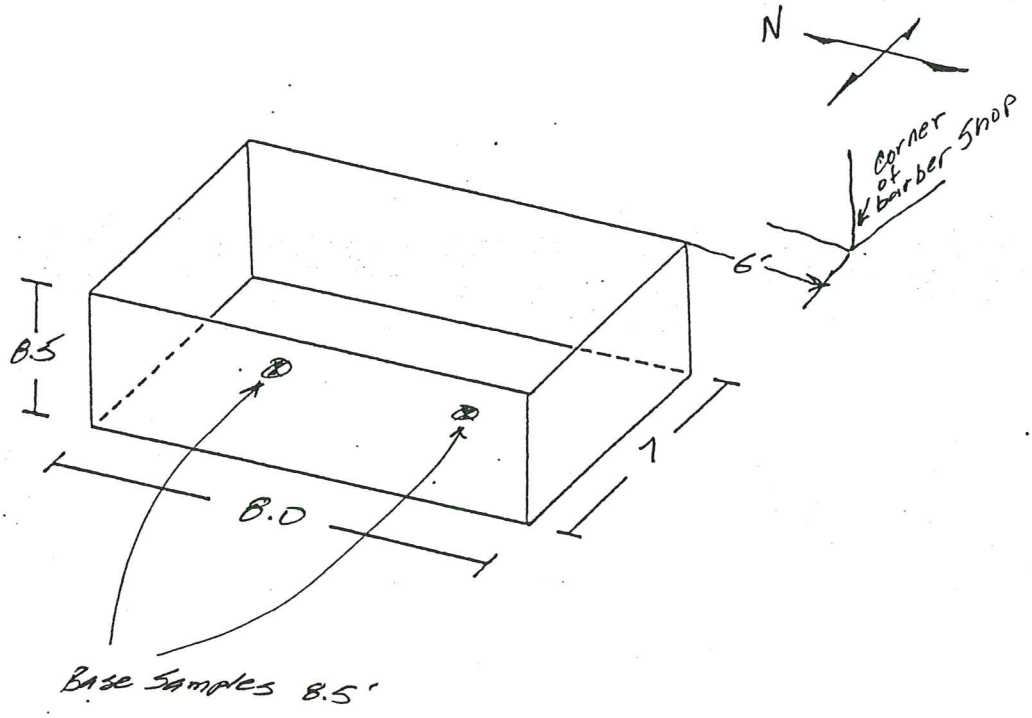
19. General Observations and Comments:
(Please mark diagrams on next page)

Material more porous than in tank sites T1-T6. More apparent pcs took several readings in pcs. During removal by poking stick in and sniffing hole. All pcs w/readings less than 30 ppm went to stockpile in east parking lot.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/30/93

Facility ID#:

Tank No.: 10-16

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/In Alcove
by 1386, 1388, 1398 Jadwin Ave
Richland, WA 99352

1. Tank Ages (years) Est. 30-40
2. Tank Capacities (gallons) (10)-1000 gallons, (1-16)-285 gallons
3. What Substance was last stored in the tanks? Heating Oil
4. When were tanks last used? Unknown
5. Dates of closure? 8/30/93

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place?
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product X

Sheen on Groundwater X No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No Limited excavated 8'8' pit

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1 No PID Recordings			
2			
3			
4			
5			

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Fabricland-north, Henry's Deli-west, Lee Bros. Martial Arts-south, Alley-east

(b) Depth to groundwater: 8.0 ft.

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank:
E.P Johnson for cleaning. Pacific Steel for Scrap.

(b) Contaminated Soil:
To Richland Landfill

(c) Contents of Tank: EMPTY
Previously pumped by Apex environmental.

18. Excavation subsoil Log:

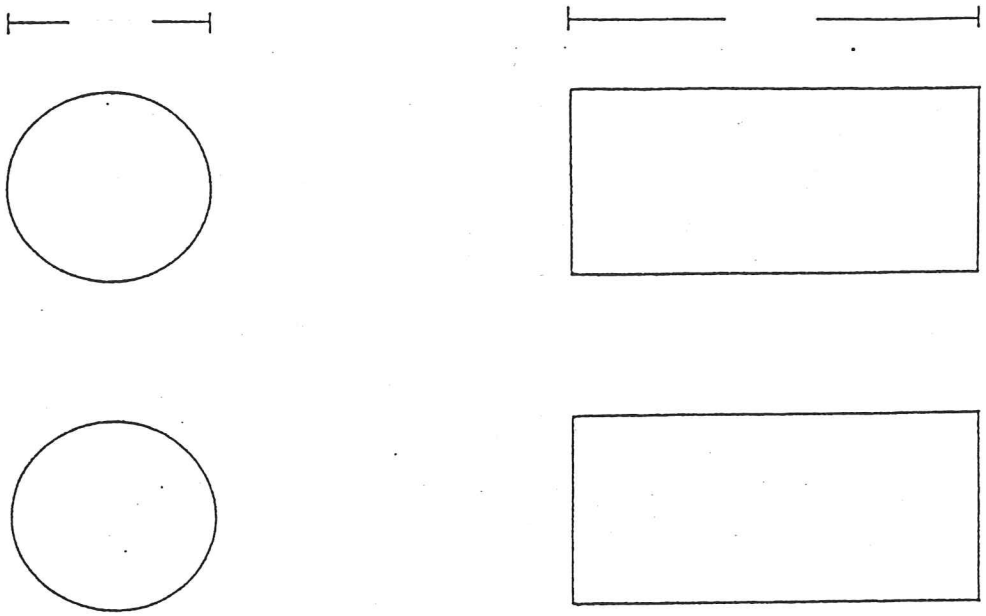
Surface ___ ___ Silty Sand, yellow brown, fine to medium grained, about 20% low plastic fines, some thin interbeds, of gravely and silty material

1 ___ ___
2 ___ ___
3 ___ ___
4 ___ ___
5 ___ ___ Very Odorous in excavation, Much PCS observed in lower side walls and base.
6 ___ ___
7 ___ ___
8 ___ ___ BOH 8.0'
9 ___ ___
10 ___ ___
11 ___ ___
12 ___ ___

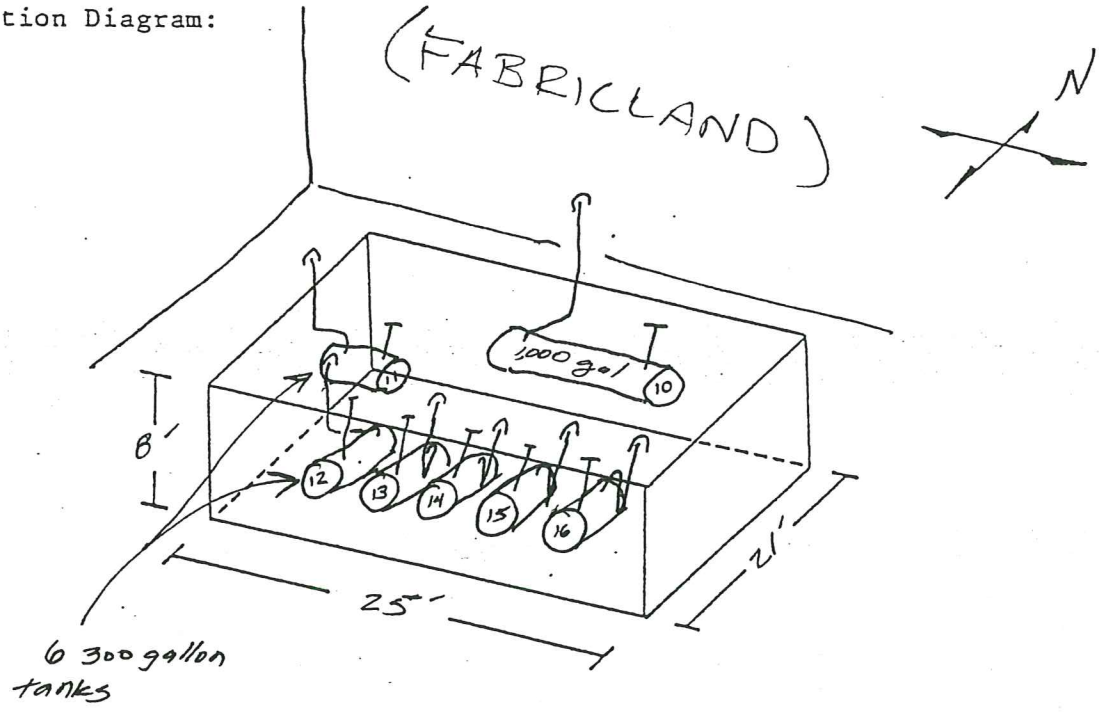
19. General Observations and Comments:
(Please mark diagrams on next page)

Access for PID readings prevented by wet site conditions. Much muck and saturated soil. Rained sporadically throughout the day.

Tank Diagram:



Excavation Diagram:



Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/30/93

Facility ID#:

Tank No.: 17

Tank Owner's Name & Address
James C. & Luisita T. Go
325 Hanford St.
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center
1374 Jadwin Ave
Richland, WA 99352

1. Tank Age (years) Est 30-40
2. Tank Capacity (gallons) N/A
3. What Substance was last stored in the tank? Apparent Heating Oil
4. When was tank last used? unknown
5. Date of closure? Left in place.

6. **Type of Closure:**
   a) Removed from ground? no
   b) Closed in place? no
   if b, please describe fill material used: sand and structural fill.

7. **Tank Condition and Material of Construction:**
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition: N/A
Pitted Perforated Cracked Rusted Crushed
Good

Material of Construction: N/A
Steel Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:** N/A
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection: N/A
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel yes Discoloration slight Free Product
Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	Backfill	50	
2	Base composite 8.5'	108	TPHD
3	Sidewall comp. 5.5'	20	TPHD

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Richland Schwinn-west

(b) Depth to groundwater: $\pm$ 8.8'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River $\pm$ 1500 ft. east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson for cleaning,
To Pacific Steel for Scrap

(b) Contaminated Soil:
Richland Landfill

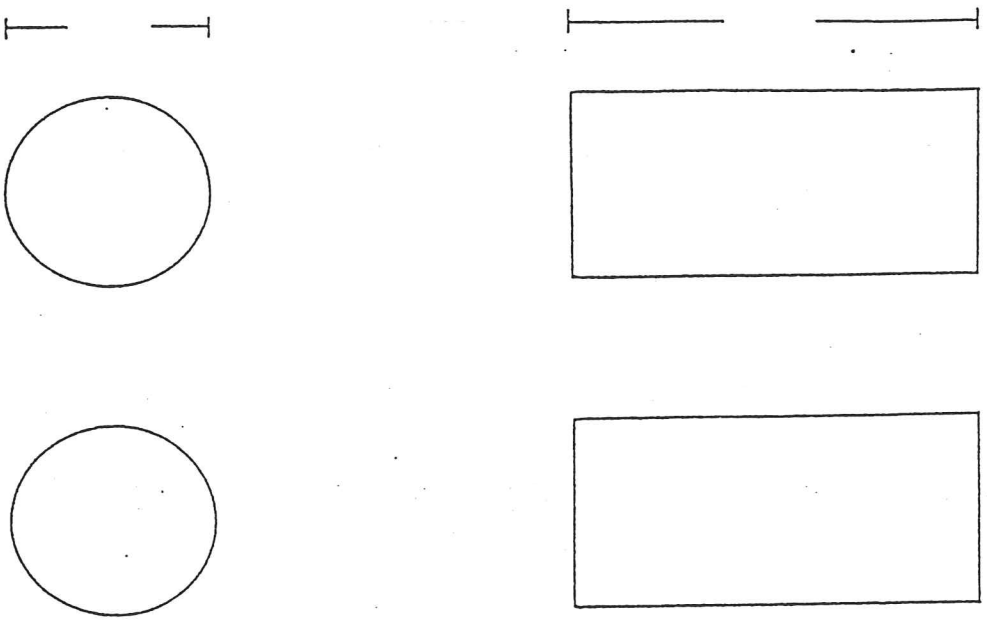
(c) Contents of Tank: EMPTY

18. Excavation subsoil Log:

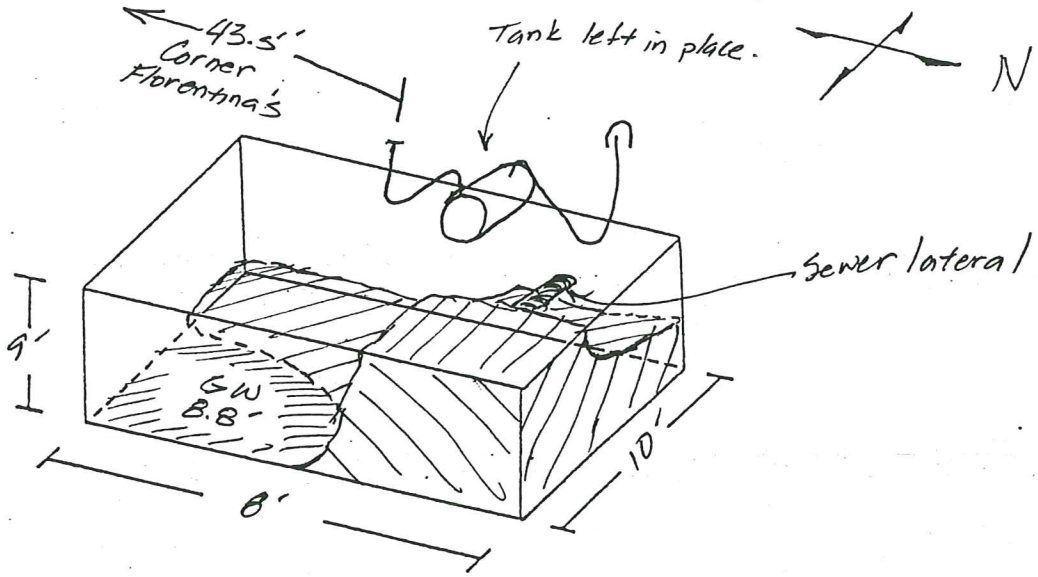
Surface	___	___ 2" AC
1 ___	___	Silty sand with gravel (SM) Yellow brown, moist in upper 2'
2 ___	___	
3 ___	___	
4 ___	___	Sandy gravel
5 ___	___	Silty sand
6 ___	___	Gray green PCS
7 ___	___	
8 ___	___	GW 8.8'
9 ___	___	
10 ___	___	
11 ___	___	
12 ___	___	

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram: N/A



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/24/93

Facility ID#: 192-2104-5

Tank No.: 18

Tank Owner's Name & Address
Gary A. & Donna White
34005 Caballo Pl.
Kennewick, WA 99337

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1368 Jadwin Ave
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 610
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? n/a
5. Date of closure? 8/24/93

6. **Type of Closure:**
   a) Removed from ground? X
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted Crushed Good

Material of Construction:
Steel Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic
Other Very minor perfs compared to most tanks removed.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall

10. Closure / Excavation Contractor Name & Address:

E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel Discoloration Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	Backfill	570 ppm	n/a
2	SWC 6.5	350 ppm	n/a
3		3100	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: 10.5'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water:

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: E.P. Johnson for cleaning
Pacific Steel for scrap

(b) Contaminated Soil: to Richland LF

(c) Contents of Tank: Heating oil

18. Excavation subsoil Log:

Surface ___ ___ 4" Concrete,
Silty sand, brown, moist

1 ___ ___

2 ___ ___

3 ___ ___

4 ___ ___

5 ___ ___

6 ___ ___ Blue gray pcs

7 ___ ___

8 ___ ___
Gravelly sand, moist, blue gray

9 ___ ___

10___ ___

19. General Observations and Comments:
(Please mark diagrams on next page)
Observed gray soil at approximately 8 ' apparent PCS, down to GW. Backfilled w/Acme sand.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/17/93

Facility ID#: n/a

Tank No.: 19/20

Tank Owner's Name & Address
L. R. Bailey
303 W. 22nd Ave.
Kennewick, WA 9933652

Tank Facility Name & Address:
Uptown Shopping Center
1374 Jadwin Ave.
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons)
3. What Substance was last stored in the tank?
4. When was tank last used? n/a
5. Date of closure?

6. **Type of Closure:**
   a) Removed from ground? No
   b) Closed in place? No
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:** N/A
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted Perforated Cracked Rusted Crushed Good

Material of Construction:
Steel Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:** N/A
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic
Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection: N/A
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product X

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes X No
14. Did Overexcavation take place? Yes X No

15. Samples Collected:

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Collectable Classics-West

(b) Depth to groundwater: $\pm$ 10.5'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River about 1500 Feet East.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank:

Tank Inaccessible, not removed.

(b) Contaminated Soil:
To Richland Landfill

(c) Contents of Tank:
Unknown, resembling heating oil, based on site observations.

18. Excavation subsoil Log:

Surface ___ ___ 2" Asphalt followed by Silty sand w/gravel, brown, moist

1 ___ ___

2 ___ ___ Silty sand, yellow brown, moist, fine to medium

3 ___ ___

4 ___ ___ Sandy gravel

5 ___ ___ Silty sand

6 ___ ___ Gray blue (apparent) PCS

7 ___ ___

8 ___ ___ Silty sand w/gravel, blue gray, moist

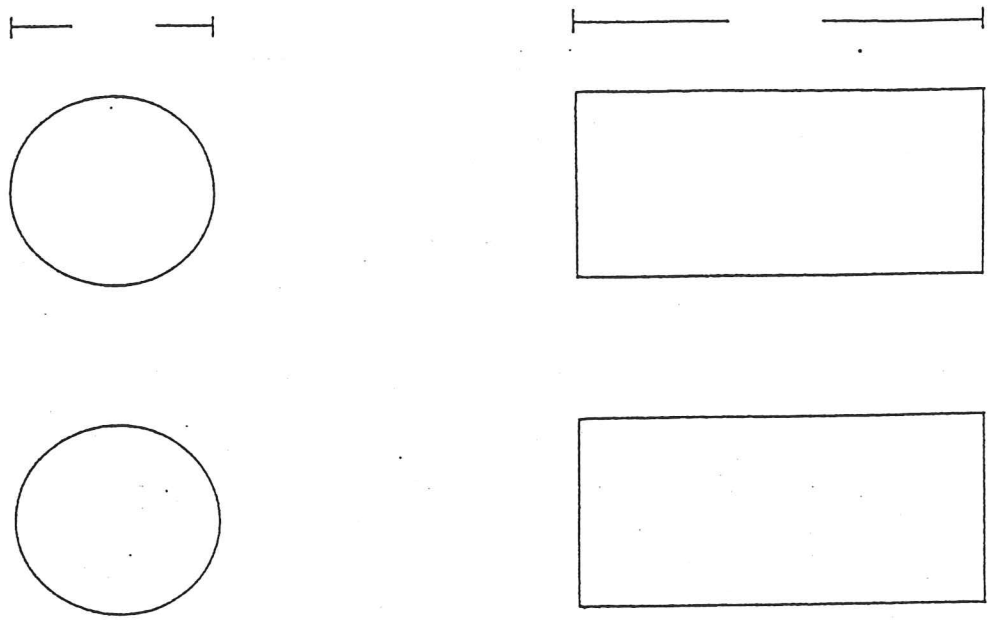
9 ___ ___

10 ___ ___ GW @ ± 10.5', ± 1/4" Floating Product

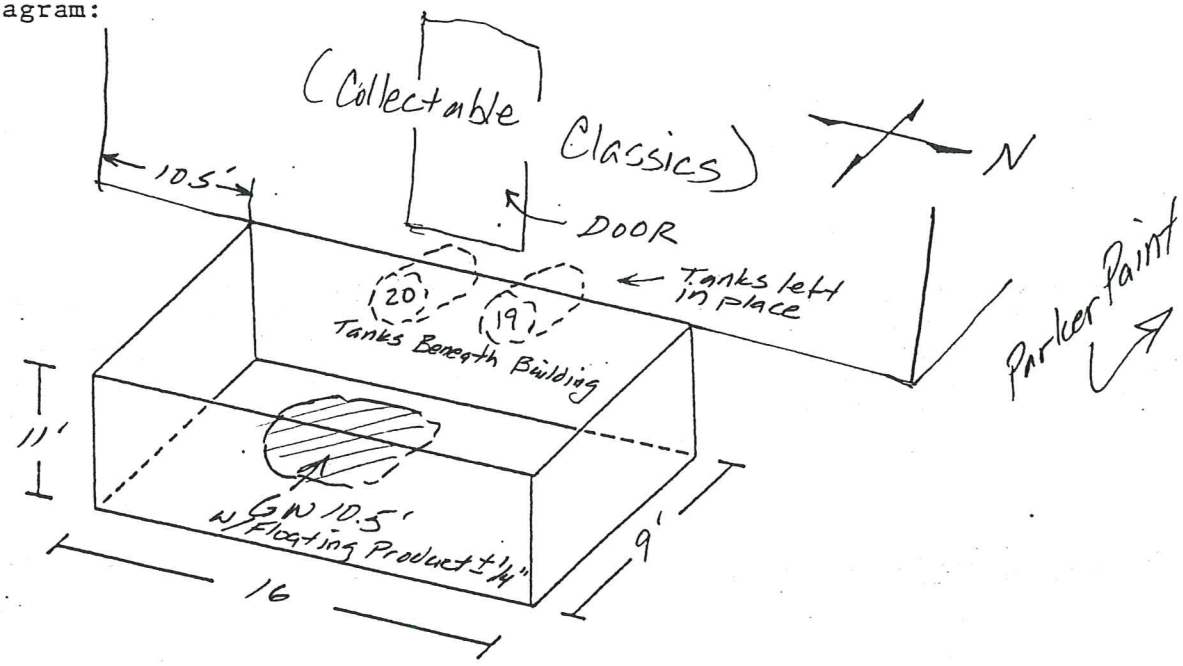
19. General Observations and Comments:
(Please mark diagrams on next page)

Excavation completed adjacent to tank (under building). Tank not removed or uncovered.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/17/93

Facility ID#: n/a

Tank No.: 21/22

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping
1300 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40 Years
2. Tank Capacity (gallons) 285
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used?
5. Date of closure? 8-17-93

6. **Type of Closure:**
   a) Removed from ground? yes
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:**
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic
Other

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product X

Sheen on Groundwater X No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	T21 FP 1.0	72	n/a
2	T21,22 BF Comp	82	n/a
3	T21,22 WSW 2.5 E 55,5D	0	n/a
4	T21,22 Base 9'	1140	418.1
5	ESW 5.0	130	n/a
6	ESW 8.0	640	n/a

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Beebe's Repeat Botique-west

(b) Depth to groundwater: 10Ft

(c) Subsurface Profile: See Item #18 Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia river, 1500 feet West.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: E. P. Johnson, clean Pacific Steel, scrap

(b) Contaminated Soil: Richland landfill

(c) Contents of Tank: Heating oil

18. Excavation subsoil Log:

Surface ___ ___ 2" AC Silty sand, brown, moist, medium grained, some gravel

1 ___ ___

2 ___ ___

3 ___ ___

4 ___ ___

5 ___ ___

6 ___ ___

7 ___ ___

8 ___ ___

9 ___ ___

10 ___ ___

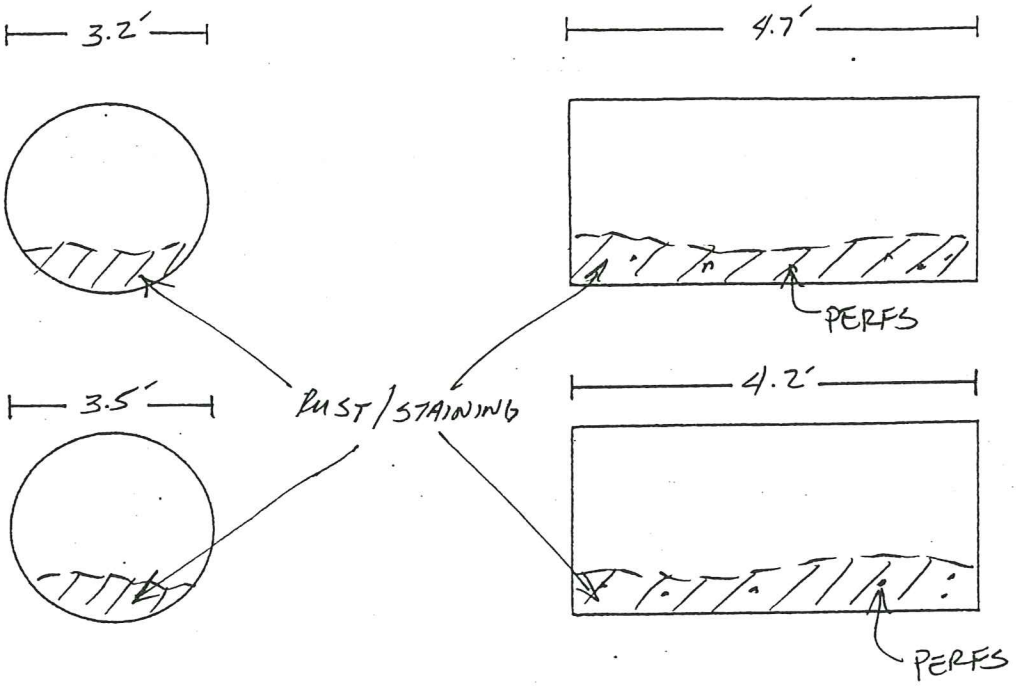
11 ___ ___

BOH

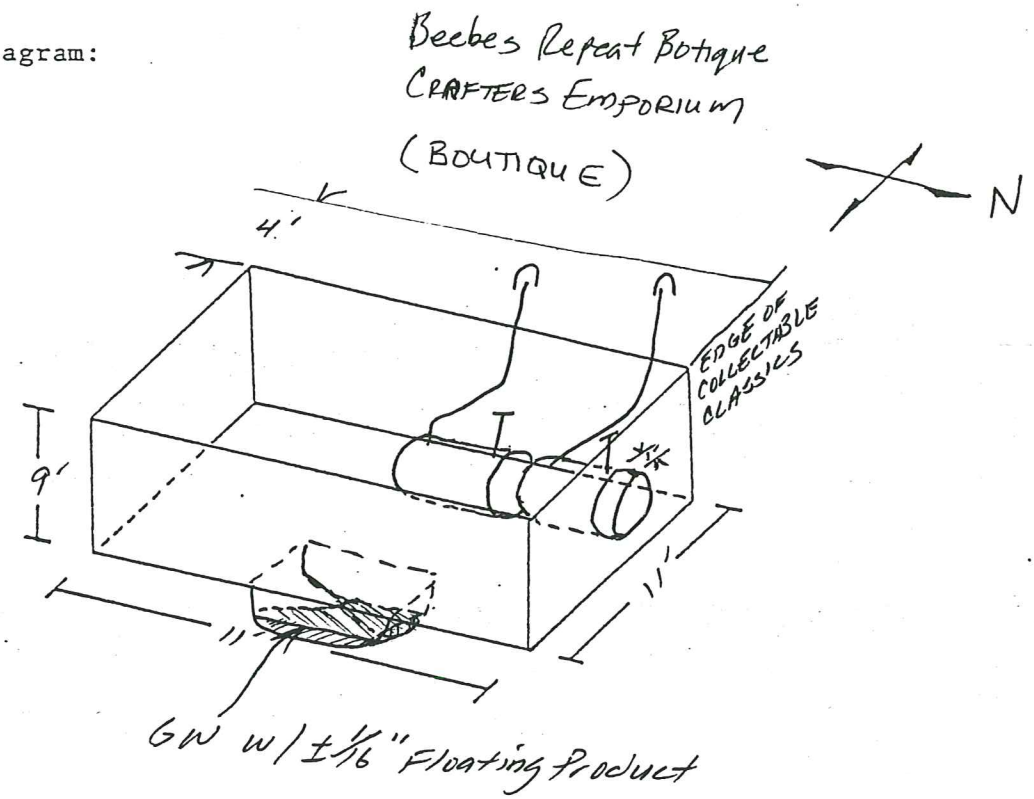
19. General Observations and Comments:
(Please mark diagrams on next page)

Ground water at 10 Feet with about 1/10-1/16 inch of floating product of surface.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/20/93

Facility ID#:

Tank No: 23

Tank Owner's Name & Address
Dawson, Dawson & Anderson
1350 Jadwin Ave.
Richland, 99352

Tank Facility Name & Address:
Uptown Shopping Center/
Dawson Richards
1350 Jadwin
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 750 gals
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? 1972
5. Date of closure? 8/20/93

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place?
if b, please describe fill material used:

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed
Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other:

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted X Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County, or State Officials who may have witnessed closure::
Roger Wright
City of Richland
Richland, WA 99352

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel X Discoloration X Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes X No
14. Did Overexcavation take place? Yes X No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
	Sidewall Composite	26.2ppm	
	Base Composite	43.6ppm	

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Dawson Richards-west

(b) Depth to groundwater: 10'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water:

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank:

(b) Contaminated Soil:

(c) Contents of Tank: EMPTY

18. Excavation subsoil Log:

Surface ___ ___ 2" AC

1 ___ ___ Silty sand with gravel, yellow brown, about 35% low plastic fines

2 ___ ___

3 ___ ___ Sandy silt, yellow brown, moist, about 30% fine sand

4 ___ ___

5 ___ ___ Gray soil (apparent PCS)

6 ___ ___ Sand with silt, gray, moist, about 20% nonplastic fines, Sloughing at 7 to 8 ft.

7 ___ ___

8 ___ ___

9 ___ ___

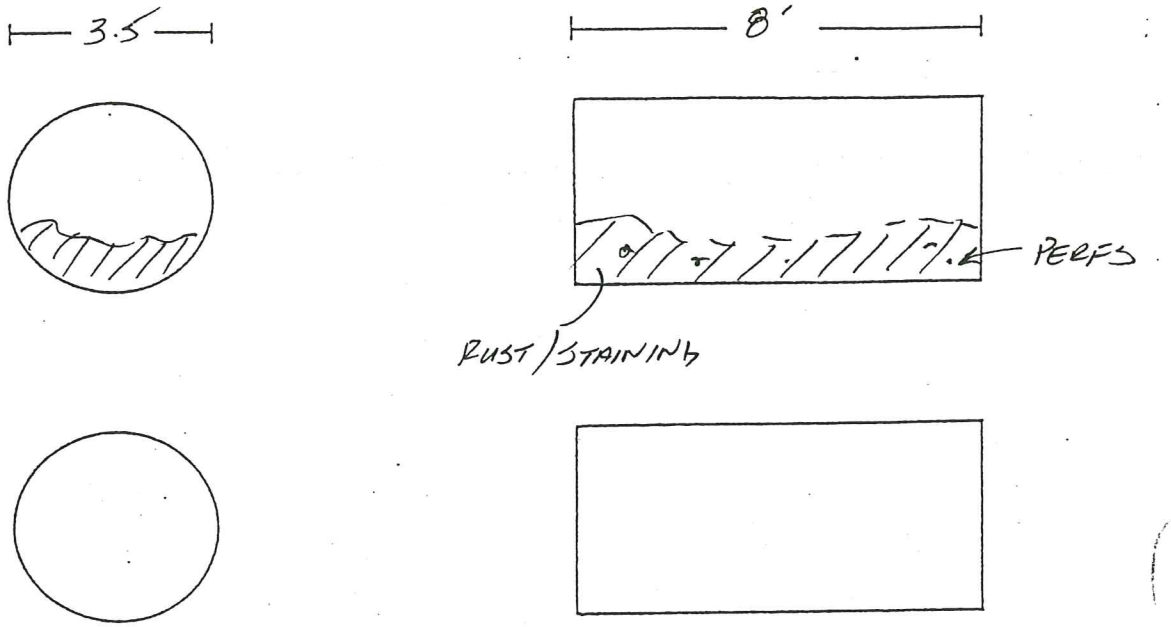
10 ___ ___

11 ___ ___

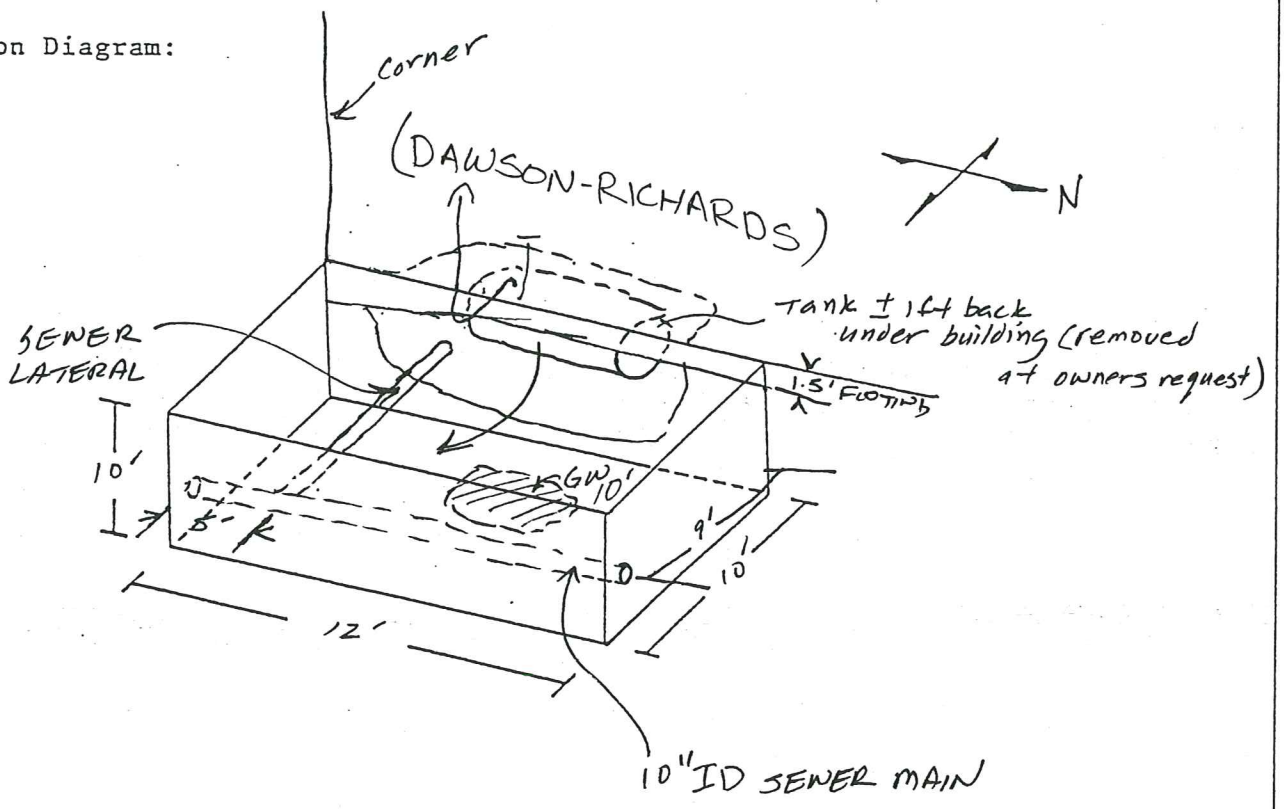
12 ___ ___

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/24/93

Facility ID#:

Tank No.: 24

Tank Owner's Name & Address
Jay Min & Ying Chun Lee
1908 Hoxie
Richland. WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Beneath Shed
1342 Jadwin Ave
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 1,100 (based on existing plans)
3. What Substance was last stored in the tank? Reportedly Heating Oil
4. When was tank last used? n/a
5. Date of closure?

6. **Type of Closure:**
   a) Removed from ground? NO
   b) Closed in place? NO
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:** N/A
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted Perforated Cracked Rusted Crushed
Good

Material of Construction:
Steel Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:**
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic
Other Tank was not pulled or exposed. An excavation was opened adjacent to slab overcovering tank.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)
N/A
None Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel NO Discoloration NO Free Product NO

Sheen on Groundwater NO No Evidence of Contamination NO

13. Was Groundwater contact made? Yes X No
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	T24B FILL 0-3'	5.4 ppm	
2	T24B FILL 3-6	2.2	
3	T24B FILL 6-11'	2.0	
4	T24 WSW 6.0	8.1	
5	T24B11	1.5	

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Tahitian Restaurant-west

(b) Depth to groundwater: 11.5 FT

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River $\pm$ 1,500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank:

(b) Contaminated Soil:

(c) Contents of Tank: 150 gal Heating Oil

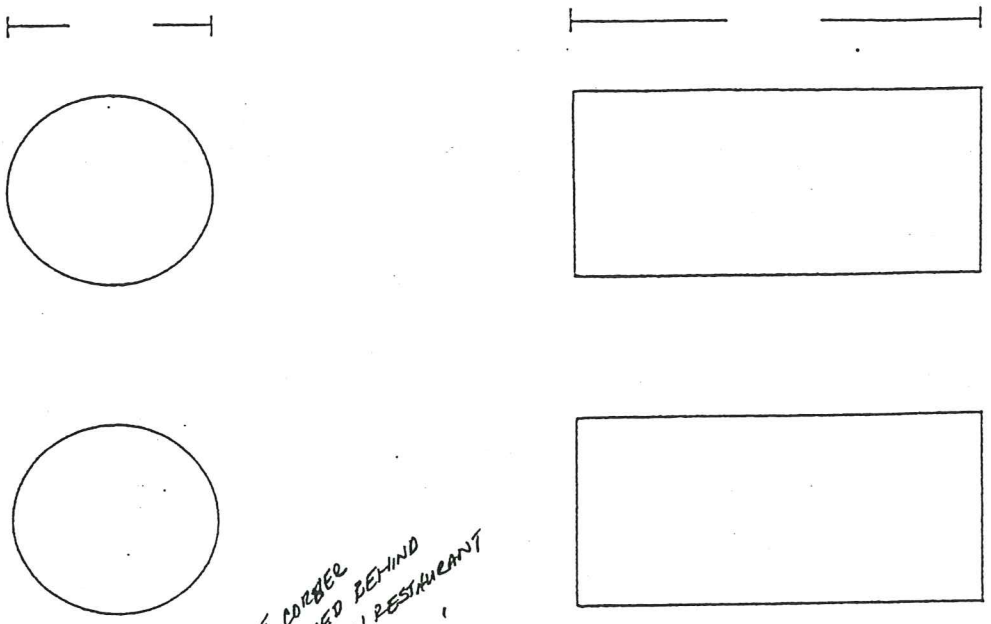
18. Excavation subsoil Log:

Surface	___	___ 2" AC
		Sitly sand w/gravel moist, brown, fine to medium sand +30%
1	___	___
2	___	___ Sandy Silt, moist, tan.
3	___	___
4	___	___ Sandy silt, moist greenish brown
5	___	___
6	___	___
7	___	___ Sand w/ silt, moist, green, some fines
8	___	___
9	___	___
10	___	___
11	___	____GW 11.5"
12	___	_____ BOH

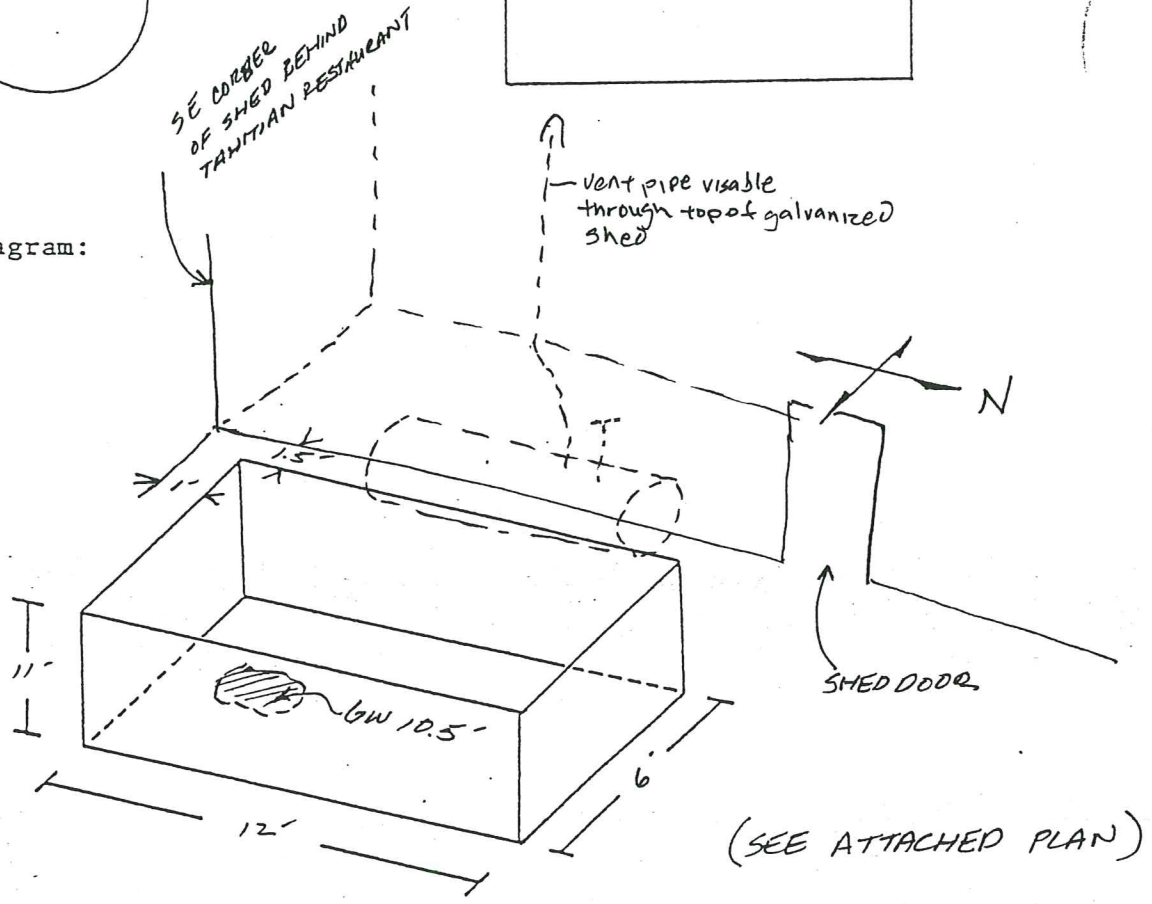
19. General Observations and Comments:
(Please mark diagrams on next page)

Smelled soils during excavation on obvious PCS observed or smelled. Low levels of PID detections (81ppm max)

Tank Diagram:



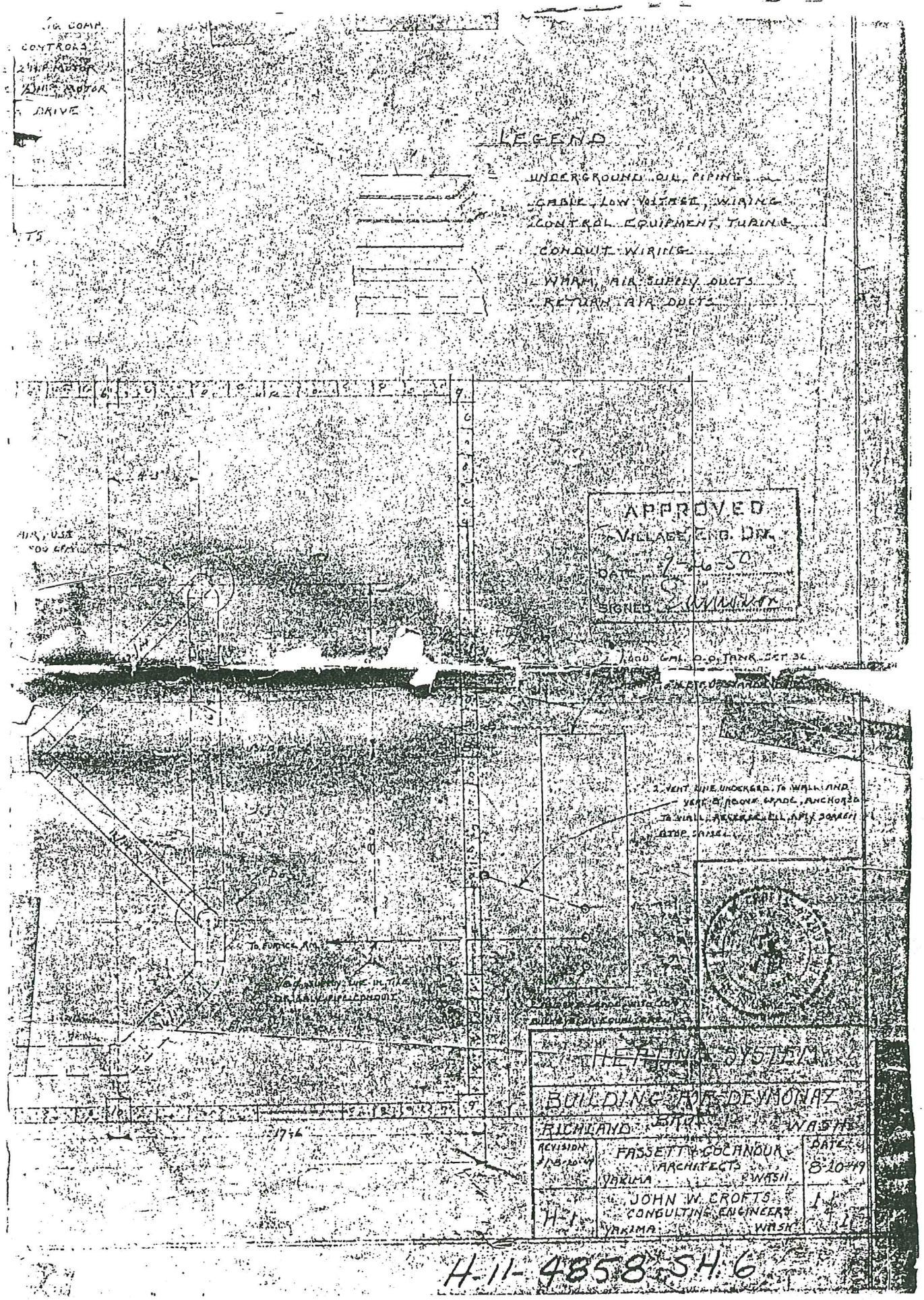
Excavation Diagram:



(SEE ATTACHED PLAN)

	Chen Northern, Inc.		Fig.

PLAN SHOWING LOCATION
OF HEATING OIL UST (LOWER RIGHT)



H-11-4858-SH.6

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/30/93

Facility ID#:

Tank No.: 25

Tank Owner's Name & Address
James C. & Luisita T. Go
325 Hanford St.
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center
1340 B Jadwin Ave
Richland, WA 99352

1. Tank Age (years) Est 30-40
2. Tank Capacity (gallons) 550
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? ?
5. Date of closure? 8/30/93

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place?
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition:
Pitted X Perforated X Cracked Rusted X Crushed Good

Material of Construction:
Steel X Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel X Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel yes Discoloration slight Free Product

Sheen on Groundwater No Evidence of Contamination

13. Was Groundwater contact made? Yes No
14. Did Overexcavation take place? Yes No

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1			
2			
3			
4			
5			

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley crossing-north, Beattitudes Parlor-south,
Alley-east, Chealsea's pet shop-west

(b) Depth to groundwater:

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water:

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: To E.P. Johnson for cleaning,
To Pacific Steel for Scrap

(b) Contaminated Soil:
Richland Landfill

(c) Contents of Tank: EMPTY

18. Excavation subsoil Log:

Surface ___ ___ 4" Concrete

1 ___ ___ Silty sand (SM) Yellow Brown dry cinder block debris in upper 2'

2 ___ ___

3 ___ ___ Sandy silt (ML Brown, moist

4 ___ ___ Silt green brown, moist, odorus

5 ___ ___

6 ___ ___

7 ___ ___

8 ___ ___

9 ___ ___

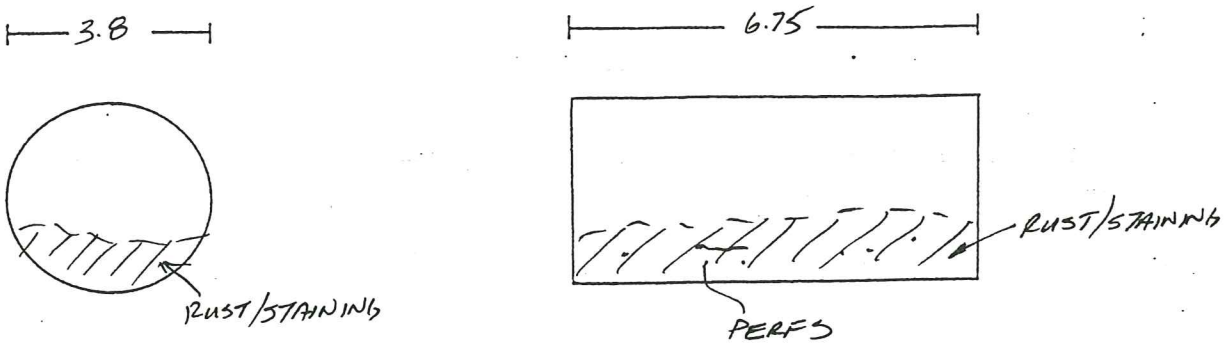
10 ___ ___

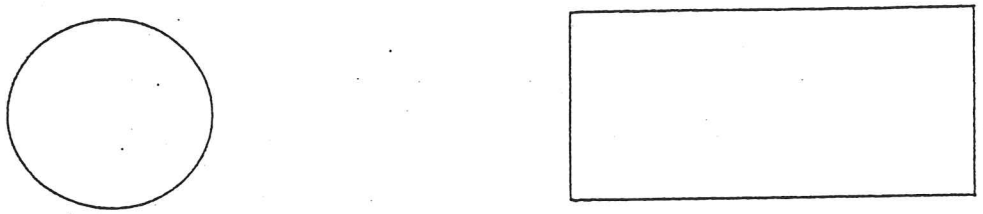
11 ___ ___

12 ___ ___

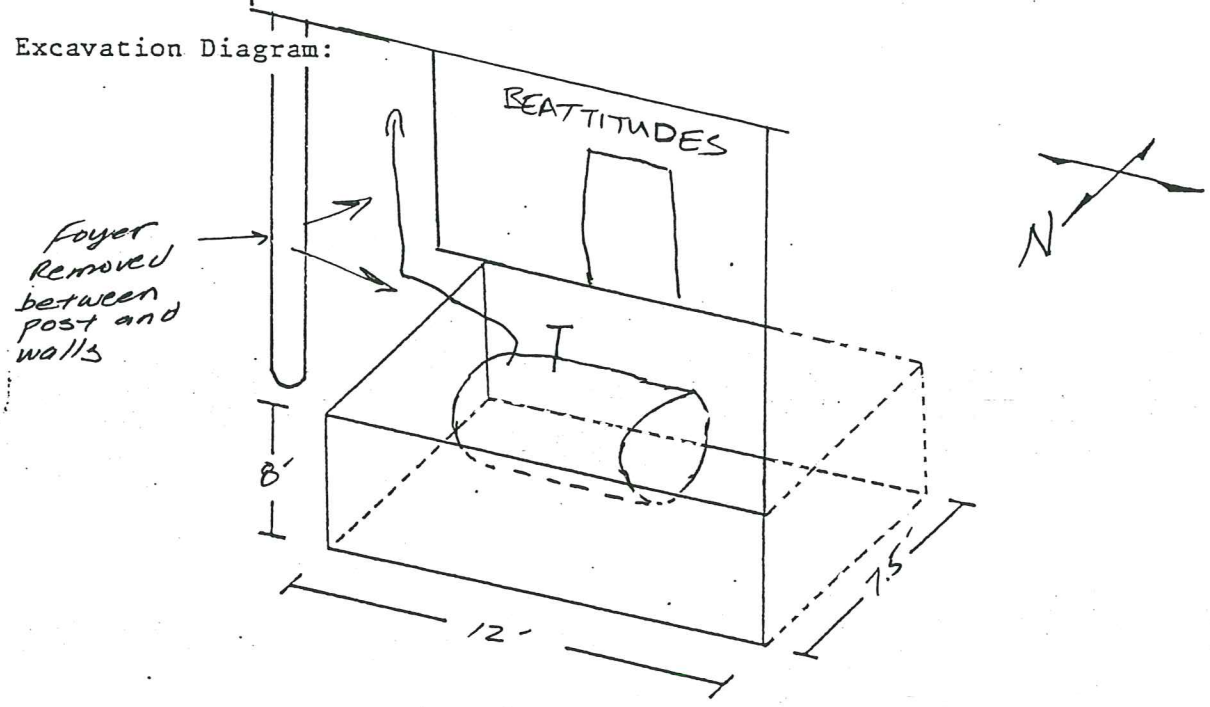
19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:





Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/23/93

Facility ID#:

Tank No.: 26&27

Tank Owner's Name & Address
City of Richland
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1330 Jadwin Avenue
Richland, WA 99352

1. Tanks Age (years) Est. 30-40
2. Tanks Capacity (gallons) 250
3. What Substance was last stored in the tanks? Heating Oil
4. When were tanks last used? unknown
5. Date of closure? 8/23/93

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place?
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.) N/A

Condition:

Pitted X	Perforated X	Cracked X	Rusted	Crushed Good

Material of Construction:

Steel X	Concrete	Fiberglass Reinforced Plastic
Other		

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:

Pitted X	Perforated	Cracked	Rusted X	Crushed
Good				

Material of Construction:

Steel	Galvanized Steel	Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel YES Discoloration YES Free Product NO

Sheen on Groundwater NO No Evidence of Contamination

13. Was Groundwater contact made? Yes X No
14. Did Overexcavation take place? Yes X No Limited excavation 8'8' pit

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	Base tank 9'	158ppm	
2	Sidewall tank 5	74.2	
3	Base tank 9'	6.0	
4	Sidewall tank 5'	351	
5	Clean? Excavation Material	17	N/A Under backfill

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Book Place-west

(b) Depth to groundwater: 11.5 FT

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River $\pm$ 1500' east

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form&6

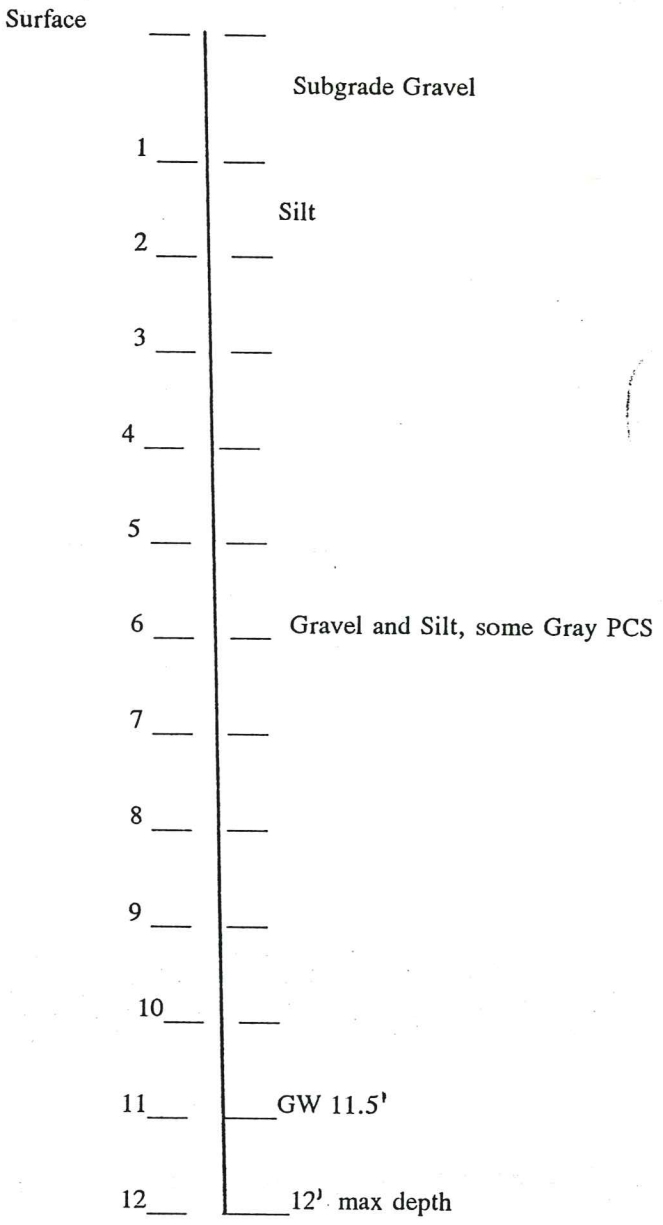
17. Disposal

(a) Tank:
E.P. Johnson for cleaning
Pacific Steel for scrap

(b) Contaminated Soil:
Richland Land Fill

(c) Contents of Tank:
Apparently water formerly Heating Oil

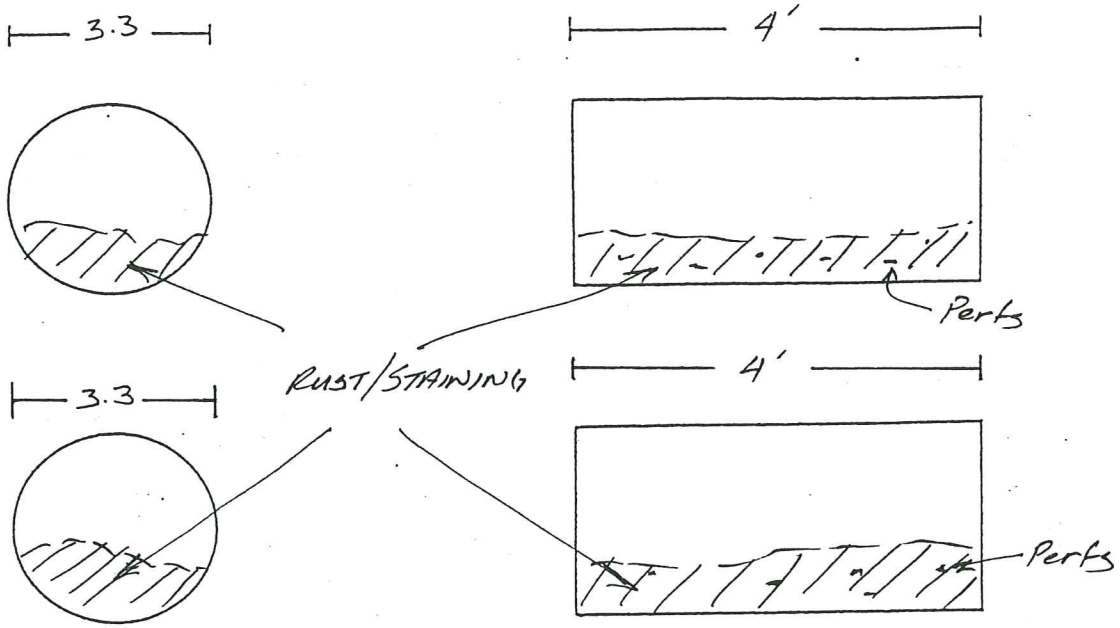
18. Excavation subsoil Log:



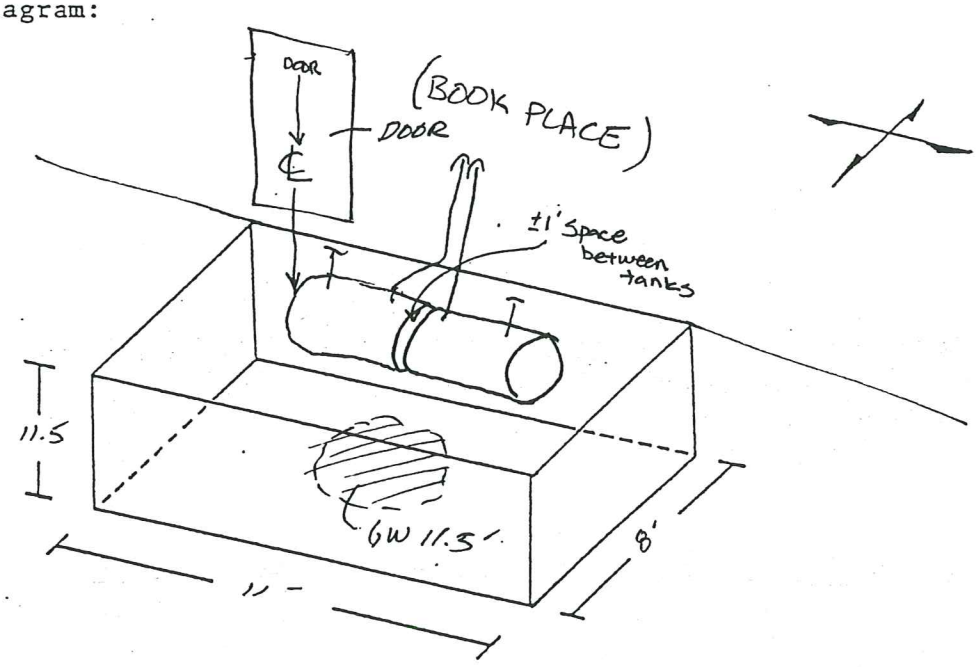
19. General Observations and Comments:
(Please mark diagrams on next page)

South end of tank #27 below centerline of door. N-S centerline of tanks under centerline of building foundation wall.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/23/93

Facility ID#:

Tank No.: 28\29

Tank Owner's Name & Address
Eastgate Theater
Medical Science Building
Portland, OR 97205

Tank Facility Name & Address:
Book Place/Uptown Shopping Center
1300 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons)
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? Unknown
5. Date of closure? Not closed

6. Type of Closure:
a) Removed from ground? No
b) Closed in place? No
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction:
(Check any that apply and include description of effected area. This may include photographs or tank test results.) N\A

Condition:
Pitted Perforated Cracked Rusted Crushed Good

Material of Construction:
Steel Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked X Rusted Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel- No Discoloration- No Free Product NO

Sheen on Groundwater- N\A Evidence of Contamination- None

13. Was Groundwater contact made? No No
14. Did Overexcavation take place? No Limited excavated- 8.0'

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	sidewall	< 30 ppm	
2	base	< 30 ppm	

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Alley-east, Uptown Cinema-west, Caesars Hair Styling-south

(b) Depth to groundwater: Est. 11'-12'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: N\A

(b) Contaminated Soil:

(c) Contents of Tank: SLIMY WATER

18. Excavation subsoil Log:

Surface asphalt subgrade gravel

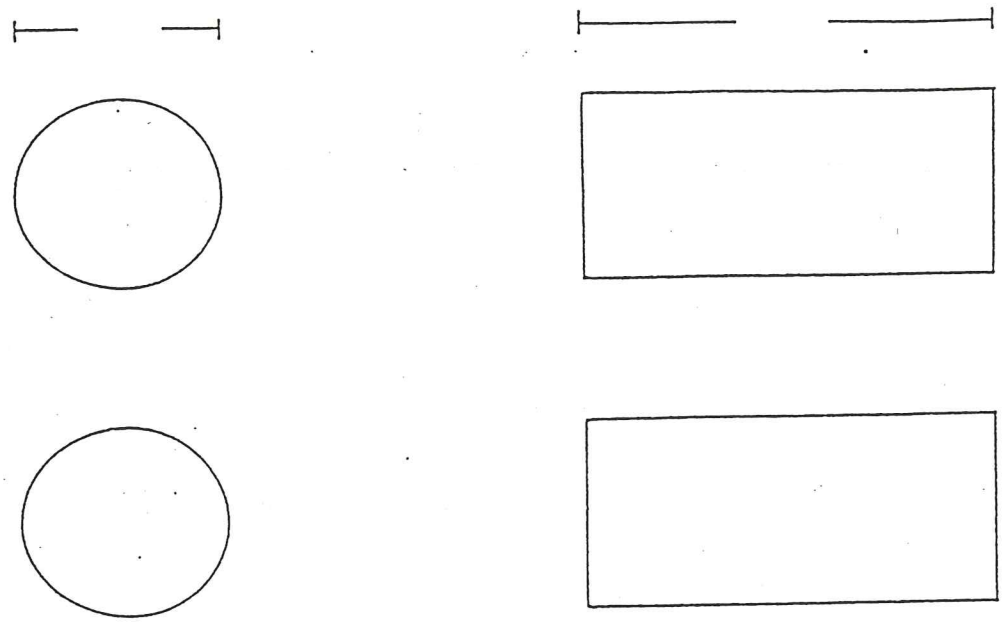
1		silty Sand, yellow brown
2		moist
3		
4		
5		some gravels interbedd
6		in sand.
7		
8		
9		
10		
11	GW 11.5"	
12	12 max depth	

19. General Observations and Comments:

(Please mark diagrams on next page)

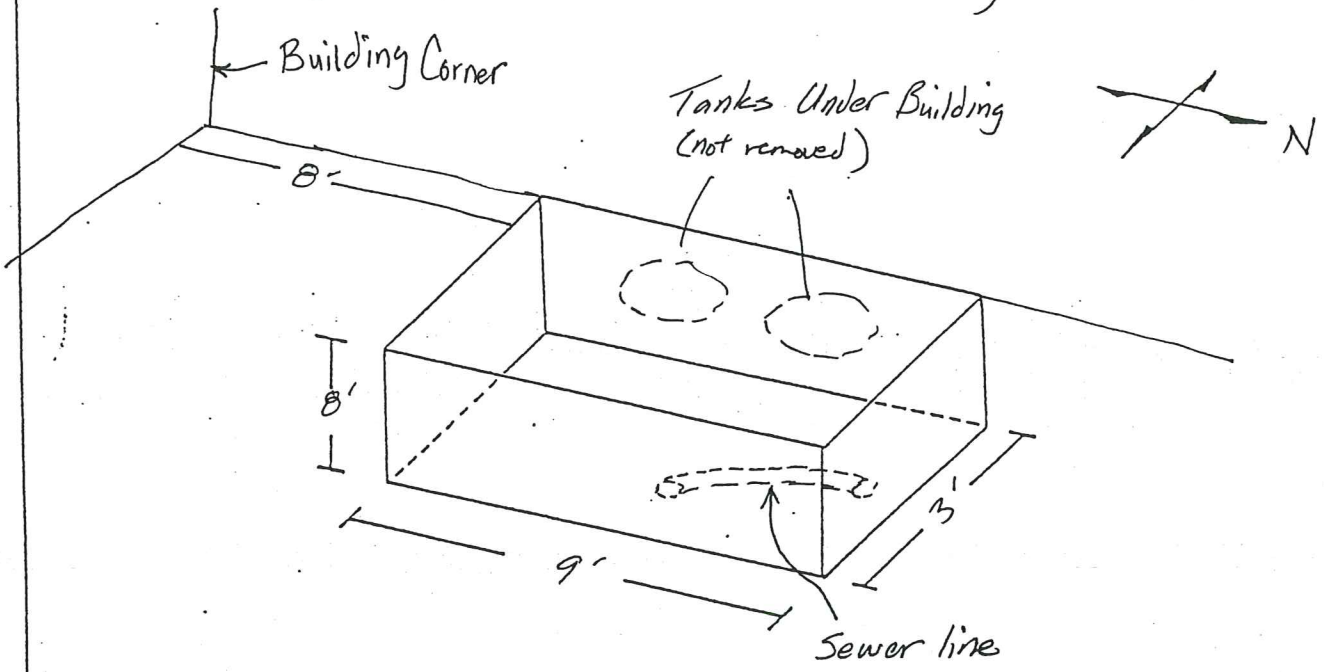
Excavation opened adjacent to the tank #28 and #29 locations. Excavated to about 8', no visable PCS observed. Did not encounter ground water. Hit sewer line during excavation.

Tank Diagram:



Excavation Diagram:

(Uptown Cinema)



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/23/93

Facility ID#:

Tank No.: 30

Tank Owner's Name & Address
Eastgate Theater
Medical Science Building
Portland, OR 97205

Tank Facility Name & Address:
Book Place/Uptown Shopping Center
1300 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 680
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? Unknown
5. Date of closure? Not closed

6. Type of Closure:
a) Removed from ground? yes
b) Closed in place? No
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction:
(Check any that apply and include description of affected area. This may include photographs or tank test results.)

Condition:

Pitted X	Perforated	Cracked	Rusted X	Crushed Good

Material of Construction:

Steel X	Concrete	Fiberglass Reinforced Plastic

Other

8. Piping Condition and Material of Construction:
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:

Pitted X	Perforated	Cracked	Rusted X	Crushed

Good

Material of Construction:

Steel X	Galvanized Steel	Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection:
(Check any that apply and include a description)

None X Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
N/A

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel- No Discoloration- No Free Product NO

Sheen on Groundwater- N\A Evidence of Contamination- None

13. Was Groundwater contact made? No No
14. Did Overexcavation take place? No Limited excavated- 8.0'

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	sidewall	< 30 ppm	
2	base	< 30 ppm	

16. Physical Characteristics of sit

(a) Border sites (North, South, East, West)

(b) Depth to groundwater: Est. 11'-12'

(c) Subsurface Profile: See Excavation Sub Soil Log.

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: N\A

(b) Contaminated Soil:

(c) Contents of Tank:

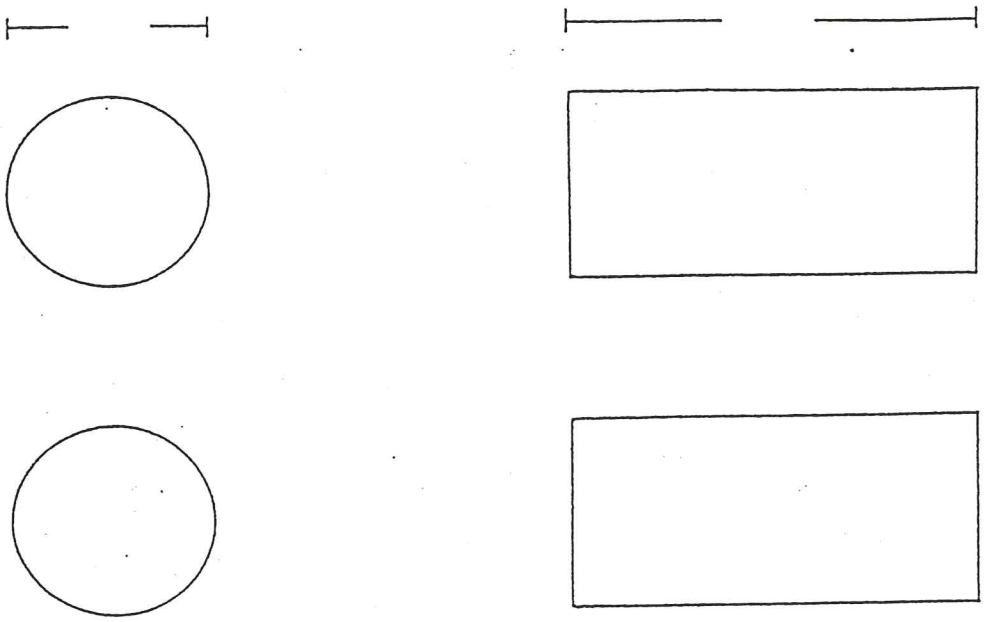
18. Excavation subsoil Log:

Surface Asphalt
Subgrade gravel

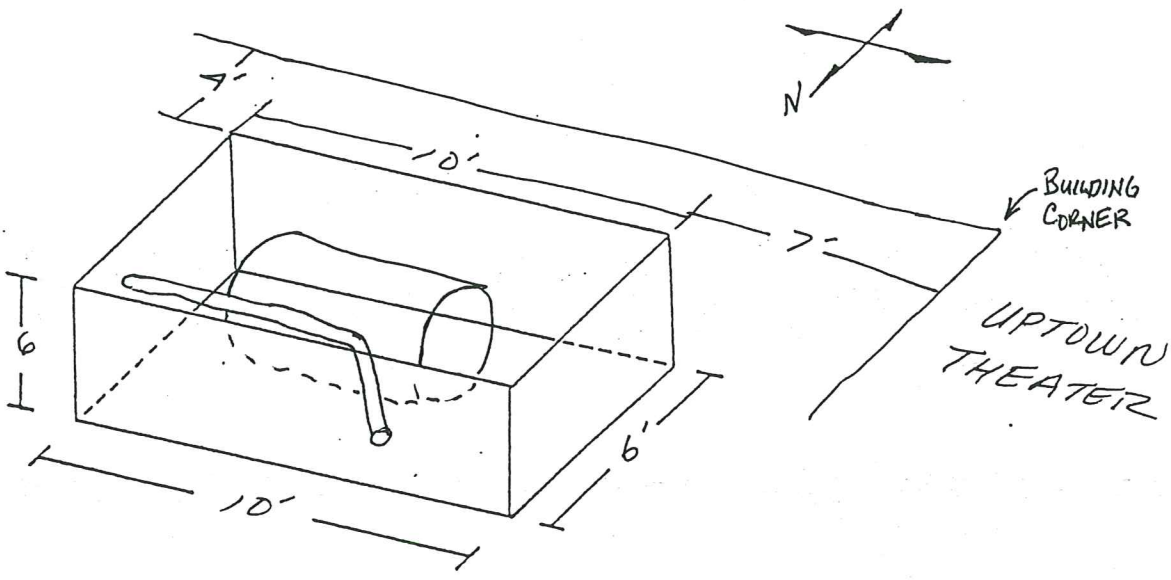
1 — — silty sand
2 — — yellow brown, moist
3 — — thin interbedded gravels
4 — —
5 — — sandy silt
6 — — BOH
7 — —
8 — —
9 — —
10 — —
11 — —
12 — —

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/23/93

Facility ID#:

Tank No.: 31

Tank Owner's Name & Address
Marint L. West
1628 Davidson Ave.
Portland, Richland, WA 99336

Tank Facility Name & Address:
Book Place/Uptown Shopping Center
1300 George Washington Way
Richland, WA 99352

1. Tank Age (years) Est. 30-40
2. Tank Capacity (gallons) 680
3. What Substance was last stored in the tank? Heating Oil
4. When was tank last used? Unknown
5. Date of closure? Not closed

6. Type of Closure:
a) Removed from ground? No
b) Closed in place? No
if b, please describe fill material used: sand and structural fill.

7. Tank Condition and Material of Construction: N/A (Check any that apply and include description of affected area. This may include photographs or tank test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed Good

Material of Construction:
Steel Concrete Fiberglass Reinforced Plastic
Other

8. Piping Condition and Material of Construction: N/A
(Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition:
Pitted Perforated Cracked Rusted X Crushed
Good

Material of Construction:
Steel Galvanized Steel Fiberglass Reinforced Plastic

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection: N/A
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address: N/A

11. Local, County or State Officials who may have witnessed closure: N/A

12. Explanation of Excavation Subsurface Investigation: N/A
Smell of Fuel- N/A Discoloration- No Free Product NO

Sheen on Groundwater- N\A Evidence of Contamination- None

13. Was Groundwater contact made? No No
14. Did Overexcavation take place? No Limited excavated- 8.0'

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Print Plus-east, Alley-west

(b) Depth to groundwater: Est. 11'-12'

(c) Subsurface Profile:

(d) Location of nearest surface water: Columbia River, $\pm$ 1500' east.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: N\A

(b) Contaminated Soil:

(c) Contents of Tank:

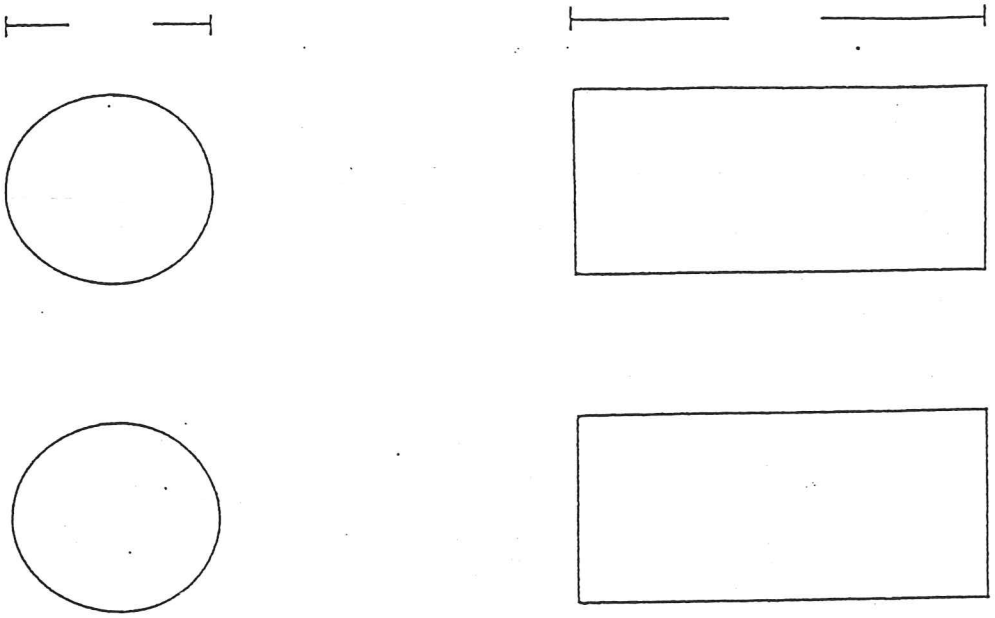
18. Excavation subsoil Log:

Surface Asphalt
Subgrade Gravel

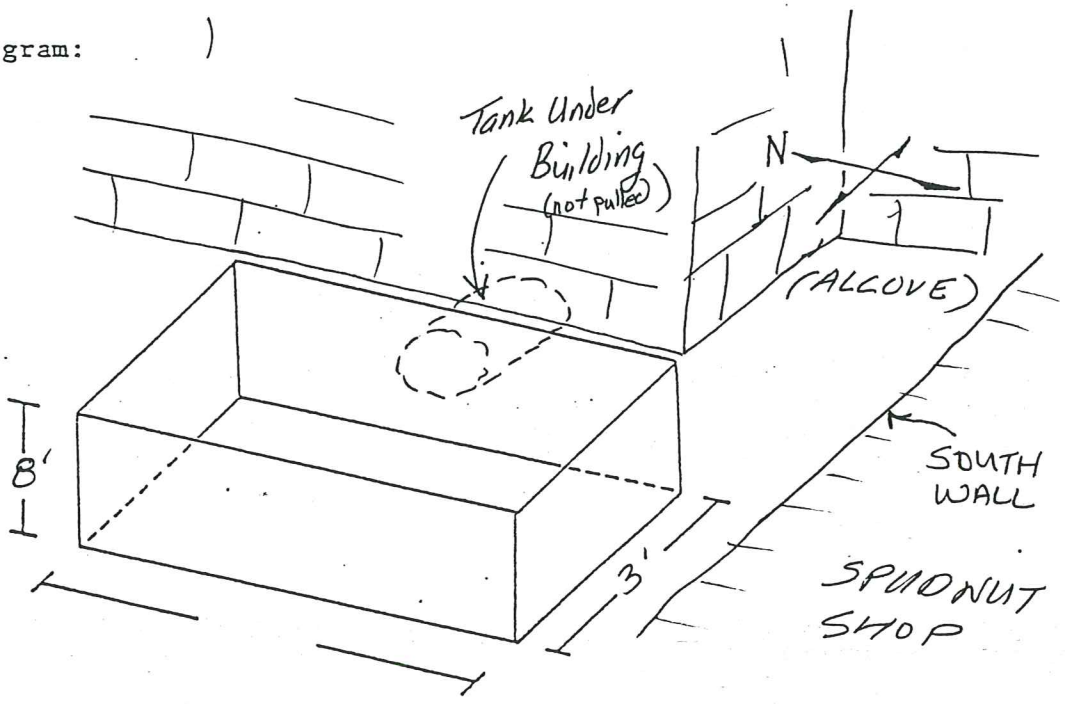
1 ___ ___ Silty sand, yellow
2 ___ ___ brown, moist
3 ___ ___ gravel interbeds
4 ___ ___
5 ___ ___
6 ___ ___
7 ___ ___
8 ___ ___
9 ___ ___
10 ___ ___
11 ___ ___
12 ___ ___

19. General Observations and Comments:
(Please mark diagrams on next page)

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.	Fig.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

Date: 8/25/93

Facility ID#: n/a

Tank No.: T32 Trench (on City of Richland right of way)

Tank Owner's Name & Address
City of Ridhland.
P.O. Box 190
Richland, WA 99352

Tank Facility Name & Address:
Uptown Shopping Center/Behind
1375 George Washington Way
Richland, WA 99352

1. Tank Age (years) N/A
2. Tank Capacity (gallons) N/A
3. What Substance was last stored in the tank? N/A
4. When was tank last used? N/A
5. Date of closure? N/A

6. **Type of Closure:** N/A
   a) Removed from ground?
   b) Closed in place?
   if b, please describe fill material used:

7. **Tank Condition and Material of Construction:** N/A
   (Check any that apply and include description of effected area. This may include photographs or tank test results.)

Condition: N/A
Pitted Perforated Cracked Rusted Crushed Good

Material of Construction: N/A
Steel Concrete Fiberglass Reinforced Plastic
Other

8. **Piping Condition and Material of Construction:** N/A
   (Check all that apply and include a description of the affected area. This may include photographs or pipe test results.)

Condition: N/A
Pitted Perforated Cracked Rusted Crushed Good

Material of Construction:N/A
Steel Galvanized Steel Fiberglass Reinforced Plastic Other

Comments: Excavation near tank #32 (On Private Property) to evaluate groundwater for presence of PCE emanating from large adjacent UST.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

9. Tank Protection: N/A
(Check any that apply and include a description)

None Cathodic Ext. Coating Int. Lining Double Wall
Other

10. Closure / Excavation Contractor Name & Address:
E.P. Johnson Construction
1320 N. Oregon Ave
Pasco, WA 99301

11. Local, County or State Officials who may have witnessed closure:
n/a

12. Explanation of Excavation Subsurface Investigation:

Smell of Fuel No Discoloration No Free Product No

Sheen on Groundwater No No Evidence of Contamination

13. Was Groundwater contact made? Yes X No
14. Did Overexcavation take place? Yes No X

15. Samples Collected:

Sample No.	Location	ppm Results	Analysis
1	1.5'	1,300	n/a
2	6'	347	n/a
3	Stockpile	74	n/a
4	Groundwater		8260

16. Physical Characteristics of site:

(a) Border sites (North, South, East, West)
Welcome Aboard Travel adjacent and east of trench, Alley to west

(b) Depth to groundwater: 8.5 Ft.

(c) Subsurface Profile: See log below.

(d) Location of nearest surface water: Columbia River, 1500 feet East.

Huntingdon Chen Northern
Tri-Cities, WA
Tank Closure Field Form

17. Disposal

(a) Tank: N/A

(b) Contaminated Soil: None observed, some PID response

(c) Contents of Tank: N/A

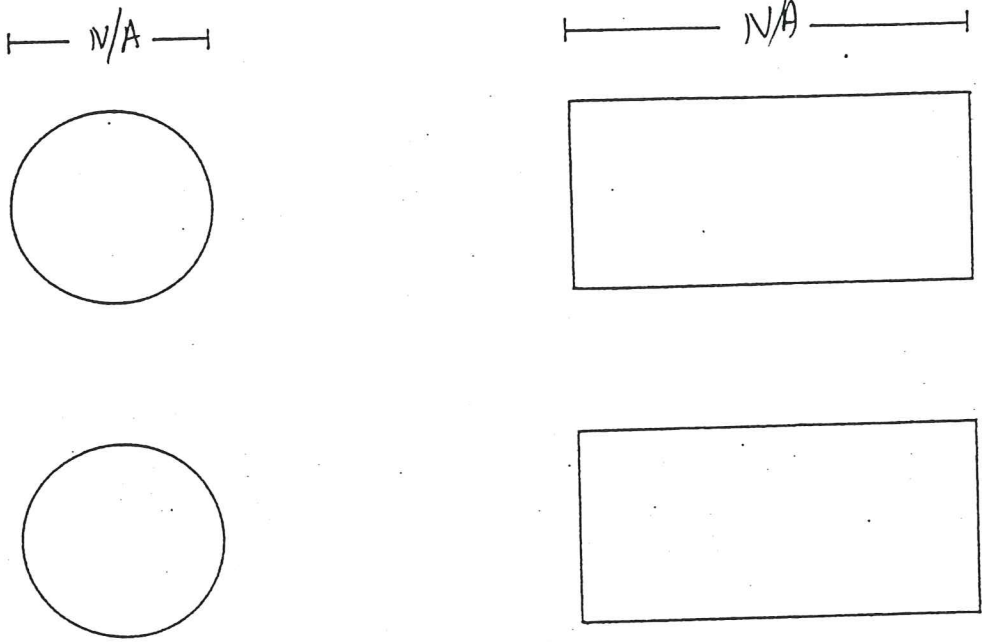
18. Excavation subsoil Log:

1	___	___Gravelly sand with silt (SM-SP) predominantly medium grained, 20% subrounded gravel, about 15% low plastic fines.
2	___	___
3	___	___
4	___	___
5	___	___ Poorly graded sand (SP) yellowbrown, moist, trace of low plastic fines (extreme caving).
6	___	___
7	___	___
8	___	___ GW 8.5
9	___	___ BTM Trench 9 ft.
10	___	___

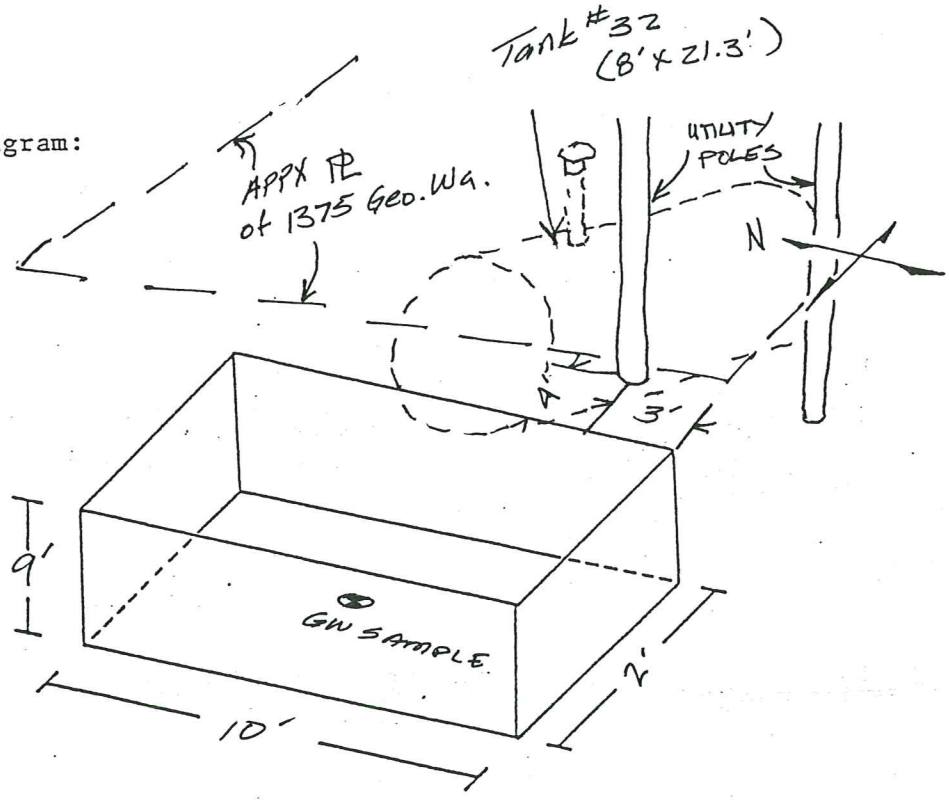
19. General Observations and Comments:
(Please mark diagrams on next page)

Excavated about 3 feet, encountered apparent grounding wire, checked by Richland Utilities, dead.
Excavated 9 feet, collected Method 8260 GW sample. Trench caved in no soil samples collected. Backfilled immediately to avoid destabilzing adjacent utility poles.

Tank Diagram:



Excavation Diagram:



	Chen Northern, Inc.		Fig.

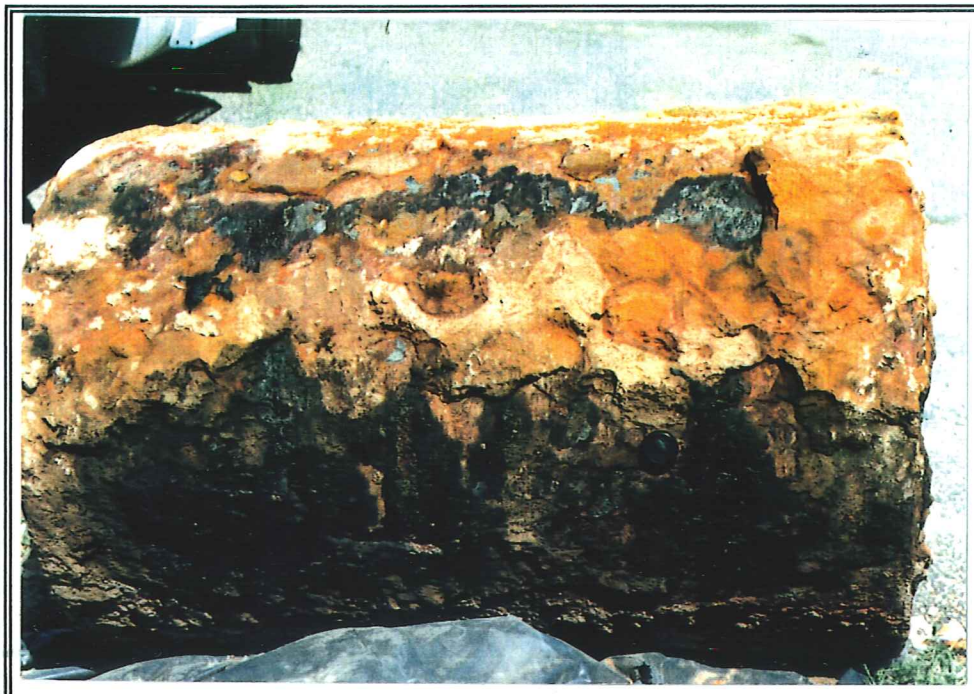
APPENDIX 5

Photographs

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #1 location behind @ 1317 George Washington Way (GWW).

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #1 being removed.

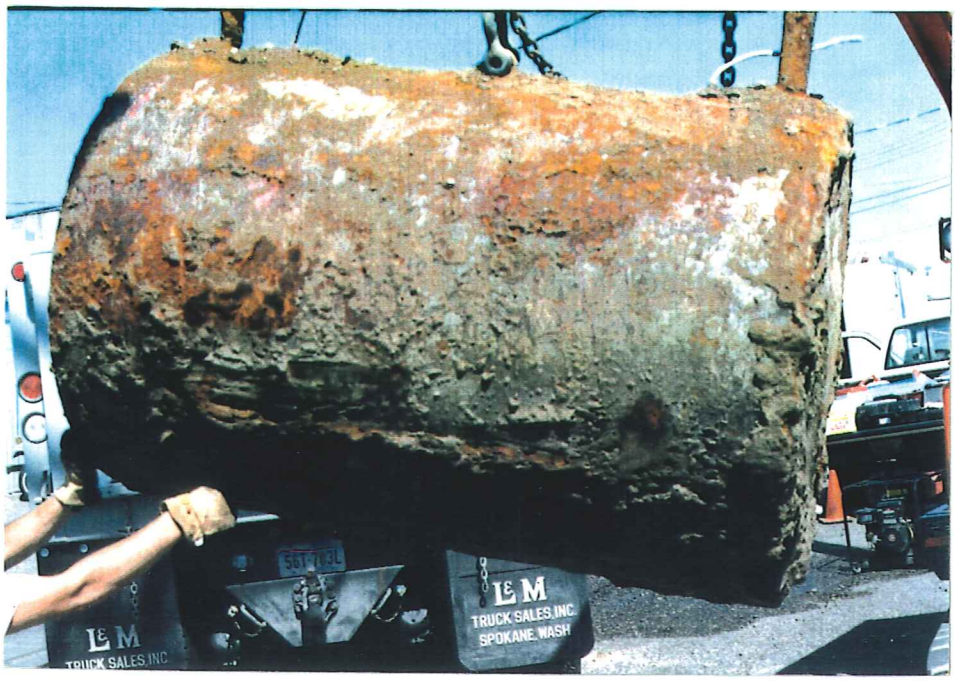
CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Rust and pitting on bottom of Tank #2.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #2 excavation behind 1319 George Washington Way.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

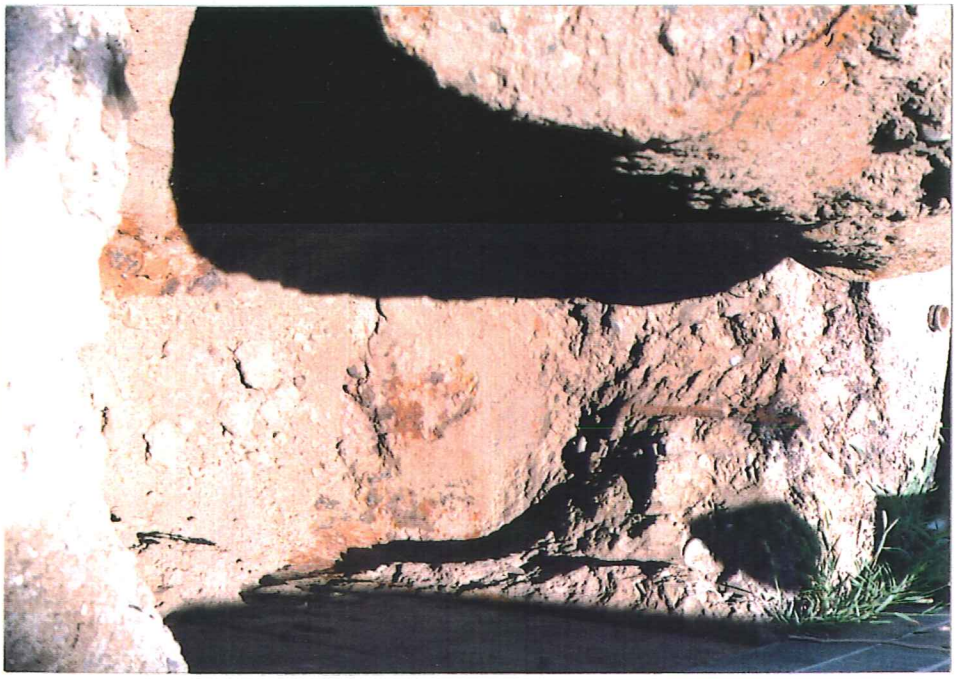


PHOTOGRAPHED BY: Dan Uldall
DATE: 8/09/93
VIEW: Tank #3 w/bottom rusted and pitted. Top half appears fairly sound.

DATE: 8/09/93
VIEW: Tank #3 excavation behind 1319 George Washington Way. Some PCS visible. Water from broken sewer lateral leaking in at left (north).

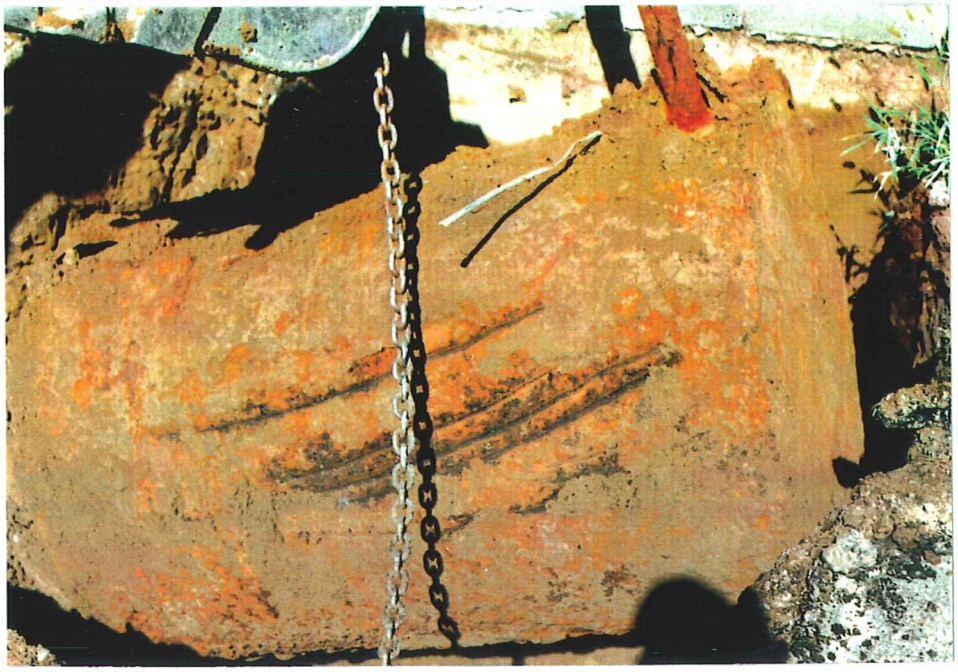
CHEN-NORTHERN, INC. JOB NO. 192-2104-5	**PHOTOGRAPHIC RECORDS**
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #4 with rust and pitting on bottom.

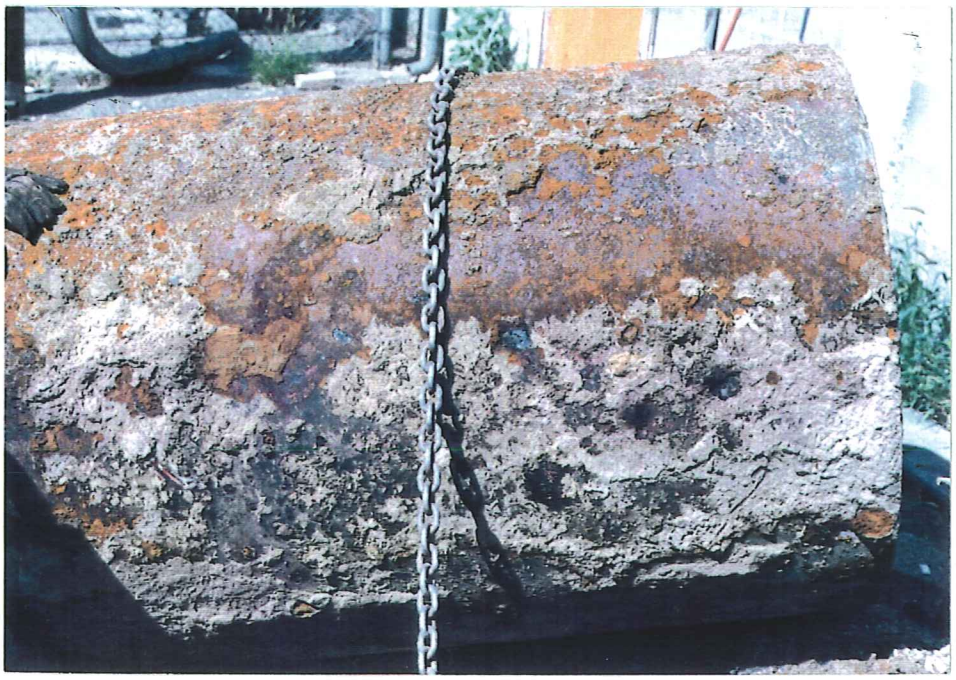


PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #4 excavation behind 1323 George Washington Way. Some rust and PCS visible.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Tank #5 being removed from excavation behind 1325 George Washington Way.



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/10/93
VIEW: Rust, pitting and staining visible on bottom of Tank #5.

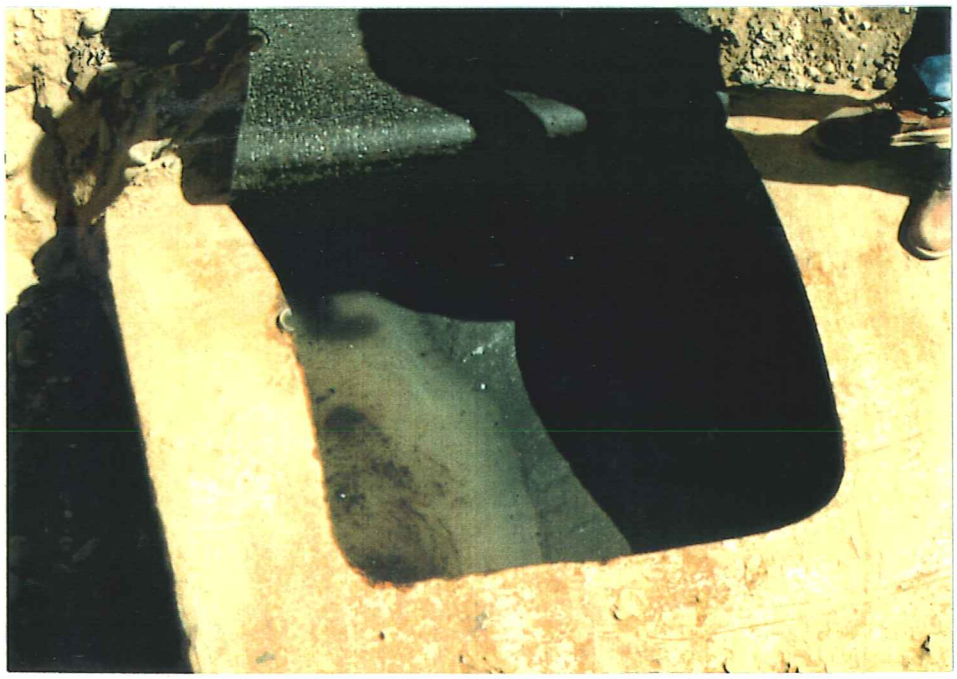
CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/11/93
VIEW: Rust, pitting and leakage visible staining on bottom of Tank #6.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/13/93
VIEW: Tank #6 excavation behind 1327 George Washington Way.

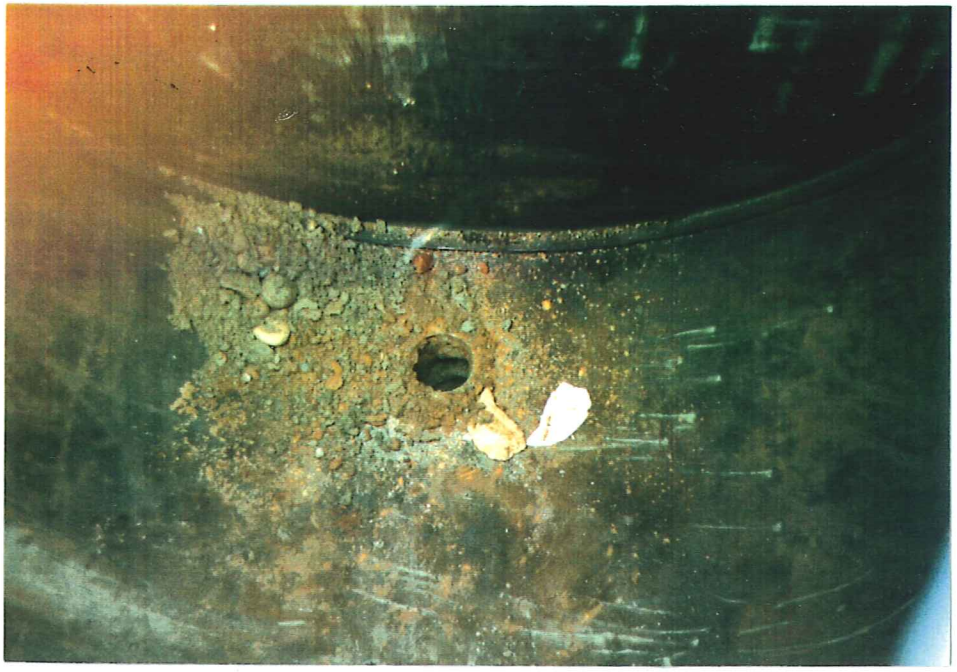
CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/12/93
VIEW: Tank #7 and excavation behind 1365 George Washington Way.



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/12/93
VIEW: Contents of Tank #7 as observed after opening access hole. Small amount of residual fuel visible at left after fuel was previously pumped. Remainder of material consists mostly of saturated sandy PCS.

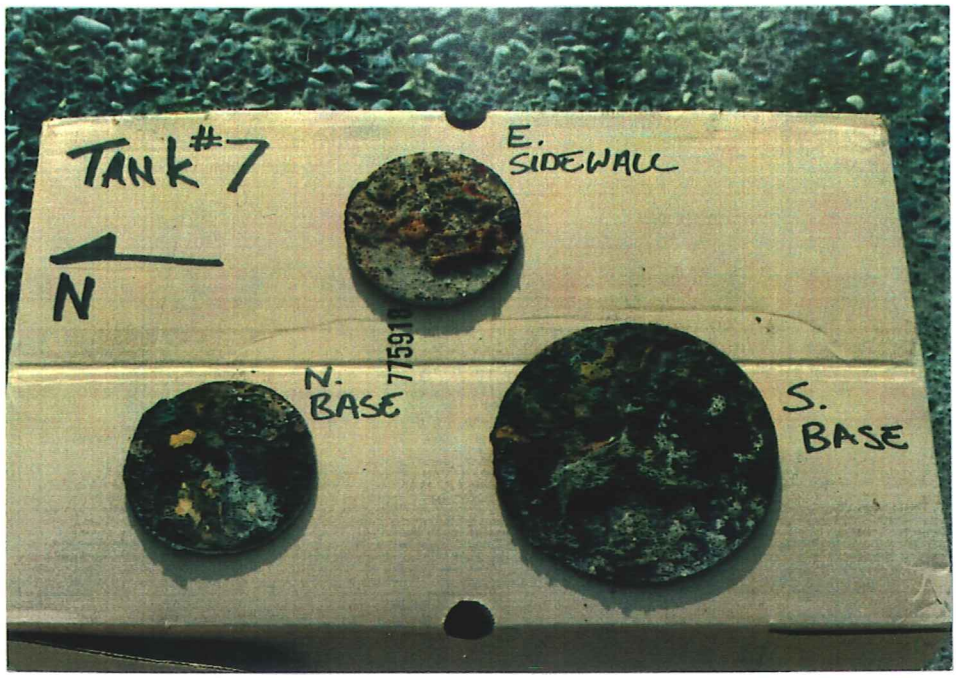
CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/13/93
VIEW: Sample access hole, north end base of Tank #7. Interior appearance is sound.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/13/93
VIEW: Tank #7 sample access holes: South base - right. East sidewall - left. Interior appearance is sound.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	**PHOTOGRAPHIC RECORDS**
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

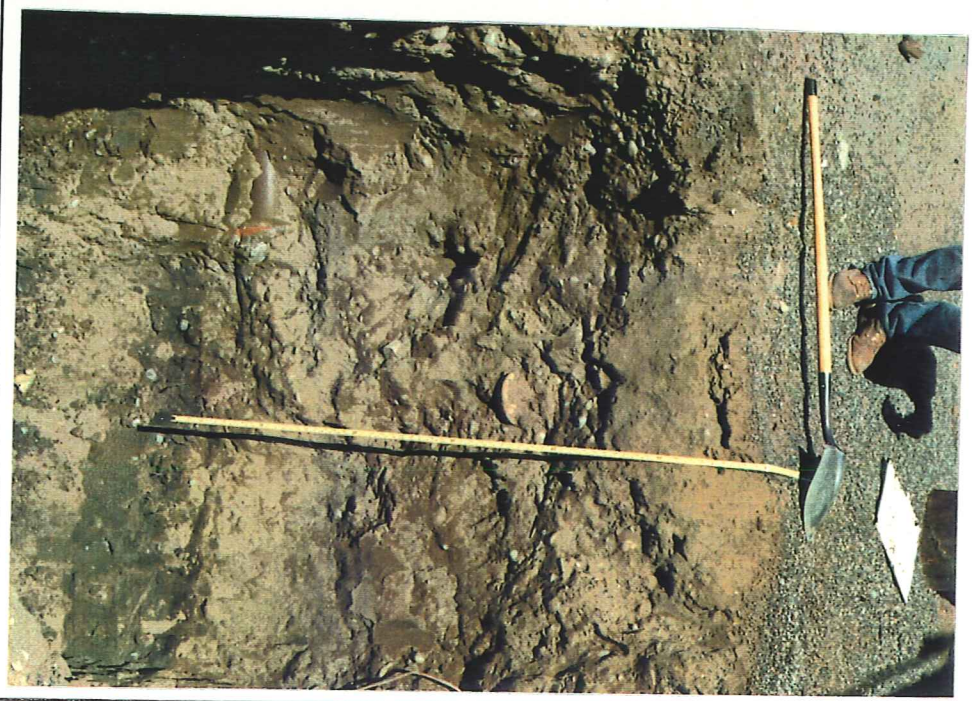


PHOTOGRAPHED BY: Dan Uldall
DATE: 8/13/93
VIEW: Condition of Tank #7 exterior at sample locations. Base of tank appears rusted stained and pitted.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/19/93
VIEW: Grouting of Tank #7 during abandonment in place procedures.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	**PHOTOGRAPHIC RECORDS**
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan
DATE: 8/11/93
VIEW: Tank #8 with visible rust, pitting, staining and leakage on bottom.



PHOTOGRAPHED BY: Dan Uldall
DATE: 8/11/93
VIEW: Tank #8 excavation adjacent to 1367 C George Washington Way. PCS visible at about 6 feet bgs.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/16/93
VIEW: Tank #10 with staining, rust and pitting on bottom. Removed from south side of 1398 Jadwin Avenue.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/16/93
VIEW: Tank #13 showing rust, staining, pitting and perforations on bottom. Removed from north side of 1386 Jadwin Avenue.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/20/93
VIEW: Partially backfilled excavation from which Tanks #10-#16 have been removed. Groundwater visible with floating product to the left. Gasoline and sewer lateral crossing excavation on left half of photo. Greenish gray PCS visible near water. Excavation is in alcove bounded by 1386, 1388 and 1398 Jadwin Avenue.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/19/93
VIEW: Floating product on groundwater on south side of tank #10-#16 excavation. Gravelly backfill visible at top and bottom of photo - discolored PCS visible at left under footing.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/19/93
VIEW: Excavation adjacent to Tanks #19 and #20 (under building at 1364 Jadwin Avenue). Groundwater visible in base. The tanks were not removed.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/19/93
VIEW: Visible (yellow) free product on groundwater and greenish PCS in tank #19 & #20 excavation. The product measured a thickness of 1/4 inch.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/24/93
VIEW: Excavation in progress at Tank #24 location. Tank located beneath galvanized shed in background at 1342 Jadwin Avenue. Note vent pipe on masonry wall behind street sign. Tank left in place.

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/24/93
VIEW: Backfilling and compaction of Tank #24 excavation. No free product or PCS soils were observed.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/24/93
VIEW: Excavation completed adjacent to Tank #25 at 1340 B Jadwin Avenue before owners decision to remove foyer to access tank. Groundwater visible in base.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/30/93
VIEW: Tank #25 being removed after demolition of foyer.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/30/93
VIEW: Rust and perforations visible on bottom of Tank #25.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/30/93
VIEW: Tank #25 excavation slight discoloration of soil visible in bottom half.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Tank #26/#27 excavation behind 1332 Jadwin Avenue with Tank #26 being removed.

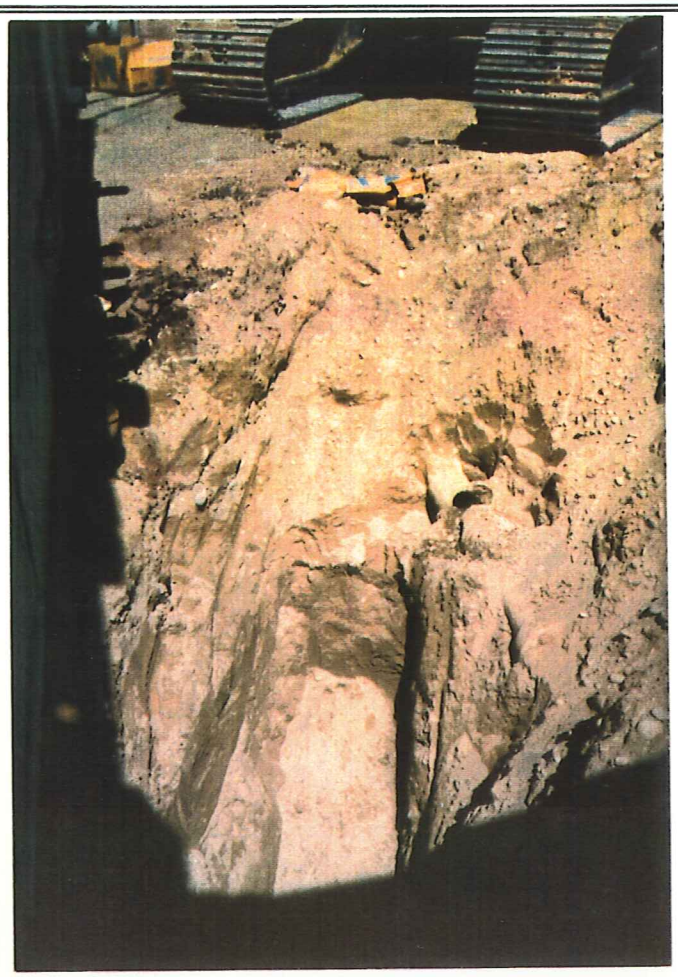
PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Tank #26 with visible rust, staining and pitting of bottom.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Tank #27 with rust, staining and pitting visible on bottom. Hole on bottom right opened during removal watery liquid leaked out of hole during removal.

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Tank #26 excavation. Groundwater visible in base.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington



PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Excavation adjacent to Tank #28/#29 located at 1300 Jadwin Avenue.

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Excavation of Tank #30 in progress at 236 Williams Blvd.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Paul Danielson
DATE: 8/23/93
VIEW: Bottom of Tank #30. Rust and slight pitting visible. No perforation or stains observed.

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/25/93
VIEW: Trench adjacent to Tank #32 behind 1375 George Washington Way to evaluate potential PCE groundwater contamination.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	PHOTOGRAPHIC RECORDS
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

PHOTOGRAPHED BY: Dan Uldall
DATE: 8/25/93
VIEW: Caving observed in unconsolidated soils of excavation adjacent to Tank #32.

CHEN-NORTHERN, INC. JOB NO. 192-2104-5	**PHOTOGRAPHIC RECORDS**
	PROJECT: Uptown Shopping Center Tank Removal Environmental Assessment
	CLIENT: City of Richland, Richland, Washington

APPENDIX 6

Laboratory Technical Reports

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: August 19, 1993
JOB NUMBER: 87-921
SHEET: 1 of 2
INVOICE NO.: 24321

REPORT OF: Soil Analysis - Uptown Shopping Center 192-2104-5

SAMPLE IDENTIFICATION:

On August 12, 1993, this soil sample (laboratory number 143620) was received in our laboratory for analysis. The total petroleum hydrocarbon determination was made in accordance with Environmental Protection Agency Method 418.1.

The test results are shown on the following page.

Reviewed by David Cornwell

rmr

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143620
Sample Name: TINB5.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1030
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS:			
Moisture	27.3	%	08/13/93
PETROLEUM HYDROCARBONS (418.1):			
Recoverable Petroleum Hydrocarbons as rec'd	99,000	mg/kg	08/13/93
Recoverable Petroleum Hydrocarbons dry basis	140,000	mg/kg	08/13/93

CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers · Environmental Scientists

Project or Site Name: Uptown Shopping Ctr
Project Number: 192-2104-5
Sampler Name (Printed): Dan

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Contact or Report to: Dan McWall
Contact Address or Location: Tricities
Sampler Signature: Dan McWall

DATE COLLECTED	TIME COLLECTED		SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: 418.1	NOTES	LAB NUMBER
8/9/93	1100	1	T3BC5.5	x	S	1	X	S = SOIL	
8/9/93	1320	2	T3SWC4	↓	↓	↓	↓		
↓	1030	3	T1NB5.5						143620
	"	4	T1SWC4						
	1145	5	T2BC6						
	"	6	T2SWC4						
	1315	7	T4BC6.5						
	"	8	T4SWC5.5						
	1545	9	T5BC6.5						
↓	"	10	T5SWC4.5	↓	↓	↓	↓	Cooler Temp 7.9°C	

On separate work order except this one

Relinquished by	Date	Time	Received by
Dan McWall	8-11-93	2:30P	Carrier UPS Red
~~Relinquished by:~~	8/12/93	1000	CNI Lab Bldg G. Cleveland
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks: Rapid Turnaround on Sample #3.

Overnight / 1 Day UPS

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: August 24, 1993
JOB NUMBER: 87-921
SHEET: 1 of 7
INVOICE NO.: 24358

REPORT OF: Soil Analysis - Uptown Shopping Center 192-2104-5

SAMPLE IDENTIFICATION:

On August 12, 1993, these soil samples (laboratory numbers 143628 through 143638) were received in our laboratory for analysis. The total petroleum hydrocarbon determinations were made in accordance with Environmental Protection Agency Method 418.1.

The test results are shown on the following pages.

Reviewed by David Counsill

rmr

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143628
Sample Name: 1 T3BC5.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1100
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.0	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	1100	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	1200	mg/kg	08/17/93

Laboratory No.: 143629
Sample Name: 2 T3 SWC4
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1320
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.5	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	6	mg/kg	08/20/93
Recoverable Petroleum Hydrocarbons dry basis	7	mg/kg	08/20/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143630
Sample Name: 4 T1SWC4
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1030
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	18.7	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	34	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	42	mg/kg	08/17/93

Laboratory No.: 143631
Sample Name: 5 T2BC6
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1145
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	17.5	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	29,000	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	35,000	mg/kg	08/17/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143632
Sample Name: 6 T2SWC4
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1145
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	12.6	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	7	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	8	mg/kg	08/17/93

Laboratory No.: 143633
Sample Name: 7 T4BC6.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1315
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	16.8	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	12,000	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	14,000	mg/kg	08/17/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143634
Sample Name: 8 T4SWC5.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1315
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.5	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	5100	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	5700	mg/kg	08/17/93

Laboratory No.: 143635
Sample Name: 9 T5BC6.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1545
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	16.4	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	19,000	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	23,000	mg/kg	08/17/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143636
Sample Name: 10 T5SWC4.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1545
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	12.1	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	740	mg/kg	08/17/93
Recoverable Petroleum Hydrocarbons dry basis	850	mg/kg	08/17/93

Laboratory No.: 143637
Sample Name: DUPLICATE 143629 2 T3SWC4
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1320
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	8	mg/kg	08/20/93
Recoverable Petroleum Hydrocarbons dry basis	9	mg/kg	08/20/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143638
Sample Name: SPIKE 143634 8 T4SWC5.5
Sample Date: 08/09/93
Collected by: DAN ULDALL
Time Sampled: 1315
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	103	%	08/17/93

CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Uptown Shopping Ctr
Project or Site Name

192-2104-5
Project Number

Dan
Sampler Name (Printed)

Dan Udall
Contact or Report to

Trinities
Contact Address or Location

Sampler Signature

DATE COLLECTED	TIME COLLECTED		SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED 418.1	NOTES	LAB NUMBER
8/9/93	1100	1	T3BC5.5	x	S	1	X	~~S~~ S=Soil	143627
8/9/93	1320	2	T3SWC4						29
	1030	3	T1NB5.5		previously reported				~~143630~~
	"	4	T1SWC4						30
	1145	5	T2BC6						31
	"	6	T2SWC4						32
	1315	7	T4BC6.5						33
	"	8	T4SWC5.5						34
	1545	9	T5BC6.5						35
↓	"	10	T5SWC4.5	↓	↓	↓	↓	Cooler temp 7.9°C Jb	36

	Date	Time	Received by:
Relinquished by: Dan Udall	8-11-93	2:30P	Carrier UPS Red
~~Relinquished by:~~	8/12/93	1000	CNI Lab Blge L. Cleveland
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks: Rapid Turnaround on sample #3.

Overnight / 1 DAY UPS

Dup 143629 T3SWC4 8/9 1320 37

Spike 143634 T4SWC5.5 ↓ 1315 38

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: August 24, 1993
JOB NUMBER: 87-921
SHEET: 1 of 5
INVOICE NO.: 24361

REPORT OF: Soil Analysis - Uptown Shopping Center 192-2104-5

SAMPLE IDENTIFICATION:

On August 16, 1993, these soil samples (laboratory numbers 143647 through 143654) were received in our laboratory for analysis. The total petroleum hydrocarbon determinations were made in accordance with Environmental Protection Agency Method 418.1.

The test results are shown on the following pages.

Reviewed by David Connell

rmr

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143647
Sample Name: #11 T8BC8.5
Sample Date: 08/11/93
Collected by: DAN ULDALL
Time Sampled: 1230
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	5.6	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	11,000	mg/kg	08/20/93
Recoverable Petroleum Hydrocarbons dry basis	12,000	mg/kg	08/20/93

Laboratory No.: 143648
Sample Name: #12 T7 TANK CONTENTS
Sample Date: 08/12/93
Collected by: DAN ULDALL
Time Sampled: 0815
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	13.0	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	7	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	8	mg/kg	08/19/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 143649
Sample Name: #13 T7SWC6.5
Sample Date: 08/13/93
Collected by: DAN ULDALL
Time Sampled: 0800
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	5.3	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	22	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	23	mg/kg	08/19/93

Laboratory No.: 143650
Sample Name: #14 T7BC8.0
Sample Date: 08/13/93
Collected by: DAN ULDALL
Time Sampled: 0800
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	8.7	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	200	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	220	mg/kg	08/19/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143651
Sample Name: #15 T6B10
Sample Date: 08/13/93
Collected by: DAN ULDALL
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	13.5	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	600	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	690	mg/kg	08/19/93

Laboratory No.: 143652
Sample Name: #16 T6SSW7.0
Sample Date: 08/13/93
Collected by: DAN ULDALL
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	14.1	%	08/17/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	22,000	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	26,000	mg/kg	08/19/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 143653
Sample Name: DUPLICATE 143647 #11 T8BC8.5
Sample Date: 08/11/93
Collected by: DAN ULDALL
Time Sampled: 1230
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	11,000	mg/kg	08/20/93
Recoverable Petroleum Hydrocarbons dry basis	12,000	mg/kg	08/20/93

Laboratory No.: 143654
Sample Name: SPIKE 143651 #15 T6B10
Sample Date: 08/13/93
Collected by: DAN ULDALL
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	85	%	08/19/93

CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Uptown Shopping Center
Project or Site Name

162-2104-5
Project Number

Dan Udall
Sampler Name (Printed)

Dan Udall
Contact or Report to

Tri-Cities
Contact Address or Location

Sampler Signature

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED 418.1	NOTES	LAB NUMBER
8/11/93	1230	#11 T8BC8.5	C	S	1	X	C = Composite	143647
8/12/93	0815	#12 T7 Tank Contents	G			X	G = Grab	48
8/13/93	0800	#13 T7SWC6.5	C			X	S = SOIL	49
8/13/93	0800	#14 T7BC8.0	C			X		50
8/13/93	0930	#15 T6B10	G			X		51
8/13/93	0930	#16 T6 SWC7.0	G			X		52
							Dup 143647 #11 T8BC8.5 8/11 1230	53
							Spike 143651 #15 T6B10 8/13 0930	54

	Date	Time	Received by:	Remarks:
Relinquished by:	8/13/93	1300	Received from Courier UPS Rep 8/14/93	Please check closely for lighter phase constituents. Please send Blue Ice.
Relinquished by:	8/16/93	0800	CNI Lab Rep L. Cleveland	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: August 25, 1993
JOB NUMBER: 87-921
SHEET: 1 of 2
INVOICE NO.: 24387

REPORT OF: Soil Analysis - City of Richland 192-2104-5

SAMPLE IDENTIFICATION:

On August 18, 1993, this soil sample (laboratory number 143871) was received in our laboratory for analysis. The total petroleum hydrocarbon determination was made in accordance with Environmental Protection Agency Method 418.1.

The test results are shown on the following page.

Reviewed by David Connell

rmr

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 143871
Sample Name: T21/22 B9#
Sample Date: 08/17/93
Collected by: DAN ULDALL
Time Sampled: 1120
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	15.2	%	08/19/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	15,000	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	18,000	mg/kg	08/19/93

City of Richland

CHAIN OF CUSTODY RECORD

Huntingdon

Consulting Engineers Environmental Scientists

Project or Site Name: 192-2104-5

Project Number: Dan Uldall

Sampler Name (Printed)

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Dan Uldall

Contact or Report to: CNI - Tri-Cities

Contact Address or Location

Sampler Signature

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: TPH 418.1	ANALYSIS REQUIRED: BTEX 8020	NOTES	LAB NUMBER
8-17-93	11:20P	T 21/22 B7#	Grab	Soil	1	X		No Pres.	14387

Relinquished by:	Date	Time	Received by:
	8-17-93	3:00P	Carrier UPS Rec
	8/18/93	1000	CNI Lab Blgs

Remarks: cooler temp 19.3°C

Rapid Turnaround

UPS / overnight / 10AM

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

* Revised: 08/27/93
DATE: August 25, 1993
JOB NUMBER: 87-921
SHEET: 1 of 2
INVOICE NO.: 24387-A

REPORT OF: Soil Analysis - City of Richland 192-2104-5

SAMPLE IDENTIFICATION:

On August 18, 1993, this soil sample (laboratory number 143871) was received in our laboratory for analysis. The total petroleum hydrocarbon determination was made in accordance with Environmental Protection Agency Method 418.1.

* Additional analysis was requested by the client after TPH results were provided. We performed hydrocarbon identification in general accordance with Washington Department of Ecology methods. The results of the analysis are added to our previous report on the following page. Example chromatograms are provided.

Reviewed by Kathleen A Smit

Attachments (chromatograms)

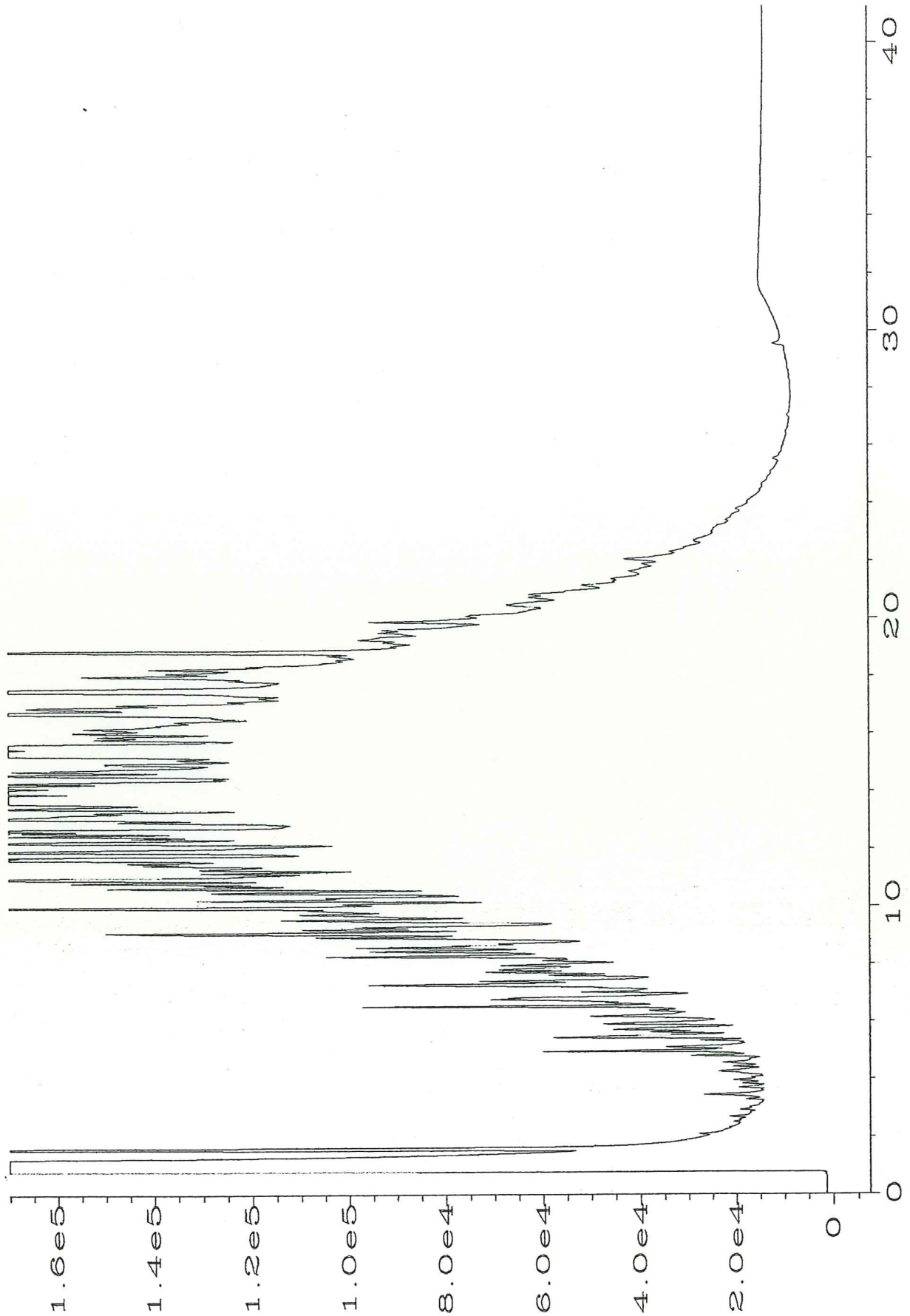
rmr

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143871
Sample Name: T21/22 B9#
Sample Date: 08/17/93
Collected by: DAN ULDALL
Time Sampled: 1120
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	15.2	%	08/19/93
PETROLEUM HYDROCARBONS (418.1)			
Recoverable Petroleum Hydrocarbons as rec'd	15,000	mg/kg	08/19/93
Recoverable Petroleum Hydrocarbons dry basis	18,000	mg/kg	08/19/93
HCID	Sample contains diesel fuel		

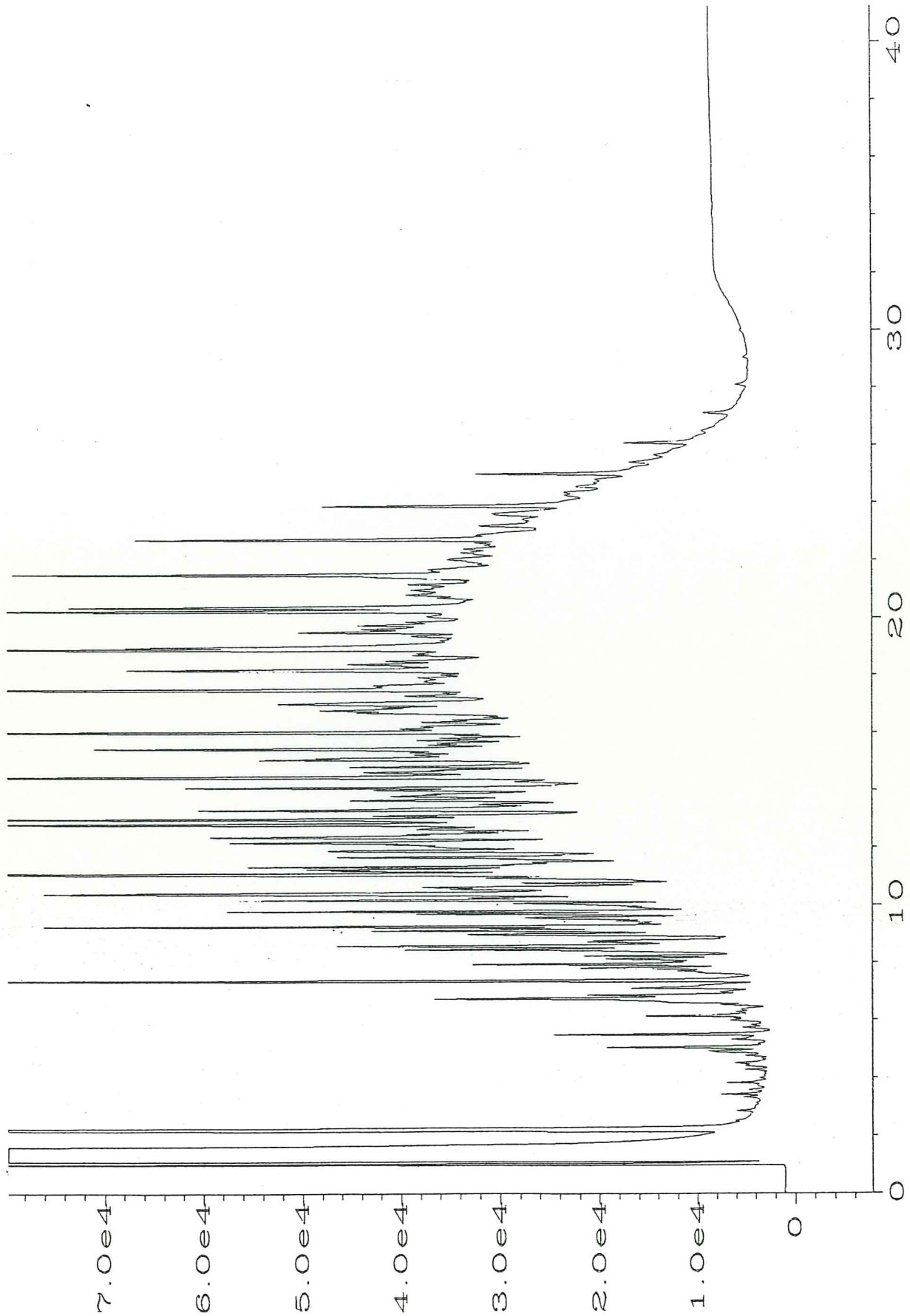
ATTACHMENTS

Sig. 1 in C:\HPCHEM\1\DATA\082693\003F0101.D



Sig. 1 in A:\001F0101.D

#2 DIESEL



City of Richland

CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- [x] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Project or Site Name: 192-2104-5

Project Number: Dan Uldall

Sampler Name (Printed)

Contact or Report to: Dan Uldall

CNI - Tri-Cities

Contact Address or Location: [signature] for Dan Uldall

Sampler Signature

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: TPH 418							NOTES	LAB NUMBER
8-17-93	11:20P	T 21/22 B7#	Grab	Soil	1	X							No Pres. (Held 8/25)	

Relinquished by:	Date	Time	Received by:
[signature]	8-17-93	3:00P	Carrier UPS
Relinquished by:	8/18/93	1000	CNI Lab Bldg. G. Cleveland
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Cooler temp 19.3°C

Remarks: Rapid Turnaround

UPS / overnight / 1 day

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: September 13, 1993
JOB NUMBER: 87-921
SHEET: 1 of 7
INVOICE NO.: 24524

REPORT OF: Soil and Water Analysis - Uptown Shopping Center 192-2104-5

SAMPLE IDENTIFICATION:

On August 20, 1993, these soil and water samples (laboratory numbers 143961 through 143965) were received in our laboratory for analysis. Water sample 143965, T17GW, was analyzed for volatile organics in accordance with Federal Register Volume 49 No. 209, Method 624 - Purgeables.

The total petroleum hydrocarbon determinations were made in accordance with the California Department of Health Services Hazardous Materials Laboratory procedures.

The test results are shown on the following pages. Chromatograms are attached for your reference.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

Reviewed by David Connell

Attachments (chromatograms)

rmr

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143961
Sample Name: #18 T21/27ESW 8.0
Sample Date: 08/18/93
Collected by: DAN ULDALL
Time Sampled: 1120
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	14.0	%	09/01/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090193035		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	11,000	mg/kg	09/01/93
Petroleum Hydrocarbons as Diesel dry basis	13,000	mg/kg	09/01/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143962
Sample Name: #19 T21/22B 9.5
Sample Date: 08/18/93
Collected by: DAN ULDALL
Time Sampled: 1120
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	13.4	%	09/01/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090193031		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	5500	mg/kg	09/01/93
Petroleum Hydrocarbons as Diesel dry basis	6400	mg/kg	09/01/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143963
Sample Name: #21 T17SWC 5.5
Sample Date: 08/18/93
Collected by: DAN ULDALL
Time Sampled: 1330
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	17.2	%	09/01/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090193033		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/01/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/01/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143964
Sample Name: #22 T17BC 8.5
Sample Date: 08/18/93
Collected by: DAN ULDALL
Time Sampled: 1345
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	18.2	%	09/07/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090793003		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/07/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/07/93

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Laboratory No.: 143965
Sample Name: #20 T17GW
Sample Date: 08/18/93
Collected by: DAN ULDALL
Time Sampled: 1215
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-Volatiles	0820931011 0820931010*		
VOLATILE ORGANIC COMPOUNDS			
Benzene	<20	µg/l	08/20/93
Bromodichloromethane	<10	µg/l	08/20/93
Bromoform	<10	µg/l	08/20/93
Bromomethane	<20	µg/l	08/20/93
Carbon Tetrachloride	<20	µg/l	08/20/93
Chlorobenzene	<10	µg/l	08/20/93
Chloroethane	<10	µg/l	08/20/93
2-Chloroethyl vinyl ether	<100	µg/l	08/20/93
Chloroform	<10	µg/l	08/20/93
Chloromethane	<10	µg/l	08/20/93
Dibromochloromethane	<10	µg/l	08/20/93
1,2-Dichlorobenzene	<10	µg/l	08/20/93
1,3-Dichlorobenzene	<10	µg/l	08/20/93
1,4-Dichlorobenzene	<10	µg/l	08/20/93
1,1-Dichloroethane	<10	µg/l	08/20/93
1,2-Dichloroethane	<20	µg/l	08/20/93
1,1-Dichloroethene	<10	µg/l	08/20/93
Trans-1,2-Dichloroethene	<10	µg/l	08/20/93
1,2-Dichloropropane	<10	µg/l	08/20/93
Cis-1,3-Dichloropropene	<10	µg/l	08/20/93
Trans-1,3-Dichloropropene	<10	µg/l	08/20/93
Ethylbenzene	<10	µg/l	08/20/93
Methylene chloride	<50	µg/l	08/20/93
1,1,2,2-Tetrachloroethane	<10	µg/l	08/20/93
Tetrachloroethene	5900 *	µg/l	08/20/93
Toluene	<10	µg/l	08/20/93
1,1,1-Trichloroethane	<10	µg/l	08/20/93
1,1,2-Trichloroethane	<10	µg/l	08/20/93
Trichloroethene	400	µg/l	08/20/93
Trichlorofluoromethane	<10	µg/l	08/20/93
Vinyl Chloride	<10	µg/l	08/20/93
VOLATILE SURROGATE SPIKE RECOVERY			
Toluene-d8	120	%	08/20/93
4-Bromofluorobenzene	108	%	08/20/93
1,2-Dichloroethane-d4	105	%	08/20/93

* Based on 1:100 dilution

Client Name: CHEN-NORTHERN, INC. TRI-CITIES, WA
Project No.: 87-921
Sample Name: LABORATORY BLANK 8-20-93
Sample Date: NOT APPLICABLE
Collected by: NOT APPLICABLE
Time Sampled: NOT APPLICABLE
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-Volatiles	0820931004		
VOLATILE ORGANIC COMPOUNDS			
Benzene	<2	µg/l	08/20/93
Bromodichloromethane	<1	µg/l	08/20/93
Bromoform	<1	µg/l	08/20/93
Bromomethane	<1	µg/l	08/20/93
Carbon Tetrachloride	<2	µg/l	08/20/93
Chlorobenzene	<1	µg/l	08/20/93
Chloroethane	<1	µg/l	08/20/93
2-Chloroethyl vinyl ether	<10	µg/l	08/20/93
Chloroform	<1	µg/l	08/20/93
Chloromethane	<1	µg/l	08/20/93
Dibromochloromethane	<1	µg/l	08/20/93
1,2-Dichlorobenzene	<1	µg/l	08/20/93
1,3-Dichlorobenzene	<1	µg/l	08/20/93
1,4-Dichlorobenzene	<1	µg/l	08/20/93
1,1-Dichloroethane	<1	µg/l	08/20/93
1,2-Dichloroethane	<1	µg/l	08/20/93
1,1-Dichloroethene	<1	µg/l	08/20/93
Trans-1,2-Dichloroethene	<1	µg/l	08/20/93
1,2-Dichloropropane	<1	µg/l	08/20/93
Cis-1,3-Dichloropropene	<1	µg/l	08/20/93
Trans-1,3-Dichloropropene	<1	µg/l	08/20/93
Ethylbenzene	<1	µg/l	08/20/93
Methylene chloride	<5	µg/l	08/20/93
1,1,2,2-Tetrachloroethane	<1	µg/l	08/20/93
Tetrachloroethene	<1	µg/l	08/20/93
Toluene	<1	µg/l	08/20/93
1,1,1-Trichloroethane	<1	µg/l	08/20/93
1,1,2-Trichloroethane	<1	µg/l	08/20/93
Trichloroethene	<2	µg/l	08/20/93
Trichlorofluoromethane	<1	µg/l	08/20/93
Vinyl Chloride	<1	µg/l	08/20/93
VOLATILE SURROGATE SPIKE RECOVERY			
Toluene-d8	92	%	08/20/93
4-Bromofluorobenzene	99	%	08/20/93
1,2-Dichloroethane-d4	90	%	08/20/93

ATTACHMENTS

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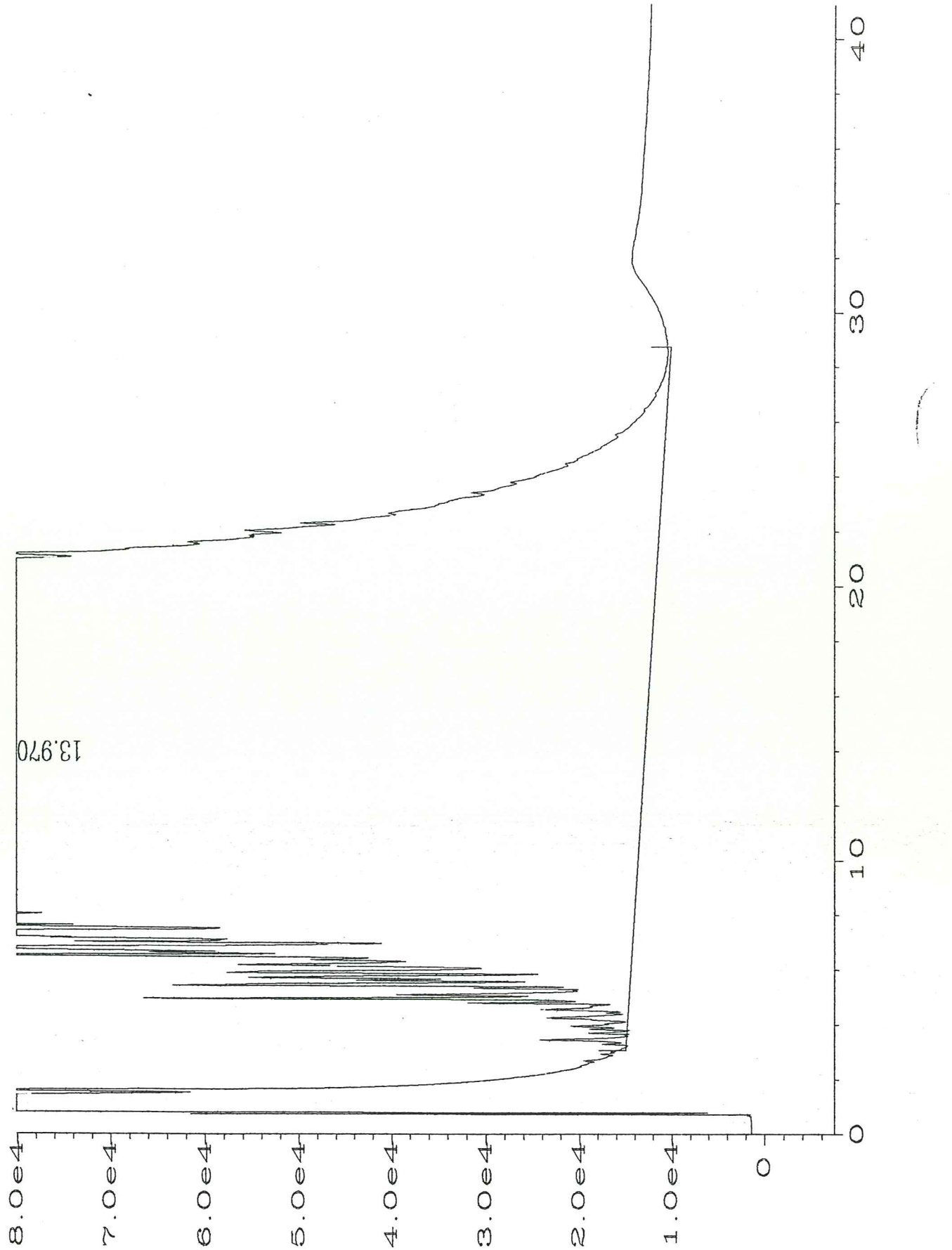

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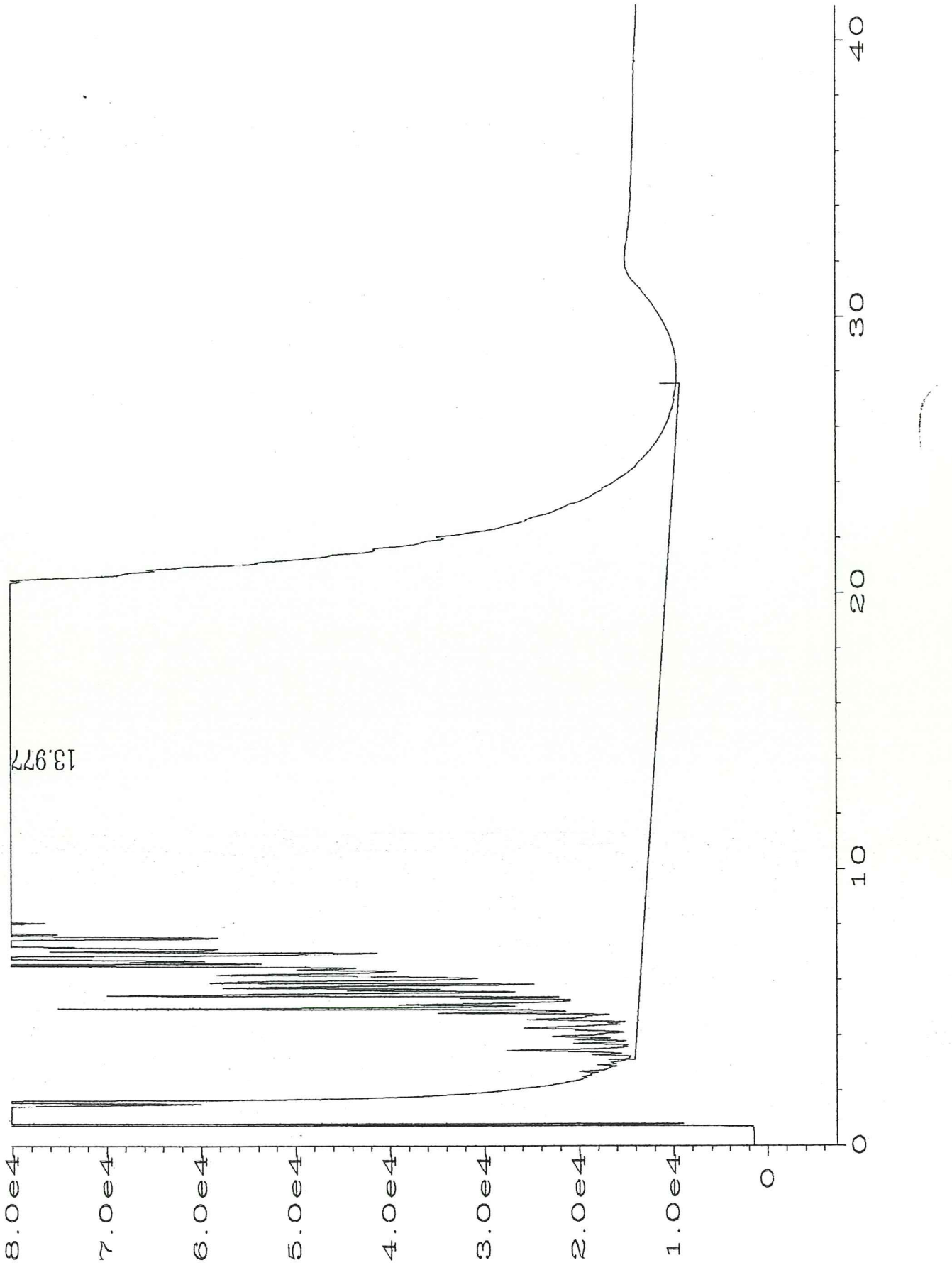

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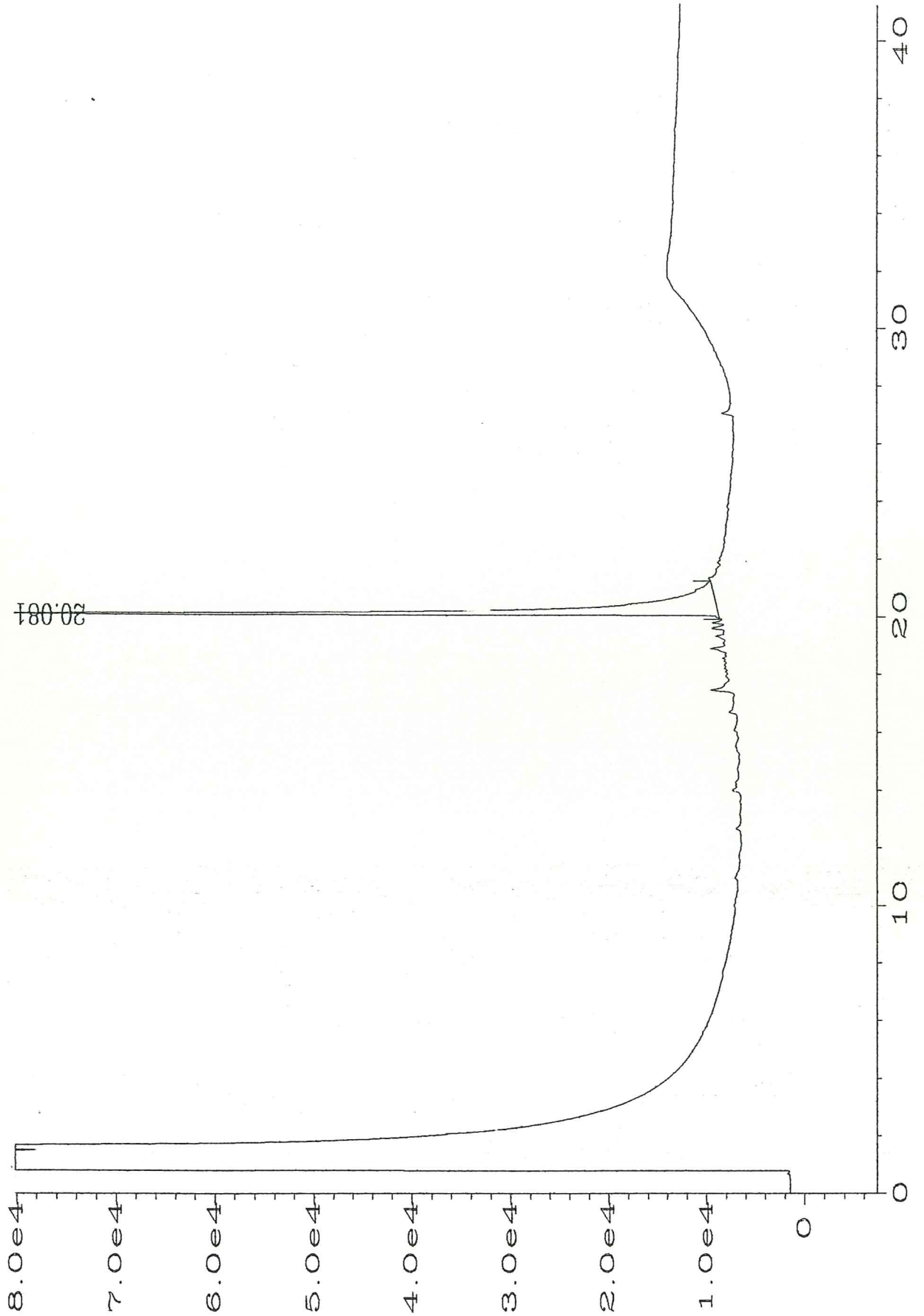

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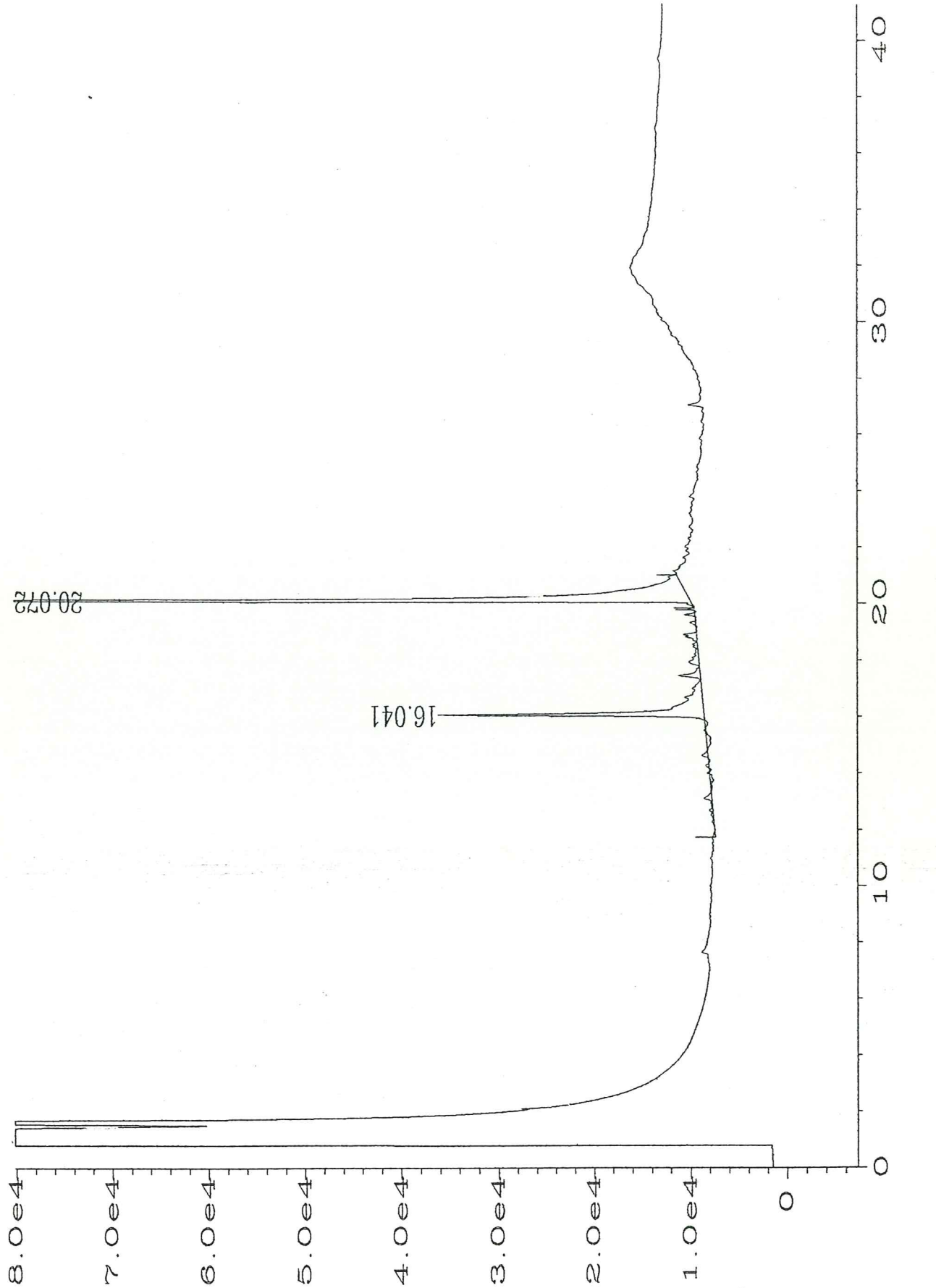
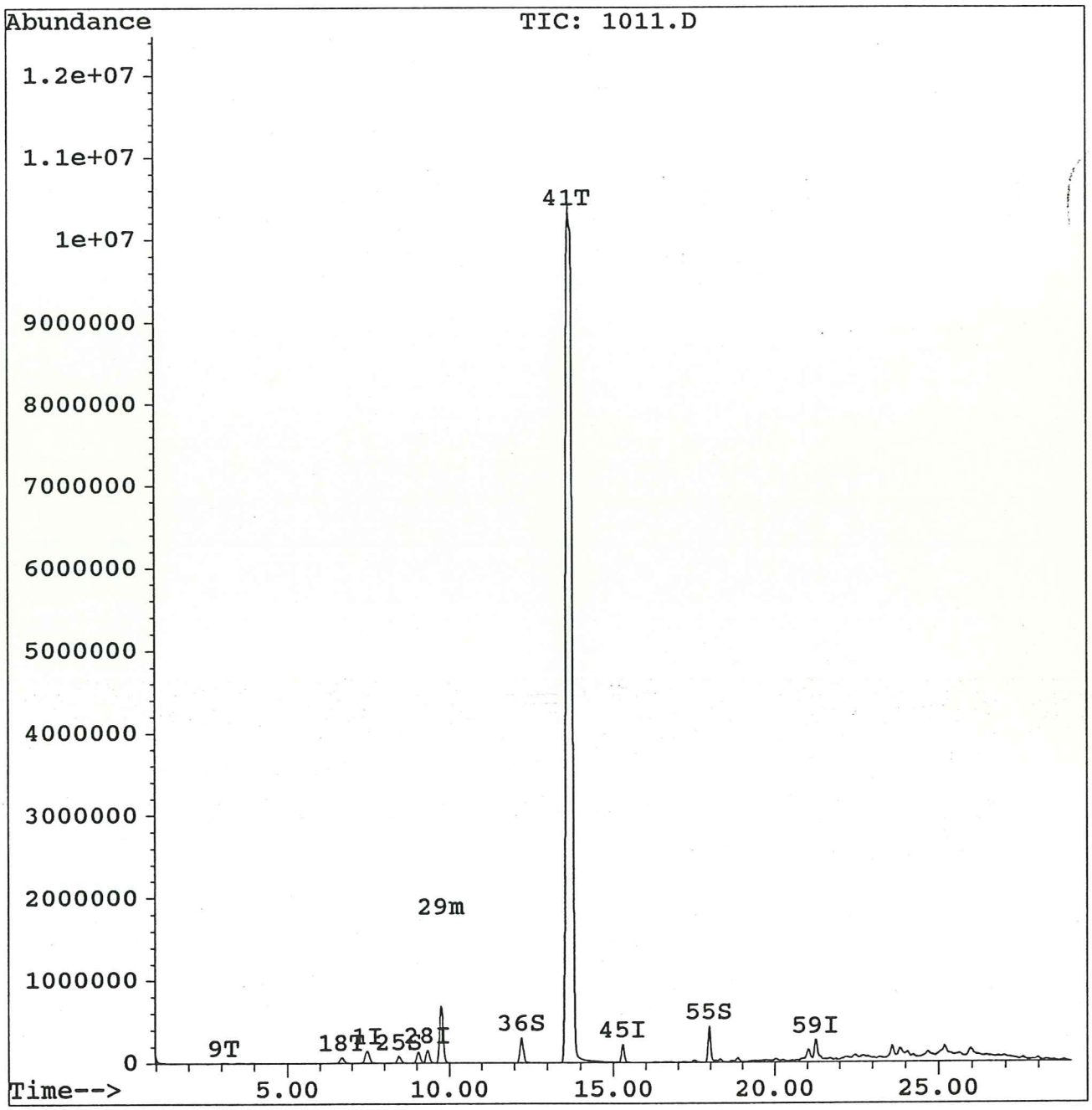


Quantitation Report

Data File : C:\HPCHEM\1\DATA\082093\1011.D
Acq Time : 20 Aug 93 2:52 pm
Sample : 143965 1:10
Misc :
Quant Time: Aug 20 15:31 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\082093.M
Title : 8260 and append 9
Last Update : Fri Aug 20 13:57:19 1993
Response via : Single Level Calibration

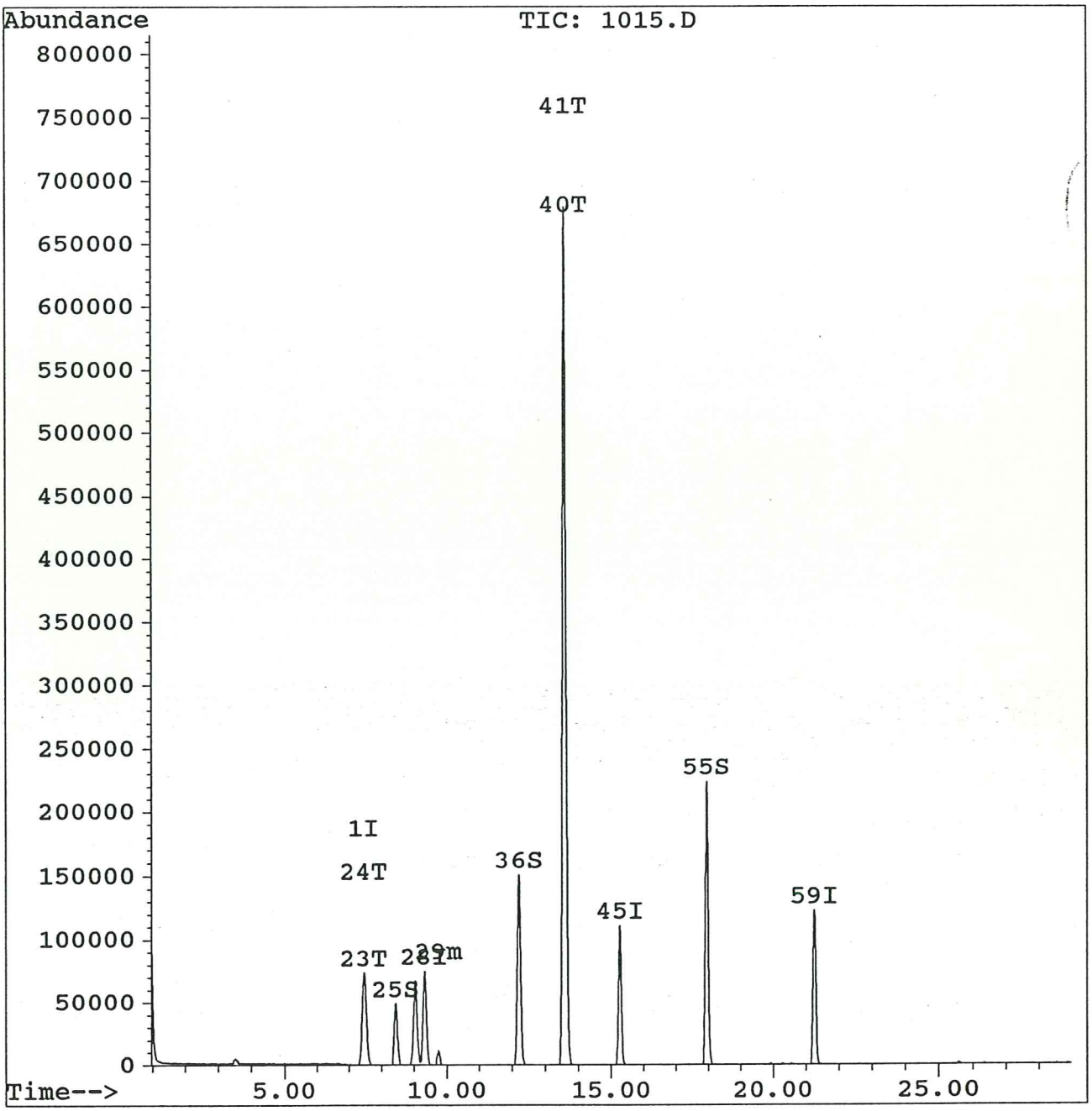


Quantitation Report

Data File : C:\HPCHEM\1\DATA\082093\1015.D
Acq Time : 20 Aug 93 5:29 pm
Sample : 143965 1:100
Misc :
Quant Time: Aug 20 18:00 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\082093.M
Title : 8260 and append 9
Last Update : Fri Aug 20 13:57:19 1993
Response via : Single Level Calibration



Quantitation Report

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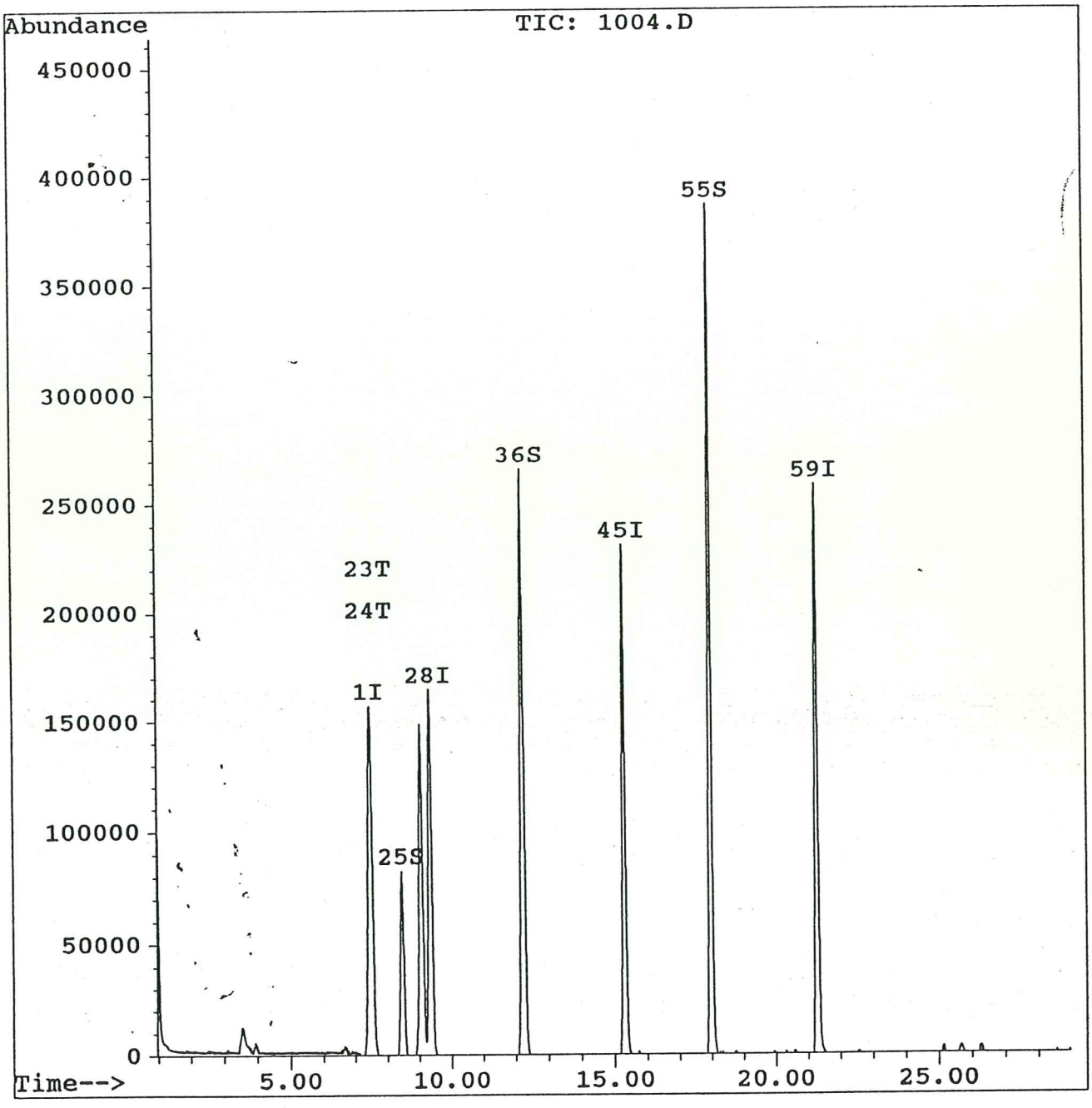
Acq Time : 20 Aug 93 9:49 am
Sample : blk
Misc :
Quant Time: Aug 20 12:06 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\082093.M
Title : 8260 and append 9
Last Update : Fri Aug 20 12:01:54 1993
Response via : Single Level Calibration



CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- [X] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Uptown Shopping Center
Project or Site Name

192-2104-5
Project Number

Sampler Name (Printed)

Dan Udall
Contact or Report to

Tri-Cities HCN
Contact Address or Location

Sampler Signature

DATE COLLECTED	TIME COLLECTED	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED 418.1	9.29	TPHD					NOTES	LAB NUMBER
8/18/93	1120 #18 #20	T21/22ESW8.0	G	~~AQ~~ S	1	X							S = Soil	
8/18/93	1120 #19 #21	T21/22B 9.5	G		1	X		X					AQ = Aqueous	
8/18/93 #21	1330 ~~#22~~ #23	T17SWC5.5	C		1	X								
8/18/93 #22	1345 ~~#24~~ #24	T17BC 8.5	C		1	X		X						
8/18/93 #20	1215 ~~#25~~ #25	T17GW	G	AQ	2		X							
				A pu										

Relinquished by:	Date	Time	Received by:
	8/18/93	1645	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks: Aqueous sample is likely to be nearly saturated w/ Heating Oil fuel dissolved constituents. Rapid Turnaround on sample # T17GW

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: September 22, 1993
JOB NUMBER: 87-921
SHEET: 1 of 21
INVOICE NO.: 24600

REPORT OF: Soil and Water Analysis - Uptown Shopping Center (192-2104-5)

SAMPLE IDENTIFICATION:

On August 26, 1993, these water and soil samples (laboratory numbers 144254 through 144270) were received in our laboratory for analysis. The samples were analyzed for volatile organics in accordance with Federal Register Volume 49 No. 209, Method 624 and the Environmental Protection Agency Manual SW-846, Test Methods for Evaluating Solid Waste, Third Edition, November 1986; Method 8260.

Total petroleum hydrocarbon determinations were made in accordance with the California Department of Health Services Hazardous Materials Laboratory procedures.

The test results are given on the following pages. Chromatograms are included for your reference.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

Reviewed by David Connell

ba

Attachments (chromatograms)

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144254
Sample Name: 23 T19/20SWC9.0
Sample Date: 08/19/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1130
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	20.5	%	08/31/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090793005		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	11	mg/kg	09/07/93
Petroleum Hydrocarbons as Diesel dry basis	14	mg/kg	09/07/93

Laboratory No.: 144255
Sample Name: 24 T19/20B10.5
Sample Date: 08/19/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1130
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	22.9	%	08/31/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893025		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	1100	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	1400	mg/kg	09/08/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144256
Sample Name: 25 T23SWC7.0
Sample Date: 08/19/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1445
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	17.7	%	08/31/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090793009		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/07/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/07/93

Laboratory No.: 144257
Sample Name: 26 T23B10.0
Sample Date: 08/19/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1500
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	23.7	%	08/31/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090793010		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	650	mg/kg	09/07/93
Petroleum Hydrocarbons as Diesel dry basis	850	mg/kg	09/07/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144258
Sample Name: 27 T10-16BC8.0
Sample Date: 08/20/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1000
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	16.0	%	09/07/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090793014		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	260	mg/kg	09/07/93
Petroleum Hydrocarbons as Diesel dry basis	310	mg/kg	09/07/93

Laboratory No.: 144259
Sample Name: 28 T10-16SWC5.0
Sample Date: 08/20/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1000
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	20.0	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893026		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	14,000	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	18,000	mg/kg	09/08/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144260
Sample Name: 29 T26SWC5.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	21.6	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893027		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	2400	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	3100	mg/kg	09/08/93

Laboratory No.: 144261
Sample Name: 30 T26BC9.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	23.6	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893028		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	4700	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	6200	mg/kg	09/08/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144262
Sample Name: 31 T27SWC5.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	27.4	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893023		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	21	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	29	mg/kg	09/08/93

Laboratory No.: 144263
Sample Name: 32 T27BC9.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	23.2	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893029		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	3600	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	4700	mg/kg	09/08/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144264
Sample Name: DUPLICATE 144270 37 T315WC6.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1530
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	090893040		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/08/93

Laboratory No.: 144265
Sample Name: SPIKE 144262 31 T27SWC5.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	090893024		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	77	%	09/08/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144266
Sample Name: 33 T28SWC5.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	14.6	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893035		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	75*	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	88	mg/kg	09/08/93

* Contains higher boiler compounds non-typical of #2 diesel fuel. Inclusion of these compounds in the quantitation yields an estimated total concentration of 93 mg/kg.

Laboratory No.: 144267
Sample Name: 34 T2838.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	20.3	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893032		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	<13	mg/kg	09/08/93

Project No.: 87-921
Laboratory No.: 144268
Sample Name: 35 T30SWC4.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1500
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	15.3	%	09/09/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090993003		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10*	mg/kg	09/09/93
Petroleum Hydrocarbons as Diesel dry basis	<13	mg/kg	09/09/93

* Contains higher boiler compounds non-typical of #2 diesel fuel. Inclusion of these compounds in the quantitation yields an estimated total concentration of 45 mg/kg.

Laboratory No.: 144269
Sample Name: 36 T30BC7.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1500
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	20.9	%	09/08/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090893038		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10*	mg/kg	09/08/93
Petroleum Hydrocarbons as Diesel dry basis	<13	mg/kg	09/08/93

* Contains higher boiler compounds non-typical of #2 diesel fuel. Inclusion of these compounds in the quantitation yields an estimated total concentration of 39 mg/kg.

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144270
Sample Name: 37 T31SWC6.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1530
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	25.7	%	09/10/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091093032		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/10/93
Petroleum Hydrocarbons as Diesel dry basis	<13	mg/kg	09/10/93

Laboratory No.: 144271
Sample Name: 38 T31BC8.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1530
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	18.6	%	09/10/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091093033		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/10/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/10/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144272
Sample Name: 39 T18SWC6.5
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	9.6	%	09/09/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090993006		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	1900	mg/kg	09/09/93
Petroleum Hydrocarbons as Diesel dry basis	2100	mg/kg	09/09/93

Laboratory No.: 144273
Sample Name: 40 T18B10.5
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 0930
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.2	%	09/09/93
MISCELLANEOUS			
Data File Number-TPH Diesel	0910931004		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	3400	mg/kg	09/10/93
Petroleum Hydrocarbons as Diesel dry basis	3800	mg/kg	09/10/93

Laboratory No.: 144274
Sample Name: 41 T24WSW6.0
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	16.6	%	09/09/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090993009		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/09/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/09/93

Laboratory No.: 144275
Sample Name: 42 T24B10.5
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	17.7	%	09/09/93
MISCELLANEOUS			
Data File Number-TPH Diesel	090993011		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/09/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/09/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144276
Sample Name: DUPLICATE 144268 35 T30SWC4.0
Sample Date: 08/23/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1500
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	090993004		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10*	mg/kg	09/09/93

* Contains higher boiler compounds non-typical of #2 diesel fuel. Inclusion of these compounds in the quantitation yields an estimated total concentration of 30 mg/kg.

Laboratory No.: 144277
Sample Name: SPIKE 144274 41 T24WSW6.0
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	090993010		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	90	%	09/09/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144278
Sample Name: 43 T25SWC6.5
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1440
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	20.3	%	09/13/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091393014		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/13/93
Petroleum Hydrocarbons as Diesel dry basis	<13	mg/kg	09/13/93

Laboratory No.: 144279
Sample Name: 44 T25B10.5
Sample Date: 08/24/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1440
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	16.8	%	09/13/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091393015		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	<10	mg/kg	09/13/93
Petroleum Hydrocarbons as Diesel dry basis	<12	mg/kg	09/13/93

Project No.: 87-921
Laboratory No.: 144280
Sample Name: 45 T32 SLUDGE
Sample Date: 08/25/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1000
Sample Type: SLUDGE

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-volatiles-solids fraction	0830931007		
Data File Number-Volatiles-liquid fraction	0830931006		
Data File Number-TPH Diesel	083193025		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel	120,000	mg/kg	08/31/93
VOLATILE ORGANIC COMPOUNDS			
	Solids Fraction		Liquid Fraction		
Benzene	<5000 µg/kg		<200	µg/l	08/30/93
Bromodichloromethane	<2500 µg/kg		<100	µg/l	08/30/93
Bromoform	<2500 µg/kg		<100	µg/l	08/30/93
Bromomethane	<5000 µg/kg		<200	µg/l	08/30/93
Carbon Tetrachloride	<5000 µg/kg		<200	µg/l	08/30/93
Chlorobenzene	<2500 µg/kg		<100	µg/l	08/30/93
Chloroethane	<2000 µg/kg		<100	µg/l	08/30/93
2-Chloroethyl vinyl ether	<25000 µg/kg		<1000	µg/l	08/30/93
Chloroform	<2500 µg/kg		<100	µg/l	08/30/93
Chloromethane	<2500 µg/kg		<100	µg/l	08/30/93
Dibromochloromethane	<2500 µg/kg		<100	µg/l	08/30/93
1,2-Dichlorobenzene	<2500 µg/kg		<100	µg/l	08/30/93
1,3-Dichlorobenzene	<2500 µg/kg		<100	µg/l	08/30/93
1,4-Dichlorobenzene	<2500 µg/kg		<100	µg/l	08/30/93
1,1-Dichloroethane	<2500 µg/kg		<100	µg/l	08/30/93
1,2-Dichloroethane	<5000 µg/kg		<200	µg/l	08/30/93
1,1-Dichloroethene	<2500 µg/kg		<100	µg/l	08/30/93
Trans-1,2-Dichloroethene	<2500 µg/kg		<100	µg/l	08/30/93
1,2-Dichloropropane	<2500 µg/kg		<100	µg/l	08/30/93
Cis-1,3-Dichloropropene	<2500 µg/kg		<100	µg/l	08/30/93
Trans-1,3-Dichloropropene	<2500 µg/kg		<100	µg/l	08/30/93
Ethylbenzene	<2500 µg/kg		<100	µg/l	08/30/93
Methylene chloride	<12500 µg/kg		<500	µg/l	08/30/93
1,1,2,2-Tetrachloroethane	<2500 µg/kg		<100	µg/l	08/30/93
Tetrachloroethene	<2500 µg/kg		<100	µg/l	08/30/93
Toluene	<2500 µg/kg		<100	µg/l	08/30/93
1,1,1-Trichloroethane	<2500 µg/kg		<100	µg/l	08/30/93
1,1,2-Trichloroethane	<2500 µg/kg		<100	µg/l	08/30/93
Trichloroethene	<2500 µg/kg		<100	µg/l	08/30/93
Trichlorofluoromethane	<2500 µg/kg		<100	µg/l	08/30/93
Vinyl Chloride	<2500 µg/kg		<100	µg/l	08/30/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144280
Sample Name: 45 T32 SLUDGE
Sample Date: 08/25/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1000
Sample Type: SLUDGE

PARAMETER			MEASURED VALUE		DATE ANALYZED
VOLATILE SURROGATE SPIKE RECOVERY					
1,2-Dichloroethane-d4	100	%	98	%	08/30/93
Toluene-d8	100	%	102	%	08/30/93
4-Bromofluorobenzene	101	%	99	%	08/30/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144281
Sample Name: 46 T32GW
Sample Date: 08/25/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1045
Sample Type: SLUDGE

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-Volatiles	0830931005		
VOLATILE ORGANIC COMPOUNDS			
Benzene	<2	µg/l	08/30/93
Bromodichloromethane	<1	µg/l	08/30/93
Bromoform	<1	µg/l	08/30/93
Bromomethane	<2	µg/l	08/30/93
Carbon Tetrachloride	<2	µg/l	08/30/93
Chlorobenzene	<1	µg/l	08/30/93
Chloroethane	<1	µg/l	08/30/93
2-Chloroethyl vinyl ether	<10	µg/l	08/30/93
Chloroform	<1	µg/l	08/30/93
Chloromethane	<1	µg/l	08/30/93
Dibromochloromethane	<1	µg/l	08/30/93
1,2-Dichlorobenzene	<1	µg/l	08/30/93
1,3-Dichlorobenzene	<1	µg/l	08/30/93
1,4-Dichlorobenzene	<1	µg/l	08/30/93
1,1-Dichloroethane	<1	µg/l	08/30/93
1,2-Dichloroethane	<2	µg/l	08/30/93
1,1-Dichloroethene	<1	µg/l	08/30/93
Trans-1,2-Dichloroethene	<1	µg/l	08/30/93
1,2-Dichloropropane	<1	µg/l	08/30/93
Cis-1,3-Dichloropropene	<1	µg/l	08/30/93
Trans-1,3-Dichloropropene	<1	µg/l	08/30/93
Ethylbenzene	<1	µg/l	08/30/93
Methylene chloride	<5	µg/l	08/30/93
1,1,2,2-Tetrachloroethane	<1	µg/l	08/30/93
Tetrachloroethene	<5	µg/l	08/30/93
Toluene	<1	µg/l	08/30/93
1,1,1-Trichloroethane	<1	µg/l	08/30/93
1,1,2-Trichloroethane	<1	µg/l	08/30/93
Trichloroethene	<1	µg/l	08/30/93
Trichlorofluoromethane	<1	µg/l	08/30/93
Vinyl Chloride	<1	µg/l	08/30/93
VOLATILE SURROGATE SPIKE RECOVERY			
1,2-Dichloroethane-d4	109	%	08/30/93
Toluene-d8	100	%	08/30/93
4-Bromofluorobenzene	94	%	08/30/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144282
Sample Name: 47 T32SPC
Sample Date: 08/25/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1130
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-Volatiles	0830931008, 0830931010*		
VOLATILE ORGANIC COMPOUNDS			
Benzene	<10	µg/kg	08/30/93
Bromobenzene	<5	µg/kg	08/30/93
Bromochloromethane	<5	µg/kg	08/30/93
Bromodichloromethane	<5	µg/kg	08/30/93
Bromoform	<5	µg/kg	08/30/93
Bromomethane	<10	µg/kg	08/30/93
n-Butylbenzene	<5	µg/kg	08/30/93
sec-Butylbenzene	<5	µg/kg	08/30/93
t-Butylbenzene	<5	µg/kg	08/30/93
Carbon Tetrachloride	<10	µg/kg	08/30/93
Chlorobenzene	<5	µg/kg	08/30/93
Chloroethane	<5	µg/kg	08/30/93
Chloroform	<5	µg/kg	08/30/93
Chloromethane	<5	µg/kg	08/30/93
2-Chlorotoluene	<5	µg/kg	08/30/93
4-Chlorotoluene	<5	µg/kg	08/30/93
Dibromochloromethane	<5	µg/kg	08/30/93
1,2-Dibromo-3-chloropropane	<25	µg/kg	08/30/93
1,2-Dibromoethane	<5	µg/kg	08/30/93
Dibromomethane	<10	µg/kg	08/30/93
1,2-Dichlorobenzene	<5	µg/kg	08/30/93
1,3-Dichlorobenzene	<5	µg/kg	08/30/93
1,4-Dichlorobenzene	<5	µg/kg	08/30/93
Dichlorodifluoromethane	<5	µg/kg	08/30/93
1,1-Dichloroethane	<5	µg/kg	08/30/93
1,2-Dichloroethane	<10	µg/kg	08/30/93
1,1-Dichloroethene	<5	µg/kg	08/30/93
Cis-1,2-Dichloroethene	<5	µg/kg	08/30/93
Trans-1 -Dichloroethene	<5	µg/kg	08/30/93
1,2-Dic..oropropane	<5	µg/kg	08/30/93
1,3-Dichloropropane	<5	µg/kg	08/30/93
2,2-Dichloropropane	<40	µg/kg	08/30/93
1,1-Dichloropropene	<40	µg/kg	08/30/93
Ethylbenzene	<40	µg/kg	08/30/93
Hexachlorobutadiene	<10	µg/kg	08/30/93
Isopropylbenzene	<5	µg/kg	08/30/93
Isopropyltoluene	<5	µg/kg	08/30/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144282
Sample Name: 47 T32SPC
Sample Date: 08/25/93
Collected by: DAN ULDALL/PAUL DANIELSON
Time Sampled: 1130
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
VOLATILE ORGANIC COMPOUNDS (Cont):			
Methylene chloride	400*	µg/kg	08/30/93
Naphthalene	<5	µg/kg	08/30/93
n-Propylbenzene	<5	µg/kg	08/30/93
Styrene	<5	µg/kg	08/30/93
1,1,1,2-Tetrachloroethane	<5	µg/kg	08/30/93
1,1,2,2-Tetrachloroethane	<5	µg/kg	08/30/93
Tetrachloroethene	<5	µg/kg	08/30/93
Toluene	<5	µg/kg	08/30/93
1,2,3-Trichlorobenzene	<5	µg/kg	08/30/93
1,2,4-Trichlorobenzene	<5	µg/kg	08/30/93
1,1,1-Trichloroethane	<5	µg/kg	08/30/93
1,1,2-Trichloroethane	<5	µg/kg	08/30/93
Trichloroethene	<5	µg/kg	08/30/93
Trichlorofluoromethane	<5	µg/kg	08/30/93
1,2,3-Trichloropropane	<5	µg/kg	08/30/93
1,2,4-Trimethylbenzene	<5	µg/kg	08/30/93
1,3,5-Trimethylbenzene	<5	µg/kg	08/30/93
Vinyl chloride	<5	µg/kg	08/30/93
Total xylenes	6	µg/kg	08/30/93
VOLATILE SURROGATE SPIKE RECOVERY			
1,2-Dichloroethane-d4	102	%	08/30/93
Toluene-d8	100	%	08/30/93
4-Bromofluorobenzene	92	%	08/30/93

* Based on a 1:5 dilution.

Sample Name: LABORATORY BLANK
Sample Date: NOT APPLICABLE
Collected by: NOT APPLICABLE
Time Sampled: NOT APPLICABLE
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS:			
Data File Number-Volatiles	0830931004		
VOLATILE ORGANIC COMPOUNDS:			
Benzene	<2	µg/l	08/30/93
Bromobenzene	<1	µg/l	08/30/93
Bromochloromethane	<1	µg/l	08/30/93
Bromodichloromethane	<1	µg/l	08/30/93
Bromoform	<1	µg/l	08/30/93
Bromomethane	<1	µg/l	08/30/93
n-Butylbenzene	<1	µg/l	08/30/93
sec-Butylbenzene	<1	µg/l	08/30/93
t-Butylbenzene	<1	µg/l	08/30/93
Carbon Tetrachloride	<2	µg/l	08/30/93
Chlorobenzene	<1	µg/l	08/30/93
Chloroethane	<1	µg/l	08/30/93
Chloroform	<1	µg/l	08/30/93
Chloromethane	<1	µg/l	08/30/93
2-Chlorotoluene	<1	µg/l	08/30/93
4-Chlorotoluene	<1	µg/l	08/30/93
Dibromochloromethane	<1	µg/l	08/30/93
1,2-Dibromo-3-chloropropane	<5	µg/l	08/30/93
1,2-Dibromoethane	<1	µg/l	08/30/93
Dibromomethane	<2	µg/l	08/30/93
1,2-Dichlorobenzene	<1	µg/l	08/30/93
1,3-Dichlorobenzene	<1	µg/l	08/30/93
1,4-Dichlorobenzene	<1	µg/l	08/30/93
Dichlorodifluoromethane	<1	µg/l	08/30/93
1,1-Dichloroethane	<1	µg/l	08/30/93
1,2-Dichloroethane	<2	µg/l	08/30/93
Cis-1,2-Dichloroethene	<1	µg/l	08/30/93
1,1-Dichloroethene	<1	µg/l	08/30/93

Sample Name: LABORATORY BLANK
Sample Date: NOT APPLICABLE
Collected by: NOT APPLICABLE
Time Sampled: NOT APPLICABLE
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
VOLATILE ORGANIC COMPOUNDS (cont.):			
Trans-1,2-Dichloroethene	<1	µg/l	08/30/93
1,2-Dichloropropane	<1	µg/l	08/30/93
1,3-Dichloropropane	<1	µg/l	08/30/93
2,2-Dichloropropane	<8	µg/l	08/30/93
1,1-Dichloropropene	<1	µg/l	08/30/93
Ethylbenzene	<1	µg/l	08/30/93
Hexachlorobutadiene	<2	µg/l	08/30/93
Isopropylbenzene	<1	µg/l	08/30/93
Isopropyltoluene	<1	µg/l	08/30/93
Methylene chloride	<5	µg/l	08/30/93
Naphthalene	<1	µg/l	08/30/93
n-Propylbenzene	<1	µg/l	08/30/93
Styrene	<1	µg/l	08/30/93
1,1,1,2-Tetrachloroethane	<1	µg/l	08/30/93
1,1,2,2-Tetrachloroethane	<1	µg/l	08/30/93
Tetrachloroethene	<1	µg/l	08/30/93
Toluene	<1	µg/l	08/30/93
1,2,3-Trichlorobenzene	<1	µg/l	08/30/93
1,2,4-Trichlorobenzene	<1	µg/l	08/30/93
1,1,1-Trichloroethane	<1	µg/l	08/30/93
1,1,2-Trichloroethane	<1	µg/l	08/30/93
Trichloroethene	<1	µg/l	08/30/93
Trichlorofluoromethane	<1	µg/l	08/30/93
1,2,3-Trichloropropane	<1	µg/l	08/30/93
1,2,4-Trimethylbenzene	<1	µg/l	08/30/93
1,3,5-Trimethylbenzene	<1	µg/l	08/30/93
Vinyl chloride	<1	µg/l	08/30/93
Total xylenes	<1	µg/l	08/30/93
SURROGATE SPIKE RECOVERY:			
Toluene-d8	100	%	08/30/93
1,2-Dichloroethane-d4	98	%	08/30/93
4-Bromofluorobenzene	92	%	08/30/93

ATTACHMENTS

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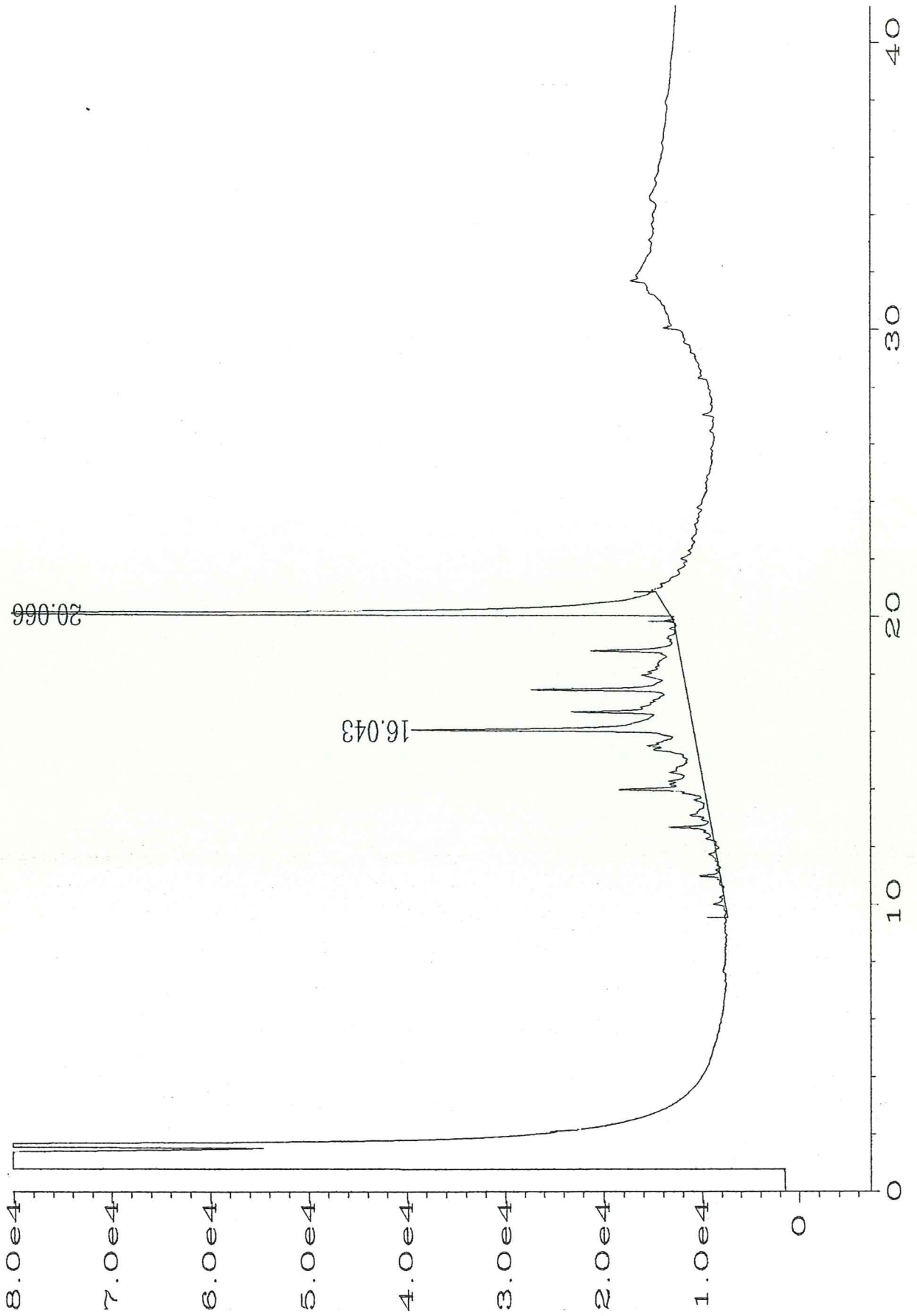

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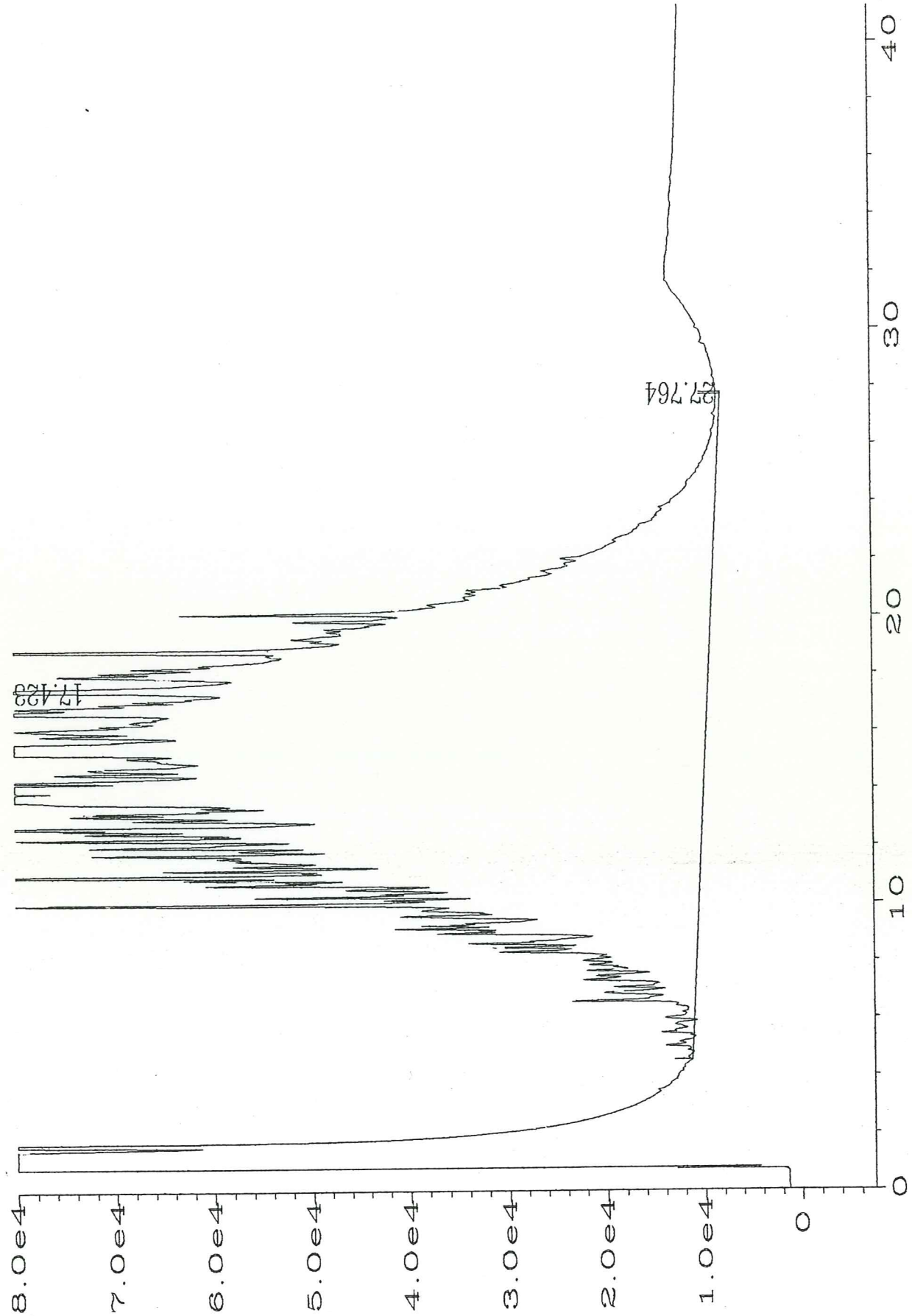

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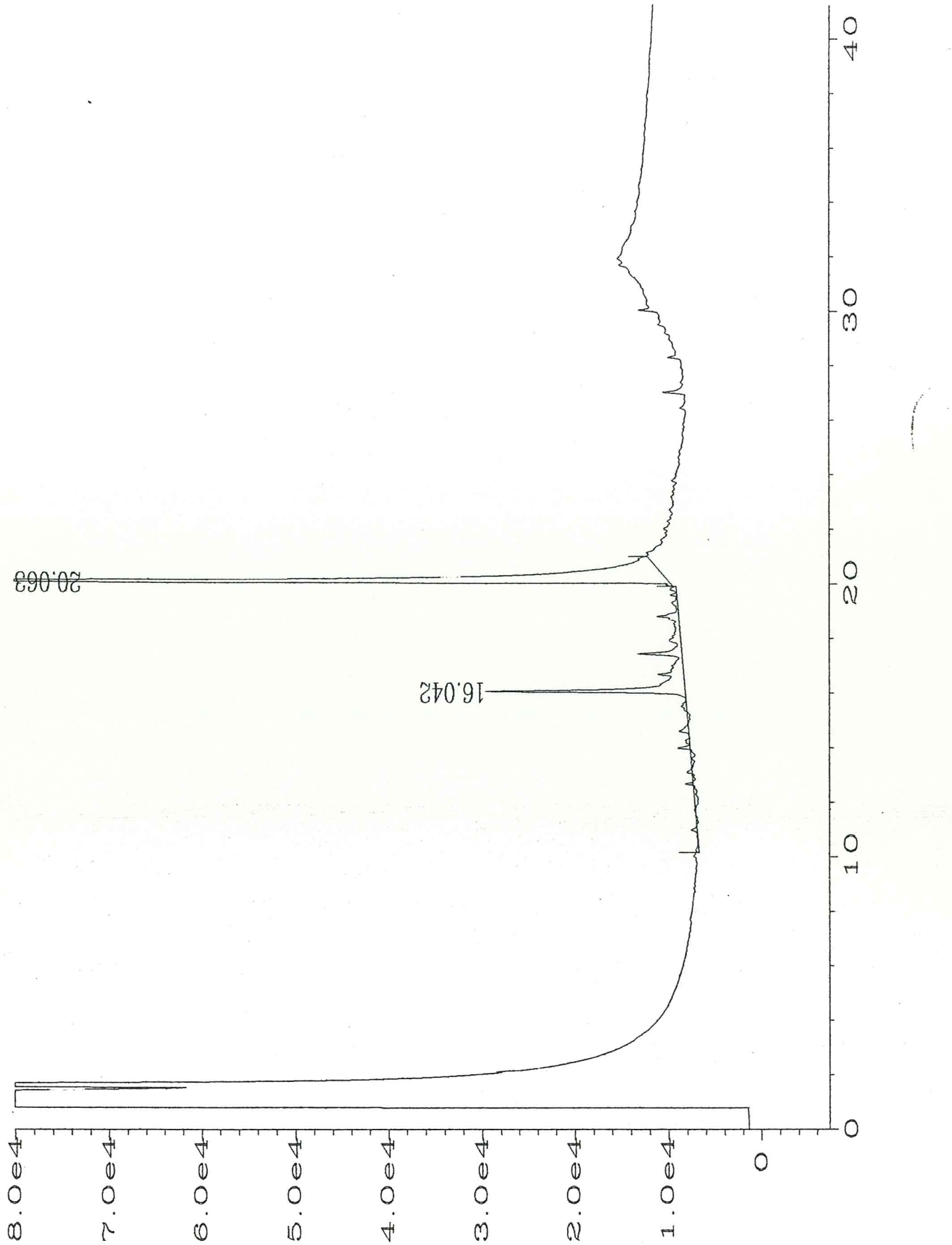

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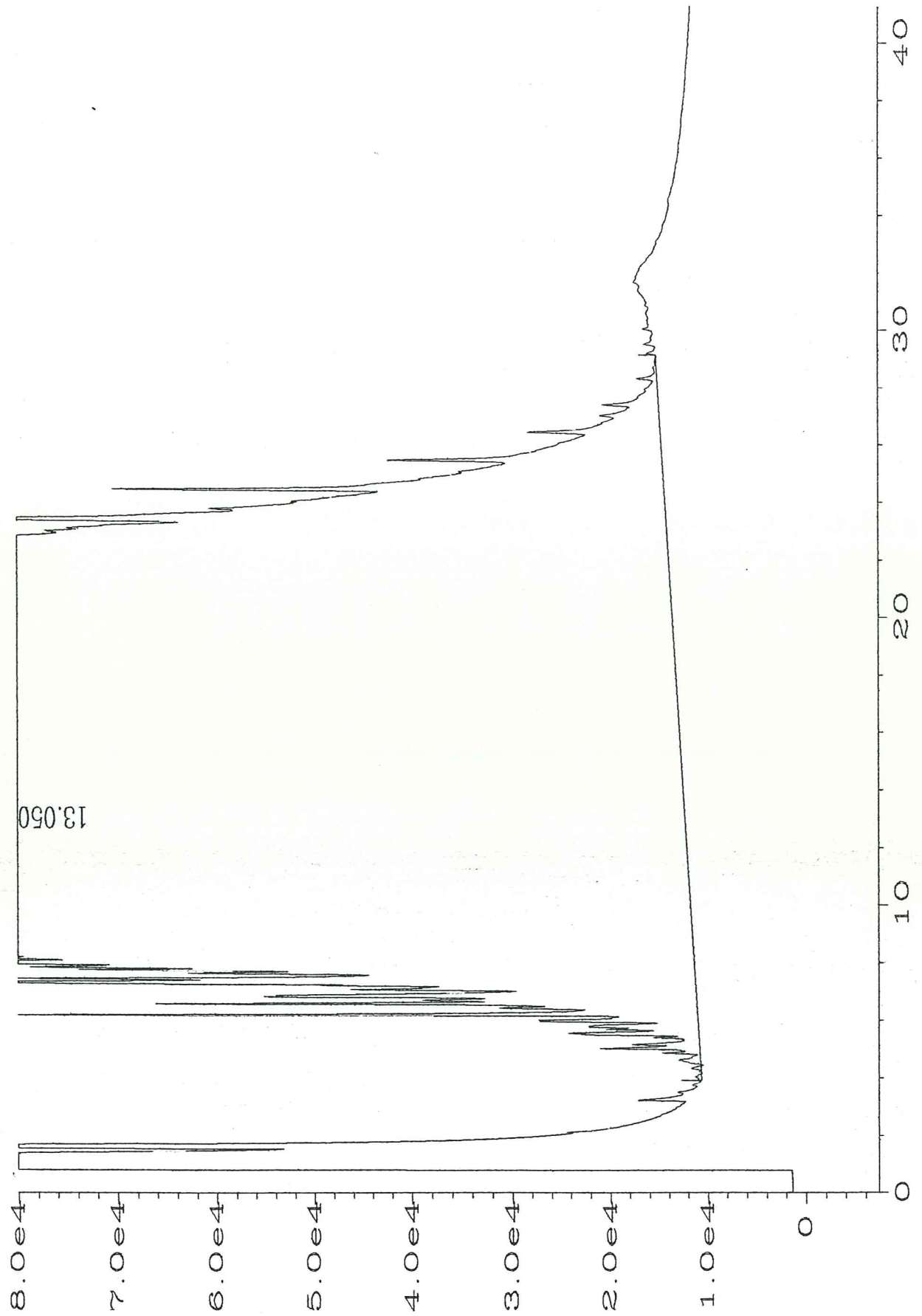

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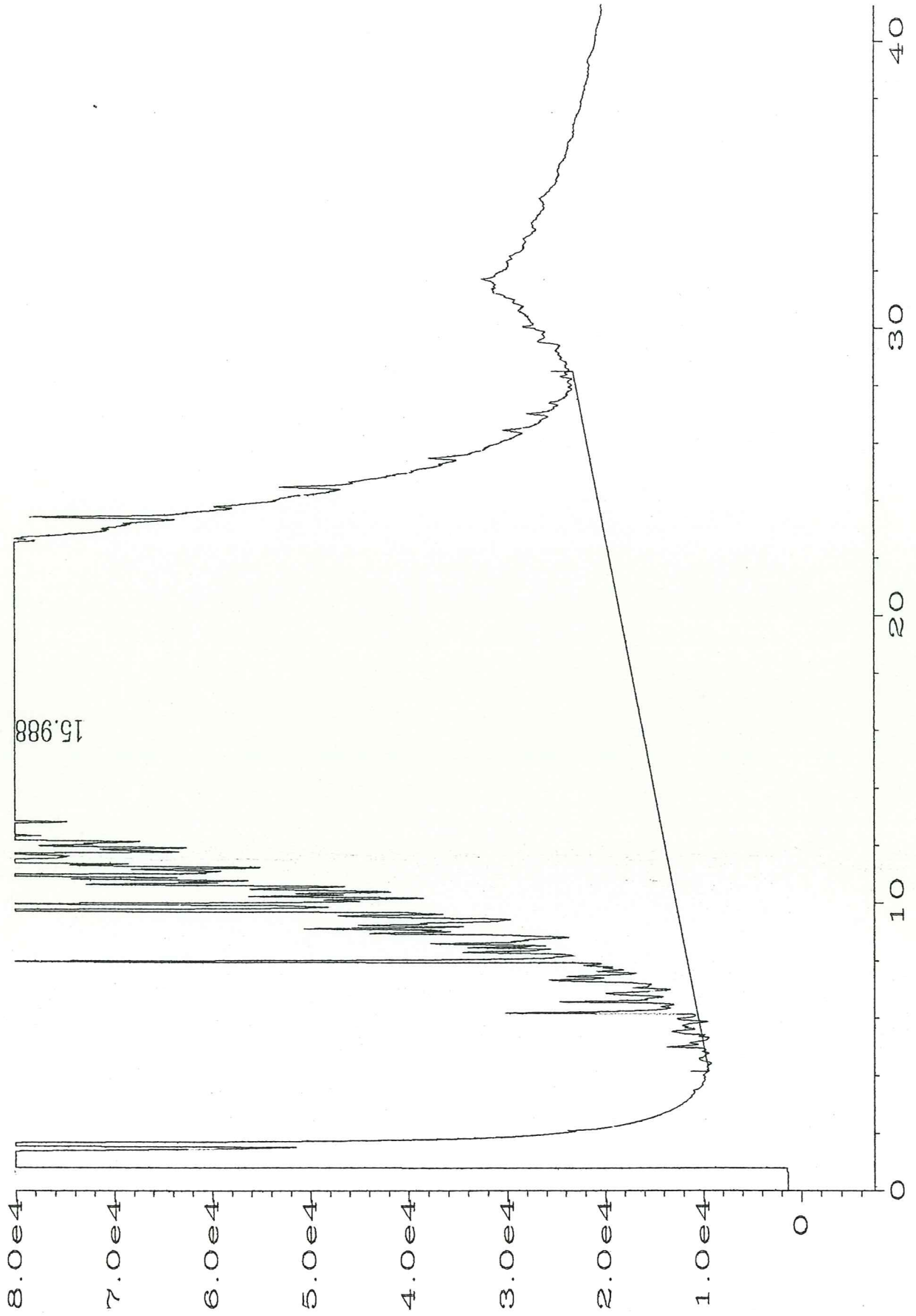

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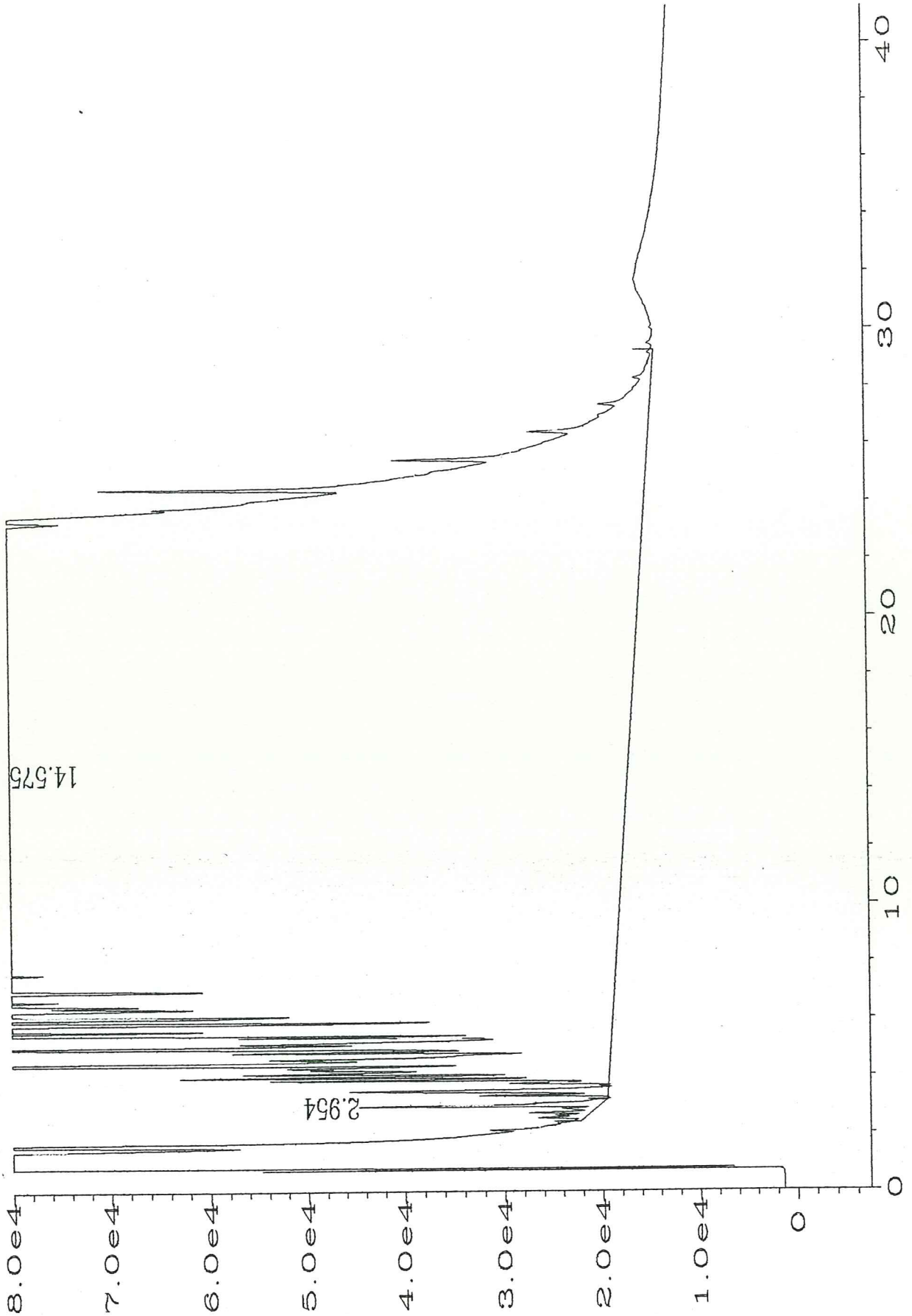

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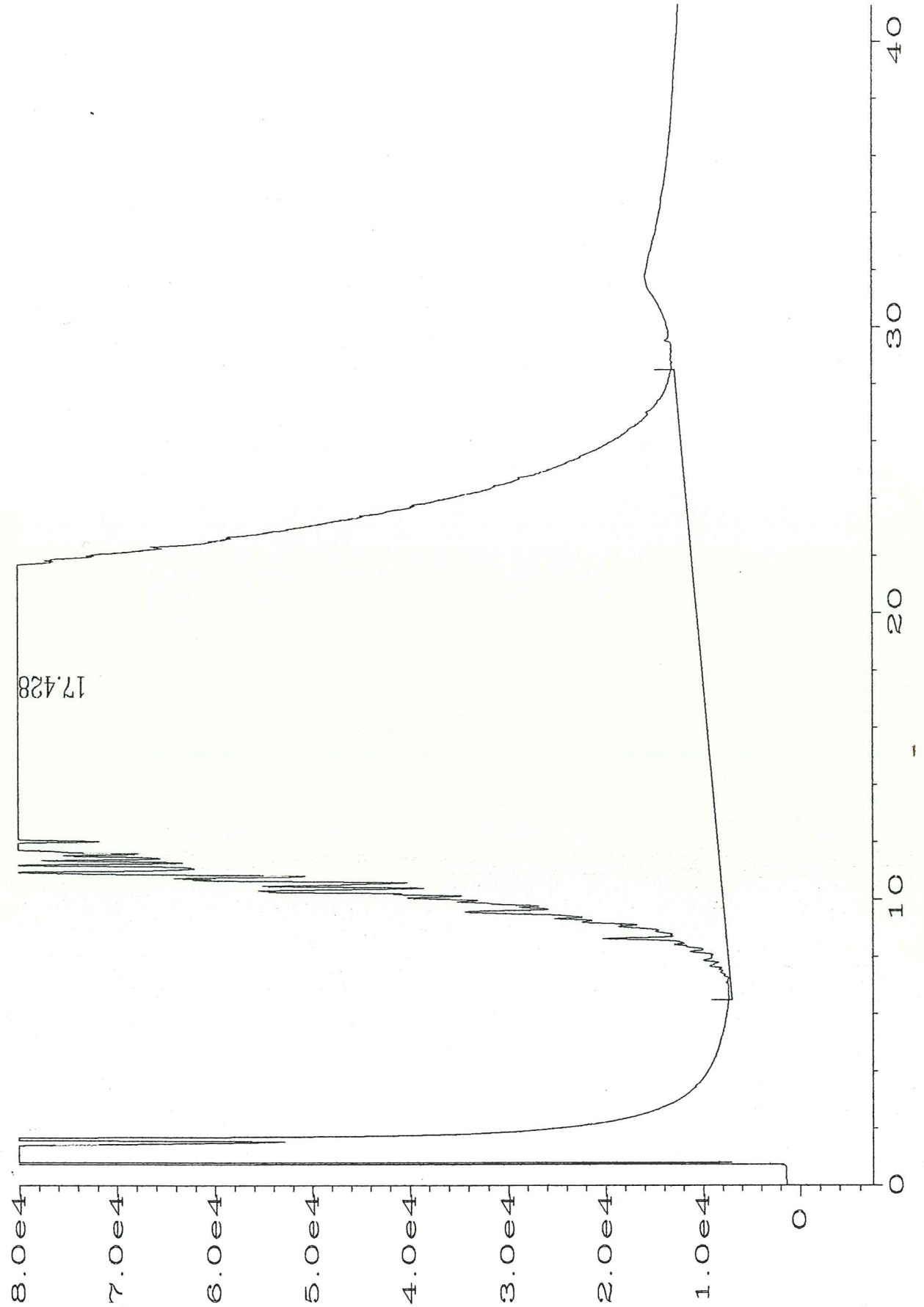

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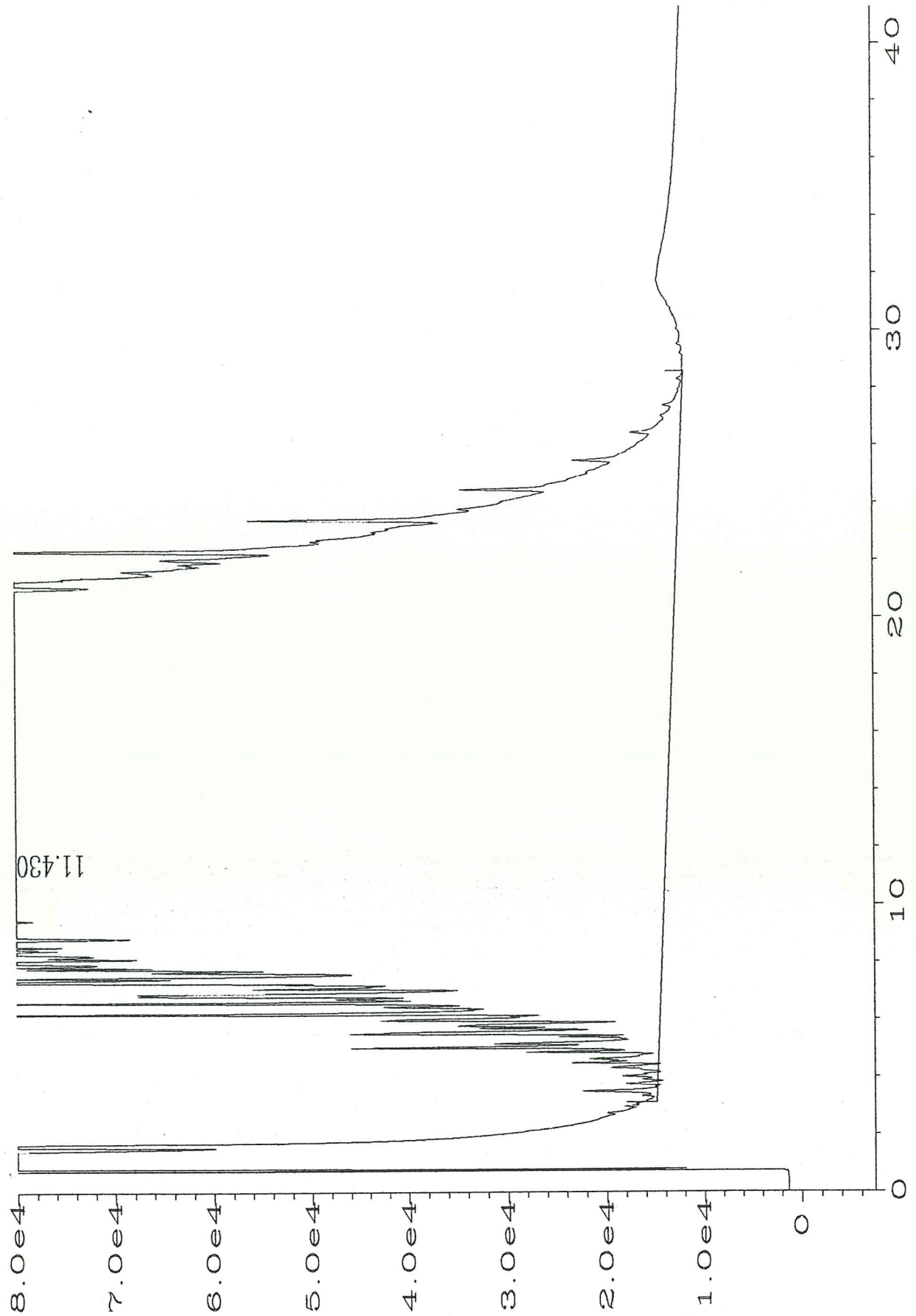

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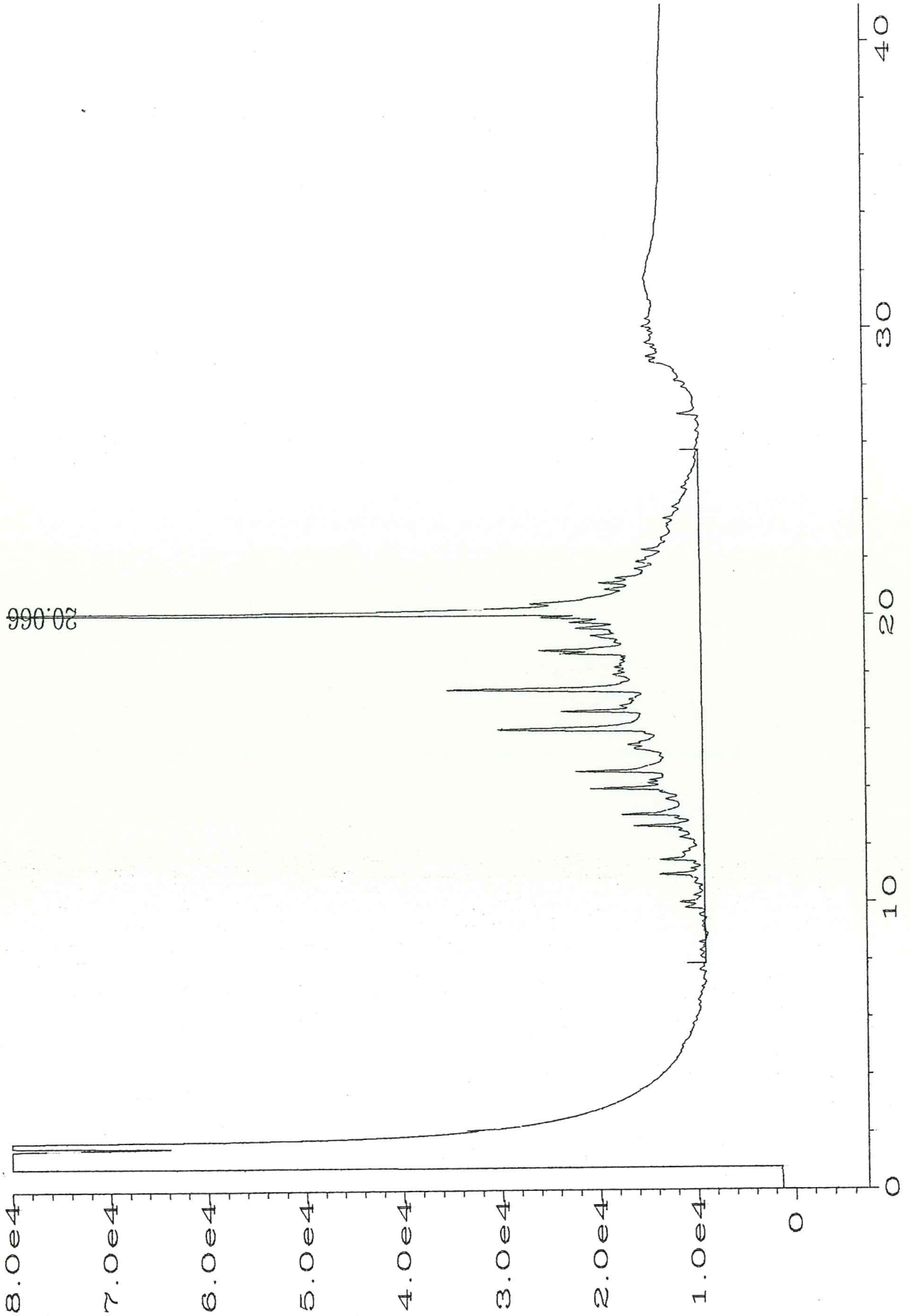

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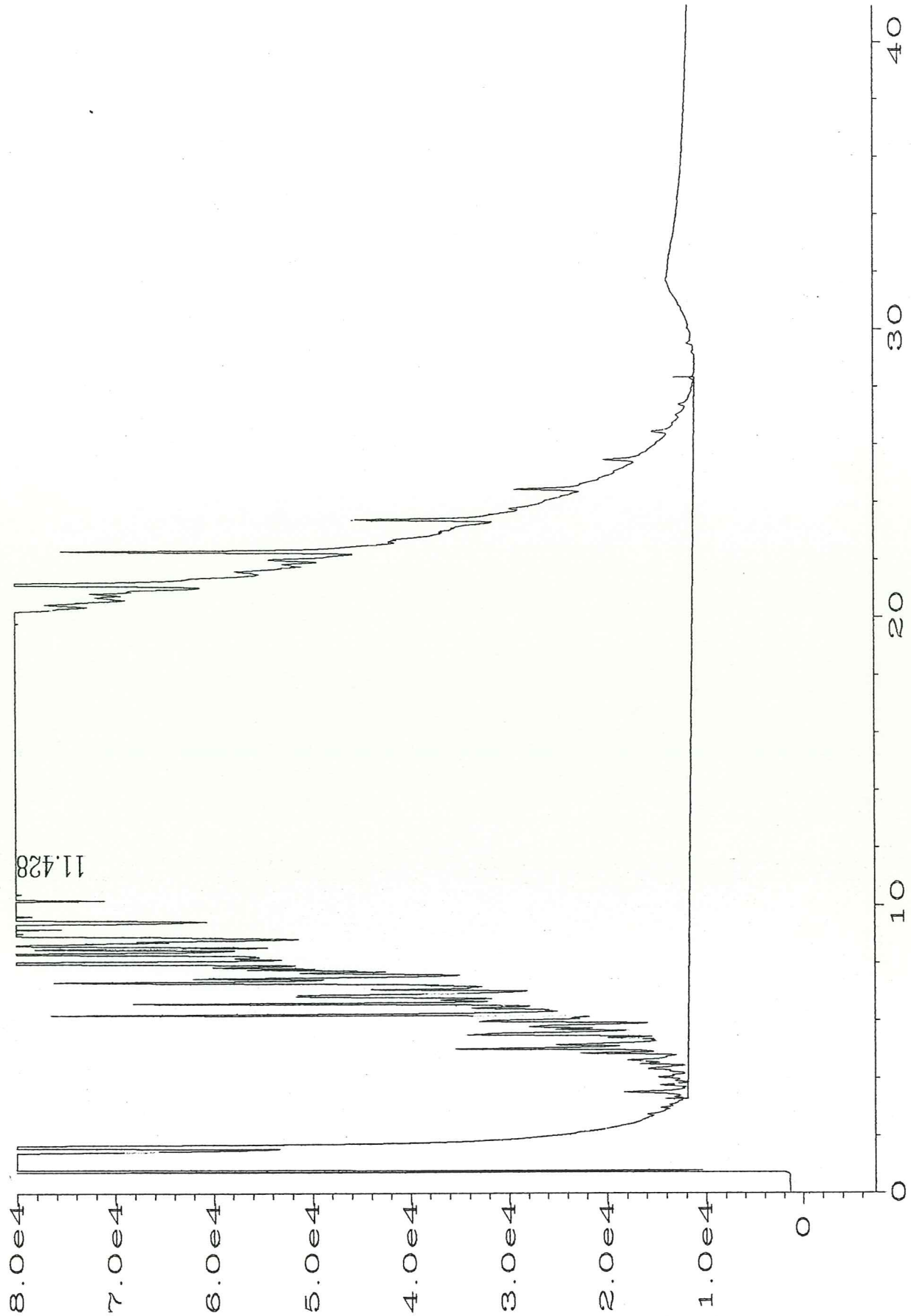

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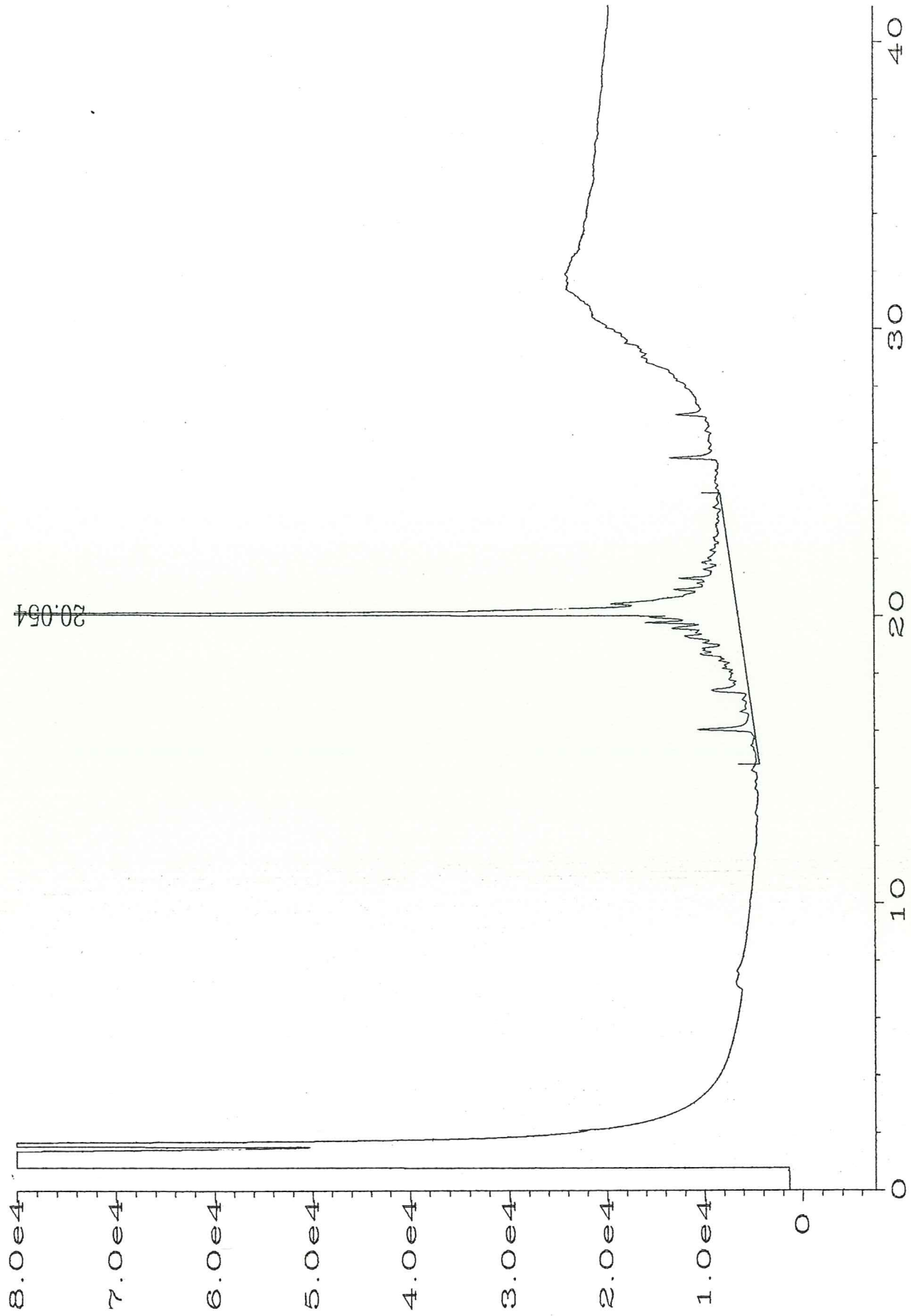

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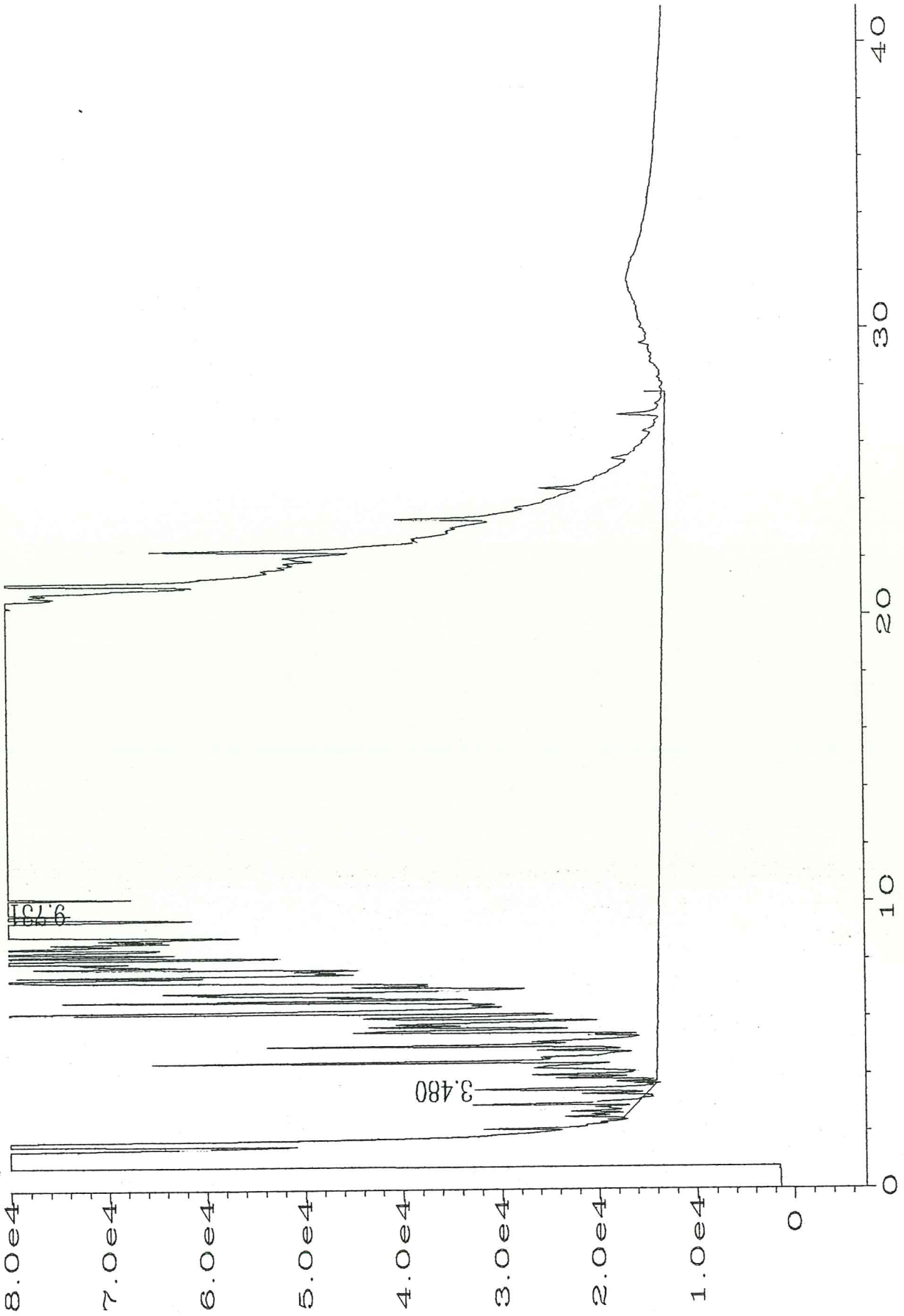

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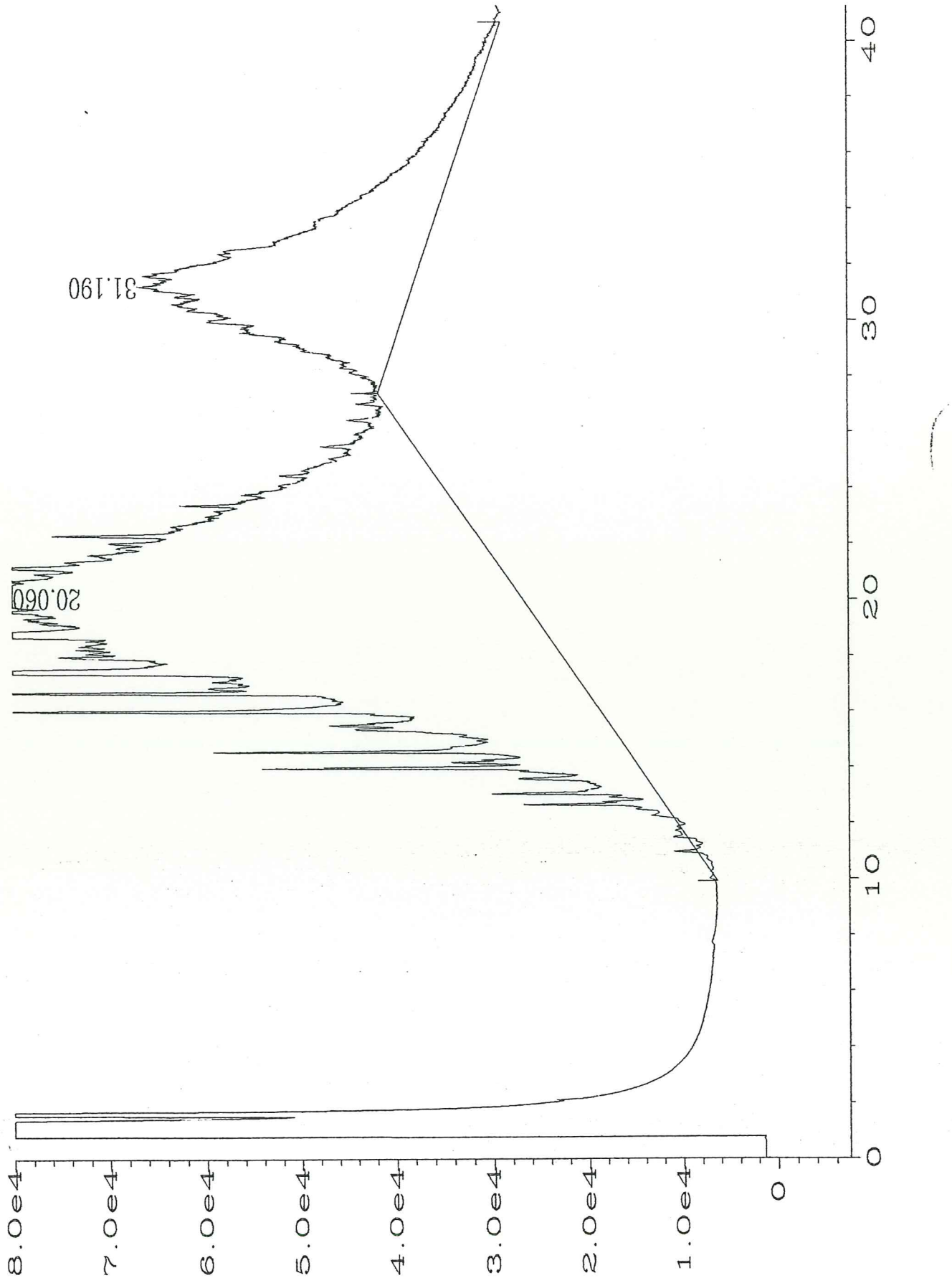

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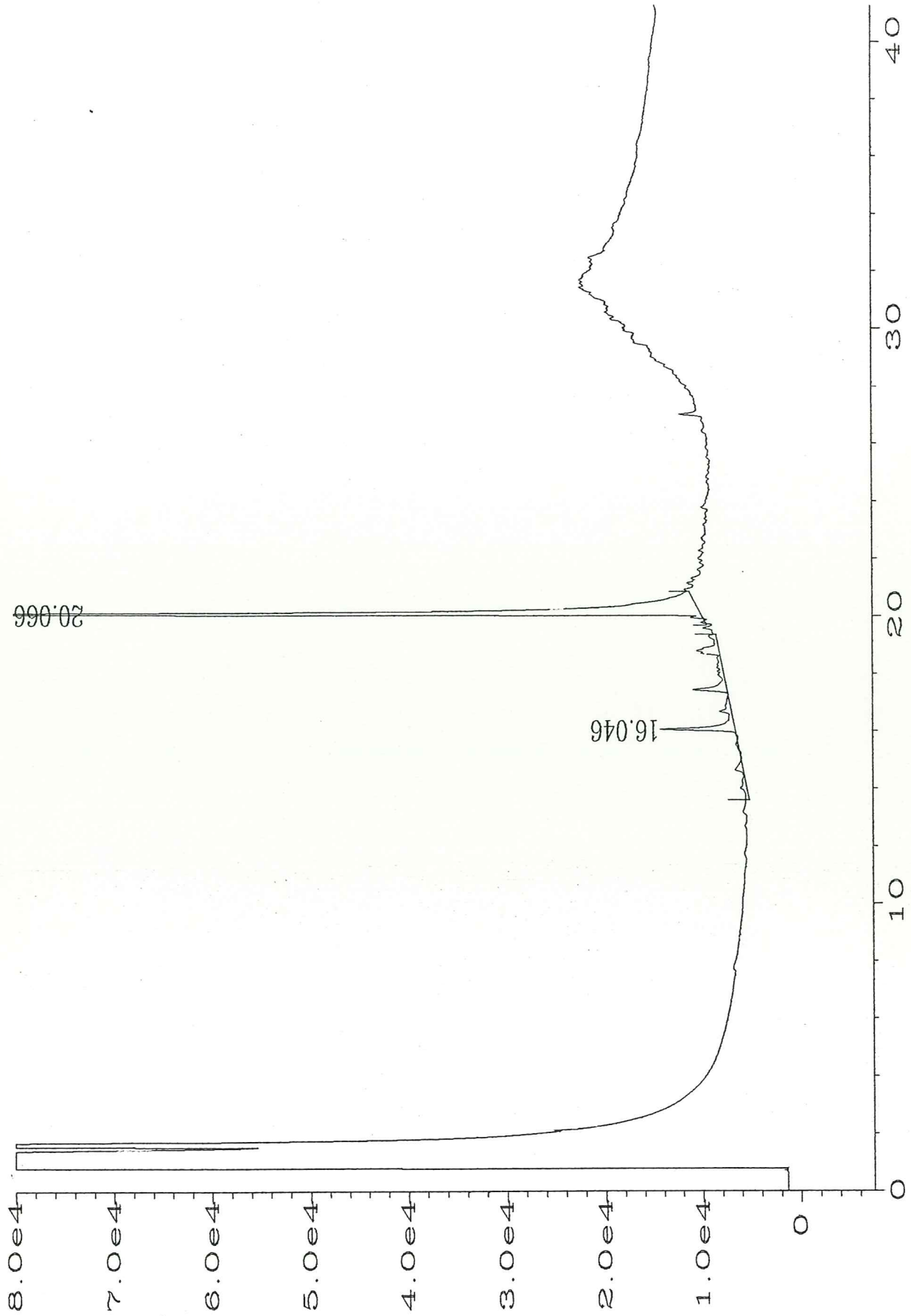

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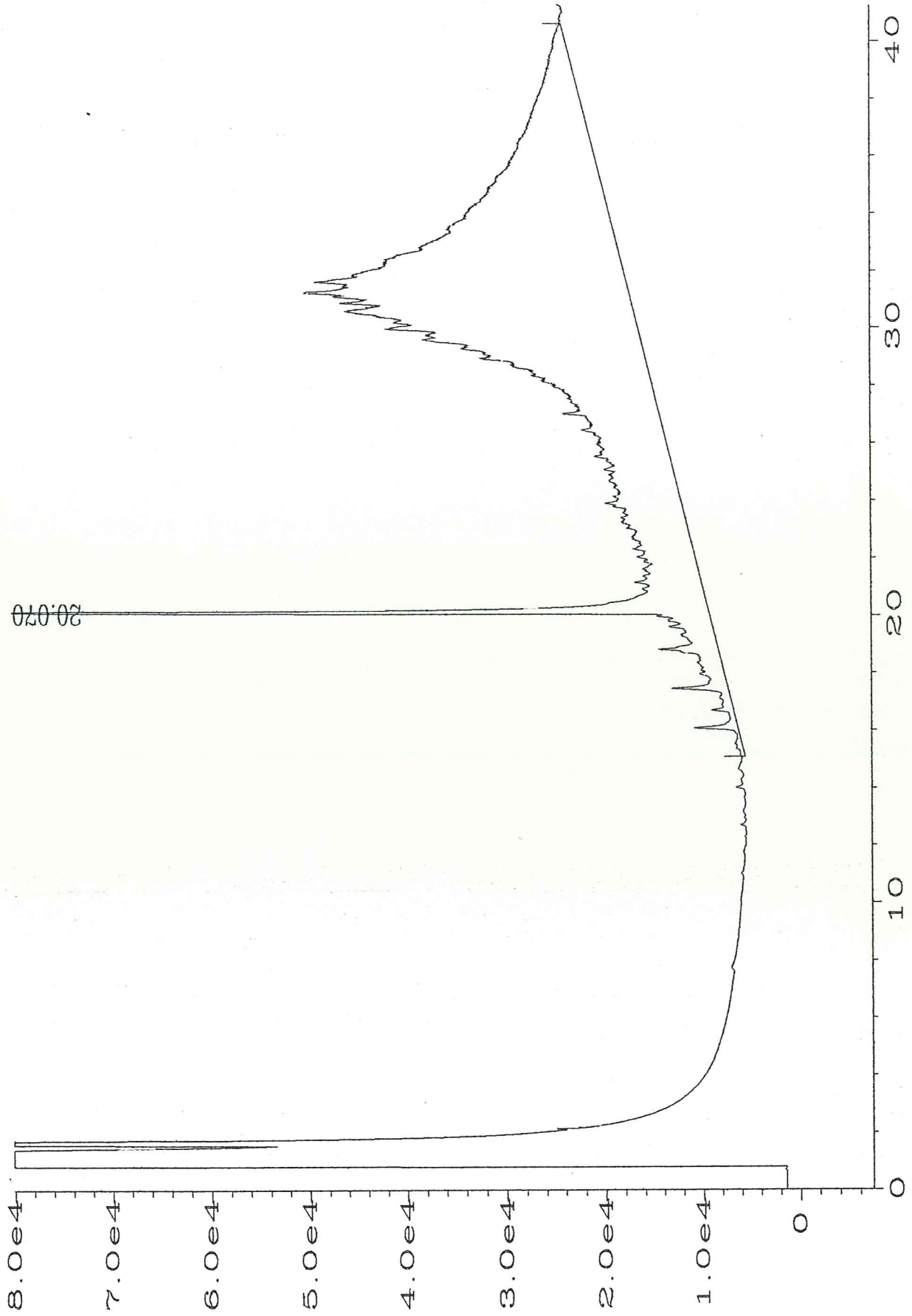

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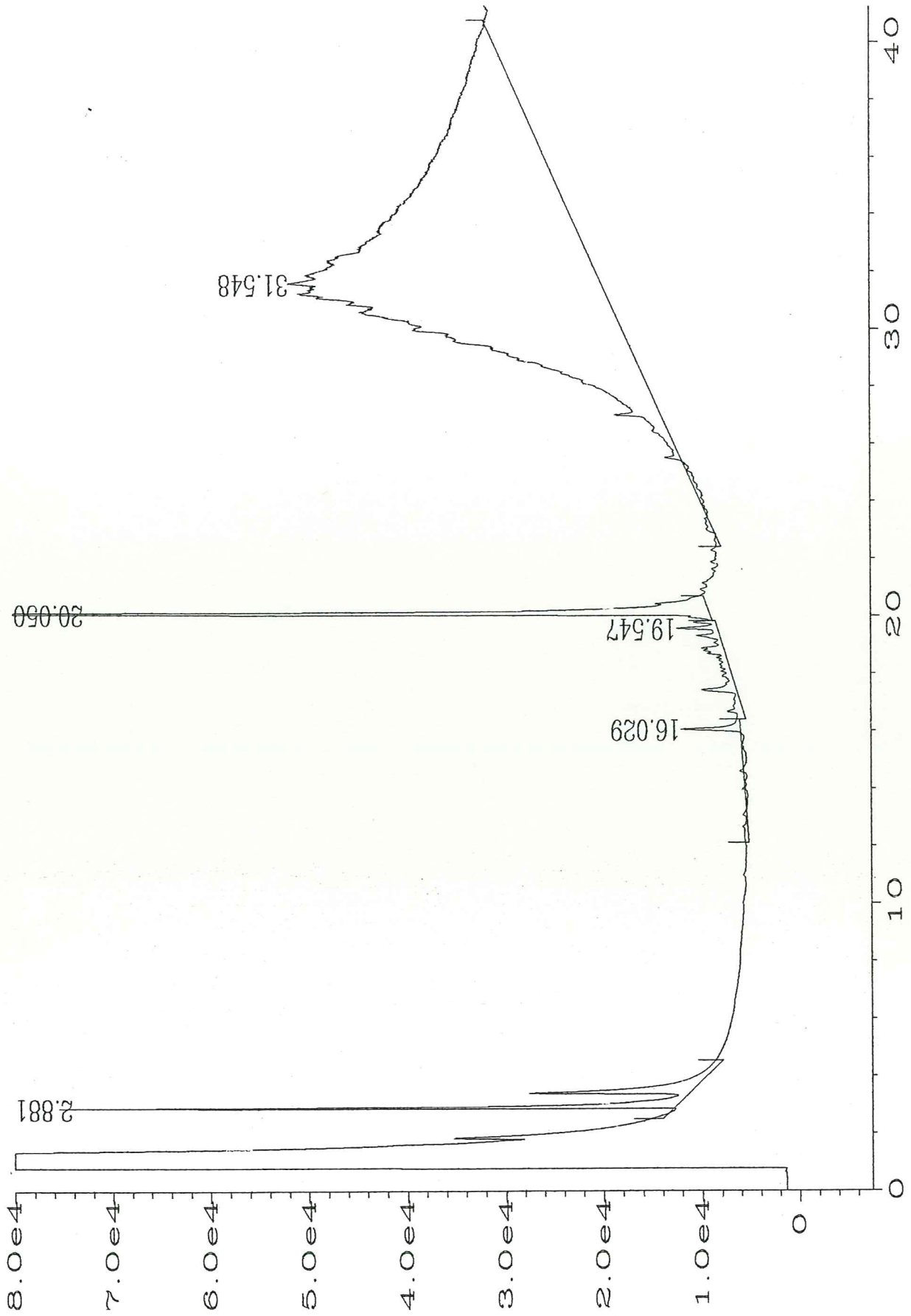

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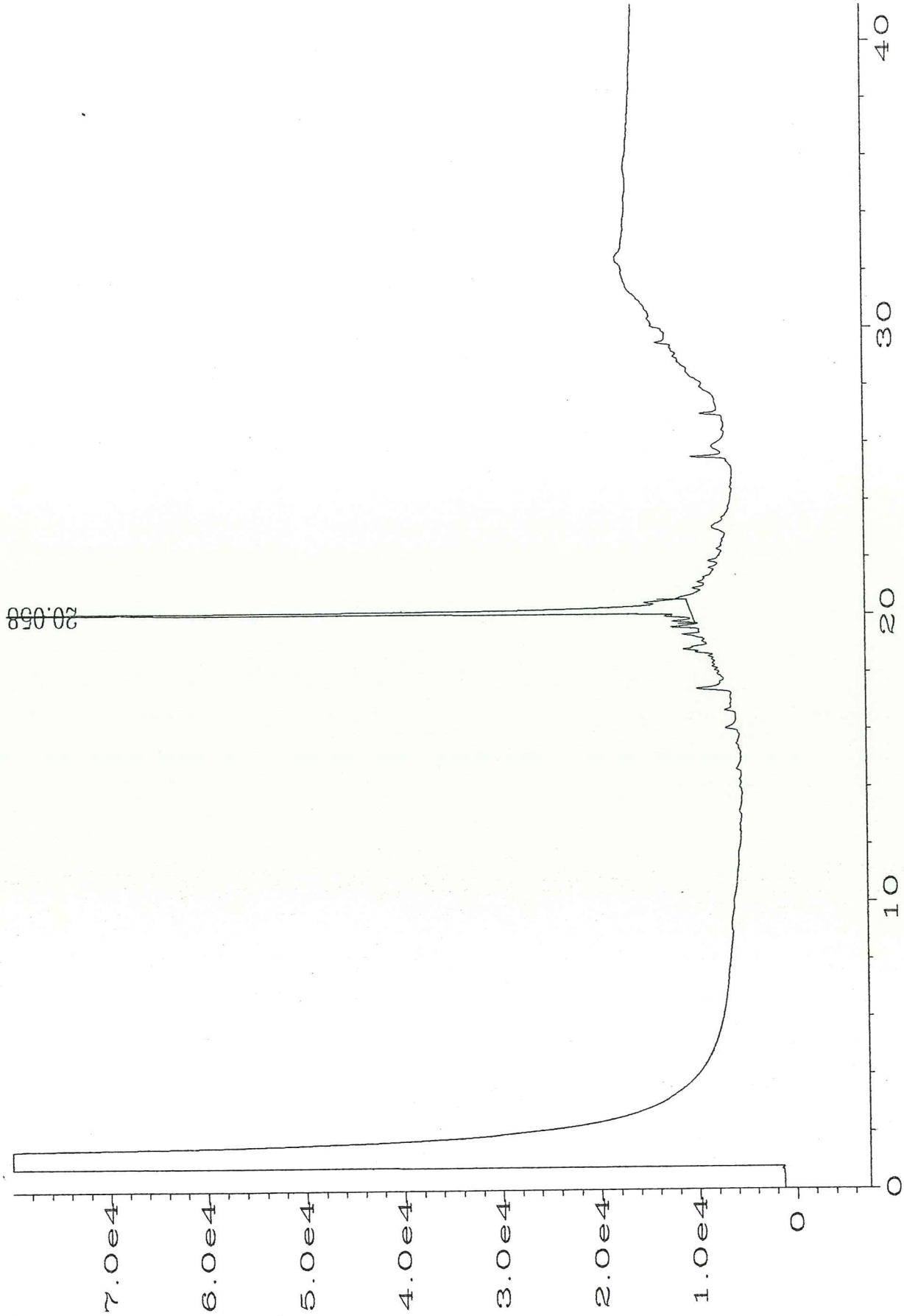

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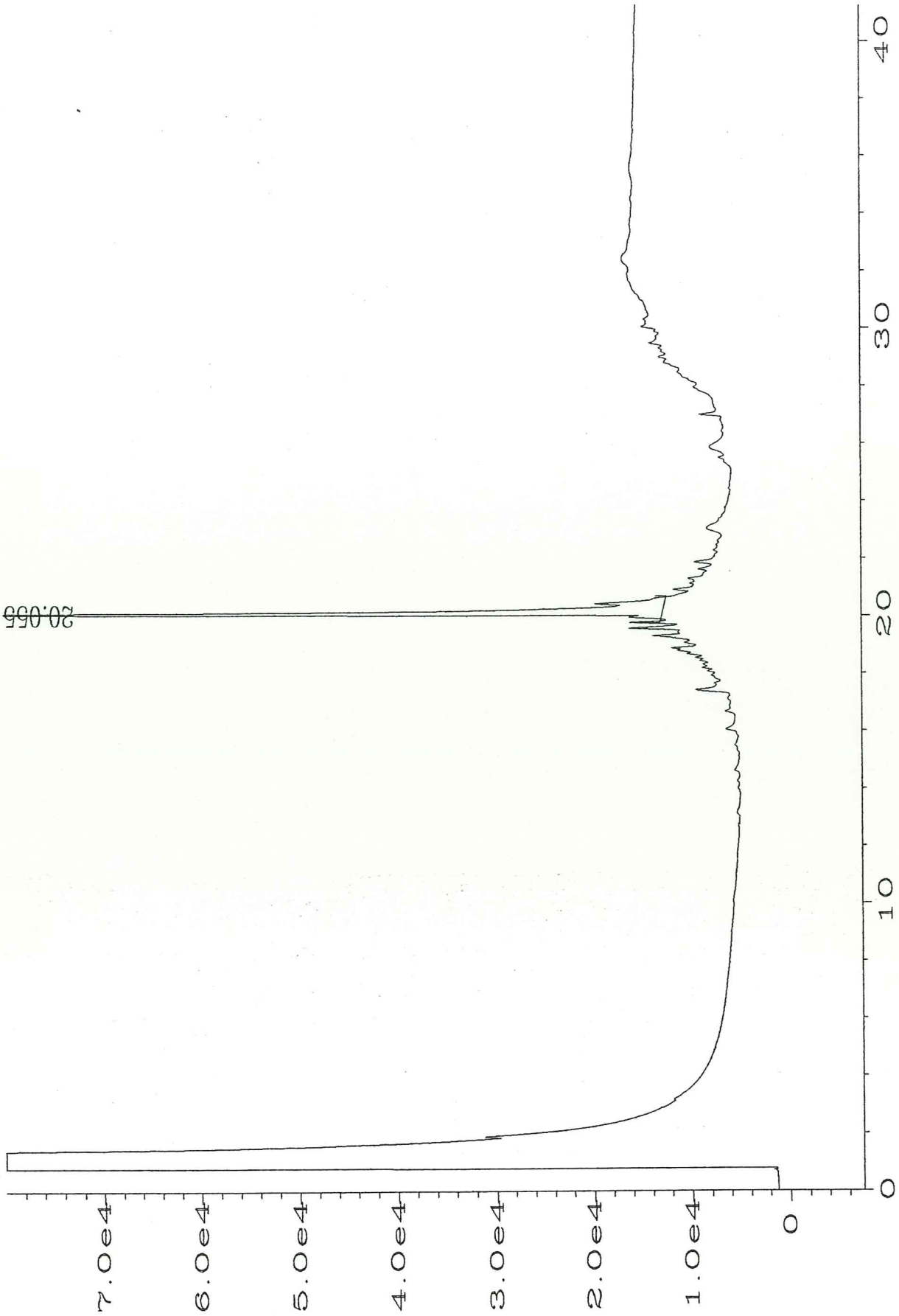

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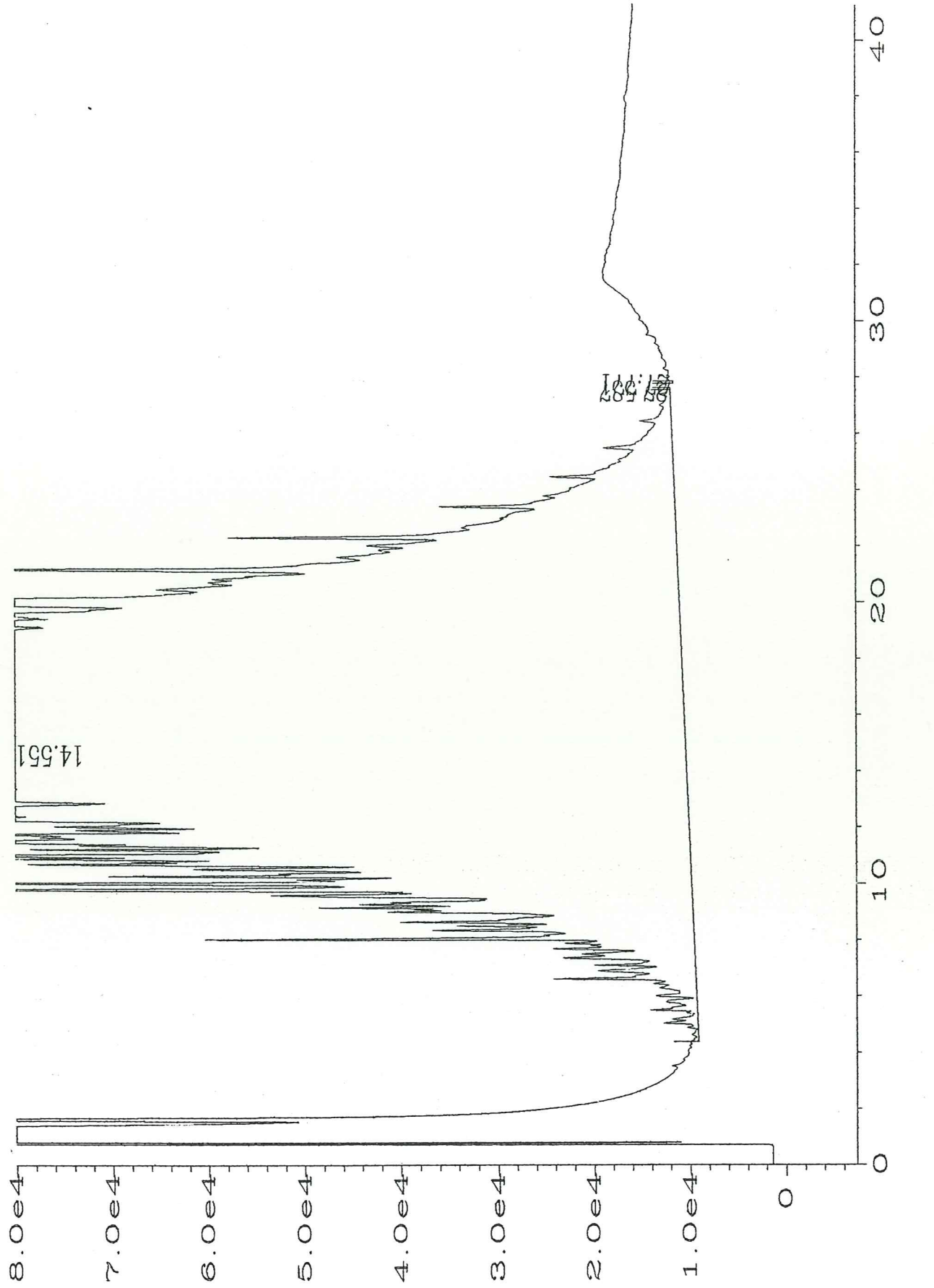

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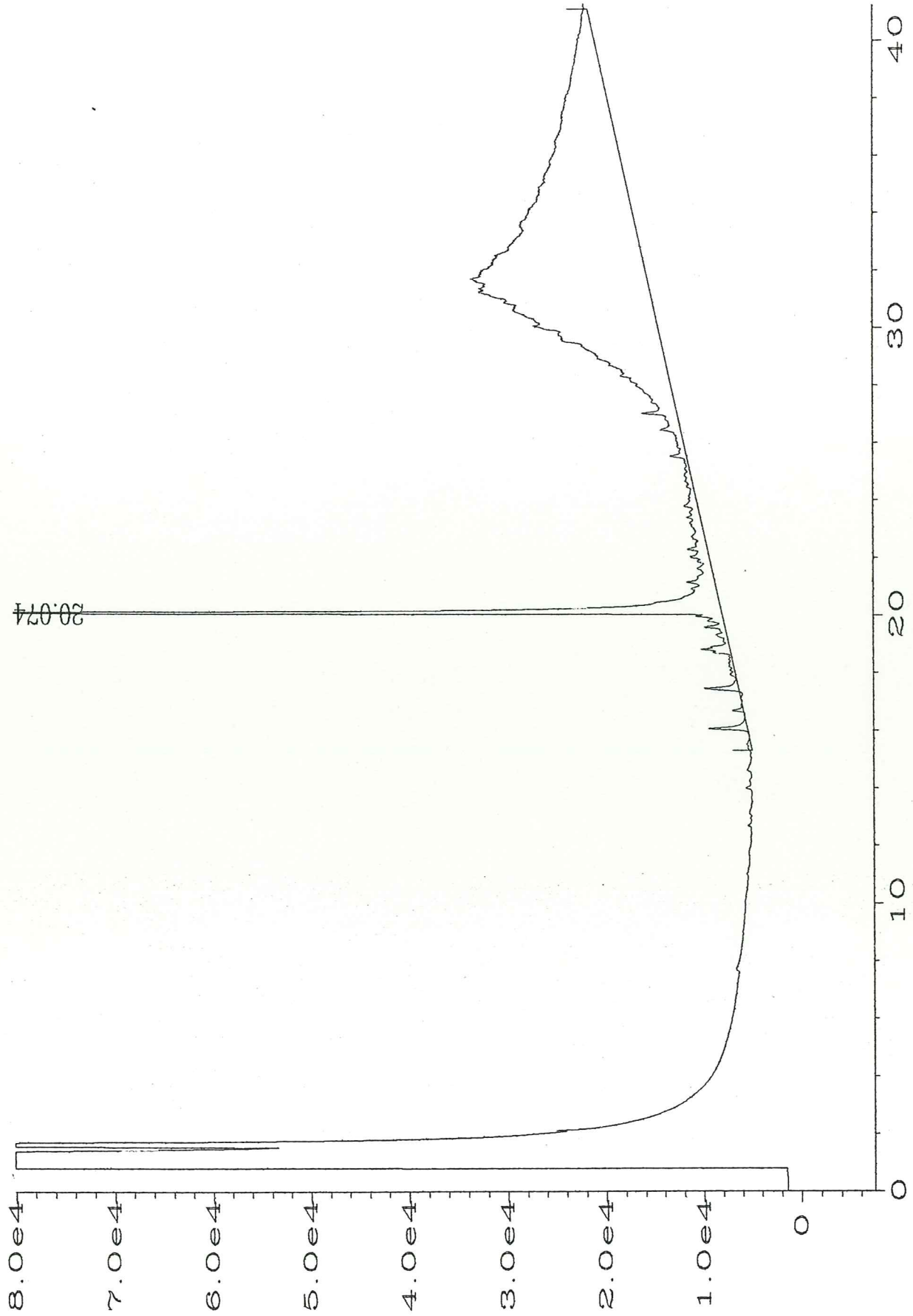

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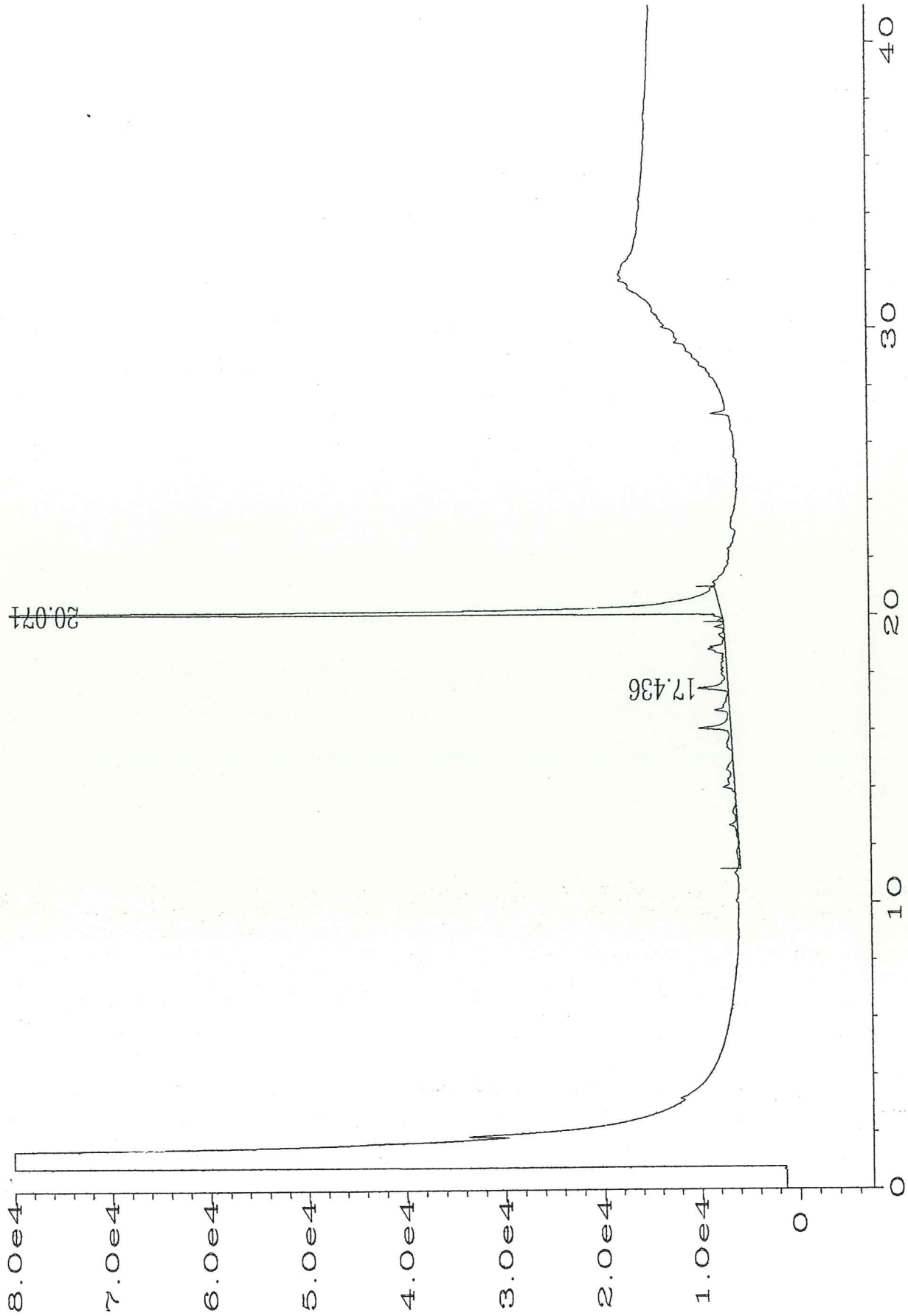

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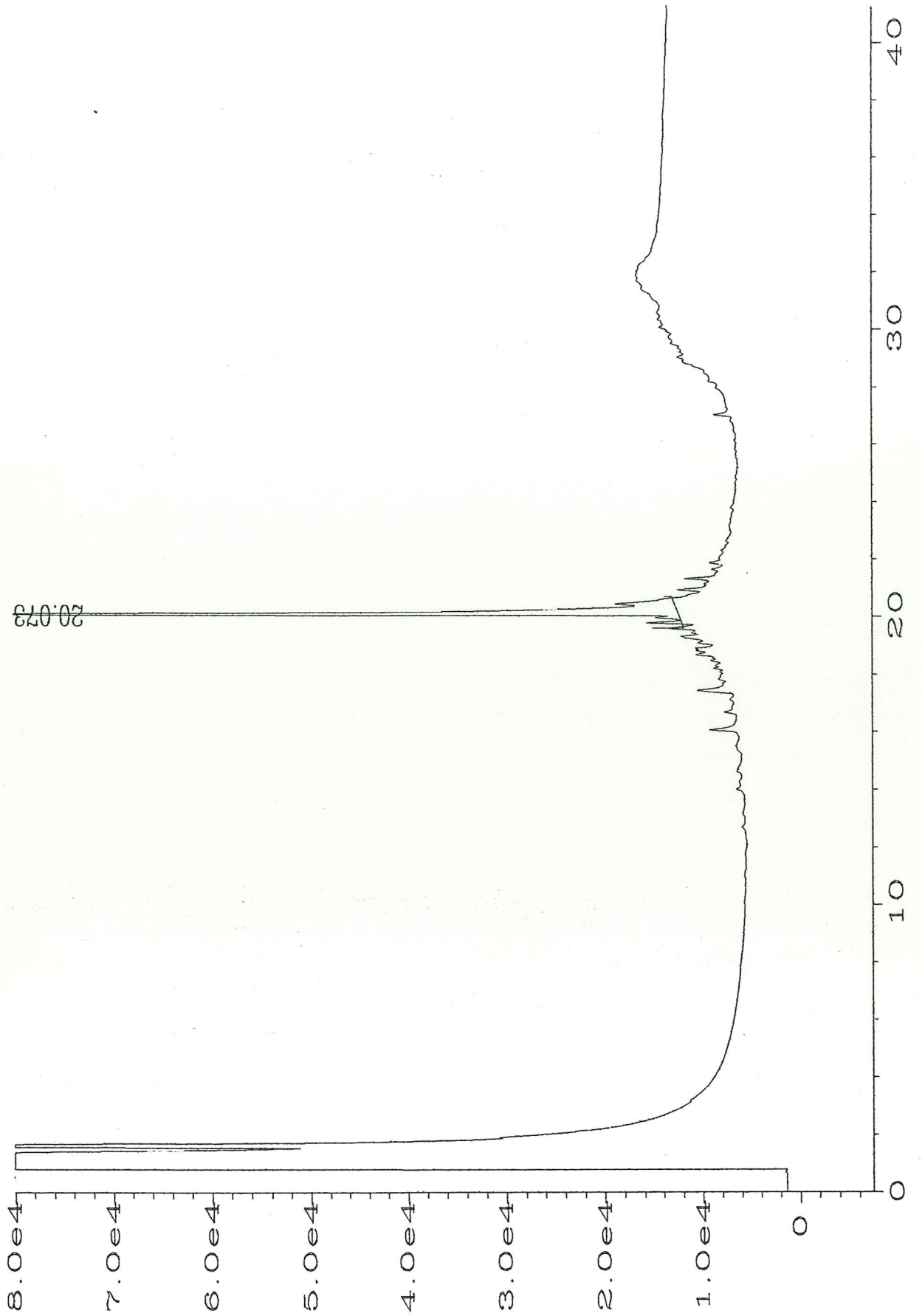

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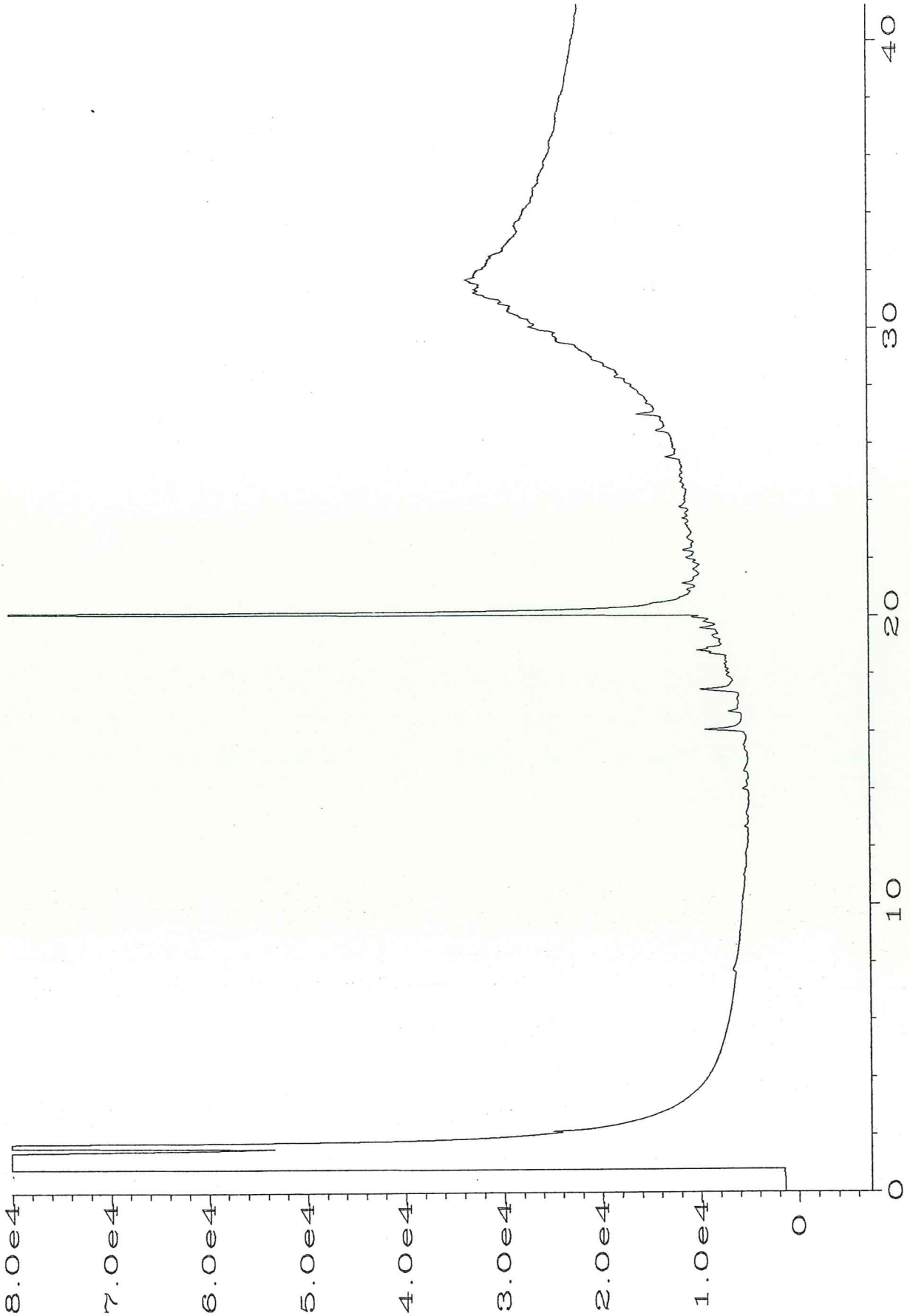

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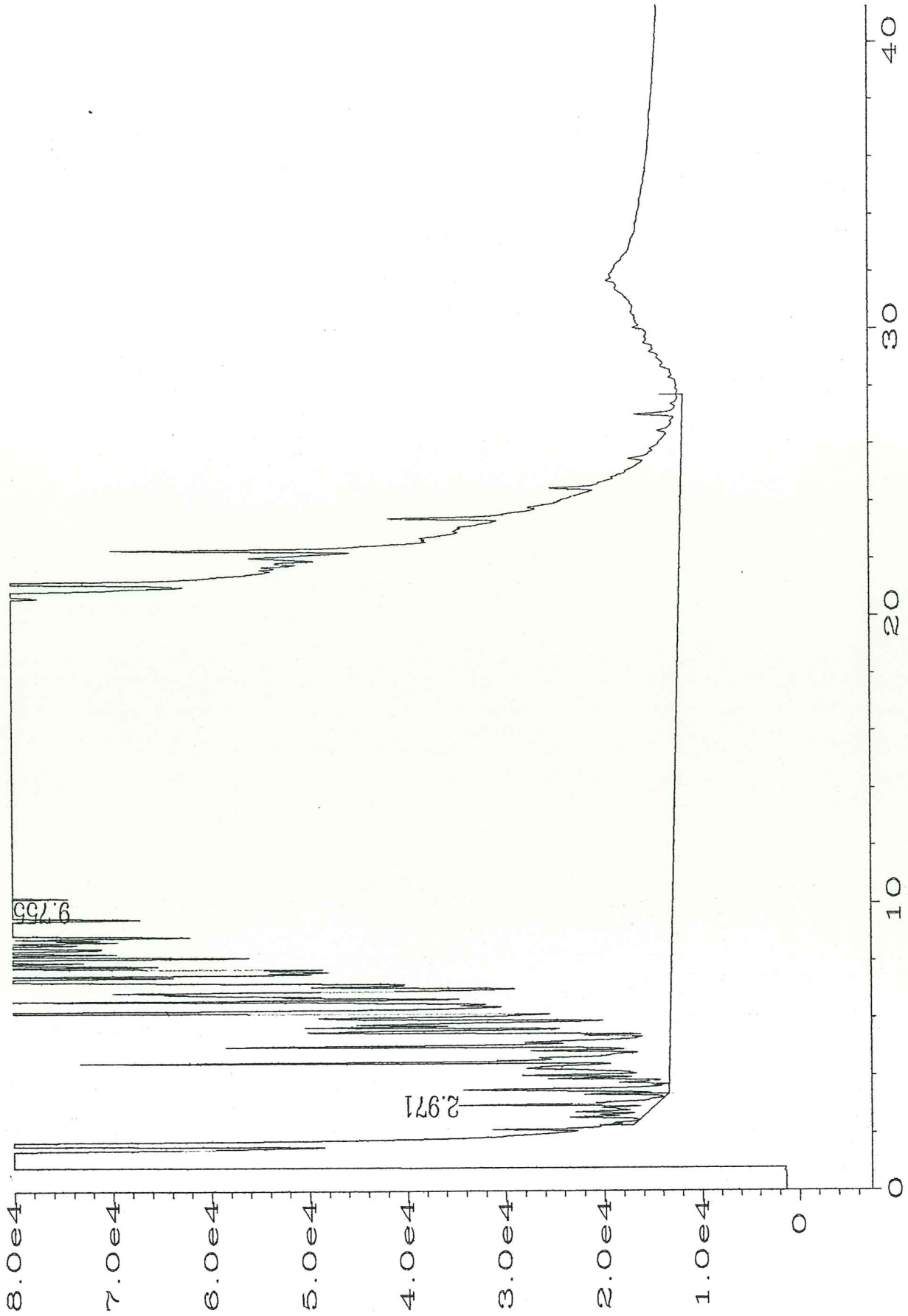

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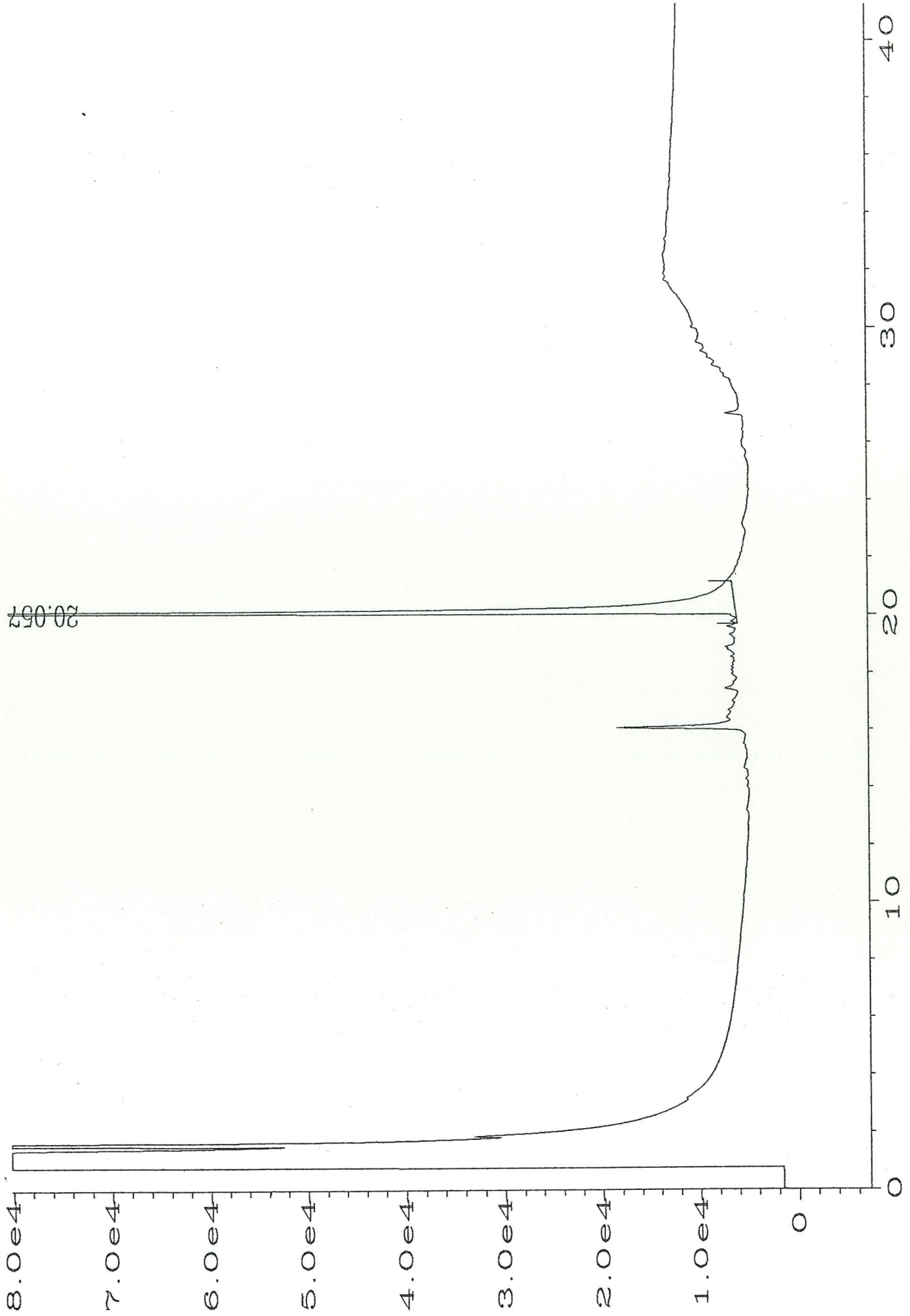

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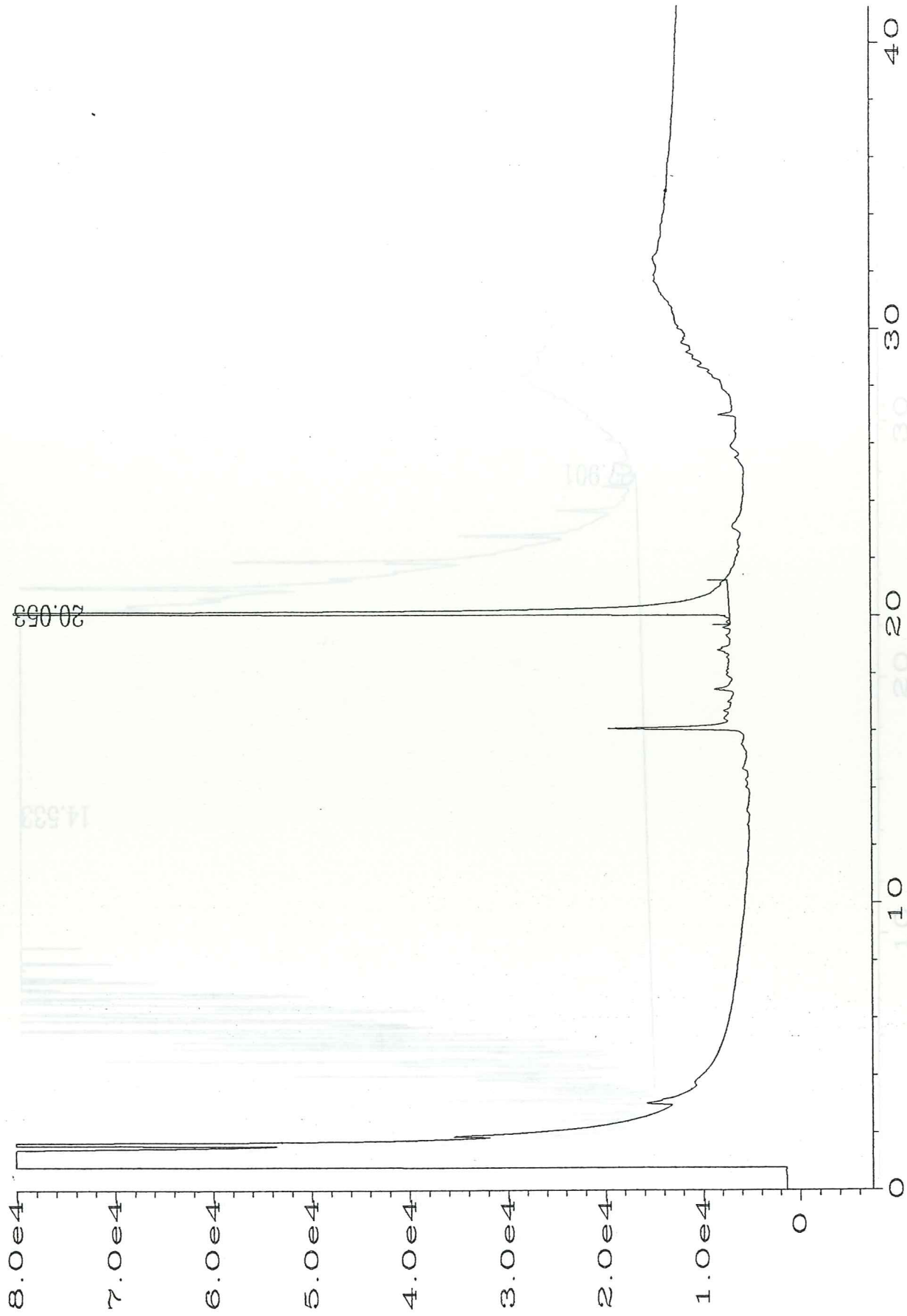
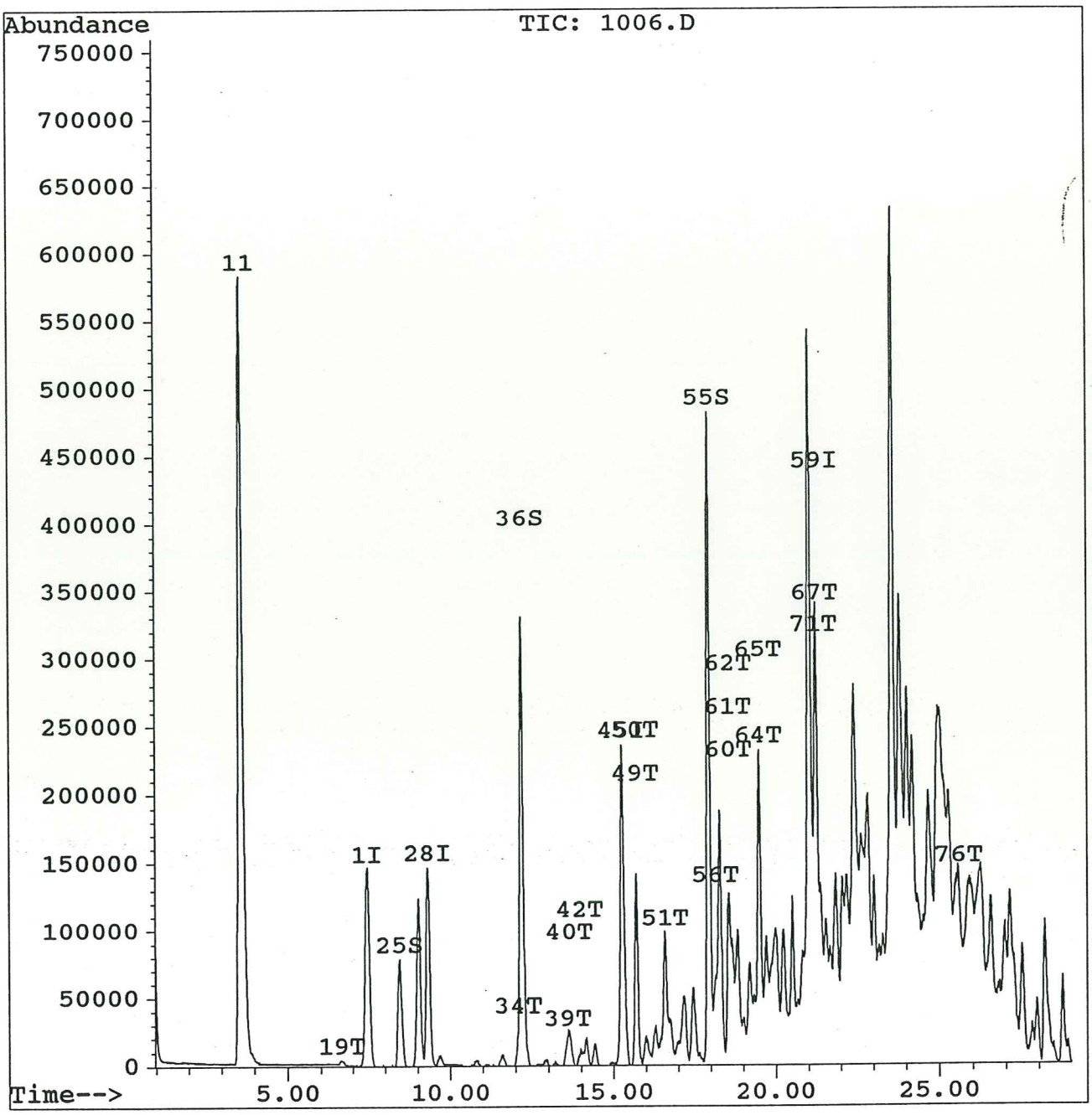


Quantitation Report

Data File : C:\HPCHEM\1\DATA\083093\1006.D
Acq Time : 30 Aug 93 12:06 pm
Sample : 144280 1:100 H2O fraction
Misc :
Quant Time: Aug 30 12:38 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration

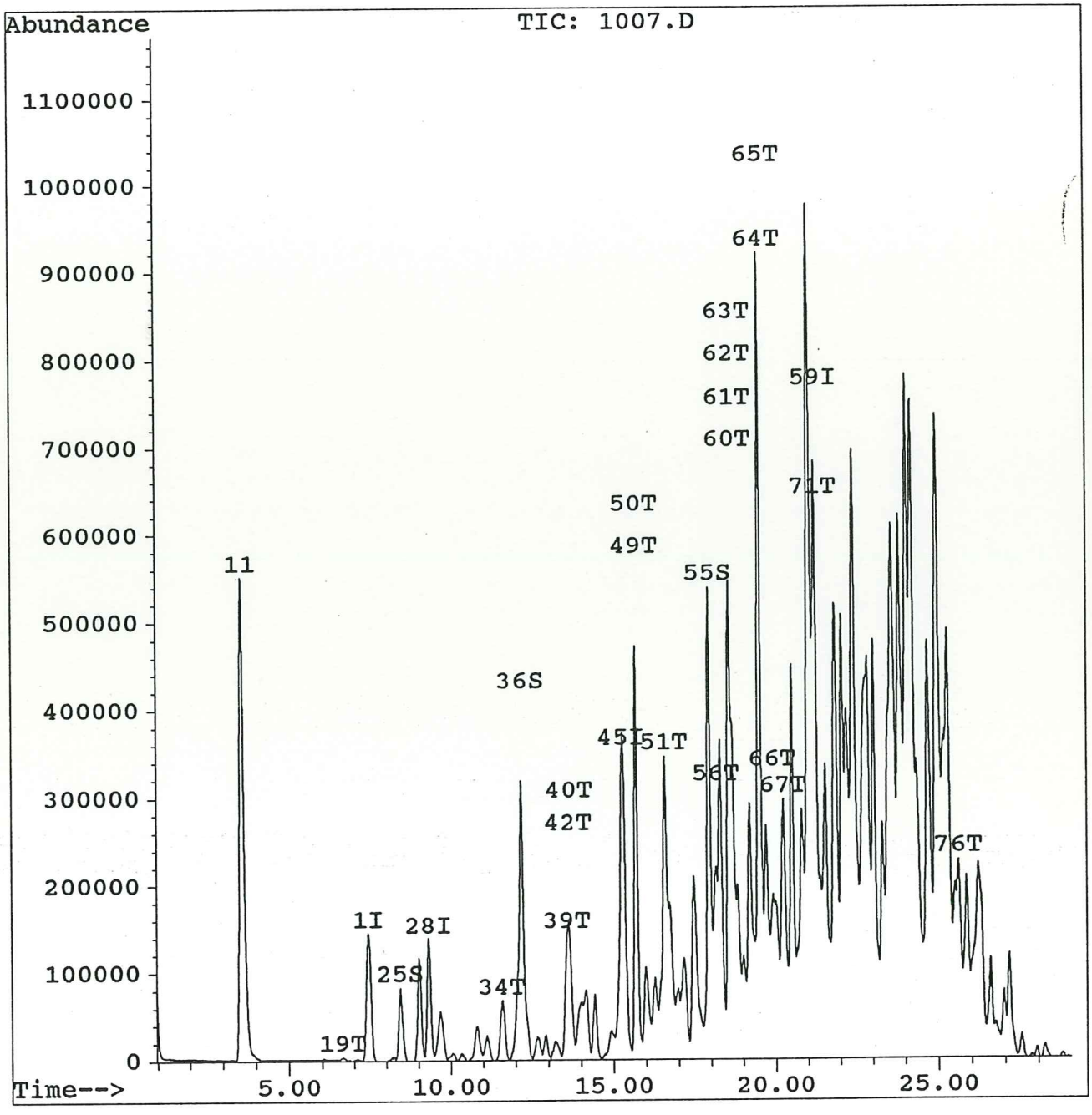


Quantitation Report

Data File : C:\HPCHEM\1\DATA\083093\1007.D
Acq Time : 30 Aug 93 12:47 pm
Sample : 144280 black tar fraction mlvl 100ul
Misc :
Quant Time: Aug 30 13:18 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration

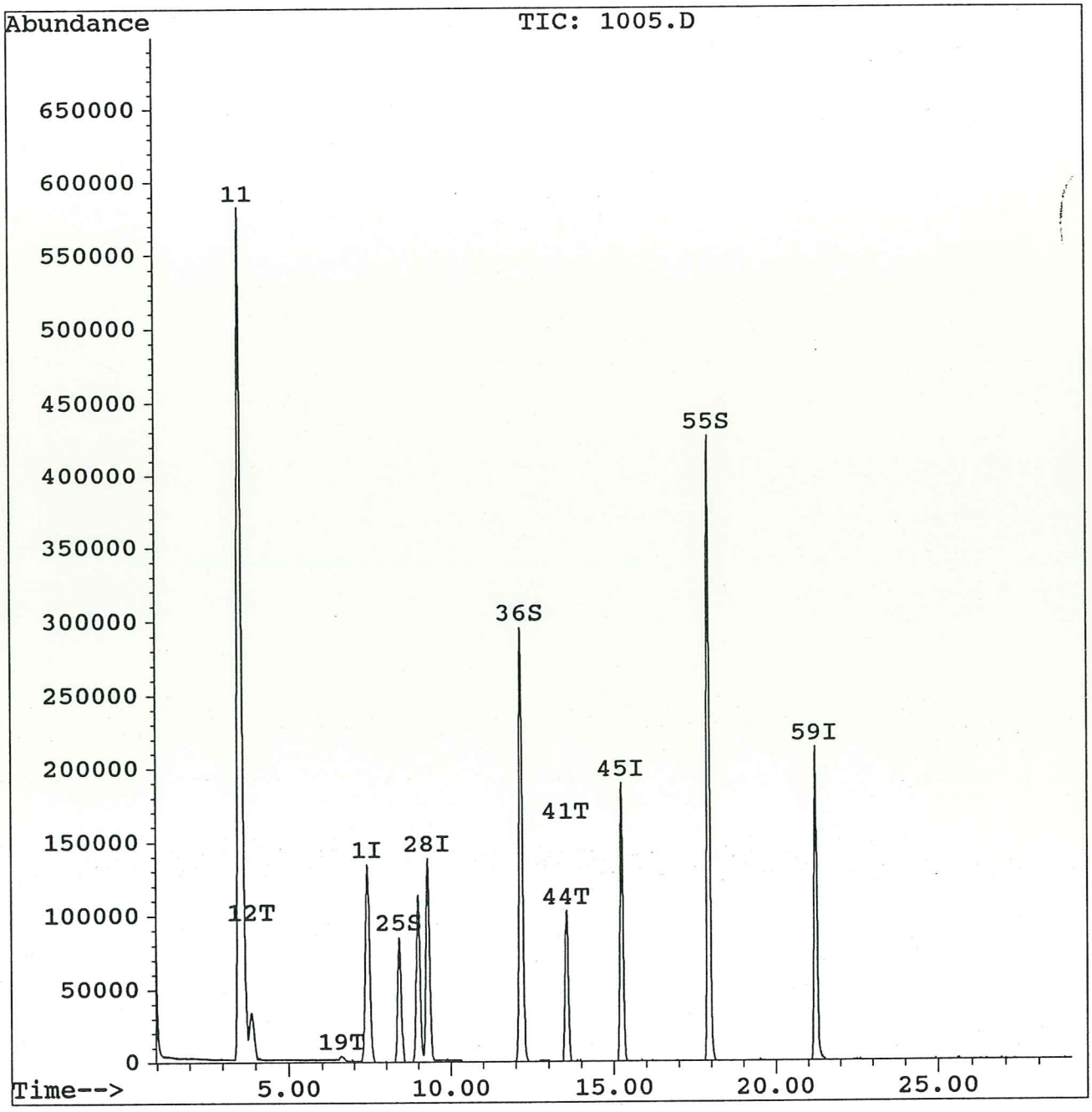


Quantitation Report

Data File : C:\HPCHEM\1\DATA\083093\1005.D
Acq Time : 30 Aug 93 11:27 am
Sample : 144282\25 ml
Misc : 0y
Quant Time: Aug 30 11:58 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration

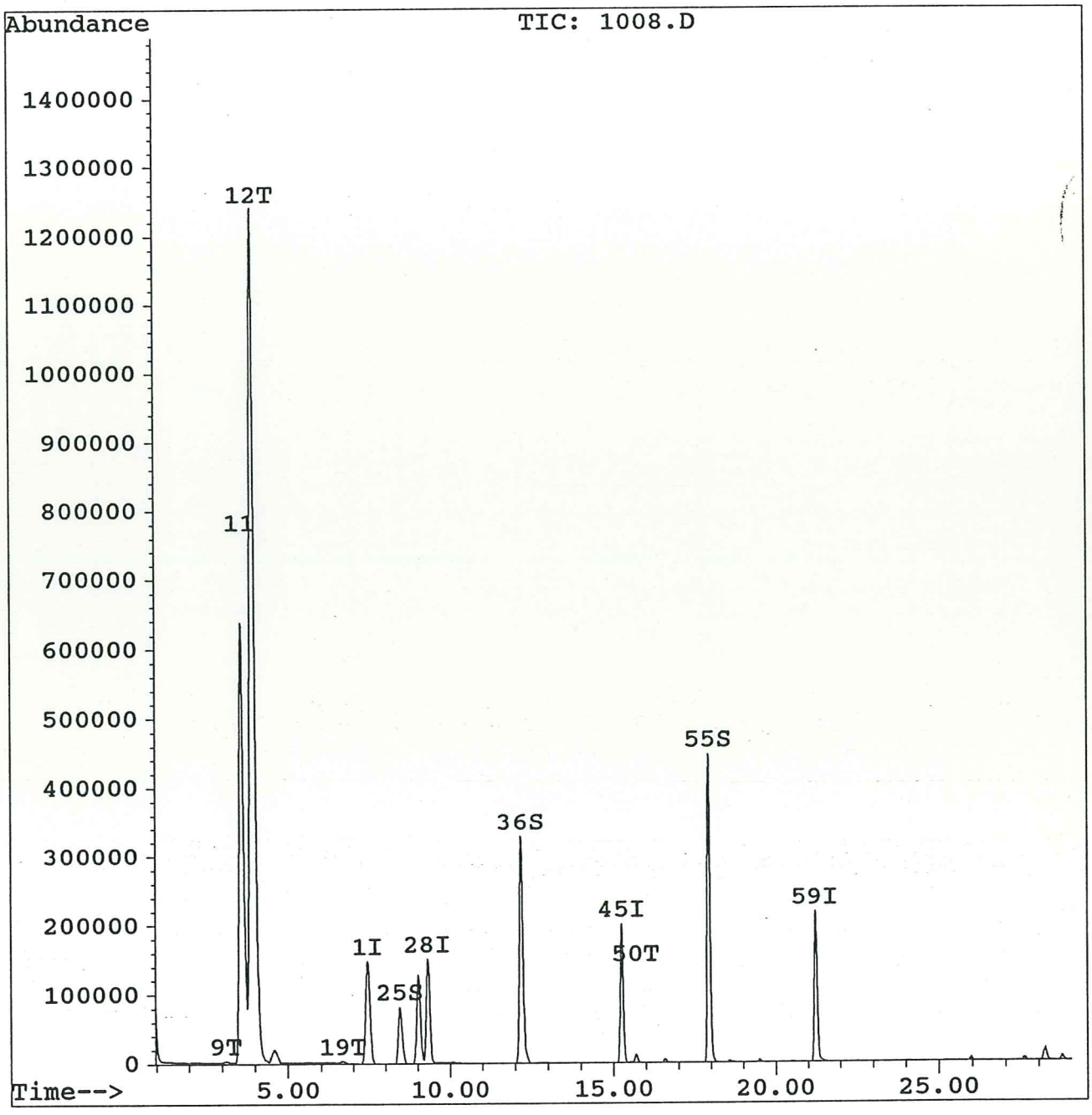


Quantitation Report

Data File : C:\HPCHEM\1\DATA\083093\1008.D
Acq Time : 30 Aug 93 1:27 pm
Sample : 144281 5 gm soil
Misc : 20%
Quant Time: Aug 30 13:58 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration

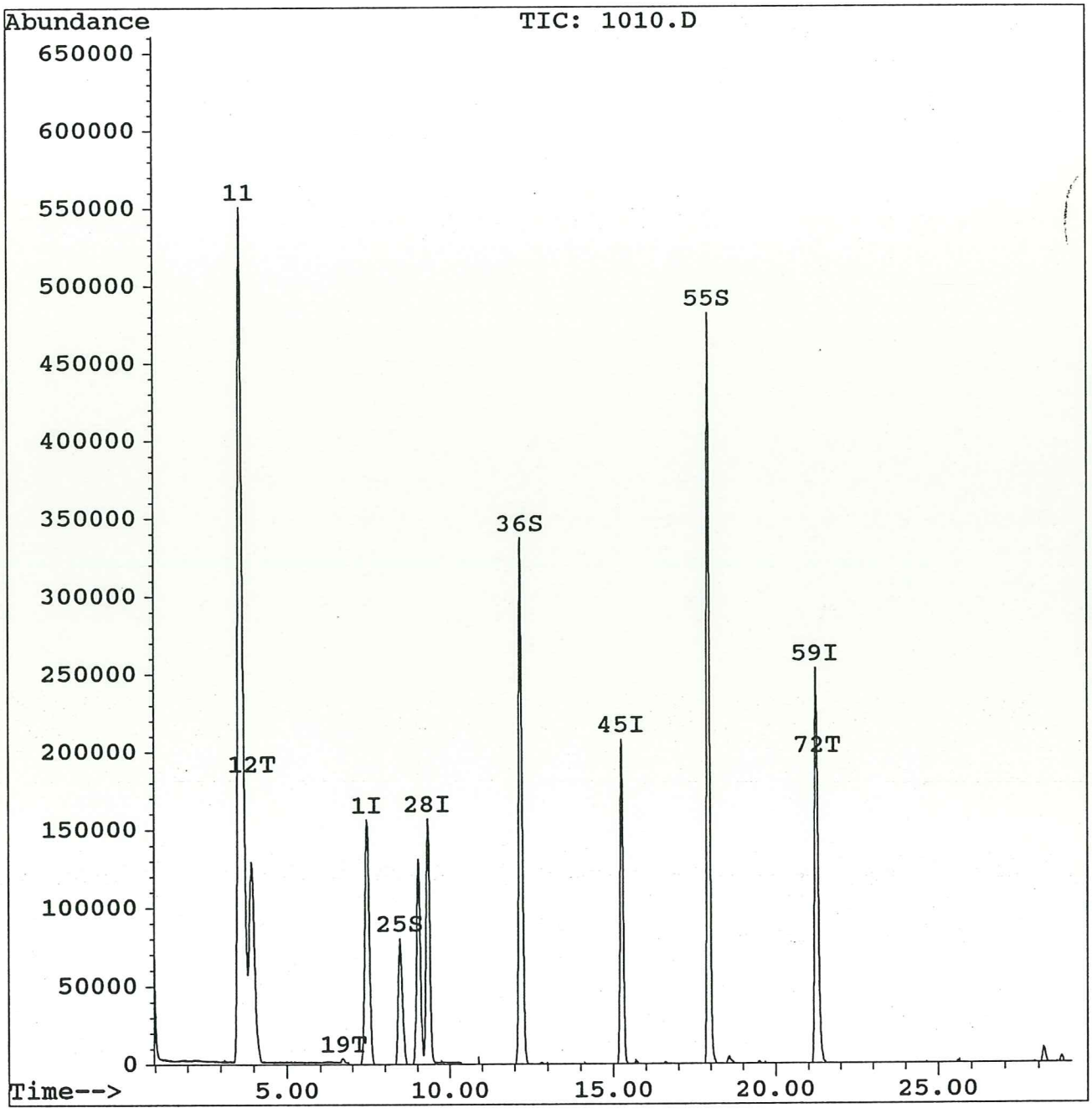


Quantitation Report

Data File : C:\HPCHEM\1\DATA\083093\1010.D
Acq Time : 30 Aug 93 2:52 pm
Sample : 144281 5 gm soil
Misc :
Quant Time: Aug 30 15:23 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration



Quantitation Report

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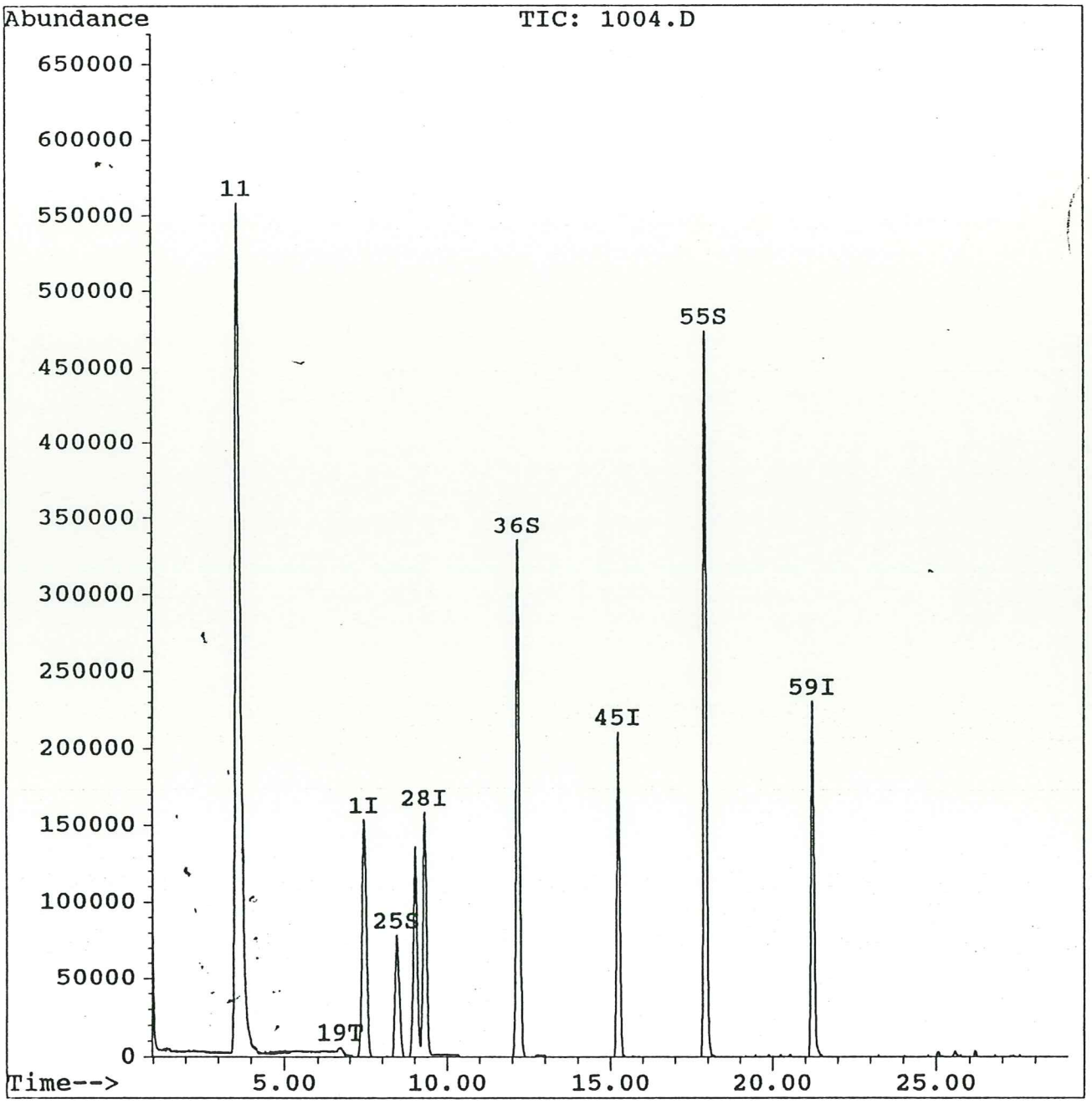
Acq Time : 30 Aug 93 10:39 am
Sample : blk
Misc :
Quant Time: Aug 30 11:22 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\083093.M
Title : 8260 and append 9
Last Update : Mon Aug 30 10:38:49 1993
Response via : Single Level Calibration



CHAIN OF CUSTODY RECORD

Huntingdon
Consulting Engineers Environmental Scientists

- [X] Chen-Northern, Inc., Division
- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Uptown Shopping Ctr
Project or Site Name

192-2104-5
Project Number

Dan Uldall / Paul Dinkelson
Sampler Name (Printed)

Dan Uldall
Contact or Report to

Tri-Cities
Contact Address or Location

Sampler Signature

	DATE COLLECTED	TIME COLLECTED (Sample #)	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: TPH-D	NOTES	LAB NUMBER
DU	8/19/93	1130 23	TA/20SWC9.0	C	S	1	X	S=SOIL	111254
	8/19/93	1130 24	TA/20 B10.5	G			X		55
	8/19/93	1445 25	T23SWC7.0	C			X		56
	8/19/93	1500 26	T23B10.0	G			X		57
PD	8/20/93	1000 27	T10-16BCB.0	C			X		58
	8/20/93	1000 28	T10-16SWC5.0	C			X		59
	8/23/93	0930 29	T26SWC5.0	C			X		60
	8/23/93	0930 30	T26BC9.0	C			X		61
	8/23/93	0930 31	T27SWC5.0	C			X		62
	8/23/93	0930 32	T27BC9.0	C			X		63

Relinquished by:	Date 8/25/93	Time 1630	Received by: UPS / Ned Carrier
Relinquished by:	Date 8/26/93	Time	Received by: Gab Blgs
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks: 111956 T23SWC7.0 8/19 1145 64
Spike 111962 T26SWC5.0 8/23 0930 65

Cooler Temp 10.4°C

2073

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- [ ] Thomas-Hartig & Associates, Inc., Division
- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Uptown Shopping Center
Project or Site Name

192-21021-5
Project Number

Dan Uldall / Paul Danielson
Sampler Name (Printed)

Dan Uldall
Contact or Report to

TRI-CITIES
Contact Address or Location

Dan Uldall
Sampler Signature

	DATE COLLECTED	TIME COLLECTED	Sample # / SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED: TPH/D	NOTES	LAB NUMBER
PP	8/23/93	1200	33 T28SWC5.0	C	S	1	X	S=SOIL	144966
		1200	34 T28B8.0	G			X		67
		1500	35 T30SWC4.0	C			X		68
		1500	36 T30BC7.0	C			X		69
		1530	37 T31SWC6.0	C			X		70
		1530	38 T31BC8.0	C			X		71
DH	8/24/93	0930	39 T18SWC6.5	C			X		72
		0930	40 T18B10.5	G			X		73
		1200	41 T24WSW6.0	G			X		74
		1200	42 T24B10.5	G			X		75

Relinquished by: Dan Uldall	Date 8/25/93	Time 1630	Received by: Carrie UPS Red
Relinquished by:	Date 8/26/93	Time	Received by: CNI Lab Rep L Cleveland
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks: Dup 144968 T30SWC4.0 8/23 1500 76
Spike 144974 T24WSW6.0 8/24 1200 77

Cooler Temp 10.4°C

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- [ ] Schaefer Dixon Associates, Inc., Division
- [ ] Herzog Associates, Inc., Division

Project or Site Name: Uptown Shopping Ctr

Project Number: 192-2104-5

Sampler Name (Printed): Dan Udall

Contact or Report to: Dan Udall

Contact Address or Location: T-Clep

Sampler Signature:

DATE COLLECTED	TIME COLLECTED	Sample #	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	TPHD	8260	624					NOTES	LAB NUMBER
8/24/93	1440	43	T25SWL6.5	C	S	1	X							W = water	144278
8/24/93	1440	44	T25B10.5	G	S	1	X							S = SOIL	79
8/25/93	1000	45	T32SLUDGE	G	W	1	X		X					AQ = AQUEOUS	80
↓	1045	46	T32GW	G	AQ	2			X					W = waste	81
↓	1130	47	T32SPC	C	S	1		X						~~Smpl Not Recd~~ Smpl recd	82 ~~83~~

Relinquished by:	Date	Time	Received by:
Dan Udall	8/25/93	1630	

Remarks: Waste sample has extremely high levels, may be pure product! Aqueous sample also may ~~be very~~ high dissolved levels. Rapid Turnaround on waste and Aqueous sample (#45 + 46).

Cooler temp 10.4°C

Huntingdon
Chen-Northern, Inc.
600 SOUTH 25TH STREET
P.O. BOX 30615
BILLINGS, MT 59107
(406) 248-9161
FAX (406) 248-9282

TECHNICAL REPORT

REPORT TO: ATTN: MR. DAN ULDALL
CHEN-NORTHERN, INC.
P O BOX 2601
TRI-CITIES WA 99302

DATE: September 27, 1993
JOB NUMBER: 87-921
SHEET: 1 of 8
INVOICE NO.: 24669

REPORT OF: Soil and Water Analysis - Uptown Shopping Center 192-2104-5

SAMPLE IDENTIFICATION:

On September 2, 1993, these water and soil samples (laboratory numbers 144529 through 144538) were received in our laboratory for analysis. The samples were analyzed for the 624 list of volatile organics in accordance with Environmental Protection Agency Manual SW-846, Test Methods for Evaluating Solid Waste, Third Edition, November 1986; Method 8260.

The total petroleum hydrocarbon determinations were made in accordance with the California Department of Health Services Hazardous Materials Laboratory procedures and the State of Washington, Department of Ecology, Method WTPH-D.

The test results are shown on the following pages. Chromatograms are attached for your reference.

A < sign indicates the value reported was the practical quantitation limit for this sample using the method described. Concentrations of analyte, if present, below this were not quantifiable.

Reviewed by David Connell

Attachments (chromatograms)

rmr

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144529
Sample Name: #48 T25SWC5.0
Sample Date: 08/30/93
Collected by: DAN ULDALL
Time Sampled: 1030
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	15.7	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693008		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	7700	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	9100	mg/kg	09/16/93

Laboratory No.: 144530
Sample Name: #49 T25BC8.0
Sample Date: 08/30/93
Collected by: DAN ULDALL
Time Sampled: 1030
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	19.5	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693010		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	21,000	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	26,000	mg/kg	09/16/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144531
Sample Name: #50 H-43
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 0840
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-Volatiles	0903931007		
VOLATILE ORGANIC COMPOUNDS			
Benzene	<2	µg/l	09/03/93
Bromodichloromethane	1	µg/l	09/03/93
Bromoform	<1	µg/l	09/03/93
Bromomethane	<2	µg/l	09/03/93
Carbon Tetrachloride	<2	µg/l	09/03/93
Chlorobenzene	<1	µg/l	09/03/93
Chloroethane	<1	µg/l	09/03/93
2-Chloroethyl vinyl ether	<10	µg/l	09/03/93
Chloroform	14	µg/l	09/03/93
Chloromethane	<1	µg/l	09/03/93
Dibromochloromethane	<1	µg/l	09/03/93
1,2-Dichlorobenzene	<1	µg/l	09/03/93
1,3-Dichlorobenzene	<1	µg/l	09/03/93
1,4-Dichlorobenzene	<1	µg/l	09/03/93
1,1-Dichloroethane	<1	µg/l	09/03/93
1,2-Dichloroethane	<2	µg/l	09/03/93
1,1-Dichloroethene	<1	µg/l	09/03/93
t-1,2-Dichloroethene	<1	µg/l	09/03/93
1,2-Dichloropropane	<1	µg/l	09/03/93
c-1,3-Dichloropropene	<1	µg/l	09/03/93
t-1,3-Dichloropropene	<1	µg/l	09/03/93
Ethylbenzene	<1	µg/l	09/03/93
Methylene chloride	<5	µg/l	09/03/93
1,1,2,2-Tetrachloroethane	<1	µg/l	09/03/93
Tetrachloroethene	6	µg/l	09/03/93
Toluene	<1	µg/l	09/03/93
1,1,1-Trichloroethane	<1	µg/l	09/03/93
1,1,2-Trichloroethane	<1	µg/l	09/03/93
Trichloroethene	1	µg/l	09/03/93
Trichlorofluoromethane	<1	µg/l	09/03/93
Vinyl Chloride	<1	µg/l	09/03/93
VOLATILE SURROGATE SPIKE RECOVERY			
1,2-Dichloroethane-d4	94	%	09/03/93
Toluene-d8	96	%	09/03/93
4-Bromofluorobenzene	90	%	09/03/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144532
Sample Name: #51 E1/2SSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1000
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	9.7	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693007		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	170	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	190	mg/kg	09/16/93

Laboratory No.: 144533
Sample Name: #52 W1/2SSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1000
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.1	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091593032		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	52	mg/kg	09/15/93
Petroleum Hydrocarbons as Diesel dry basis	58	mg/kg	09/15/93

Project No.: 87-921
Laboratory No.: 144534
Sample Name: #53 W1/3NSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	7.1	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693013		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	4200	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	4500	mg/kg	09/16/93

Laboratory No.: 144535
Sample Name: #54 C1/3NSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1215
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	10.1	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693016		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	4200	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	4700	mg/kg	09/16/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144536
Sample Name: #55 E1/3NSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1215
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
INORGANICS			
Moisture	13.8	%	09/21/93
MISCELLANEOUS			
Data File Number-TPH Diesel	091693017		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	4700	mg/kg	09/16/93
Petroleum Hydrocarbons as Diesel dry basis	5500	mg/kg	09/16/93

Laboratory No.: 144537
Sample Name: DUP 144530 #49 T25BC8.0
Sample Date: 08/30/93
Collected by: DAN ULDALL
Time Sampled: 1030
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	091693012		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	20,000	mg/kg	09/16/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Laboratory No.: 144538
Sample Name: SPIKE 144534 #52 W1/3 NSPCRLF
Sample Date: 09/01/93
Collected by: DAN ULDALL
Time Sampled: 1200
Sample Type: SOIL

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS			
Data File Number-TPH Diesel	091693014		
PETROLEUM HYDROCARBONS			
Petroleum Hydrocarbons as Diesel as rec'd	79	%	09/16/93

Client Name: **CHEN-NORTHERN, INC. TRI-CITIES, WA**
Project No.: 87-921
Sample Name: LABORATORY BLANK 9-03-93
Sample Date: NOT APPLICABLE
Collected by: NOT APPLICABLE
Time Sampled: NOT APPLICABLE
Sample Type: WATER

PARAMETER	MEASURED VALUE		DATE ANALYZED
MISCELLANEOUS:			
Data File Number-Volatiles	0902931004		
VOLATILE ORGANIC COMPOUNDS:			
Benzene	<2	µg/l	09/03/93
Bromodichloromethane	<1	µg/l	09/03/93
Bromoform	<1	µg/l	09/03/93
Bromomethane	<1	µg/l	09/03/93
Carbon Tetrachloride	<2	µg/l	09/03/93
Chlorobenzene	<1	µg/l	09/03/93
Chloroethane	<1	µg/l	09/03/93
2-Chloroethyl vinyl ether	<10	µg/l	09/03/93
Chloroform	<1	µg/l	09/03/93
Chloromethane	<1	µg/l	09/03/93
Dibromochloromethane	<1	µg/l	09/03/93
1,2-Dichlorobenzene	<1	µg/l	09/03/93
1,3-Dichlorobenzene	<1	µg/l	09/03/93
1,4-Dichlorobenzene	<1	µg/l	09/03/93
1,1-Dichloroethane	<1	µg/l	09/03/93
1,2-Dichloroethane	<1	µg/l	09/03/93
1,1-Dichloroethene	<1	µg/l	09/03/93
Trans-1,2-Dichloroethene	<1	µg/l	09/03/93
1,2-Dichloropropane	<1	µg/l	09/03/93
Cis-1,3-Dichloropropene	<1	µg/l	09/03/93
Trans-1,3-Dichloropropene	<1	µg/l	09/03/93
Ethylbenzene	<1	µg/l	09/03/93
Methylene chloride	<5	µg/l	09/03/93
1,1,2,2-Tetrachloroethane	<1	µg/l	09/03/93
Tetrachloroethene	<1	µg/l	09/03/93
Toluene	<1	µg/l	09/03/93
1,1,1-Trichloroethane	<1	µg/l	09/03/93
1,1,2-Trichloroethane	<1	µg/l	09/03/93
Trichloroethene	<2	µg/l	09/03/93
Trichlorofluoromethane	<1	µg/l	09/03/93
Vinyl Chloride	<1	µg/l	09/03/93
VOLATILE SURROGATE SPIKE RECOVERY:			
1,2-Dichloroethane-d4	102	%	09/03/93
4-Bromofluorobenzene	98	%	09/03/93
Toluene-d8	92	%	09/03/93

ATTACHMENTS

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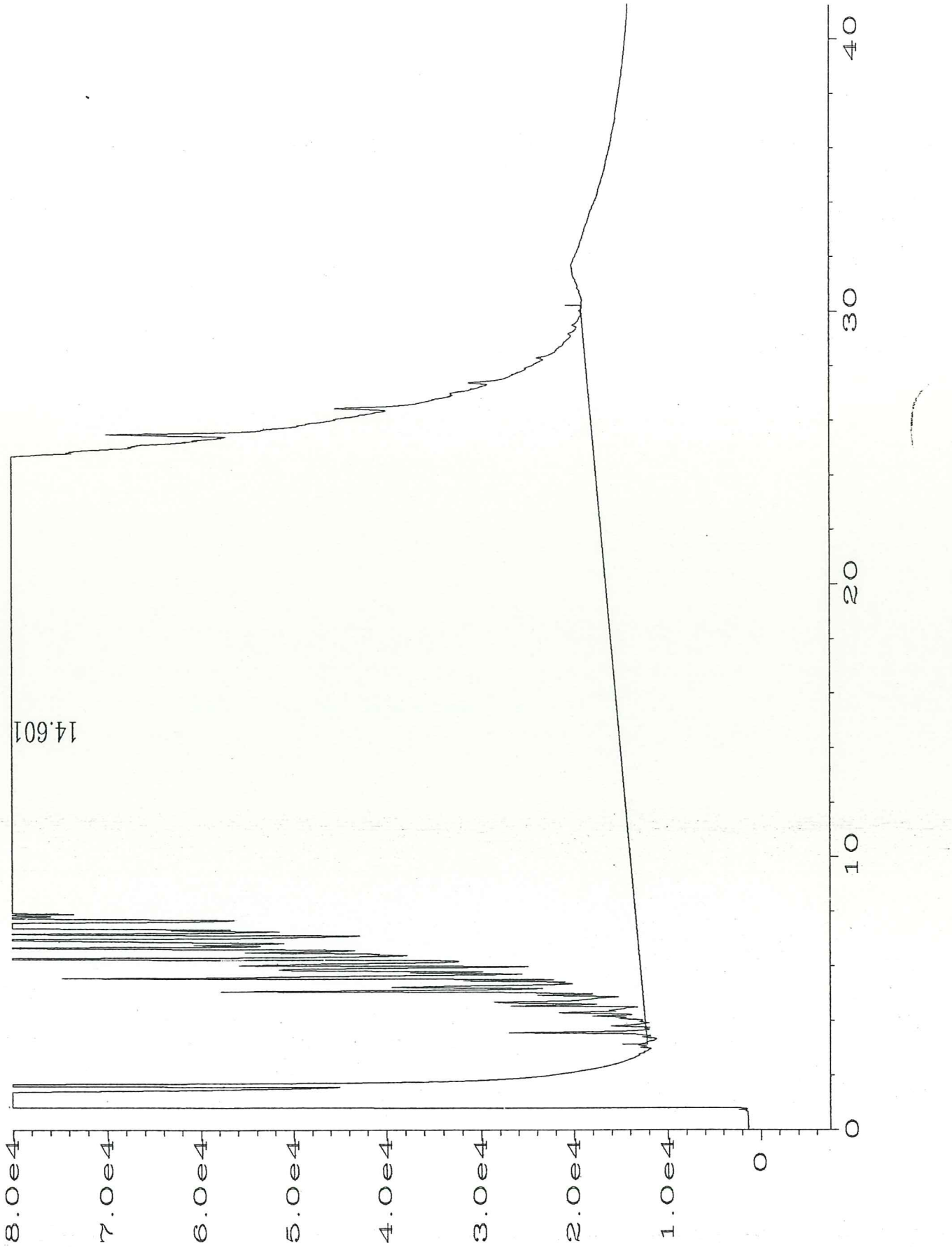

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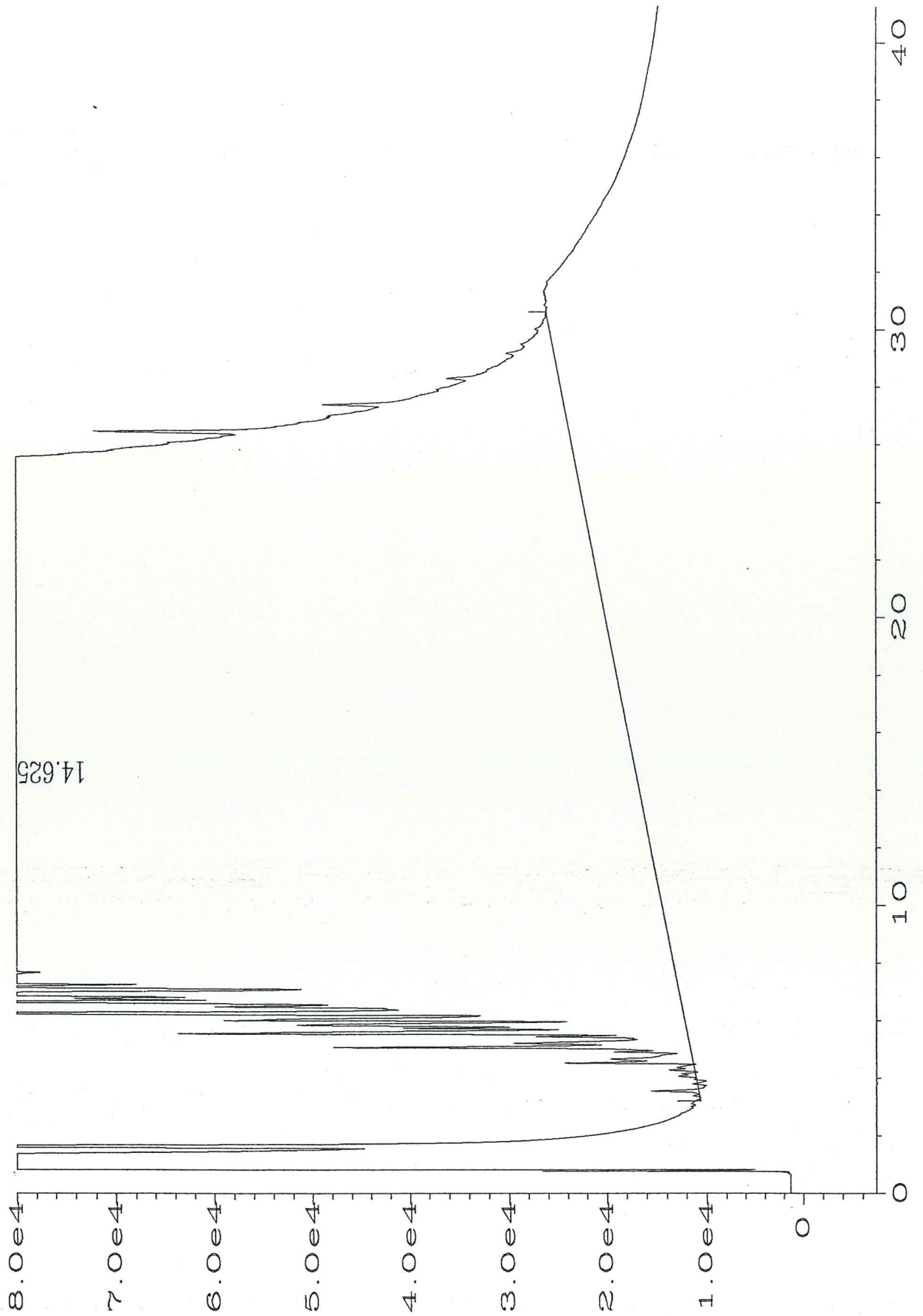

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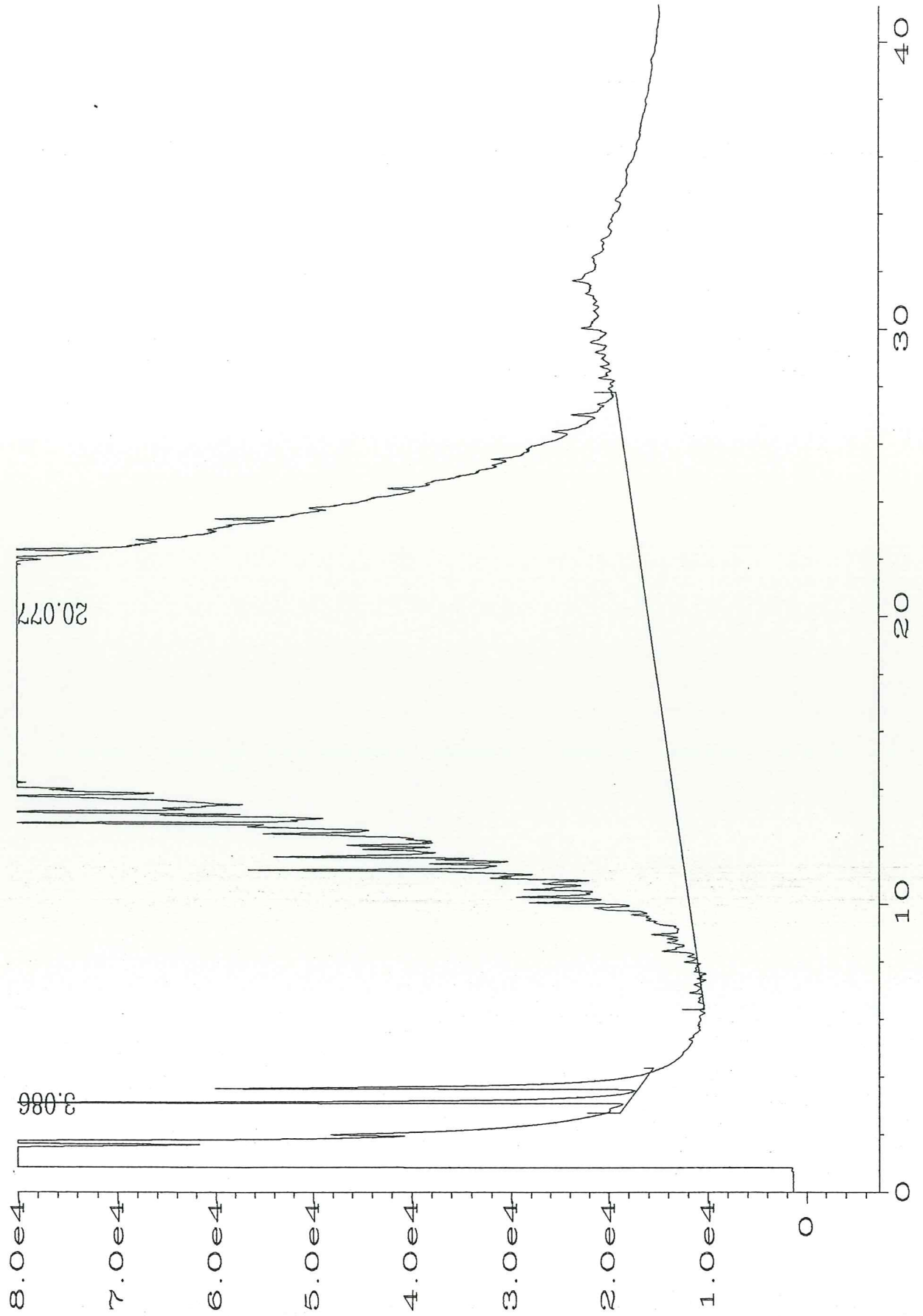

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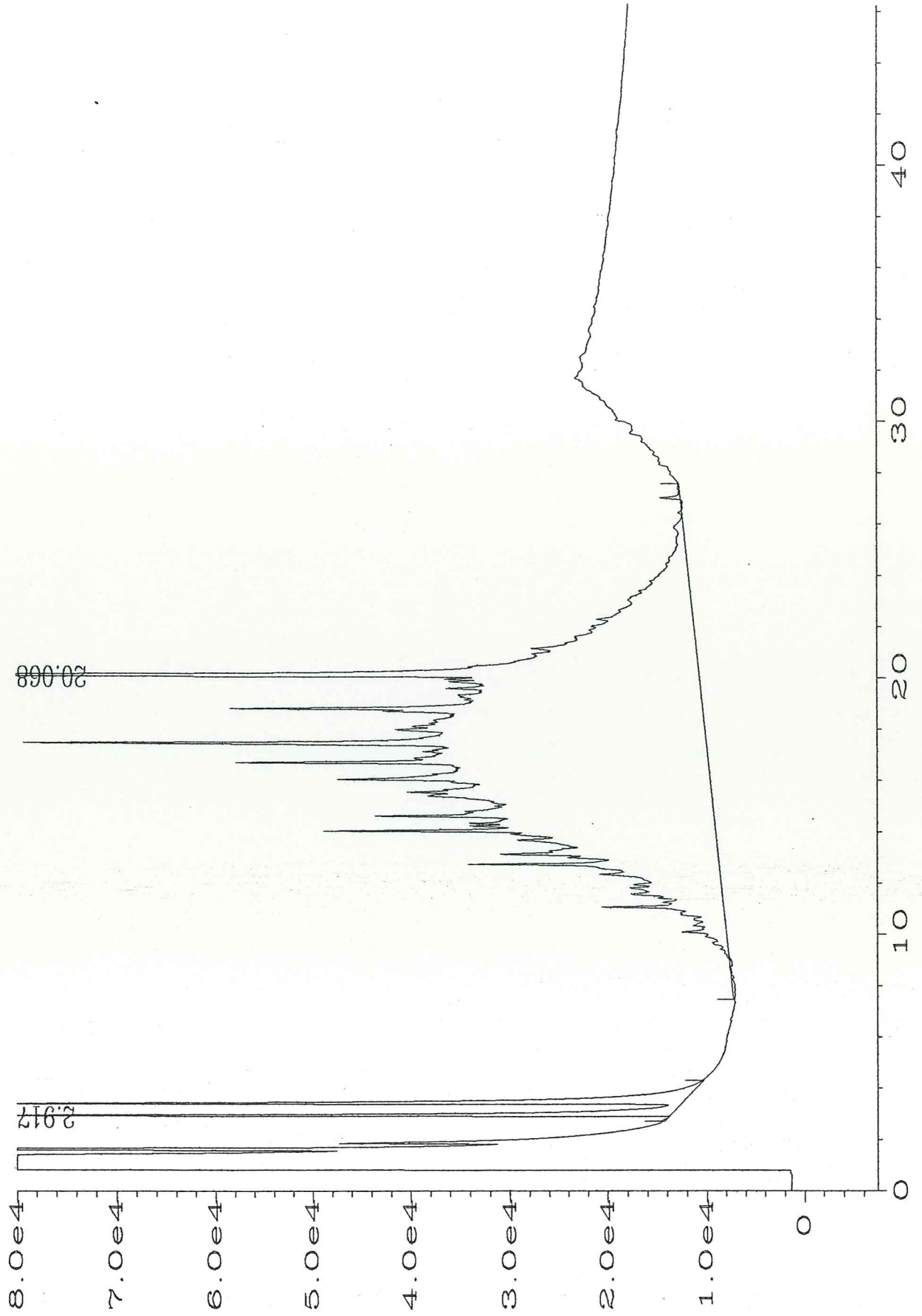

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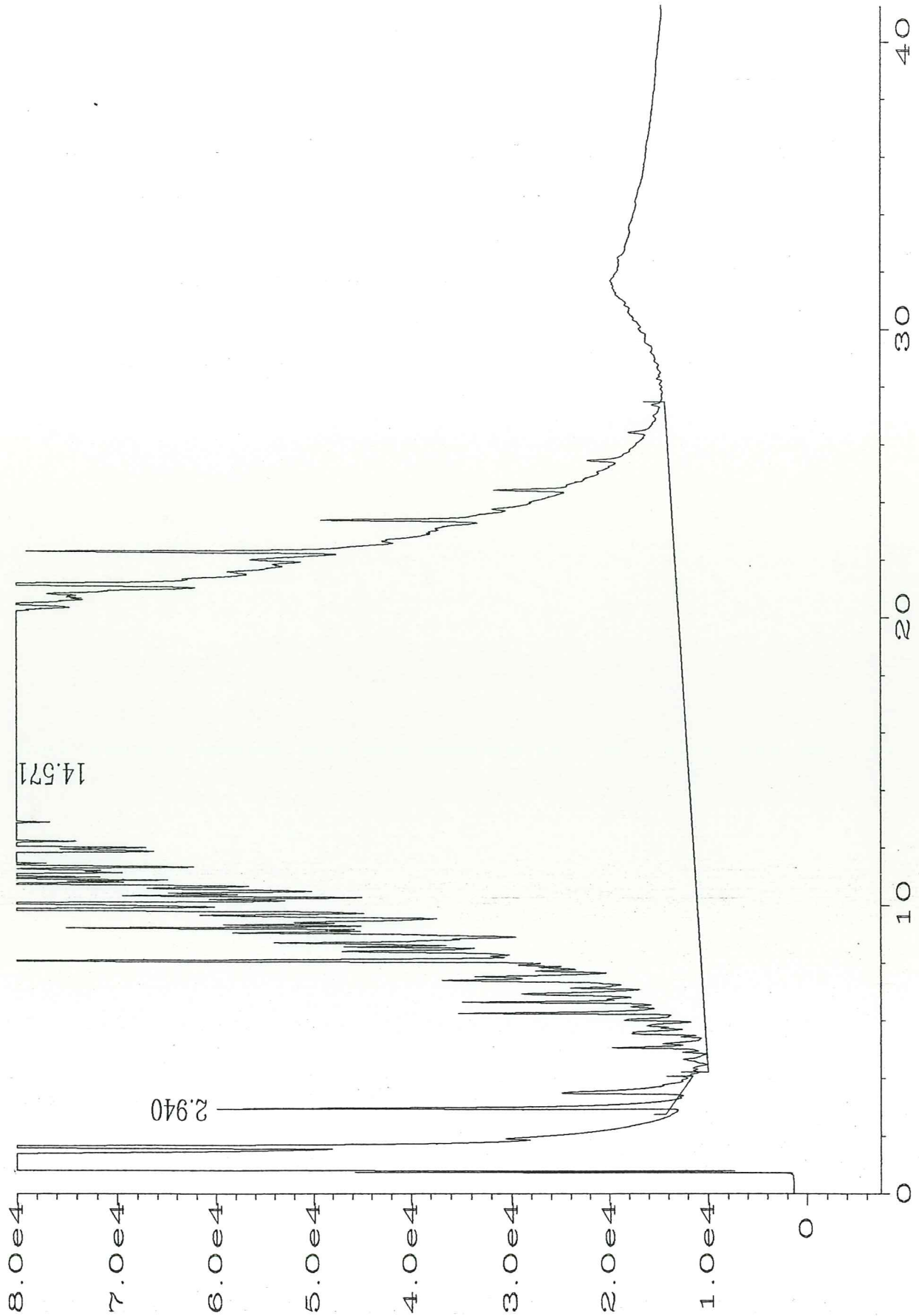

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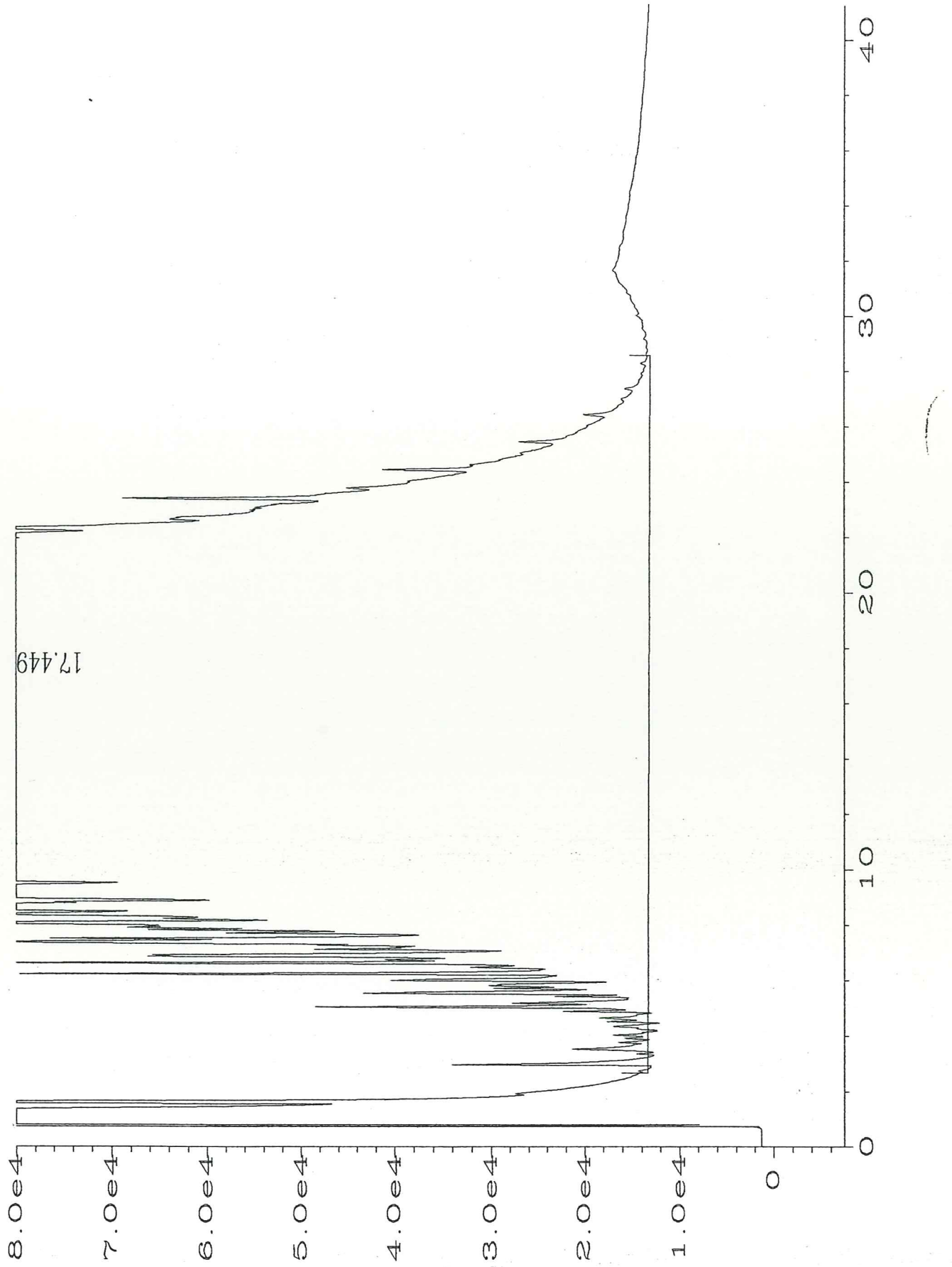

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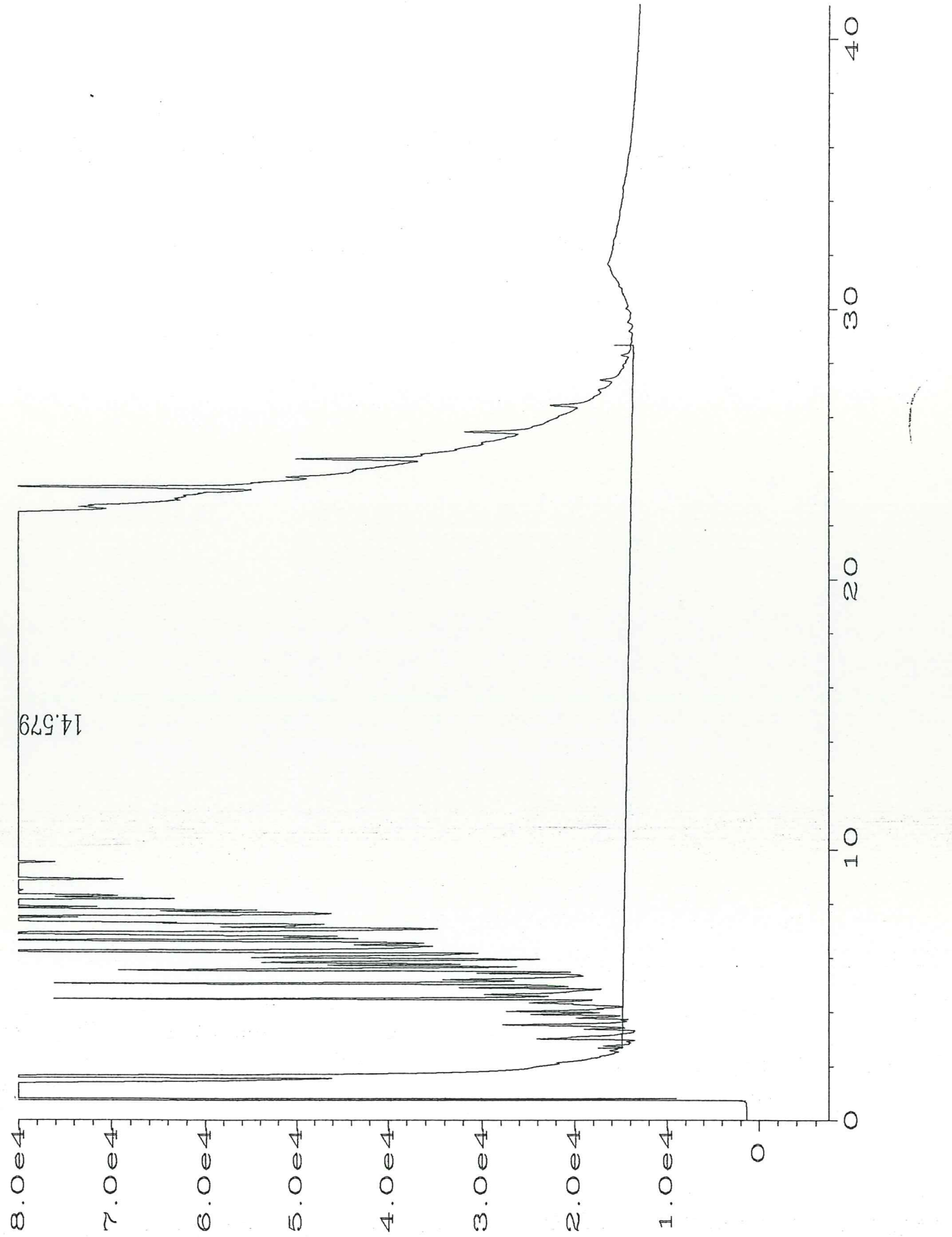

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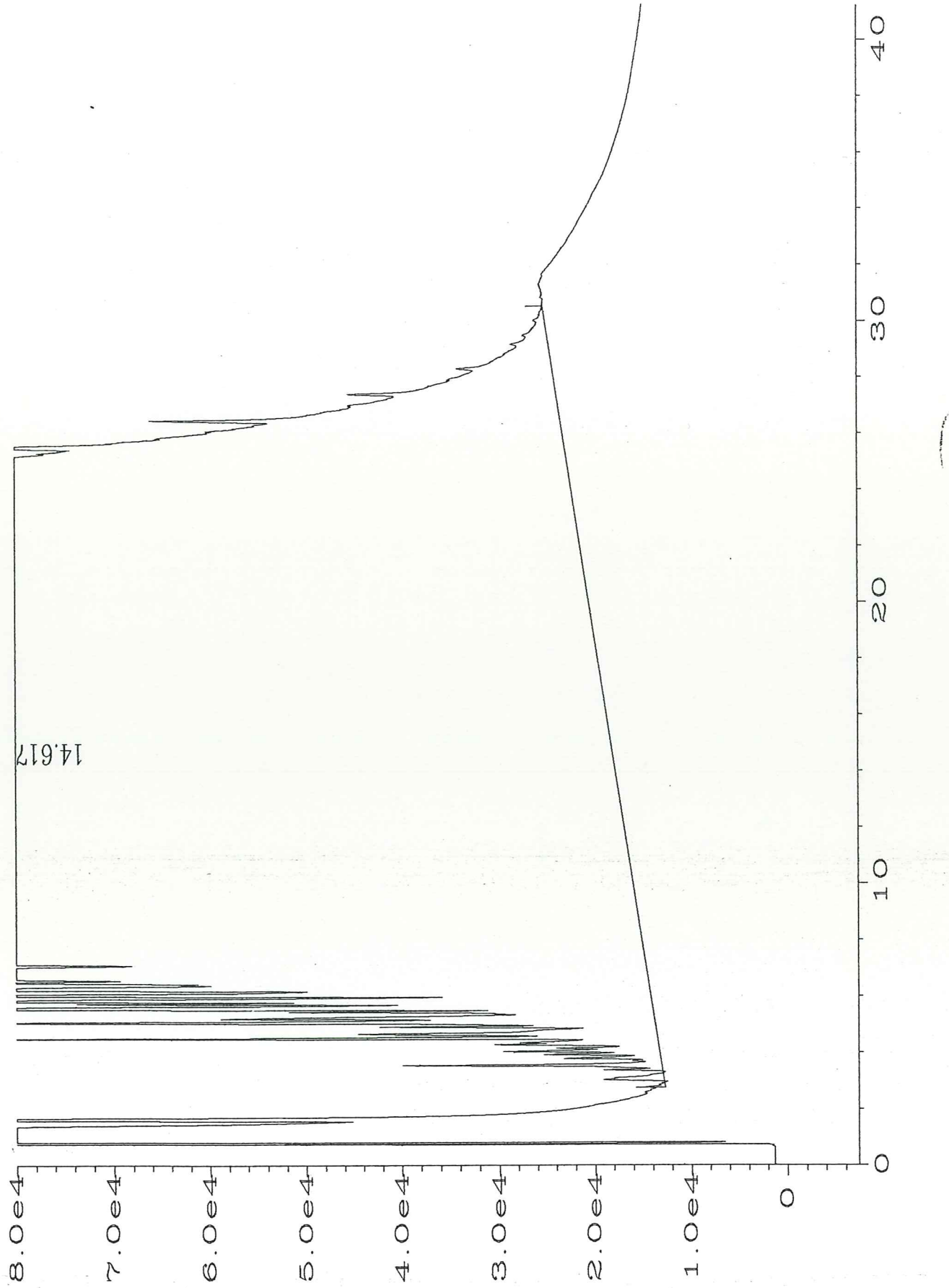

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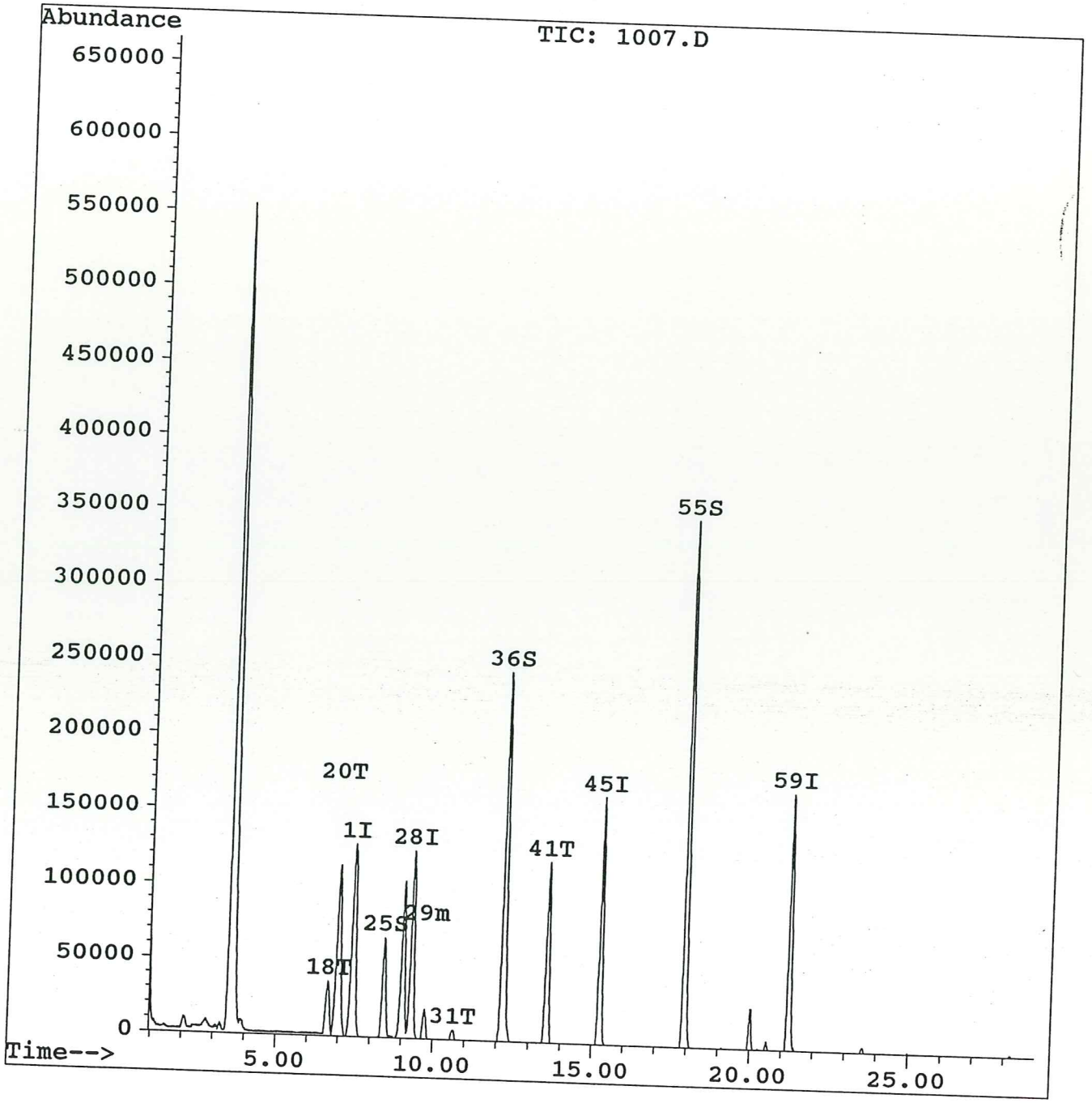
Quantitation Report

Data File : C:\HPCHEM\1\DATA\090393\1007.D
Acq Time : 3 Sep 93 12:32 pm
Sample : 144531 25 ml
Misc :
Quant Time: Sep 3 13:25 1993

Operator: ghp
Inst : GC/MS
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\090393.M
Title : 8260 and append 9
Last Update : Fri Sep 03 10:27:42 1993
Response via : Single Level Calibration



CHAIN OF CUSTODY RECORD

Huntingdon
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- [ ] Schaefer Dixon Associates, Inc., Division
- [X] Herzog Associates, Inc., Division

Uptown Shopping Ctr
Project or Site Name

192-2104-5
Project Number

Dan Uldall
Sampler Name (Printed)

Dan Uldall
Contact or Report to

HCN FOR I-CITIES
Contact Address or Location

Sampler Signature

DATE COLLECTED	TIME COLLECTED	Sample #	SAMPLE LOCATION OR DESCRIPTION	COMP OR GRAB	SAMPLE MATRIX	NO. OF CONTAINERS	ANALYSIS REQUIRED						NOTES	LAB NUMBER
8/30/93	1030	48	T25SWC5.0	C	S	1	X						SOIL	144539
8/30/93	1030	49	T25BC8.0	C	S	1	X						AQ = AQUEOUS	30
9/1/93	0840	50	H-43	G	AQ	2		X						31
9/1/93	1000	51	E 1/2 SSPCRLF	C	S	1	X							32
9/1/93	1000	52	W 1/2 SSPCRLF	C	S	1	X							33
9/1/93	1200	53	W 1/3 NSPCRLF	C	S	1	X							34
9/1/93	1215	54	C 1/3 NSPCRLF	C	S	1	X							35
9/1/93	1225	55	E 1/3 NSPCRLF	C	S	1	X							36
										Deep	144530		T25BC8.0 8/30 1030	37
										Shallow	144531		W 1/3 NSPCRLF 9/1 1200	38

	Date	Time	Received by:
Relinquished by:	9/1/93	1420	Carrier UPS Red
Relinquished by:	9/2/93	1000	CNI Lab Bldg L. Eberhardt
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Remarks:

P/S, send blue ice.

Standard Turnaround.

Cooler temp 8.2°C