



**SPARREVOHN LRRS
ALASKA**

**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 51

**United States Air Force
611th Air Support Group
611th Civil Engineer Squadron**

Elmendorf AFB, Alaska



**REMEDIAL ACTION REPORT
PCB SOIL REMEDIATION
SPARREVOHN LRRS, ALASKA**

January, 1997



**REMEDIAL ACTION REPORT
PCB SOIL REMEDIATION
SPARREVOHN LLRS, AK**

January, 1997

I hereby certify that the information shown and in this submittal is that proposed to be incorporated with Contract Number DACA85-95-D-0017 Delivery Order No. 1, is in compliance with the contract drawings and specification and is submitted for Government approval.

Certified by Submittal Reviewer _____ Date _____
(Signature when applicable)

Certified by Contractor Project Manager *Brad A. Linder* Date 1/22/97
(Signature)

TABLE OF CONTENTS

1.0	PROJECT DESCRIPTION	1
1.1	Background Information	1
1.2	Project Objective	4
1.3	Project Approach	4
1.4	Project Plans	7
2.0	PROJECT ORGANIZATION AND RESPONSIBILITIES	8
3.0	PROJECT EXECUTION	10
3.1	Plan Preparation	10
3.2	Mobilization	11
3.3	Treatment Site Construction	13
3.4	Solvent Extraction Cell Construction/Loading	18
3.5	Solvent Extraction Cell Operation	25
3.6	Confirmation/Substockpile sampling	30
3.7	Solvent Destruction	33
3.8	Cell Closure/Site Restoration	34
3.9	Demobilization/Waste Disposal	37
4.0	Conclusions & Recommendations	40

LIST OF TABLES

Table 1.	Solvent Extraction by Cell	26
Table 2.	Process Control Testing	29
Table 3.	Soil Site Testing Results	29
Table 4.	Solvent PCB Testing Results	29
Table 5.	Sub-stockpile Sampling Results	30
Table 6.	Treatment Cell Testing Results	31

LIST OF FIGURES

Fig 1.	Sparrevohn Area Map	2
Fig 2.	Sparrevohn Site Map	3
Fig 3.	Field Screening/Sampling Additional Sites	5
Fig 4.	PCB Stockpile Prior to Excavation	5
Fig 5.	Solvent Extractraction Process Diagram	6
Fig 6.	Project Organization	9
Fig 7.	Aircraft Unloading	12
Fig 8.	Material Handling	12
Fig 9.	Weatherport Shelters	14
Fig 10.	Treatment Cell Site Plan	15

Fig 11. Site Utilities	16
Fig 12. Pumping and Filtration System	16
Fig 13. Solvent Cell Construction.....	17
Fig 14. Treatment Site Construction Complete	17
Fig 15. Compacting Soil Cell Floor.. ..	19
Fig 16. Erecting Sidewalls.....	19
Fig 17. Felt Laid Ready for Secondary Liner.....	20
Fig 18. Placing 20 Mil Secondary Liner.....	20
Fig 19. 45 Mil Primary Liner Placed	21
Fig 20. Constructing Under-Drains.....	21
Fig 21. Stockpile Excavation.	22
Fig 22. Loading Soil Cell	23
Fig 23. Partially Loaded Cell	23
Fig 24. Removing Protective Plywood	24
Fig 25. Cell Loading Near Completion	24
Fig 26. Initial Loading of Solvent into Clean Solvent Cell.....	27
Fig 27. On Site Lab	27
Fig 28. Confirmation Sampling at Surface of Cell	32
Fig 29. Excavating for Bottom Confirmaton Samples.....	32
Fig 30. Solvent Incineration.....	33
Fig 31. Closed Soil Cell.....	35
Fig 32. Closing Solvent Cell.....	36
Fig 33. Closed Treatment Site	36
Fig 34. Drum Crusher and Crushed Drums.....	38
Fig 35. Drums of Liner and IDW Awaiting Demobilization.....	38
Fig 36. Treatment Site Closure	39

LIST OF APPENDICES

Appendix A	SUMMARY REPORT FOR SAMPLING AND ANALYSIS
Appendix B	QA LAB REPORT
Appendix C	LAB ANALYSIS OF SOLVENT PRIOR TO DISPOSAL
Appendix D	MANIFEST PACKAGE FOR MOLECULAR SIEVES
Appendix E	MANIFEST PACKAGE FOR DRMO TURN-IN
Appendix F	STOCKPILE CHARACTERIZATION REPORTS

REMEDIAL ACTION REPORT

PCB SOIL REMEDIATION Sparrevohn LRRS, Alaska DACA85-95-D-0017 Delivery Order No. 1

1.0 PROJECT DESCRIPTION

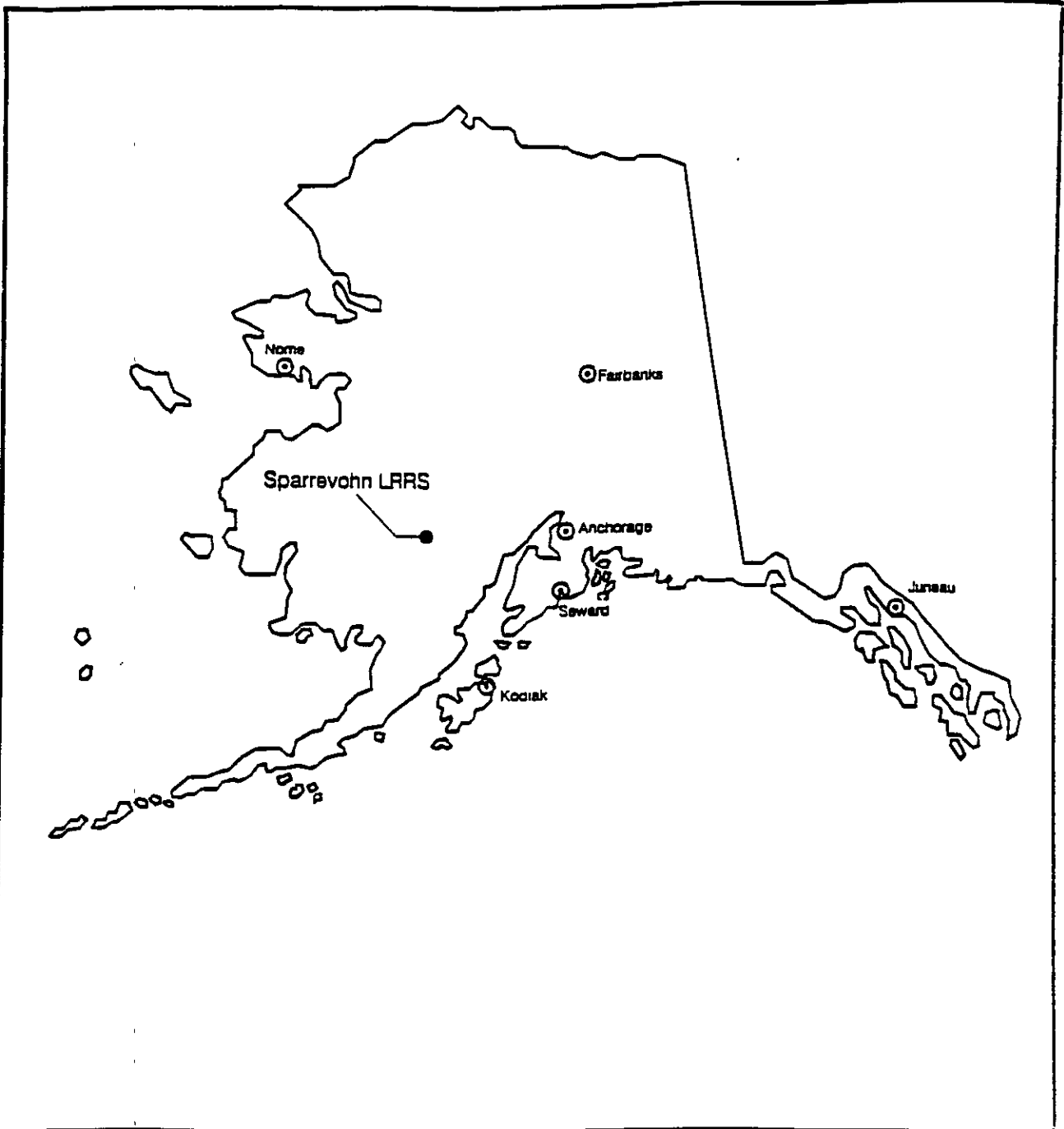
1.1 Background Information

The Project site is located at Sparrevohn Long-Range Radar Station (LRRS), Alaska. Sparrevohn LRRS is located approximately 200 miles west of Anchorage. The station is located on the slopes of Sparrevohn Mountain between the Stony River and Hook Creek. The site consists of upper and lower camps. The lower camp, at an elevation of 1,700 feet, includes a runway, a residential facility, and industrial facilities. The upper camp, housing the radar equipment, is located at the top of the mountain, at an elevation of 3,300 feet.

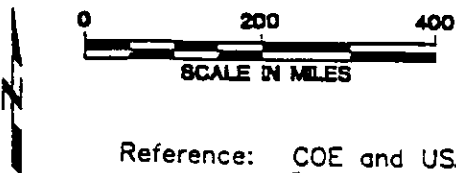
Sparrevohn was one of ten original Aircraft Control and Warning sites constructed as part of the air defense system in Alaska. Original construction of the site was completed in 1952. Currently the site is operated for the USAF by PMC/Frontech as a Minimally Attended Radar sites. Normally four contractor personnel are stationed at the site.

Soils containing PCBs were detected at the upper and lower camps during sampling conducted in the summer of 1986. During the summer and fall of 1989, PCB contaminated soils were excavated at the lower camp. Some of the soil was overpacked, and shipped off site for disposal. The remaining soil was stockpiled at the lower camp. This stockpile is the object of the current project.

The project consisted of two phases. Phase I was completed during the summer of 1995 and consisted of surveying and characterizing the stockpile to establish PCB and other contaminant concentrations. On July 18 and 19, 1995, the contaminated soil was surveyed and characterized. Analysis was performed for PCB by EPA method 8080. Additional sampling was performed on August 31, 1995. Grab samples were taken, and a full suite of analyticals were performed including: Total Metals (EPA 6010), Pb (EPA 7420), As (EPA 7061), Volatile Organics (EPA 8260), Semivolatile Organics (EPA 8270). PCB concentrations ranged from 13 to 68 ppm. Volatile Organic Compounds were not detected. 1,2,4 Trichlorobenzene (Semivolatile Organic Compounds) was detected at 0.6 mg/kg and 2.4 mg/kg. 17 different metals were detected ranging from Arsenic at 11 mg/kg to Iron at 39,600. Analytical results are in Appendix F. These results were reported in detail to the government in Sampling and Analysis Reports dated August 23, 1995 and October 3, 1995.



1-014-18MWR:JTH 07-01-96 DWG FILE: 1890141A.DWG

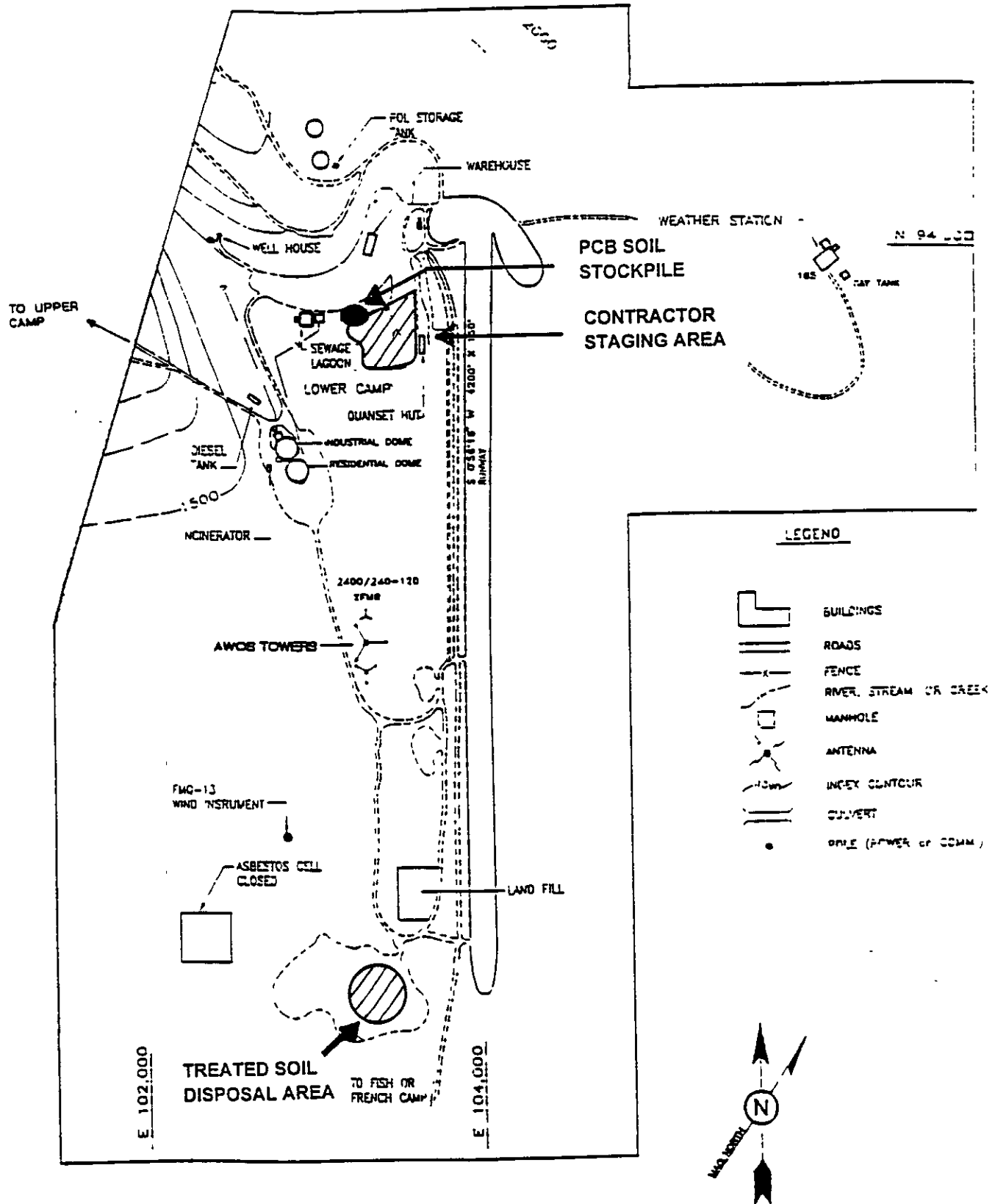


**SPARREVOHN LRRS
SPARREVOHN, ALASKA**

Reference: COE and USAF 611 CES/CEVR 1:200-Scale Map,
"Regional Location Map" Dated July 1994.

Note: The locations of all features shown are approximate.

**SPARREVOHN AREA MAP
Fig 1**



SPARREVOHN SITE MAP
Fig 2

Phase II of the project was implemented during the spring, summer, and fall of 1996. The first activity consisted of field screening and sampling of additional sites around the Sparrevohn facility. The goal of this effort was to identify and quantify PCB contamination at different locations. Field work for this effort took place from May 28, 1996, to June 3, 1996. Immuno Assay field screening, and laboratory analysis were used to evaluate the extent of PCB contamination at different locations. The results of this investigation were published separately, and are not within the scope of this remedial action report.

The primary effort of Phase II was to remediate PCB contaminated soil by the solvent extraction process. Linder Construction had previously evaluated two options for treatment and disposal of the PCB contaminated soils. These were:

- 1) treatment of the soils on-site by solvent extraction and
- 2) off-site turn in of the contaminated soils at the Elmendorf AFB Hazardous Waste Storage facility.

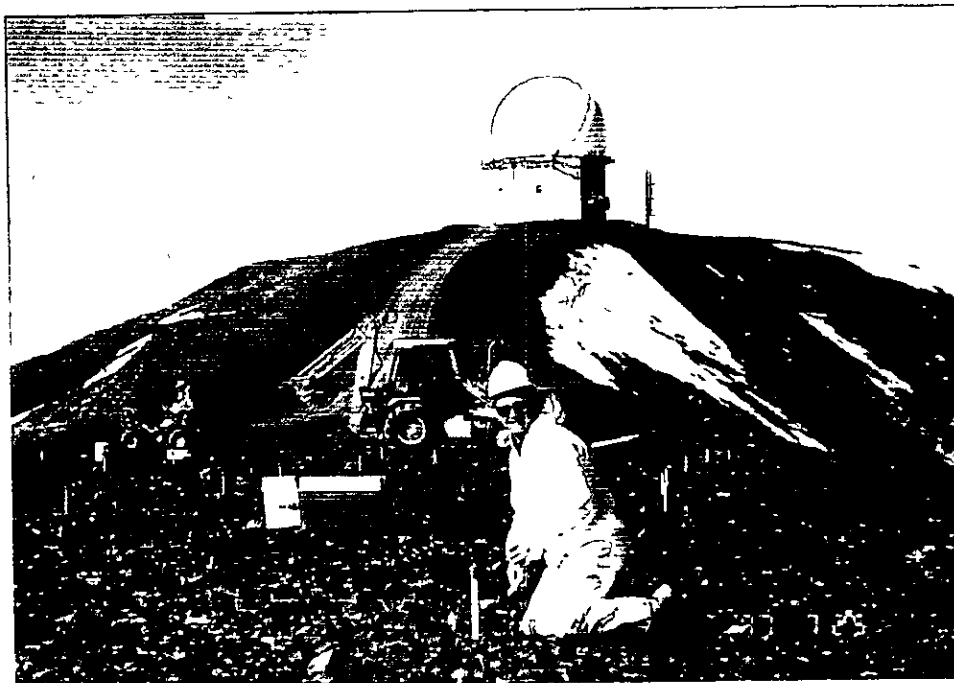
Based on these two options, the government selected on-site solvent extraction as the most cost effective option for this site.

1.2 Project Objective

The primary objective of this project was to use Solvent Extraction to treat the stockpile characterized during Phase I. This objective was met. The soil from the stockpile was remediated to below 15 mg/kg.

1.3 Project Approach

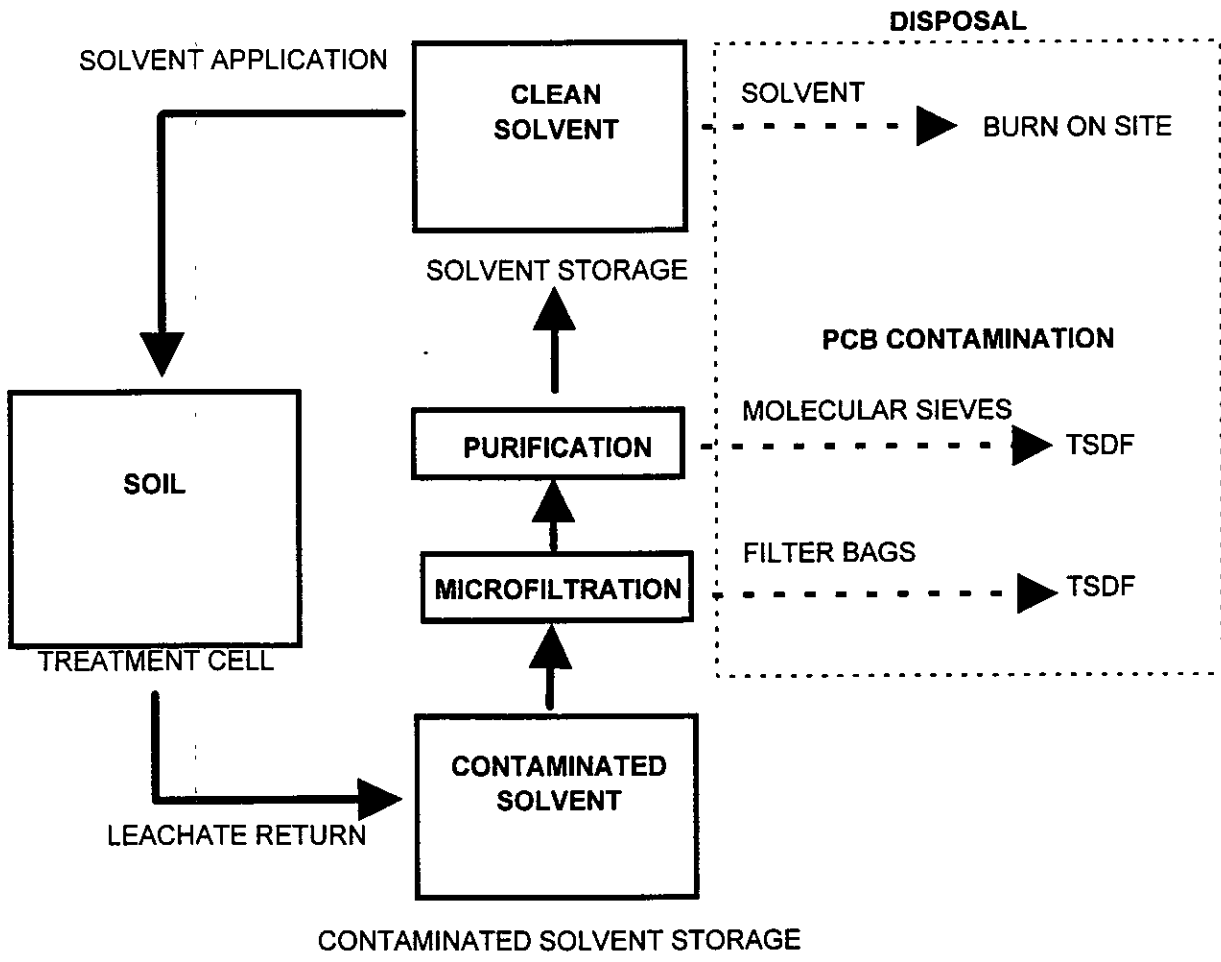
The solvent extraction treatment process, shown in Figure 5, required constructing treatment cells and loading the contaminated soil into the cells. A proprietary solvent was used to extract the PCBs from the soil. The PCBs were removed from the solvent by passing the solvent through molecular sieves. Confirmation sampling was performed on the remediated soil, and sub-stockpile samples taken of the former stockpile area. The sieve material containing the PCBs was shipped offsite for disposal of at a permitted, off-site facility. The soil, remediated to below 15 mg/kg, was treated with a solution of microbes and nutrients to reduce solvent content, and disposed of in place, by capping the former treatment cells. The solvent was filtered repeatedly to removed PCB contamination, and the PCB-free solvent disposed of onsite through incineration.



FIELD SCREENING/SAMPLING ADDITIONAL SITES
Area A, looking west, 5/30/96
Fig 3



PCB STOCKPILE PRIOR TO EXCAVATION
looking south, 6/1/96
Fig 4



SOVLENT EXTRACTION PROCESS DIAGRAM
Fig 5

The project utilized the following activities to remediate the soil stockpile in a safe and cost-effective manner. Detailed discussion of each one of these activities are included in Section 3 of this report:

- Plan Preparation
- Mobilization
- Treatment Site Construction
- Solvent Extraction Cell Construction/Loading
- Solvent Extraction Operation
- Confirmation/Sub-stockpile Sampling
- Solvent Destruction
- Cell/Closure Site Restoration
- Demobilization/Waste Disposal
- Final Reporting.

1.4 Project Plans

Linder produced seven (7) plans and reports which governed execution of the project. These were:

- Work Plan (WP)
- Waste Management Plan (WMP)
- Sampling and Analysis Plan (SAP)
- Site Specific Health and Safety Plan (SSHSP)
- Contractor Quality Control Plan (CQCP)
- Environmental Protection Plan (EPP)
- Remediation Action Report (RAP)

The work plan contained all other plans as appendices and was approved prior to start of field work. The Remedial Action Report (this report) is being submitted at the conclusion of the project. The project plans and reports were as follows:

The **Work Plan (WP)** identified methods, materials, and schedules by which the project would be completed, and contained all other project plans as appendices.

The **Sampling and Analysis Plan** identified methods, and procedures for confirmation sampling of the remediated soil, and sub-stockpile sampling of the PCB-contaminated stockpile site. A Quality Assurance Program Plan for the project was included.

The **Waste Management Plan** identified the wastes that would be generated as well as how the wastes would be managed and disposed of.

The **Site Specific Health and Safety Plan** pertained only to specific health and safety issues for work on this project. It included requirements for accident prevention. The HSP complied with OSHA, 29 CFR, and Engineer Manual 385-1-1 requirements.

The **Contractor Quality Control Plan** provided the points of authority and methods for ensuring completion of work to the standards required by the parent contract, delivery order, and approved project plans and submittals.

The **Environmental Protection Plan** described how different aspects of the environment would be protected throughout the project.

The **Remediation Action Report** (this report) details the results of the project effort and provides a record for the Government (client) and Regulatory Agencies.

In addition to the above, Linder produced two stockpile sampling reports, published in 1995. A survey of additional potentially contaminated areas was performed and report published during the summer of 1996.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The prime contractor for this project was Linder Construction, Inc. of Anchorage, Alaska. The project was administered by the USACE, Richardson Resident Office on behalf of the owner, the 611th Civil Engineering Squadron under Contract DACA85-95-D-0017, Delivery Order 001. The overall organizational chart for the project is shown in Figure 6. Contractor organization, personnel, and responsibilities are as follows.

Linder Program Manager: Linder operated under the direction of Linda J. E. Henrikson, President and CEO of Linder Construction

Linder Project Manager: Al Henrikson, provided general management of the project and provide direction to project staff to ensure project was planned, implemented, and completed according to contract specifications.

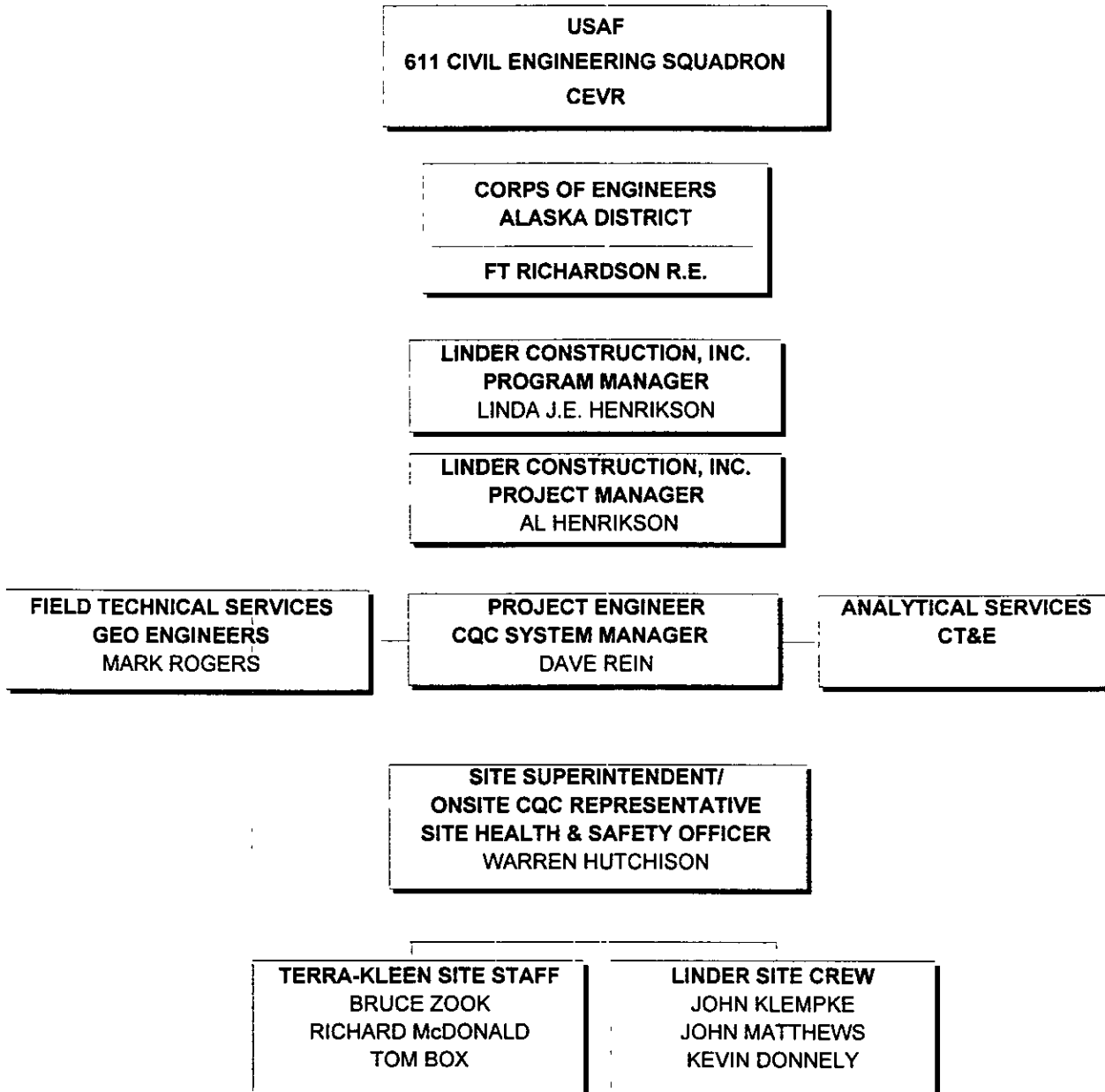
Linder Project Engineer/Quality Control System Manager: David Rein, reviewed, advised, and coordinated all engineering tasks and issues associated with the project.

Linder Superintendent/Contractor Quality Control Field Representative: Warren L. Hutchison served as Linder's on site supervisor and was responsible for the production and distribution of the documentation necessary to ensure the quality control of the project.

Terra-Kleen Response Group Field Project Manager: First Bruce Zook, and later Richard McDonald served as the Terra-Kleen Field Project Manager. They ensured that the cell construction and field and soil handling activities met the needs of the Terra-Kleen process, and directly managed the operation of the solvent extraction process.

Field Environmental Technical Specialist: Mark Rogers of GeoEngineers performed all treated soil confirmation testing as well as sub-stockpile sampling and reporting

**PCB SOIL REMEDIATION
SPARREVOHN LONGRANGE RADAR STATION
DACA85-95-D-0017/D.O. #1**



**PROJECT ORGANIZATION
Figure 6**

3.0 PROJECT EXECUTION

The major activities to execute the project were as follows.

- Plan Preparation
- Mobilization
- Treatment Site Construction
- Solvent Extraction Cell Construction/Loading
- Solvent Extraction Operation
- Confirmation/Sub-stockpile Sampling
- Solvent Destruction
- Cell Closure/Site Restoration
- Demobilization/Waste Disposal
- Final Reporting.

3.1 Plan Preparation 12/1/95 - 5/1/96

All plans were developed by the Linder Construction, Inc. office in Anchorage. Reviews and comments on drafts were performed by the USACE, Ft. Richardson Resident Office staff, 611 CES/CEVR personnel, and the Alaska Department of Environmental Conservation (ADEC). On-board reviews with the Corps of Engineers, USAF, and contractor representatives helped speed the integration of comments into the final plans.

Several issues were raised during the plan preparation process. The Terra-Kleen Solvent Extraction process was new to Alaska. Consequently, clarifications to the plans and modifications to the approach were required to assure all involved parties that process controls were in place to insure project success. A few of the major issues discussed and resolved during the planning process were as follows:

- **Nature of Terra-Kleen Solvent:** ADEC required and was provided the composition of the solvent. This had to be done in a manner that did not impact the proprietary nature of the Terra-Kleen process.
- **Confirmation Sampling Protocol:** There was concern that the solvent extraction process would cause PCBs to be concentrated in the lower layers of the soil treatment cells. The Sampling and Analysis plan was subsequently modified to incorporate separate composite samples from the surface and bottom of each cell, as well as one sample of the geotextile liner under the cell.
- **Solvent Disposal:** Concerns were raised on the residual PCB concentration in the solvent prior to disposal, method of incineration, and potential air emissions. These were resolved with the provision of additional information.

All comments and concerns were addressed in an addendum to the work plan. This was approved by the USACE on 5/1/96 and incorporated into the project.

3.2 Mobilization 5/28/96 - 6/13/96

Initial mobilization was conducted out of Anchorage, Alaska from 5/28/96 to 6/13/96. Five commercially-chartered C-130 type aircraft were used to move over 200 tons of equipment, tools, and materials to the site. Aircraft were unloaded at the north end of the runway, and materials moved to the contractor staging area. From there, materials were moved to the treatment site as required. Materials and equipment mobilized included:

- 1 @ Case 580 back hoe/Loader
- 2 @ Four-wheeler ATV
- 1 @ 8 CY Dump Truck
- 1 @ Air compressor
- 1 @ Drum Crusher
- 1 @ Portable Generator
- 14,000 gallons Terra-Kleen solvent in 55 gallon drums
- 12 molecular sieves
- PPE, Fire Extinguishers, Spill Kit
- Terra-Kleen Equipment Package (pumps, hoses, lab equipment)
- Hand tools
- Lumber, liner, pipe, and hardware for cell construction

On 7/23/96, mid-way through the project, one Caribou flight was chartered to bring in additional liner, lumber, and pipe. One additional C-130 flight was chartered to bring in 3,000 gallons of additional solvent on 8/2/96.



AIRCRAFT UNLOADING
looking east, 6/1/96
Fig 7



MATERIAL HANDLING
looking northeast, 6/13/96
Fig 8

3.3 Treatment Site Construction 6/1/96 - 6/15/96

The soil treatment site was constructed near the south end of the runway at the treated soil disposal area shown on Figure 2. After initial site clearing and grading, the following features were constructed/assembled on site to support the solvent extraction process:

- Weatherport Shelters
- Site Utilities
- Clean and Contaminated Solvent Cells
- Solvent Extraction Process Equipment
- 5 Individual Soil Treatment Cells

A. Weatherport Shelter

Two Weatherport shelters, rigid metal frame fabric shelters, were erected on plywood platforms. These shelters supported the site operations by providing weather protection for personnel and covered storage space for tools and materials.

One shelter was configured as a field laboratory housing the Terra-Kleen gas chromatograph and other test equipment. This allowed soil and solvent testing for solvent extraction process control to be performed on site. The second shelter was configured for storage of tools, hardware, and fittings.

B. Site Utilities

Site utilities were provided by a diesel powered generator and compressor. The compressor was in constant operation, powering the air-driven diaphragm pumps that transported solvent through the treatment system. The generator provided power for lighting, space heating, tools, and lab equipment. The generator and compressor were housed in a bermed area lined with 20 mil, petroleum-resistant liner. The bermed area also accommodated the tank trailer which provided fuel deliveries to the treatment site. All refueling and lubrication changes were performed within the lined, bermed area.

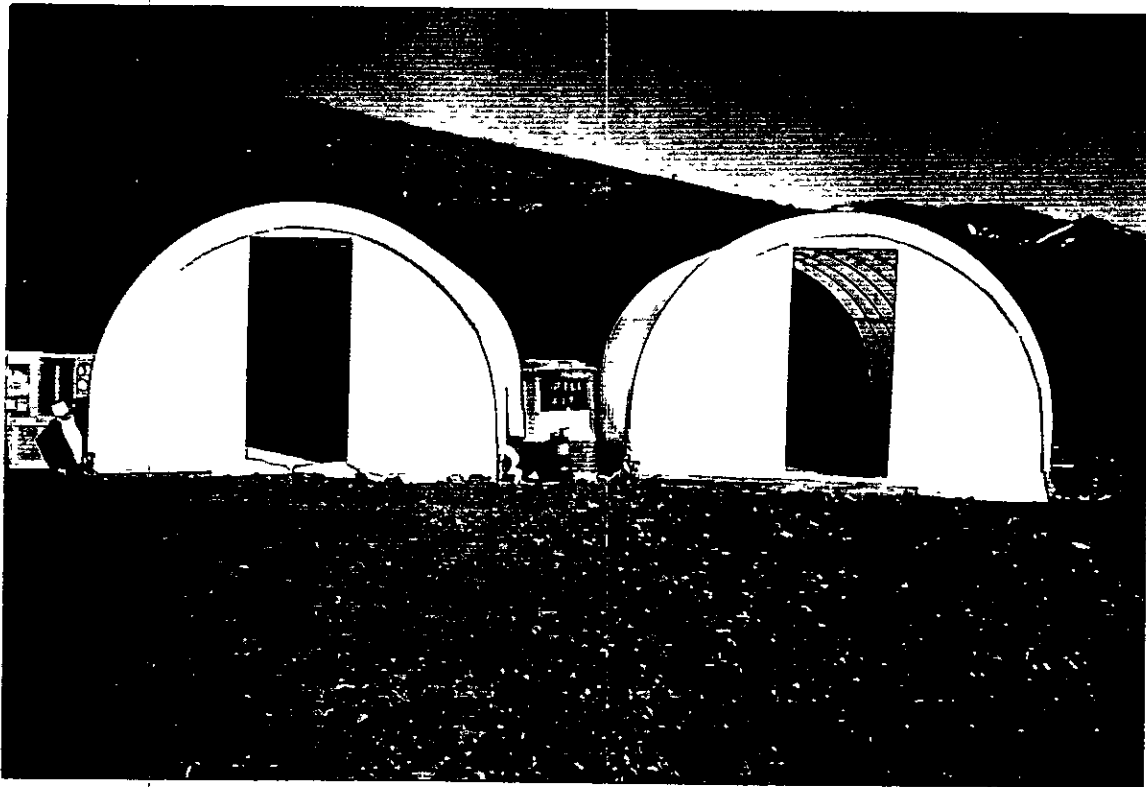
C. Clean and Contaminated Solvent Cells

Two, 36 ft. long, 16 ft. wide, and 4 ft. deep cells were constructed for solvent storage. The clean solvent cell would hold filtered solvent prior to its application on contaminated soil. The contaminated solvent cell would be used to collect solvent drained from the soil treatment cells prior to solvent filtering. These cells were constructed by excavating the area of each cell to a depth of approximately 2 ft. The floor of the cell was compacted with a plate compactor to reduce the risk of puncturing from imbedded rocks and 4 ft. high plywood sidewalls erected around the perimeter. A roofing felt pad was laid over the floor to protect the liners, and 20 mil secondary, and 45 mil rubberized primary liners laid to create a rectangular tank. Excavated material was backfilled against the outside of the sidewalls for structural support and the cell filled with water to test structural and hydrostatic integrity. A

frame roof covered with 6 mil reinforced visqueen was constructed over each cell to reduce solvent evaporation and prevent the dilution of solvent with rain water

D. Solvent Extraction Process Equipment

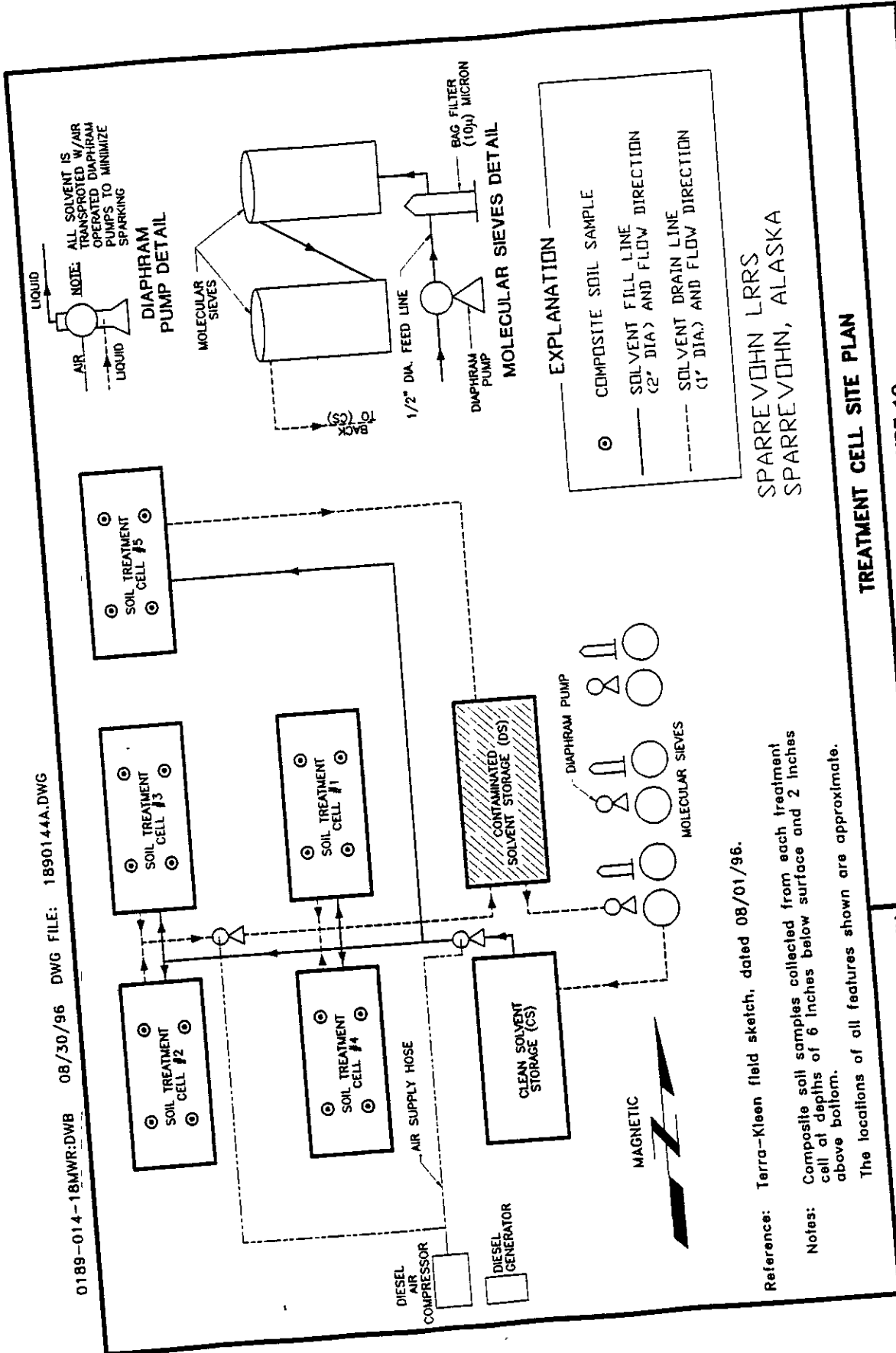
Terra-Kleen personnel were flown to the Sparrevohn site on June 3, 1996. They coordinated the layout and construction of the treatment site and assembled the Solvent Extraction process equipment. This equipment consisted of pumps, solvent lines, plumbing, air lines, filters, molecular sieves that would transport and filter the solvent. The filtering system consisted of three micro-bag filters operating in parallel. Downstream from each micro-bag was a series pair of molecular sieve canisters for a total of six sieves. This parallel system provided a rapid filtration rate and allowed individual filters to be taken off line for maintenance and testing. Air-driven 1 inch and 2 inch diaphragm pumps and clear poly hose were used to transport the solvent. A diagram of the complete treatment site is shown in figure 10 on the following page.



WEATHERPORT SHELTERS

looking east, 6/4/96

Fig 9



0189-014-18MWR:DWB 08/30/96 DWG FILE: 1890144A.DWG

Reference: Terra-Kleen field sketch, dated 08/01/96.

Notes: Composite soil samples collected from each treatment cell at depths of 6 inches below surface and 2 inches above bottom.
The locations of all features shown are approximate.

PCB SOIL REMEDIATION SPARREVOHN
DACAB5-95-D-0017, D.O.#001

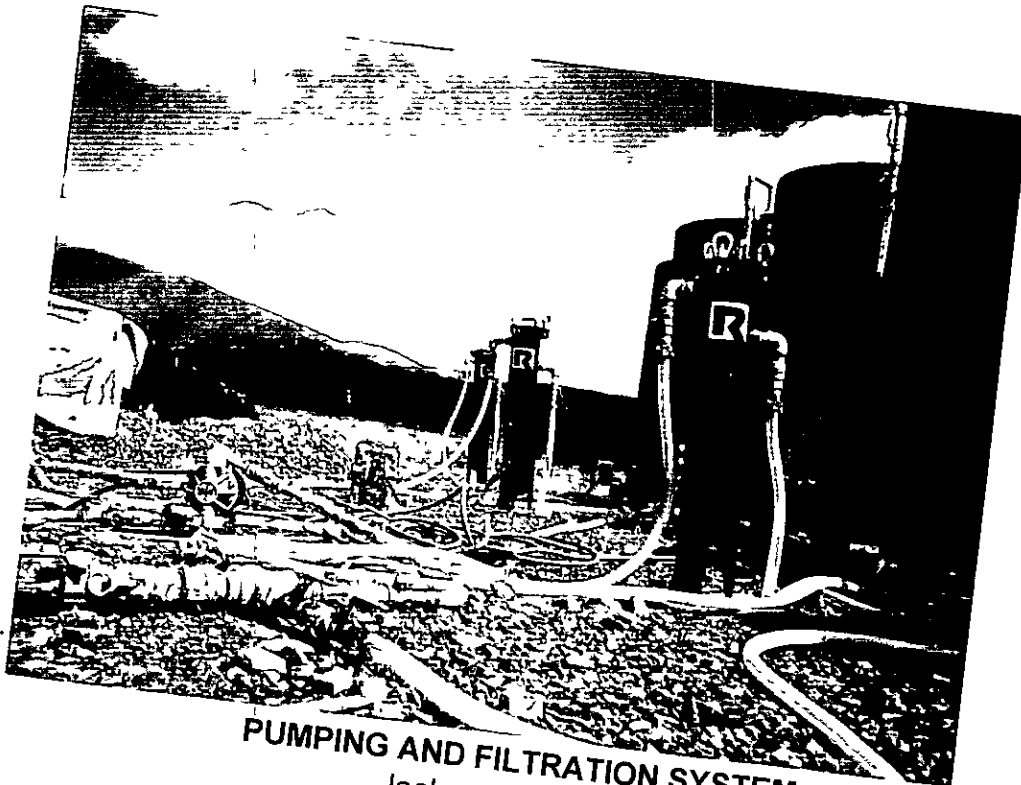
TREATMENT CELL SITE PLAN

FIGURE 10

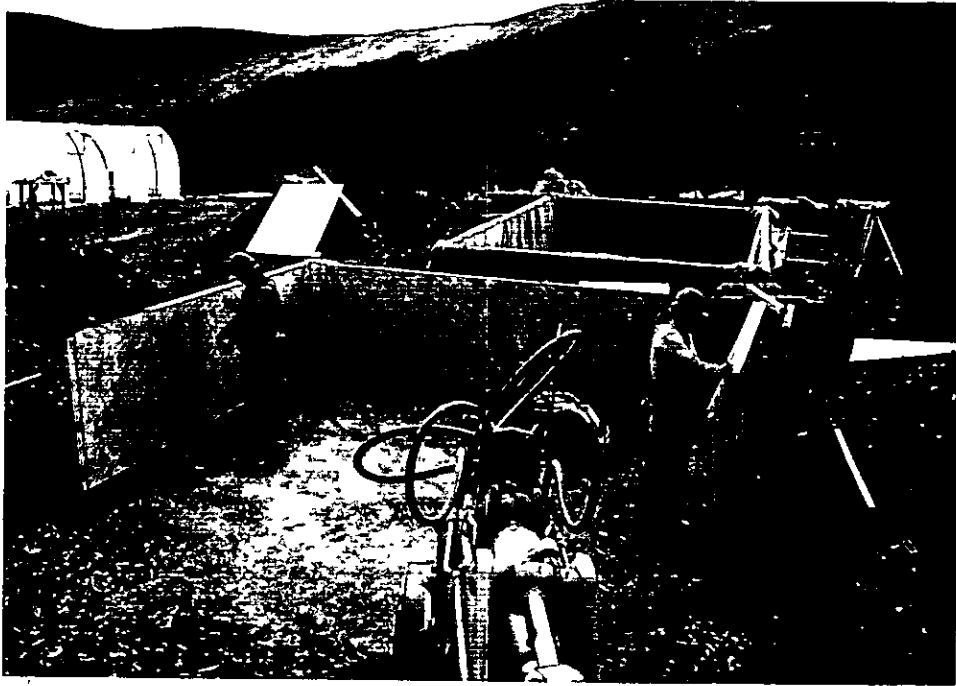
SPARREVOHN LRRS
SPARREVOHN, ALASKA



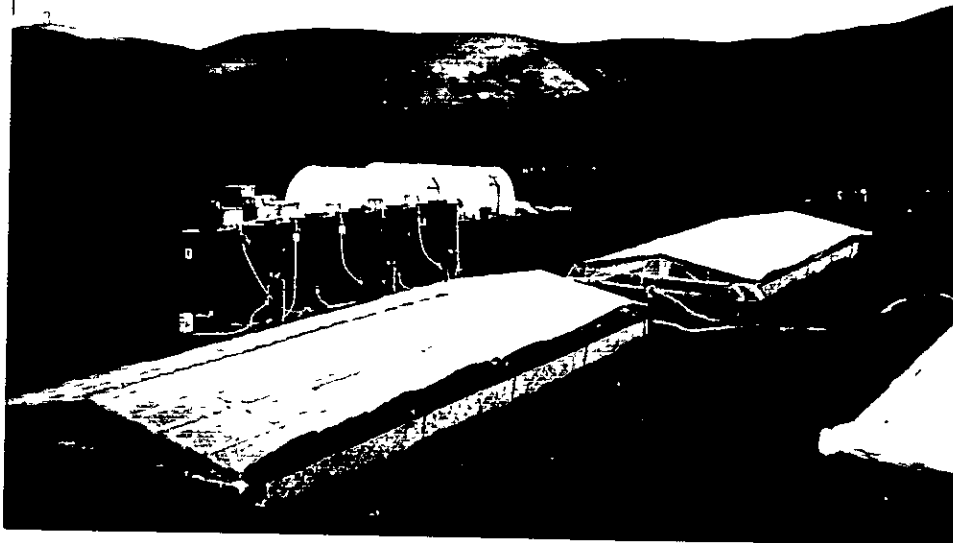
SITE UTILITIES
looking southeast, 7/22/96
Fig 11



PUMPING AND FILTRATION SYSTEM
looking north, 7/96
Fig 12



SOLVENT CELL CONSTRUCTION
looking southeast, 6/8/96
Fig 13



TREATMENT SITE CONSTRUCTION COMPLETE
looking southeast, 7/22/96
Fig 14

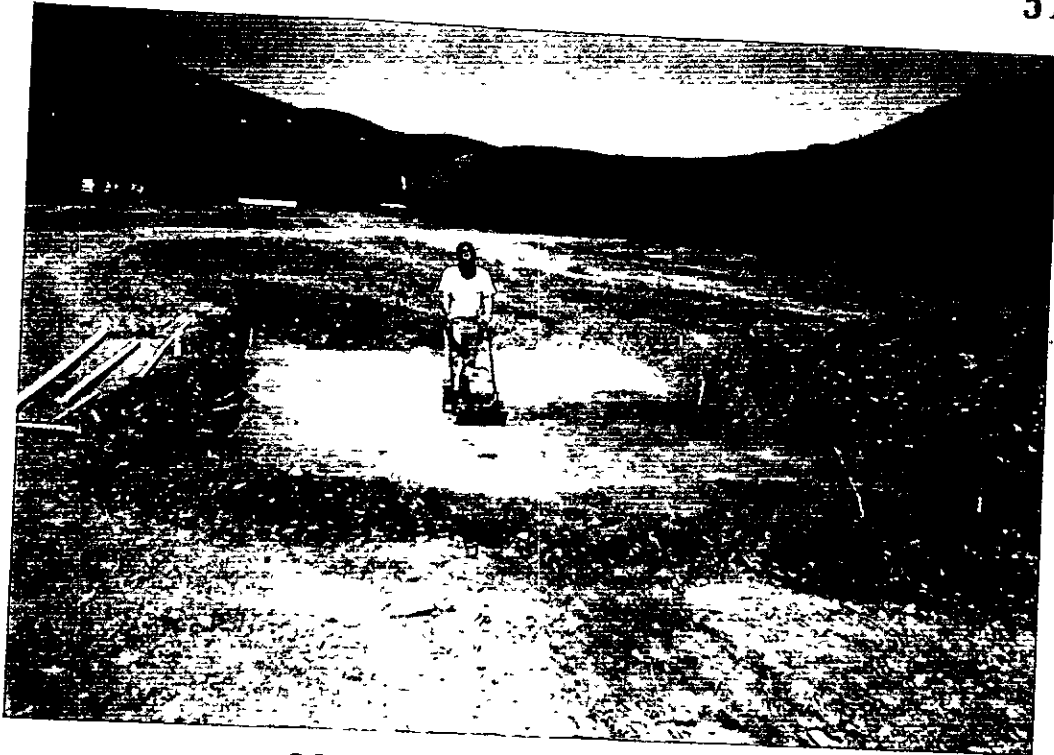
3.4 Solvent Extraction Cell Construction/Loading 6/5/96 - 6/25/96

Construction and loading of the solvent extraction cells (soil cells) proceeded concurrently with the treatment system construction and setup. These cells would be used to hold the contaminated soil while solvent was applied and drained leaching the PCBs out of the soil. Excavation of the first cell began on 6/5/96, and by 6/25/96 all of the initial four cells had been constructed and loaded. A fifth cell was constructed and loaded from 7/23/96 to 7/28/96.

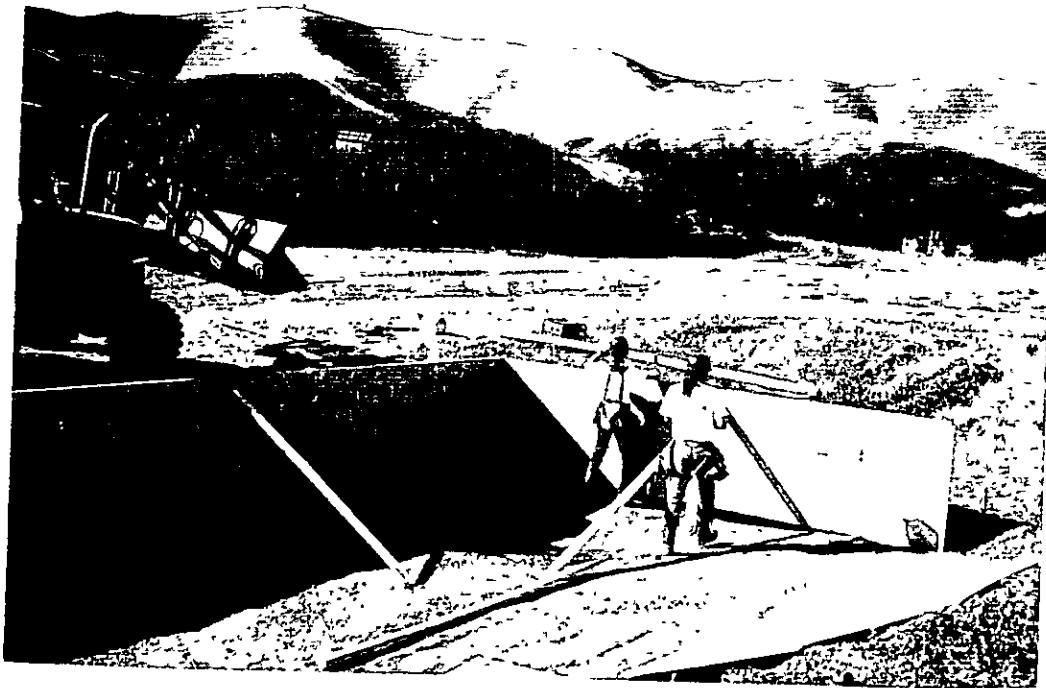
A. Soil Cell Construction

Five, 36 ft. long, 16 ft. wide, and 4 ft. deep cells were constructed to hold and treat the contaminated soil. These cells were constructed by excavating the area of each cell to a depth of approximately 2 ft. A 6 in. swale was formed in the floor of the cell to facilitate solvent draining and the floor compacted with a plate compactor to reduce the risk of puncturing from imbedded rocks. Plywood sidewalls were then erected around three sides, one end being left open to facilitate soil loading. A roofing felt pad was laid over the floor to protect the liners, and 20 mil secondary, and 45 mil rubberized primary liners laid to create a rectangular, open-ended, tank.

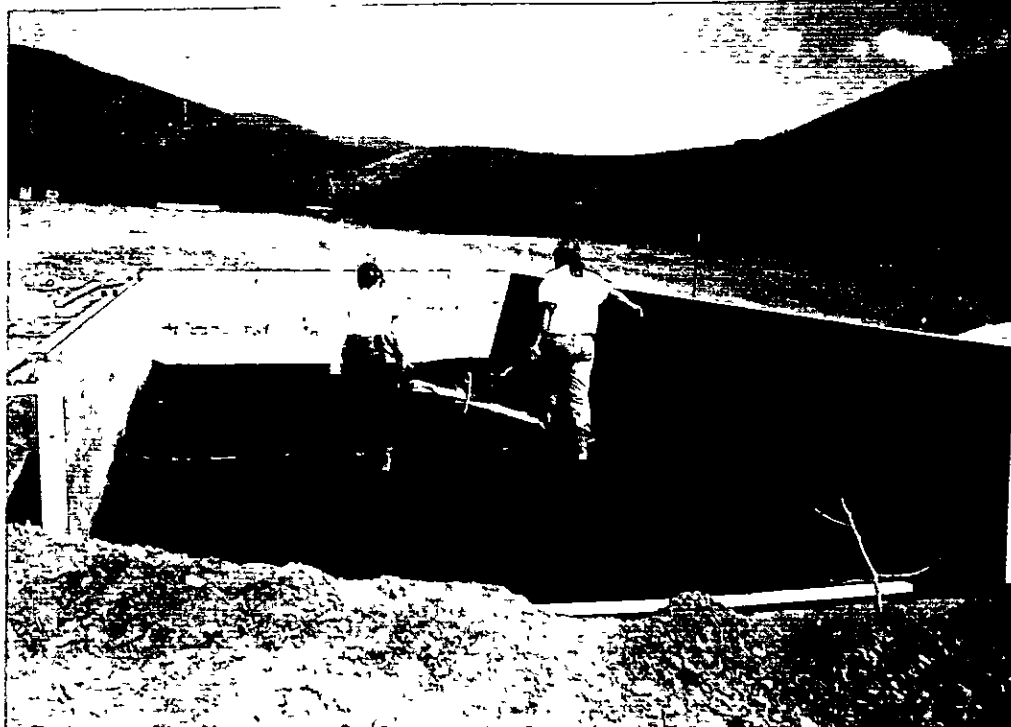
An under drain system was constructed by placing drain core fabric across the cell floor, and laying three parallel rows of 4 in. thin-wall PVC perforated pipe along the log axis of the cell. The perforated pipe was connected to a manifold and a suction riser. This piping system would be used to remove PCB-laden solvent from the cell at the end of each washing. The liner system was completed by laying geotextile fabric over the cell floor and piping system to prevent fines from entering the drains. At this point the cell was ready for loading.



COMPACTING SOIL CELL FLOOR
looking north, 6/5/96
Fig 15



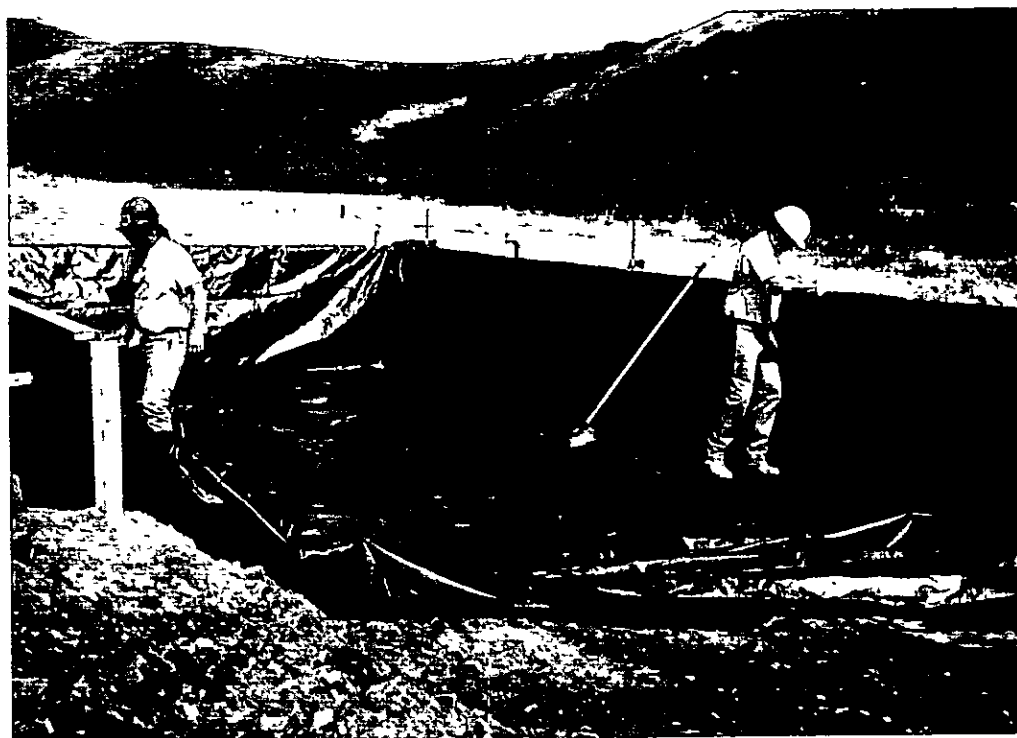
ERECTING SIDEWALLS
looking southeast, 6/5/96
Fig 16



FELT LAID, READY FOR SECONDARY LINER

looking north, 6/5/96

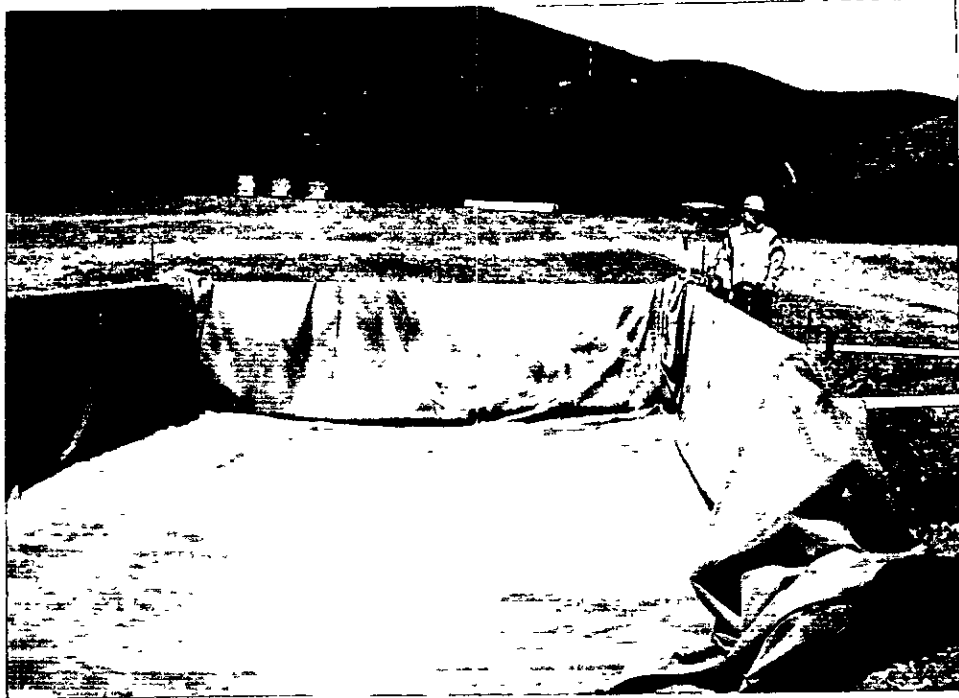
Fig 17



PLACING 20 MIL SECONDARY LINER

looking north, 6/6/96

Fig 18



45 MIL PRIMARY LINER PLACED
looking north, 6/6/96
Fig 19



CONSTRUCTING UNDER-DRAINS
looking north, 6/15/96
Fig 20

B. Soil Cell Loading

Contaminated soil was excavated from the stockpile site to the depth of the bottom liner. Excavation was performed with a Case 580 loader, and hand-digging was employed to verify the location of the bottom liner. The contaminated soil was transported to the treatment site with a 8 c.y. dump truck.

Prior to loading the cells, sheets of plywood were laid over the geotextile to protect the liners from equipment load. The 8 c y. dump truck was backed into open end of the cell, and the load dumped. Successive loads were placed in the cell, removing the protective plywood as the cell was filled. Cells were loaded for a depth between 2' and 3', each accommodating 50-60 c.y. of contaminated soil. Once each cell was loaded, equipment was decontaminated with solvent, and the rinsate added to the treatment cells. The open end of the cell was closed, and the side walls were then backfilled with excavated soil for structural support.

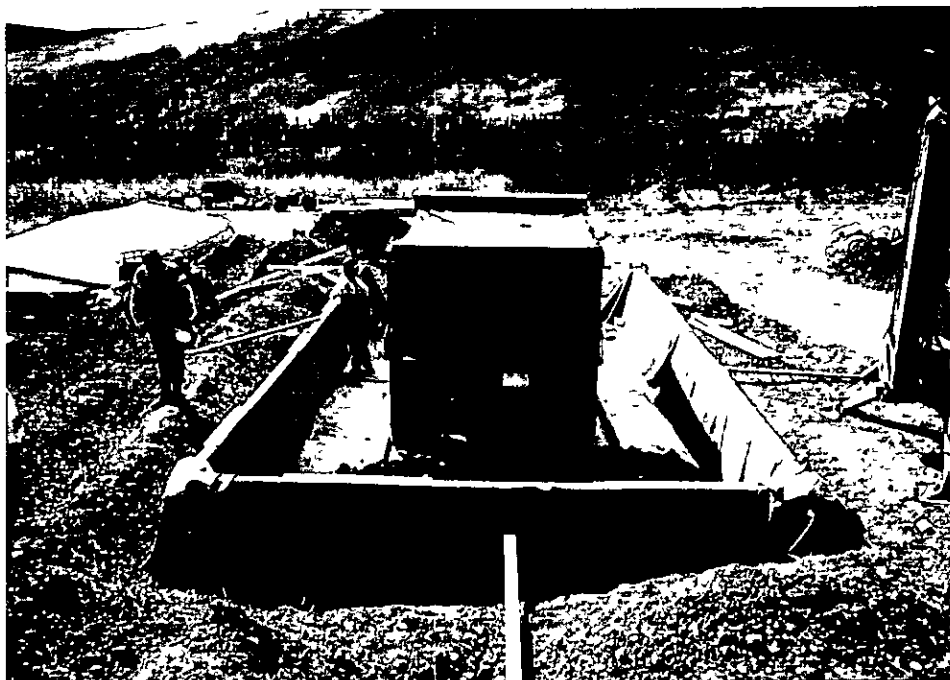
Two of the soil cells were covered with a frame roof supporting 6 mil, reinforced visqueen. The remaining cells use a simple drape cover. The covers reduced solvent evaporation, and prevented rain from diluting the solvent. The first two cells were loaded, and ready for solvent extraction on 6/20/96.



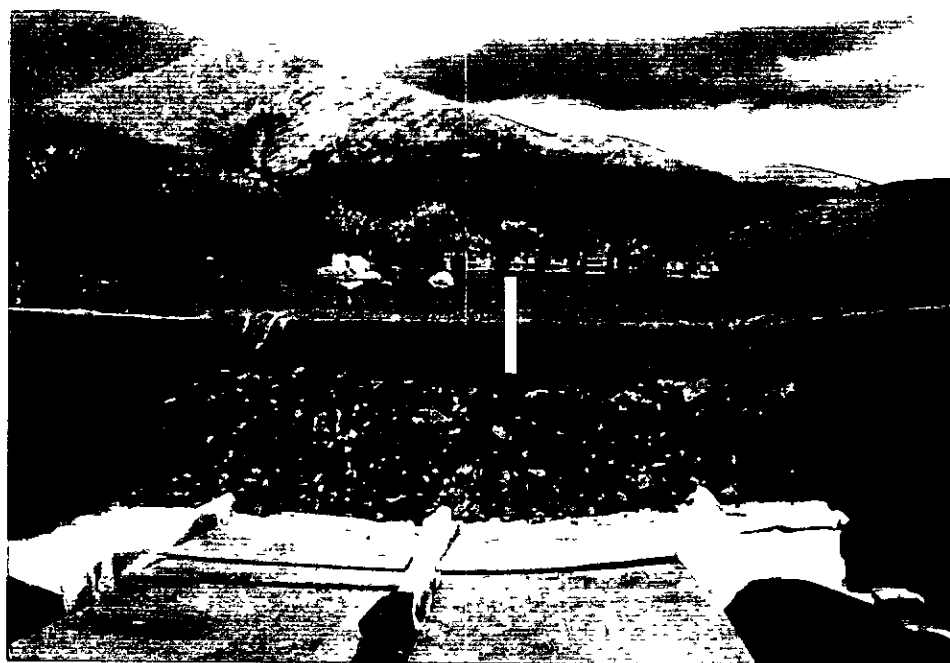
STOCKPILE EXCAVATION

looking west, 6/15/96

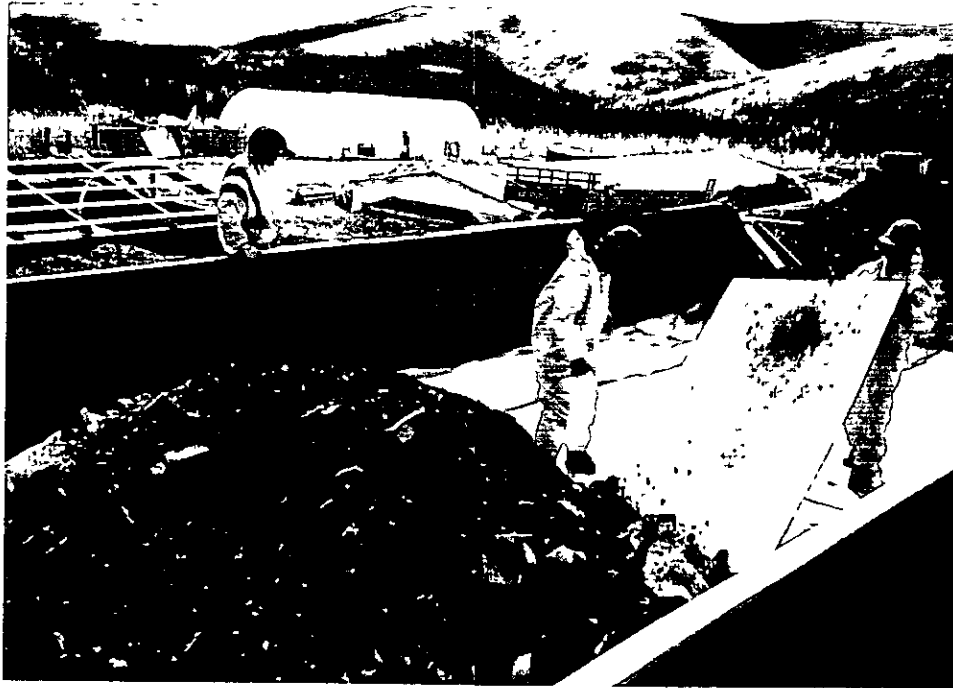
Fig 21



LOADING SOIL CELL
looking south, 6/15/96
Fig 22



PARTIALLY LOADED CELL
looking north, 6/16/96
Fig 23



REMOVING PROTECTIVE PLYWOOD
looking southeast, 6/16/96
Fig 24



CELL LOADING NEAR COMPLETION
looking northeast, 6/16/96
Fig 25

3.5 Solvent Extraction Cell Operation 6/20/96 - 8/15/96

Prior to field work, PCB contaminated samples from the site were treated with a bench-scale test apparatus to determine if the Terra-Kleen solvent extraction technology could be used at the site to achieve significant PCB reductions. Based on the bench scale tests, it was determined that PCB concentrations in the soils could be reduced to less than 15 mg/kg. During this project, Solvent Extraction was effective in treating 272 c.y. of contaminated soil to an average PCB level of 3.27 mg/kg (See Table 6, Page 31 for treatment cell sampling results). This level was well below the 15 mg/kg target level. The process started on 6/20/96 when solvent was loaded into the Clean Solvent Cell. Solvent extraction of the first two cells proceeded concurrently with construction and loading of the remaining three.

A. Solvent Extraction

There were approximately six steps in Terra-Kleen's solvent extraction phase of the PCB Soil Remediation Project at Sparrevohn LRRS, as follows:

1. Clean solvent was pumped into the soil extraction cell to be treated. Cells 1 and 2 were the first to be treated and were washed on alternating days. Each cell was flooded with 3000 to 4000 gallons of solvent to achieve full immersion. 17,000 gallons of solvent were used for the entire project.
2. The solvent in the immersed extraction cell was removed the next day to recover as much of the residual solvent as possible.
3. The contaminated solvent recovered from the soil extraction cells was collected in the Contaminated or "Dirty" Solvent Cell (DS).
4. The contaminated solvent was processed on-site in the solvent purification station in order to concentrate the PCB's into a small volume for off-site shipment to a USEPA approved destruction facility.
5. Clean solvent was recovered from the solvent purification station, collected in the Clean Solvent Cell (CS) for use in the next washing cycle.
6. Once confirmation sampling had verified that the soil had been remediated below the required clean up level, a solution of fertilizer, water, and bacteria were added to the cell to degrade any residual solvent that remained.

A chronology of solvent extraction by cell is shown on Table 1 on the following page.

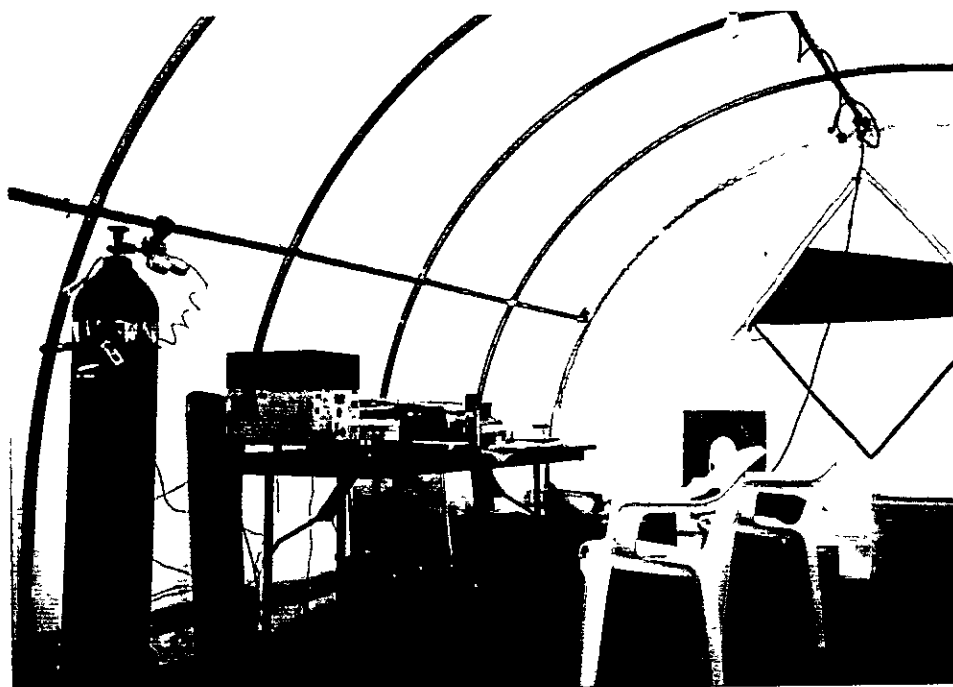
DATE	CELL #1 53 c.y.	CELL #2 53 c.y.	CELL #3 53 c.y.	CELL #4 60 c.y.	CELL #5 53 c.y.
6/20	Solv Addition	Idle*1	N/A*2	N/A	N/A
6/21	Solv. Removal	Idle	N/A	N/A	N/A
6/22	Solv Removal	Solv Addition	Idle	N/A	N/A
6/23	Idle	Solv Removal	Idle	N/A	N/A
6/24	Solv Addition	Solv Removal	Idle	N/A	N/A
6/25	Solv Removal	Solv. Addition	Idle	N/A	N/A
6/26	Solv Addition	Solv. Removal	Idle	Idle	N/A
6/27	Solv Removal	Solv. Addition	Idle	Idle	N/A
6/28	Solv. Addition	Solv Removal	Idle	Idle	N/A
6/29	Solv. Removal	Solv Addition	Idle	Idle	N/A
6/30	Solv. Addition	Solv. Removal	Idle	Idle	N/A
7/1	Solv. Removal	Solv Addition	Idle	Idle	N/A
7/2	Solv Addition	Solv Removal	Idle	Idle	N/A
7/3	Solv. Removal	Solv Addition	Idle	Idle	N/A
7/4	Solv Addition	Solv Removal	Idle	Idle	N/A
7/5	Solv Removal	Solv Addition	Idle	Idle	N/A
7/6	Solv Addition	Solv Removal	Idle	Idle	N/A
7/7	Solv Removal	Solv Removal	Solv Addition	Idle	N/A
7/8	Clean*3	Clean	Solv Removal	Solv Addition	N/A
7/9	Clean	Clean	Solv Addition	Solv. Removal	N/A
7/10	Clean	Clean	Solv Removal	Solv Addition	N/A
7/11	Clean	Clean	Solv Addition	Solv Removal	N/A
7/12	Clean	Clean	Solv Removal	Solv. Addition	N/A
7/13	Clean	Clean	Solv Addition	Solv Removal	N/A
7/14	Clean	Clean	Solv Removal	Solv Addition	N/A
7/15	Clean	Clean	Solv Addition	Solv Removal	N/A
7/16	Clean	Clean	Solv Removal	Solv Addition	N/A
7/17	Clean	Clean	Solv. Addition	Solv Removal	N/A
7/18	Clean	Clean	Solv Removal	Solv. Addition	N/A
7/19	Clean	Clean	Solv Addition	Solv. Removal	N/A
7/20	Clean	Clean	Solv. Removal	Solv Removal	N/A
7/21	Clean	Clean	Idle	Idle	N/A
7/22	Clean	Clean	Idle	Solv Addition	N/A
7/23	Clean	Clean	Solv Addition	Solv Removal	N/A
7/24	Clean	Clean	Solv Removal	Solv Addition	N/A
7/25	Clean	Clean	Solv. Addition	Solv Removal	N/A
7/26	Clean	Clean	Solv Removal	Solv Removal	N/A
7/27	Clean	Clean	Clean	Clean	N/A
7/28	Clean	Clean	Clean	Clean	Solv Addition
7/29	Clean	Clean	Clean	Clean	Solv Removal
7/30	Clean	Clean	Drain	Drain	Solv Addition
7/31	Clean	Clean	Clean	Clean	Solv Addition
8/1	Tested*4	Tested	Tested	Tested	Solv Addition
8/2	Pending*5	Pending	Pending	Pending	Solv Addition
8/3	Pending	Pending	Pending	Pending	Solv Addition
8/4	Pending	Pending	Pending	Pending	Solv Addition
8/5	Pending	Pending	Pending	Pending	Solv Addition
8/6	Pending	Pending	Pending	Pending	Solv Addition
8/7	Pending	Pending	Pending	Pending	Clean
8/12	Passed*6	Passed	Passed	Passed	Tested
8/15					Passed

* (1) N/A Cell Construction Incomplete* (2) Idle Construction Complete, Awaiting Wash
 * (3) Clean Terra-Kleen's On-Site Laboratory Tested Cells at Concentrations of less than 10 mg/kg
 * (4) Confirmation Testing (GEO)* (5) Pending Awaiting Confirmation Testing Results(CTE/GEO)
 * (6) Passed Off-Site Laboratory Results show PCB Concentration of less than 15 mg/kg

SOLVENT EXTRACTION BY CELL
Table 1



INITIAL LOADING OF SOLVENT INTO CLEAN SOLVENT CELL
looking south, 6/20/96
Fig 26



ON-SITE LAB
looking east, 7/22/96
Fig 27

B. Process Control

Terra Kleen used the on-site lab and commercial laboratories to ensure that the Solvent Extraction process was performed in a controlled and effective manner.

- Tests were conducted for soil moisture of soil samples from each of the treatment cells in order to project the drop in concentration of the processing solvent. This was achieved simply by initially weighing the sampled soil, drying the soil, and then finally weighing the dried soil.
- Test of soil PCB contamination were conducted with Ensys "immunoassay" test. These were used to determine when each cell was ready for confirmation sampling. Ten mg/kg test kit levels were selected to insure that the treated soil would be below the 15 mg/kg target level at the site.
- Off-site, commercial lab analysis was used to determine the concentrations of PCB's in the contaminated solvent cell as well as the concentrations in the solvent exiting the solvent purification station. This would assure that all PCB's in the solvent were removed to below the 2 mg/kg as required by the approved work plan. Samples of regenerated solvent submitted to CT&E were below the detection limit of the test, 0.1 mg/L. This level was well below that required for on-site solvent destruction. (Appendix C)
- Off-site, commercial lab analysis was also used to analyze the solid material from the Solvent Purification Station (SPS) for purposes of manifest documentation. A copy of the manifest as well as analytical results are included in the Appendix D.

The following tables identify sampling dates, methods, as well as results for the process control sampling.

<u>DATE</u>	<u>MATRIX SAMPLED</u>	<u>SAMPLE METHOD*</u>
6/26/96	Untreated Soil for Moisture C1-C4	Terra-Kleen Weighing and Drying
7/8/96	Treated Soil for PCB Concentration	Terra-Kleen Ensys Immunoassay for Cells #1 and #2
7/30/96	Untreated Soil for Moisture C5	Terra-Kleen Weighing and Drying
8/1/96	Exit Solvent for PCB Concentrations	Terra-Kleen Sampled, CT&E Analyzed Method 8080
8/7/96	Treated Soil for PCB Concentration	Terra-Kleen Ensys Immunoassay for Cell #5
8/13/96	Regenerated Solvent	Terra-Kleen Sampled, CT&E Analyzed Solvent Method 8080
8/14/96	Collection Material	Terra-Kleen Sampled for Manifest, CT&E Analyzed Method 8240 & Method 8080

PROCESS CONTROL TESTING
Table 2

Description	Cell 1	Cell 2	Cell 3	Cell 4	Cell 5
Water Content of Untreated Soil	9%	9%	9%	9%	8%
Soil Type	Clay and Gravel				
Immunoassay of Treated Soil (mg/kg)	<10	<10	<10	<10	<10

SOIL SITE TESTING RESULTS
Table 3

Description	Results(mg/Kg)
Regenerated Solvent PCB level (mg/L)	< 0.1 (detection limit of the test)
Regenerated Solvent PCB level Goal (mg/L)	1.7
Treatment Goal Achieved?	Yes

- * For further detail of analysis and destruction of Solvent Purification Station Material see Off-Site Waste Disposal and the Appendix D to this report
- * Dates of applicable results can be found on CT&E's printed Analytical Results (Appendix C)

SOLVENT PCB TESTING RESULTS
Table 4

3.6 Confirmation/Sub-stockpile Sampling 7/31/96 - 8/12/96

Independent confirmation of soil treatment, as well as sub-stockpile characterization in the area of the removed PCB stockpile was performed by GeoEngineers. Two trips were made. During the first, from 7/31/96 to 8/1/96, sub-stockpile sampling and confirmation sampling of the first four cells was performed. On 8/12/96, a second trip was made to sample the fifth cell. The complete and detailed report for these activities is included as Appendix A. The following is a synopsis of the sampling and results.

A. Sub-stockpile Sampling

Ten soil samples and one blind field duplicate were taken on a sampling grid established over the sub-stockpile area. Two samples, as directed by the QAR were taken near a surface oil sheen. The remainder were taken at approximately 6 in. below the surface by hand excavation. Subsequent laboratory analysis EPA method 8080 yielded results ranging from 1.46 mg/kg to 5.7 mg/kg for Aroclor-1260. With all results below required levels, approval was given to grade the berms, and restore the site.

Sample Location	Date Collected	Sample Depth	Laboratory Sample No	PCBs by EPA Method 8080 (mg/Kg)	Comments
8,4	7/31/96	0.5 ft	96-OSS-001-SL	5.71	Aroclor-1206
8,21	7/31/96	0.5 ft	96-OSS-002-SL	3.60	Aroclor-1206
9,33	7/31/96	0.5 ft	96-OSS-003-SL	1.46	Aroclor-1206
26,33	7/31/96	0.5 ft	96-OSS-004-SL	1.46	Aroclor-1206
26,20	7/31/96	0.5 ft	96-OSS-005-SL	2.70	Aroclor-1206
27,5	7/31/96	0.5 ft	96-OSS-006-SL	2.71	Aroclor-1206
33,14	7/31/96	0.5 ft	96-OSS-007-SL	2.32	Aroclor-1206
47,4	7/31/96	0.5 ft	96-OSS-008-SL	4.39	Aroclor-1206
47,20	7/31/96	0.5 ft	96-OSS-009-SL	4.83	Aroclor-1206
47,32	7/31/96	0.5 ft	96-OSS-010-SL	2.26	Aroclor-1206
47,32	7/31/96	0.5 ft	96-OSS-011-SL	2.48	Aroclor-1206, duplicate 010

SUB-STOCKPILE SAMPLING RESULTS

Table 5

B. Soil Treatment Confirmation Sampling

Prior to confirmation sampling, each cell was drained of solvent. Portions of the covers were removed to allow ventilation and access for sampling. Confirmation sampling for each treatment cell was conducted as outlined in Addendum I to the Work Plan. A composite sample was compiled for each cell from individual samples taken within 6 in. of the surface at four equidistant points across the surface of the cell. A back-hoe was then used to excavate pits at the four sampling locations. A second composite for each cell was then compiled, this time from within 2 in. of the bottom of the cell at the four sampling points. One sample of geotextile was also taken.

Subsequent analysis by EPA method 8080 found all samples to be well below the treatment goal of 15 mg/kg. Aroclor-1260 concentrations for treated soil ranged from a low of 0.554 mg/kg to a high of 7.88 mg/kg. Cells #1 and #2 contained the consistently lowest concentrations, while Cell #5 contained the highest. Analysis of the geotextile revealed PCB concentrations of only 1.54 mg/kg and comparison between surface and bottom composite samples indicated less than 20 % difference. This indicates that the Solvent Extraction process did not cause contamination to be concentrated in the lower portions of the cells or the geotextile.

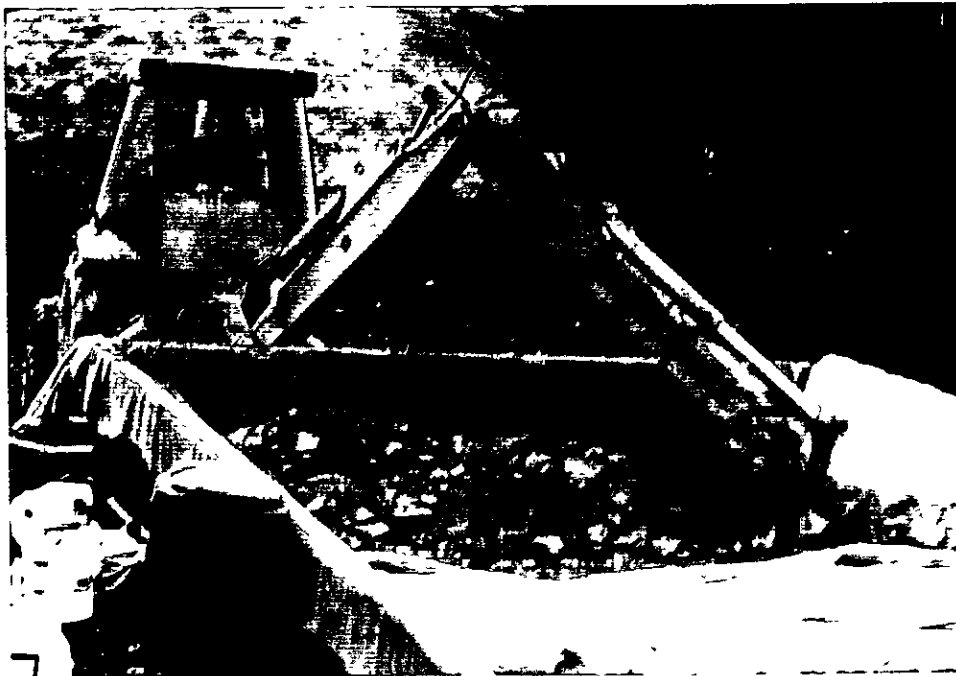
Sample Location	Date Collected	Sample Depth	Laboratory Sample No.	PCBs by EPA Method 8080 (mg/Kg)	Comments
Cell 1	08/01/96	0.5 ft.	96-TC1-001-SL	0.554	Aroclor-1206
Cell 1	08/01/96	2.0 ft	96-TC1-002-SL	0.681	Aroclor-1206
Cell 2	08/01/96	0.5 ft	96-TC2-001-SL	0.951	Aroclor-1206
Cell 2	08/01/96	2.0 ft	96-TC2-002-SL	0.986	Aroclor-1206
Cell 2	08/01/96	2.2 ft.	96-TC2-003-GT	1.54	Aroclor-1206, Geotextile
Cell 3	08/01/96	0.5 ft	96-TC3-001-SL	3.15	Aroclor-1206
Cell 3	08/01/96	2.0 ft	96-TC3-002-SL	2.19	Aroclor-1206
Cell 4	08/01/96	0.5 ft.	96-TC4-001-SL	0.979	Aroclor-1206
Cell 4	08/01/96	2.5 ft.	96-TC4-002-SL	8.84	Aroclor-1206
Cell 4	08/01/96	2.5 ft	96-TC4-003-SL	3.81	Aroclor-1206, duplicate 002
Cell 4	08/01/96	---	96-TC4-003-WA	ND	Equipment water rinsate
Cell 5	08/12/96	0.5 ft	96-TC5-001-SL	6.48	Aroclor-1206
Cell 5	08/12/96	0.5 ft.	96-TC5-002-SL	6.61	Aroclor-1206, duplicate 001
Cell 5	08/12/96	---	96-TC5-003-WA	ND	Equipment water rinsate
Cell 5	08/12/96	2.5 ft.	96-TC5-004-SL	7.88	Aroclor-1206

TREATMENT CELL SAMPLING RESULTS

Table 6



CONFIRMATION SAMPLING AT SURFACE OF CELL
looking west, 8/1/96
Fig 28



EXCAVATING FOR BOTTOM CONFIRMATION SAMPLES
looking south, 8/1/96
Fig 29

3.7 Solvent Destruction 8/12/96-9/11/96

All contaminated solvent was passed through the purification process repeatedly and samples taken of the clean, regenerated solvent. The limit for PCB concentration for the solvent destruction process approved in the Work Plan was 2.0 mg/kg or 1.7 mg/L. Filtering the solvent dropped the PCB concentrations from 10 mg/Kg for dirty solvent (DS) to below the detection limit of 0.1 mg/L for clean solvent (CS) as shown in the analysis by CT&E (Appendix C).

The initial solvent burning apparatus consisted of propane burners, igniter system, and a pipe and orifice through which the solvent was pumped. The object was to create a mist of the solvent, now diluted with water leached from the treated soil, within the propane flame. This initial system did not perform up to expectations. Combustion was not complete, flame-outs were frequent, and winds would blow the solvent/water mix out of the propane flame. On 8/18/96, after successive attempts failed to improve the performance of the system, solvent incineration was halted.

A second solvent burning apparatus was engineered, tested, and shipped to Sparrevohn on 8/29/96. This unit preheated the solvent to a vapor by passing it through stainless steel coils within the propane flame. The heated vapor was then injected into the flame. This unit performed well. The process operated for 18-20 hrs. a day until, on 9/11/96, all the solvent had been incinerated.



SOLVENT INCINERATION
looking south, 9/6/96
Fig 30

3.8 Cell Closure/Site Restoration 8/12/96-9/17/96

Biological treatment and closure of soil cells and restoration of the stockpile site proceeded concurrently with solvent destruction. Following solvent destruction, the solvent cells were demolished and finish grading of the treatment site accomplished. A final inspection was held after all equipment, debris, and material had been removed.

A. Biological Treatment of Soil Cells

On 8/13/96, after results were received that all Soil Cells were successfully treated to below the 15 mg/kg target level, preparations began for the Biological Treatment phase of the Remediation Process. The purpose of this phase was to naturally regenerate the soil as well as increase the biodegradation of any residual solvent. Dehydrated microbes along with their appropriate nutrients were mixed with approximately 3,000 gallons of collected rain water to create a biological treatment wash containing microbes and nutrients in solution. The solution was introduced into Cell #1 and allowed to saturate the soil over-night. The following day the treatment solution, still laden with dissolved bacteria and nutrients, was collected and pumped into cell #2. The remaining three cells were then treated in succession over the next three days.

B. Closure of Soil Cells

Once biological treatment was complete, the roofs were removed and the bottom liners were punctured. Puncturing the bottom liners allowed the residual biological solution to percolate into the ground and would prevent a "bath tub" effect within the closed cells. The primary and secondary liners were detached from the plywood sides and plywood removed. No material that had come in contact with contaminated soil or solvent was removed. The edges of the liners were folded over the treated soil and 12 mil liner added to the top to prevent water from the surface from percolating into the treated soil. The soil that had been excavated to construct the cell originally was then mounded over the soil to form a 2 ft. thick cap. Thus, the liners, pipe, and geotextile that had been used to construct the treatment cell were left in place, with the treated soil. The location of the closed cells was visible above grade as five, smoothly-graded, rectangular mounds.

C. Closure of Stockpile Site

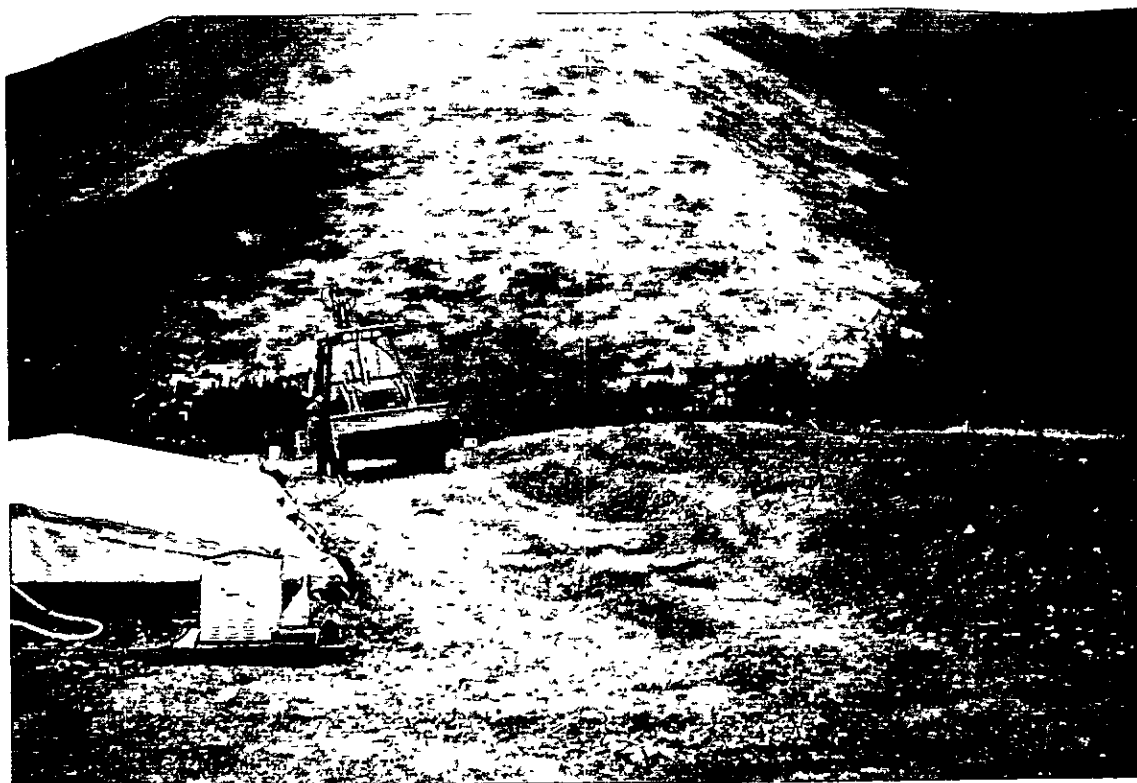
Receipt of satisfactory sub-stockpile samples cleared the way for final cleanup of the site. The 20 mil top liner that had been installed during the sampling trips of 1995 was cut into strips and decontaminated in Terra Kleen solvent. Wipe tests performed using the D-Tech kit at a detection limit of $9 \mu\text{g}/100 \text{ cm}^3$ were found to be "non-detect." The old 6 mil liner that had been installed during original stockpile construction was cleaned of gross contamination as much as possible, and placed in seven 55 gal. drums. The berms were graded to a uniform grade over the site and residual scraps of liner added to the drums.

D. Solvent Cell Closure

After all solvent had been incinerated, the clean and contaminated solvent cells were closed. Wipe tests of the primary liners performed using the D-Tech kit at a detection limit of $9 \mu\text{g}/100 \text{ cm}^3$ were found to be "non-detect." These, as well as the lumber, secondary liners, and roofs were removed for disposal as conventional waste. The excavations were backfilled with soil excavated during the original cell construction. Once the solvent cells were closed, "touch-up" grading was performed over the entire treatment site.

E. Final Inspection

A final inspection was conducted on 9/17/96. The Linder site Superintendent and the USACE Project Engineer inspected the treatment site and stockpile site areas. No deficiencies or incomplete work was noted.



CLOSED SOIL CELL
looking south, 9/6/96
Fig 31



CLOSING SOLVENT CELL
looking south, 9/6/96
Fig 32



CLOSED TREATMENT SITE
looking south, 9/20/96
Fig 33

3.9 Demobilization/Waste Disposal 8/28/96 - 9/25/96

Equipment, materials, personnel, and wastes were demobilized from Sparrevohn by commercial charter cargo and passenger aircraft. Among the first items demobilized were the molecular sieves containing the concentrated PCBs. Equipment, tools and material were demobilized as the cell closure and site restoration activities proceeded. No debris or wastes, other than the treated soil and the liners and pipe surrounding them, were left on site. Debris and wastes removed included the molecular sieves, drummed PPE/IDW and old liner, the empty solvent drums, and conventional construction debris.

A. Molecular Sieves

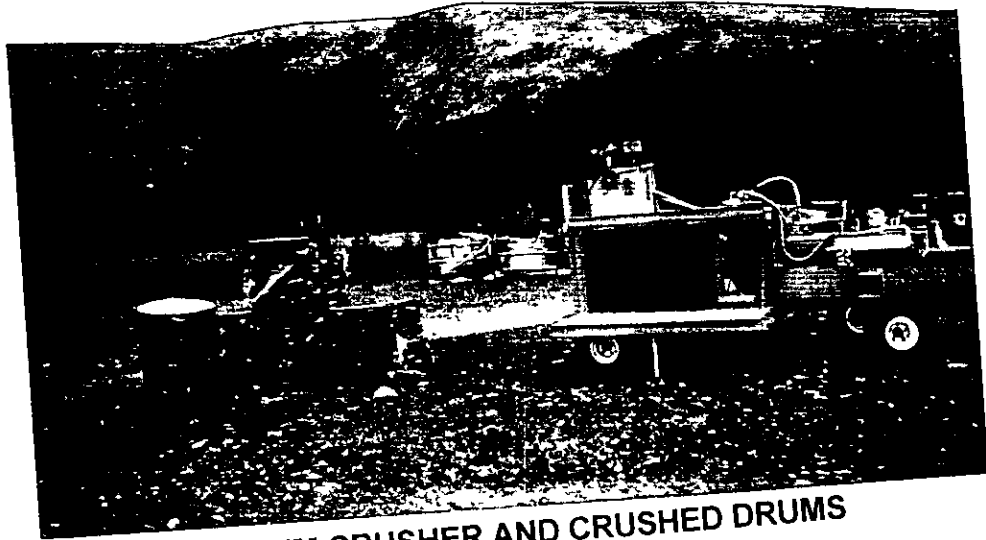
Through the Solvent Extraction Technology, hazardous waste, specifically PCB's at this site, were retained in the Solvent Purification System. This system included the micro-bag filters, and molecular sieves. Analytical results of the sieves placed in the system indicated that only the first sieve in each series pair had retained PCB contamination. Consequently, there were only three units in which the contents needed to be destroyed. From the initial 272 c.y. of contaminated soil, Terra-Kleen achieved a 116:1 PCB contamination volume reduction. Prior to shipment, the contaminated micro-bag filters were placed in the sieve containers. The three "contaminated" units were then air freighted to Washington state to a USEPA approved Treatment, Storage, and Disposal (TSD) facility for PCB's owned and operated by Phillip Environmental. From there, the collected material will be shipped to Rollins Environmental for incineration destruction. A copy of the manifest package is included as Appendix D.

B. PPE, IDW, and Stockpile Liner

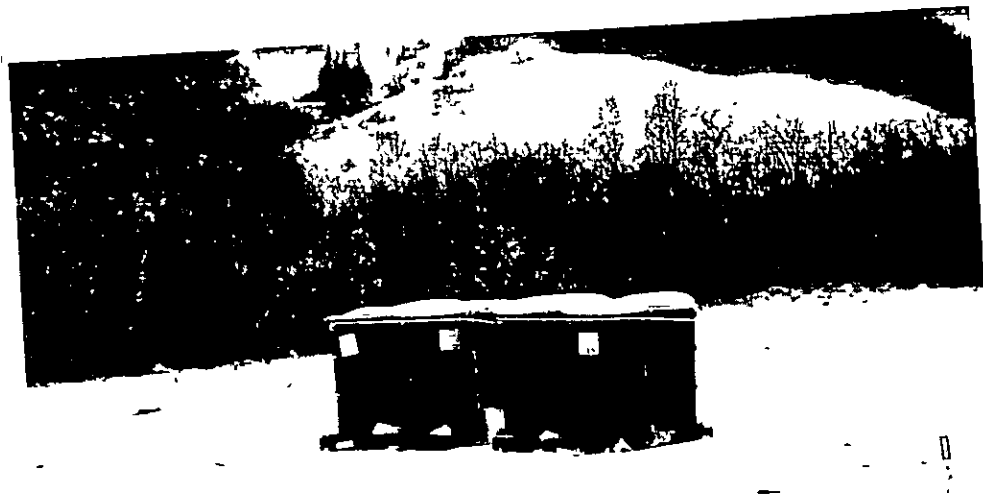
The PPE and IDW from site activities during 1995 and 1996 seasons were contained in a 55 gal. drum. Material included Tyvek garments, gloves, expended Immuno-assay kits, and hexane rinsate. The 6 mil liner used in the original construction of the stockpile was too deteriorated to decontaminate effectively. This material was packed in seven, 55 gal. steel drums. All eight drums were flown to Anchorage via commercially chartered cargo aircraft on 10/3/96. The drums were then transported to a temporary storage facility operated by Phillip Environmental and finally turned over to the Government at the DRMO facility at Elmendorf AFB. A copy of the manifest package is included in Appendix E.

C. Conventional Construction Debris

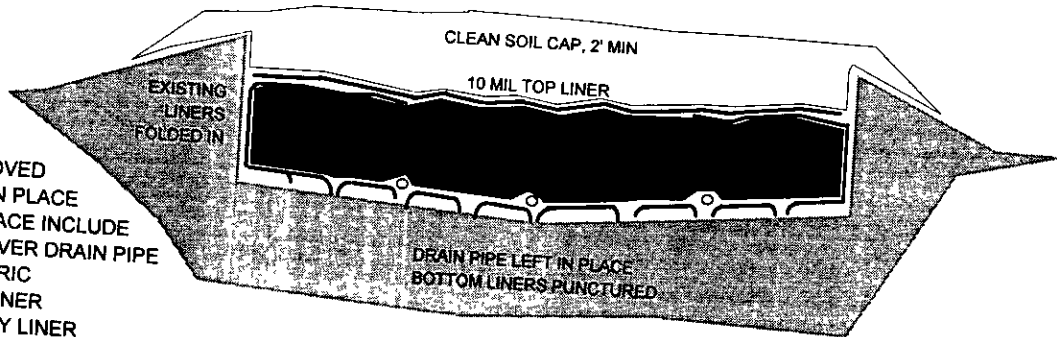
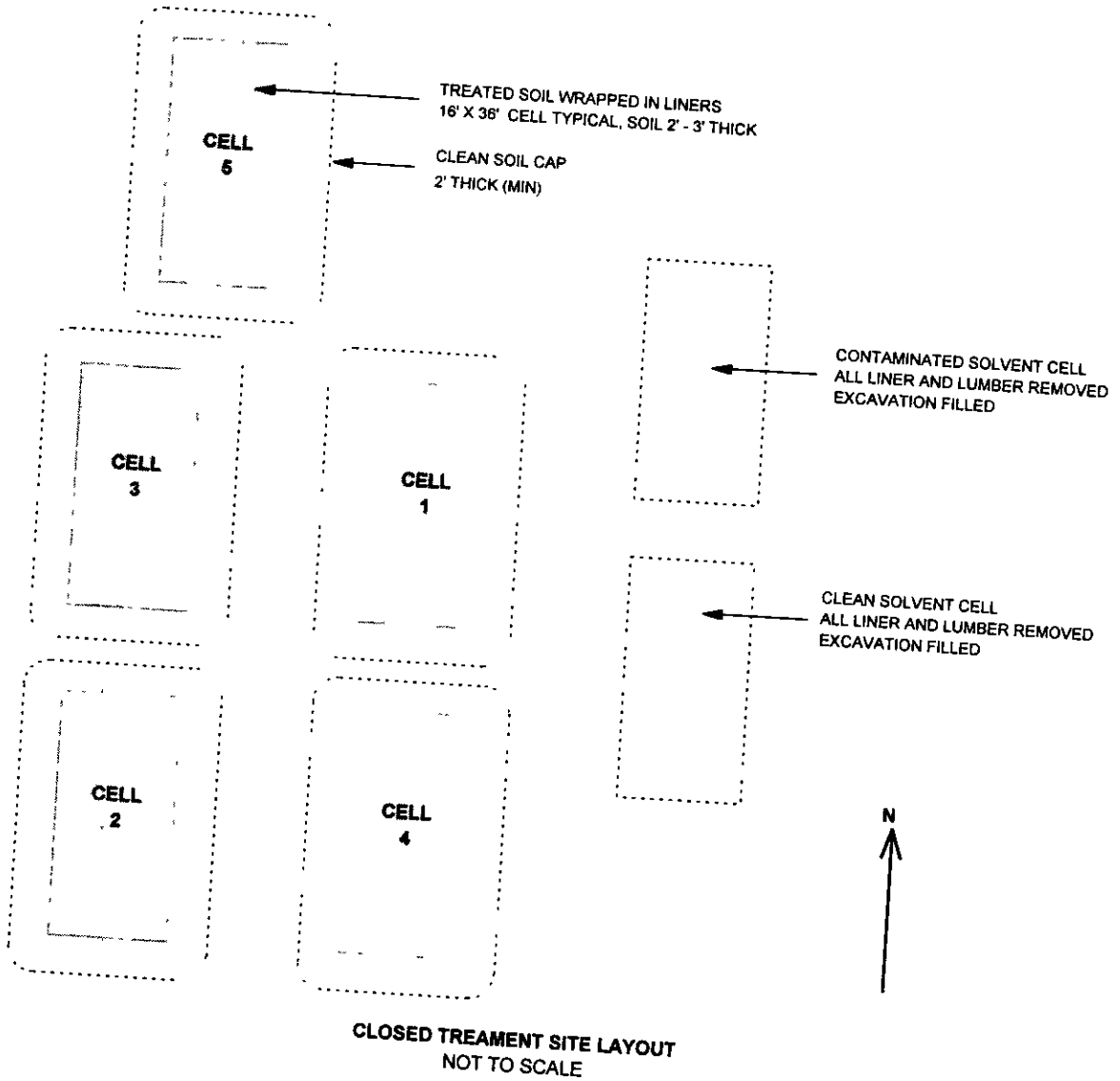
Conventional construction debris was flown from the site by commercially chartered aircraft and disposed of in the Anchorage area. Waste lumber, liner, and trash was disposed of at the Anchorage municipal landfill. The approximately 300 drums used to deliver solvent were crushed, palletized, and disposed of at the Alaska Metal Recycling facility. The use of a drum crusher allowed shipment of 28 drums to a pallet, significantly reducing the volume of waste demobilized.



DRUM CRUSHER AND CRUSHED DRUMS
looking west, 7/22/96
Fig 34



DRUMS OF LINER AND IDW AWAITING DEMOBILIZATION
looking north, 9/20/96
Fig 35



- NOTE ALL LUMBER REMOVED
DRAIN PIPE LEFT IN PLACE
LINERS LEFT IN PLACE INCLUDE
- FILTER FABRIC OVER DRAIN PIPE
 - DRAIN CORE FABRIC
 - 45 MIL PRIMARY LINER
 - 20 MIL SECONDARY LINER
 - ROOFING FELT PAD

CLOSED CELL CROSS SECTION
NOT TO SCALE

CLOSED TREATMENT SITE
Fig 36

4.0 CONCLUSIONS AND RECOMMENDATIONS

The Solvent Extraction System effectively treated 272 c.y. at Sparrevohn's LRRS. The average PCB concentration of the soil after processing was between 0.554 mg/Kg and 7.88 mg/Kg which was well below the 15 mg/kg target level required. At Sparrevohn, Terra-Kleen had a hazardous waste volume reduction ratio of 116 to 1. The process also proved less costly than conventional dig and haul estimates. Completion of this project yields observations that bear on the applicability of Solvent Extraction at future sites.

- The Solvent Extraction process could be configured to operate effectively at remote sites
- The process was flexible and rapid enough to construct and treat an additional soil cell mid-way through the project, and still complete work in one construction season.
- The absence of clays, organic material, or fines in the soil, in this case, allowed rapid draining of the soil cells and solvent recovery, significantly speeding the process.
- Onsite incineration of solvent could be made to work in cases where soil moisture, and subsequent solvent dilution was not excessive.
- The relatively low soil moisture in this case, allowed an economical amount of solvent to be used. (See Table 3, Section 3.5 B, page 29).
- The absence of significant GRO or DRO contamination in the soil to be treated, in this case, minimized the number of sieves required, improving the process economy.
- It was noted that cells treated later in the process had higher residual PCB contamination after treatment than the first two cells. This could be because dilution with soil moisture had weakened the solvent. Also, soil loaded in later cells came from lower strata in the source stockpile. This soil could have had higher starting PCB concentrations.

The Solvent Extraction process effectively met the remediation performance requirements in the remote site environment. It is an applicable technology at sites where metals treatment is not required and the soil is not heavily oiled. This report recommends further consideration of Solvent Extraction as one possible technology for PCB remediation at sites where soil conditions and allowable residual contamination levels would indicate economical remediation.

This report further recommends that no further action be taken on the remediated soil at Sparrevohn LRRS or the stockpile site.

TAB



**SUMMARY REPORT FOR FIELD SAMPLING AND ANALYSIS
OF SUBSTOCKPILE AND TREATMENT CELLS
SPARREVOHN LONG-RANGE RADAR STATION
SPARREVOHN, ALASKA
FOR
LINDER CONSTRUCTION**

INTRODUCTION

This is the summary report for field sampling and analysis of the substockpile and Treatment Cells 1 through 5 at Sparrevohn LRRS (Long-Range Radar Station) in Sparrevohn, Alaska. Sparrevohn LRRS is a remote site located approximately 200 miles west of Anchorage along the western flank of the Alaska Range. The site is presently operated as a minimally-attended radar unit by the U.S. Air Force, 611th SAUS.

PURPOSE AND SCOPE

Services include reporting of Task 0400. Task 0400 is the preparation of a report summarizing substockpile sampling and confirmation sampling of treatment cells, sampling methodology and analytical results for Tasks 0200 and 0300. Task 0200 is the base of the former stockpile and Task 0300 is confirmation sampling of the treated soil. Task 0100, Stained Area Sampling, was completed during an earlier phase of this project. The geoenvironmental services provided were in accordance with our proposal dated April 1996 and the Work Plan Addendum I for PCBs (polychlorinated biphenyls). Our specific scope of services is listed below.

TASK 0200 - SUBSTOCKPILE SAMPLING

The base of the former stockpile was sampled in accordance with the Sampling and Analysis Plan to assist site closure of the stockpile area. Substockpile sampling consisted of collecting two soil samples for the first 250 square feet of the site area and one soil sample collected per 250 square feet of the site area (11 total soil samples), thereafter.

- Collect approximately 10 soil samples and a blind field duplicate (11 total samples) from the base of the former stockpile for analysis of PCBs by EPA Method 8080. The 11 samples were sent to Linder Construction's contract laboratory (CT&E) in Anchorage, Alaska. In addition, one QA/QC sample was collected from the substockpile and sent to the COE laboratory in Troutdale, Oregon.

TASK 0300 - CONFIRMATION SAMPLING

Collect composite soil samples in accordance with the Sampling and Analysis Plan and Work Plan Addendum I to verify treatment of the soil. Confirmation sampling consisted of

collecting composite samples at equidistant corners of each treatment cell from depths of between 0.5 feet and 2.5 feet below the treatment cell surface.

- Sample each treatment cell by compiling two composite samples for analysis of PCBs by EPA Method 8080. Approximately 10 soil samples, a geotextile sample, two blind field duplicates and two equipment rinsewater samples (15 total samples) were collected from the treatment cells and submitted to CT&E in Anchorage for analysis of PCBs by EPA Method 8080. In addition, QA/QC samples were collected from Treatment Cell 4 and Treatment Cell 5 and sent to the COE laboratory in Troutdale.

TASK 0400 - SUMMARY REPORT

- Prepare a report summarizing site activities, sampling methodology, analytical results, statistical analysis of treated soil, and correlation and accuracy of Corps Quality Assurance Report (CQAR).
- Review the CQAR towards incorporating with the final summary report.
- Provide nine unbound copies of the report to Linder Construction.

METHODOLOGY

For purposes of this investigation, soil at the substockpile area was evaluated for PCB contamination (see Figure 1). At the direction of the COE, GeoEngineers conducted closure sampling of the substockpile area. The substockpile's soil was evaluated in accordance with ADEC (Alaska Department of Environmental Conservation) regulations governing site closure for contaminated sites. In addition, treated soil was verified by collecting composite soil samples from the top and bottom depths of each treatment cell (see Figure 2). The treated soil was evaluated in accordance with a site designated cleanup level.

A geologist from our staff determined the test pit and soil sampling locations, examined and classified the soils encountered, collected soil samples for chemical analysis, and prepared site plans of the substockpile area and treatment cell area. The field representative wore clean, disposable vinyl gloves while collecting the soil samples with individually-wrapped sterilized scoops. Additional personal protection equipment was used to collect confirmation samples of the treatment cells and included a tyvek suit and booties, eye goggles, half-face respirator, and a multi-gas monitor. All soil samples submitted for analysis were placed in 8-ounce glass jars with teflon-lined caps in the field, and were kept cool under chain-of-custody procedures during transport to the laboratory.

DEVIATION FROM WORK PLAN

At the direction of the COE, GeoEngineers deviated from the original work plan to conduct closure sampling of the substockpile area. Eight soil samples were originally planned for closure sampling of the substockpile area which was reported to contain 220 cubic yards of soil. However, upon removal of approximately 275 cubic yards of stockpiled soil, the substockpile

area required the collection of 10 soil samples to complete closure sampling. The additional 55 cubic yards of stockpiled soil resulted in the construction of a fifth treatment cell and the collection of additional confirmation samples to verify soil treatment.

LOCATION GRID

A location grid was established at the substockpile site area as designated by COE field personnel. The placement and measurement of four grid corners was based on existing site reference points near the sewage treatment lagoon. Based on corner A (0,0) of the grid, approximate x-y coordinates were assigned for each soil sample to establish sample locations for future site work. Site measurements for the location grid are summarized in Figure 1.

SAMPLING PROGRAM

GeoEngineers conducted sampling of the substockpile area by collecting two soil samples for the first 250 square feet of the site area and one soil sample collected for each 250 square feet of the site area thereafter. At the request of the COE field personnel, the first two soil samples of the substockpile were collected near a surface soil sheen. Ten soil samples and a blind field duplicate (11 total samples) were collected from the substockpile area and submitted to CT&E for analysis of PCBs by EPA Method 8080.

Confirmation sampling for each treatment cell (Treatment Cells 1 through 5) was conducted by first compiling a composite sample from four equidistant points across the surface of the cell, and within six inches of the surface of the cell. A second composite sample was collected at these four cell locations, but within two inches of the cell bottom. Ten soil samples, two blind field duplicates, a geotextile sample and two equipment (water) rinseate samples (15 total samples) were collected from Treatment Cells 1 through 5 and were submitted to CT&E for analysis of PCBs by EPA Method 8080 (see Figure 2).

SAMPLE IDENTIFICATION

Soil samples were identified by the year collected, site area, number sequence and sample type (i.e., 96-OSS-011-SL). For purposes of this investigation, samples designated as "OSS" and "TC1" through "TC5" were collected at the substockpile and treatment cells, respectively. In addition, all samples collected at the substockpile and treatment cell areas were designated as "SL" for soil sample. Exceptions to this sampling plan were the two equipment rinseate samples and geotextile sample which were designated as "WA" and "GT", respectively (see Tables 1 and 2).

SUBSTACKPILE SAMPLING

Soil conditions were explored beneath the base of the former substockpile by collecting soil samples from 10 hand excavations on July 31, 1996, at depths of approximately 0.5 feet below ground surface. In general, most of the hand excavations encountered soil consisting of

gravel with sand and cobbles. Trace amounts of silt were also observed at the hand excavations conducted of the substockpile area. The approximate locations of the hand excavations are shown in Figure 1.

Small remnants of the stockpile liner were observed to be near the perimeter of the former soil stockpile. In addition, some standing water with a slight surface soil sheen was observed at the substockpile area.

CONFIRMATION SAMPLING

Soil treatment was verified in Treatment Cells 1 through 4 by collecting composite soil samples and a geotextile sample from 16 backhoe test pits on August 1, 1996, from depths of between 0.5 feet and 2.5 feet below treatment cell surface. In addition, soil treatment was verified in Treatment Cell 5 by collecting composite soil samples from four backhoe tests on August 12, 1996, from depths of between 0.5 feet and 2.0 feet below treatment cell surface. A total of 20 test pits were excavated using a Case 580 Model Super K rubber-tired backhoe operated by Linder Construction of Anchorage, Alaska. In general, most of the backhoe test pits encountered soil consisting of gravel with sand and cobbles, and trace silt. The approximate locations of the composite-soil samples are shown in Figure 2.

A small amount of soil was observed to be saturated with solvent near the bottom liner of several treatment cells while collecting composite samples and a geotextile sample. This saturated soil was found at depths ranging from 2.0 to 2.5 feet in select treatment cells. The geotextile sample was collected from a 4-inch by 4-inch swatch cut from the uppermost felt membrane at the interface of the bottom liner and saturated soil in Treatment Cell 2. Figure 2 shows the general layout of the treatment cells relative to molecular sieves, auxiliary piping, and miscellaneous components (i.e., diaphragm pumps, filters, compressor and generator) used to treat approximately 275 cubic yards of PCB impacted soil.

ANALYTICAL RESULTS

PCB compounds (Aroclor-1260) were detected in the substockpile soil samples (96-OSS-001 to 010-SL) collected from hand excavations at concentrations ranging from 1.46 mg/kg (milligrams per kilogram) for sample 96-OSS-003-SL to 5.71 mg/kg for sample 96-OSS-001-SL. In addition, PCB compounds (Aroclor-1260) were detected in the confirmation soil samples (96-TC1-001-SL to TC4-002-SL) collected from hand excavations and test pits at concentrations ranging from 0.554 mg/kg for sample 96-TC1-001-SL to 884 mg/kg for sample 96-TC4-002-SL.

A geotextile sample was also collected from the felt membrane of the bottom liner at Treatment Cell 2 for chemical testing of PCB compounds. PCB compounds (Aroclor-1260) were detected in the geotextile sample (96-TC2-003-GT) at a concentration of 1.54 mg/kg. The substockpile and confirmation sample results are summarized Tables 1 and 2, respectively. In addition, the laboratory reports and chain-of-custodies are included in Appendix B.

Based on the laboratory results reported, we found that all soil samples collected at the substockpile to have PCB concentrations less than the site closure standard of 10 ppm (parts per million). In addition, the confirmation soil samples and geotextile sample collected from Treatment Cells 1 through 5 were found to have PCB concentrations below the site cleanup standard of 15 ppm.

STATISTICAL ANALYSIS

Arithmetic mean and standard deviation tests were computed for PCB concentrations reported for composite samples collected from Treatment Cells 1 through 5. In order to conduct our analysis, we selected two sample groups which included composite soil samples collected from the top and bottom of the treatment cells. We found PCB concentrations for the top composite soil samples to have a mean value of 3.12 mg/kg. In addition, PCB concentrations for the bottom composite soil samples were found to have a mean value of 3.70 mg/kg. Based on these calculated mean values, we find that these two means are not equal and that PCB concentrations for the bottom composite soil samples are approximately 18 percent greater than that of the top composite soil samples.

Based on the reported mean values, standard deviation (variance) values of 2.81 and 3.35 were calculated for PCB concentrations detected in the top and bottom composite soil sample groups, respectively. We found that PCB concentrations detected in the bottom composite soil samples had mean and variance values which were greater than those values calculated for the top composite soil samples.

DISCUSSION AND CONCLUSIONS

Several data quality checks were conducted for the analytical data issued. Two equipment rinseate samples were collected from sterilized sampling scoops used for sampling composite soil samples 96-TC4-002-SL and 96-TC5-002-SL. These samples were identified on chain-of-custodies as samples 96-TC4-003-WA and 96-TC5-003-WA, respectively. PCB compounds were not detected in these samples. The last data quality check consisted of three blind field duplicate soil samples collected from the substockpile area, and Treatment Cells 4 and 5. PCB compounds were detected in the duplicate sample 96-OSS-011-SL and 96-TC5-002-SL at concentrations found to be within acceptable precision limits when compared to samples 96-OSS-010-SL and 96-TC5-001-SL, respectively. However, PCB compounds were detected in the duplicate sample 96-96-TC4-003-SL at concentrations found to be outside acceptable precision limits when compared to sample 96-TC4-002-SL. This data quality issue was likely due to sample non-homogeneity. The soil was observed to have wide variability in particle size which consisted of gravel with sand and cobbles, and trace silt. We are awaiting the CQAR for a review of analytical data on this project. The CQAR will be included in the final summary report.

We understand that each treatment cell will be buried in place for on-site disposal. As reported earlier, PCB compounds were detected in the geotextile sample at a concentration of

1.54 mg/kg. Based on field observations of soil conditions, analytical results and statistical analysis, the PCB compounds detected in soils at the substockpile and at Treatment Cells 1 through 5 appear to be less than site closure and cleanup standards.

TABLE 1
 SUMMARY OF ANALYTICAL DATA
 SUBSTOCKPILE SAMPLING
 SPARREVOHN LRRS, SPARREVOHN, ALASKA
 GEI JOB #0189-014-18

Sample Location	Date Collected	Depth of Sample (feet)	Laboratory Sample No.	PCBs by EPA Method 8080 (mg/kg)	Comments
Substockpile 8,4	07/31/96	0.5	96-OSS-001-SL	5.71	Aroclor - 1260
Substockpile 8,21	07/31/96	0.5	96-OSS-002-SL	3.60	Aroclor - 1260
Substockpile 9,33	07/31/96	0.5	96-OSS-003-SL	1.46	Aroclor - 1260
Substockpile 26,33	07/31/96	0.5	96-OSS-004-SL	1.86	Aroclor - 1260
Substockpile 26,20	07/31/96	0.5	96-OSS-005-SL	2.70	Aroclor - 1260
Substockpile 27,5	07/31/96	0.5	96-OSS-006-SL	2.71	Aroclor - 1260
Substockpile 33,14	07/31/96	0.5	96-OSS-007-SL	2.32	Aroclor - 1260
Substockpile 47,4	07/31/96	0.5	96-OSS-008-SL	4.39	Aroclor - 1260
Substockpile 47,20	07/31/96	0.5	96-OSS-009-SL	4.83	Aroclor - 1260
Substockpile 47,32	07/31/96	0.5	96-OSS-010-SL	2.26	Aroclor - 1260
Substockpile 47,32	07/31/96	0.5	96-OSS-011-SL	2.48	Aroclor - 1260, Duplicate 96-OSS-010-SL

Notes:
 PCB = polychlorinated biphenyls
 EPA = U.S. Environmental Protection Agency
 mg/kg = milligrams per kilogram

TABLE 2
SUMMARY OF ANALYTICAL DATA
CONFIRMATION SAMPLING
SPARREVOHN LRRS, SPARREVOHN, ALASKA
GEI JOB #0189-014-18

Sample Location	Date Collected	Depth of Sample (feet)	Laboratory Sample No.	PCBs by EPA Method 8080 (mg/kg)	Comments
Treatment Cell 1	08/01/96	0.5	96-TC1-001-SL	0.554	Aroclor - 1260
Treatment Cell 1	08/01/96	2.0	96-TC1-002-SL	0.681	Aroclor - 1260
Treatment Cell 2	08/01/96	0.5	96-TC2-001-SL	0.951	Aroclor - 1260
Treatment Cell 2	08/01/96	2.0	96-TC2-002-SL	0.986	Aroclor - 1260
Treatment Cell 2	08/01/96	2.2	96-TC2-003-GT	1.54	Aroclor - 1260, Geotextile
Treatment Cell 3	08/01/96	0.5	96-TC3-001-SL	3.15	Aroclor - 1260
Treatment Cell 3	08/01/96	2.0	96-TC3-002-SL	2.19	Aroclor - 1260
Treatment Cell 4	08/01/96	0.5	96-TC4-001-SL	0.979	Aroclor - 1260
Treatment Cell 4	08/01/96	2.5	96-TC4-002-SL	8.84	Aroclor - 1260
Treatment Cell 4	08/01/96	2.5	96-TC4-003-SL	3.81	Aroclor - 1260, Duplicate 96-TC4-002-SL
Treatment Cell 4	08/01/96	-	96-TC4-004-WA	ND	Equipment (water) Rinseate
Treatment Cell 4	08/12/96	0.5	96-TC5-001-SL	6.48	Aroclor-1260
Treatment Cell 5	08/12/96	0.5	96-TC5-002-SL	6.61	Aroclor-1260, Duplicate 96-TC5-001-SL
Treatment Cell 5	08/12/96	-	96-TC5-003-WA	ND	Equipment (water) Rinseate
Treatment Cell 5	08/12/96	2.0	96-TC5-004-SL	7.88	Aroclor - 1260

Notes.

PCB = polychlorinated biphenyls
 EPA = U.S. Environmental Protection Agency
 mg/kg = milligrams per kilogram
 ND = not detected



SEWAGE TREATMENT LAGOON

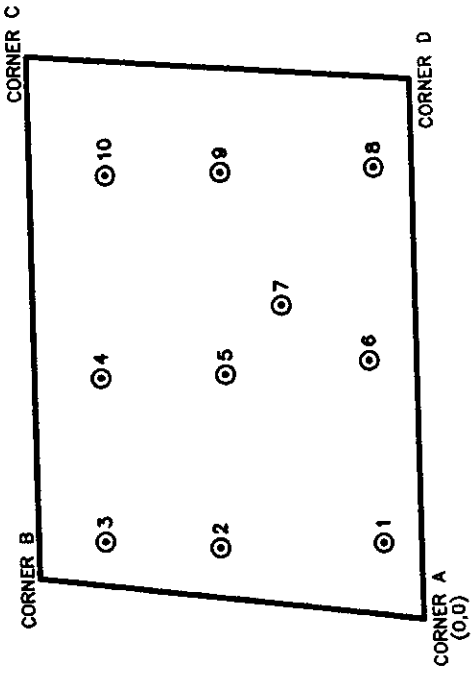
POWER POLE

POWER POLE



EXPLANATION

⊙8 SOIL SAMPLE LOCATION



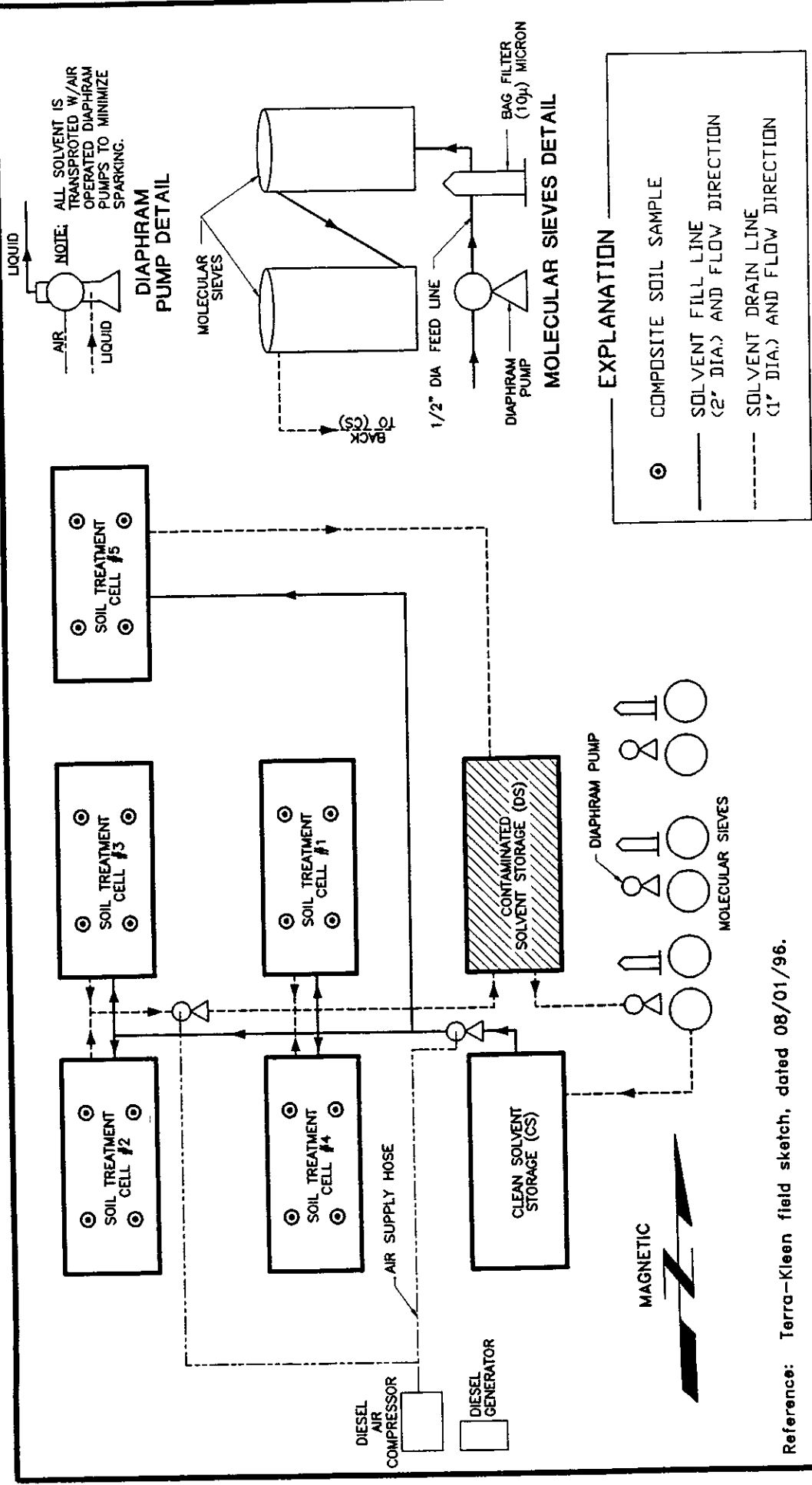
SPARREVOHN LRRS
SPARREVOHN, ALASKA

Reference: GeoEngineers field sketch, dated 07/31/96.
Notes: The locations of all features shown are approximate.
Grid locations based on corner A (0,0).

SUBSTOCKPILE LOCATION MAP



FIGURE 1



Reference: Terra-Kleen field sketch, dated 08/01/96.

Notes: Composite soil samples collected from each treatment cell at depths of 6 inches below surface and 2 inches above bottom.
The locations of all features shown are approximate.

TREATMENT CELL SITE PLAN

SUMMARY REPORT FOR FIELD SAMPLING AND ANALYSIS OF
SUBSTOCKPILE AND TREATMENT CELLS (CONTINUED)

CHEMICAL ANALYTICAL PROGRAM

ANALYTICAL METHODS

Chain-of-custody procedures were followed during transport of the soil samples, geotextile sample and water rinseate samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. Twenty-three total soil samples (20 samples and 3 duplicates), one geotextile sample and two equipment rinseate samples were analyzed by CT&E (CT&E Environmental Services) of Anchorage, Alaska, using the following methods:

<u>Analyte</u>	<u>Technique/Equipment</u>	<u>Method</u>
Polychlorinated biphenyls	Gas Chromatography/ Multiple Electron Capture Detectors	SW846-EPA 8080

Laboratory data reports No. 963705, 963488 and 963489 with MS-MSD data deliverables are included as an attachment to this report.

ANALYTICAL DATA REVIEW

Data Quality Goals

CT&E maintains an internal quality assurance program as documented in its laboratory quality assurance manual. CT&E uses a combination of method blank analysis, surrogate percent recovery, matrix spike recovery, matrix spike duplicate recovery, blank spike recovery, blank spike duplicate recovery and laboratory duplicates to evaluate the validity of analytical results. CT&E also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were supplied by the laboratory. Each group of samples was compared with the existing data quality goals for the laboratory and evaluated using data validation guidelines from the following documents: "Guidance Document for the Assessment of RCRA Environmental Data Quality," Draft dated 1988; "National Functional Guidelines for Organic Data Review," Draft dated 1991; and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses," dated 1988. The data quality review is presented as follows.

Data Quality Review

Surrogates. Surrogates were added to soil samples analyzed for PCB compounds prior to extraction and analysis to monitor sample handling procedures, matrix effects and purging efficiency. Surrogate recoveries were all within recommended control limits unless noted.

Matrix Spike/Matrix Spike Duplicates (MS/MSD). Matrix spikes and matrix spike duplicates were conducted for soil samples analyzed. All MS/MSD recoveries and relative percent differences were within recommended control limits unless noted.

Blank Spike/Blank Spike Duplicates (BS/BSD). Blank spike and blank spike duplicates were analyzed for all analyses. The BS/BSD is a laboratory control sample that is spiked with analytes of interest from an independent source. All BS/BSD recoveries and relative percent differences were within recommended control limits

Laboratory Duplicates. Laboratory duplicates were conducted for soil samples analyzed.

Holding Times. All soil samples were extracted and analyzed within the recommended holding times.

Method Blanks. Method blanks were analyzed for all analyses to evaluate the possible presence of contaminants that may have been introduced during sample analysis. Contaminants were not detected in the blanks.

Field Duplicates. Three blind duplicates and three QA/QC duplicates were collected in the field and submitted for PCB analyses. Field duplicates were collected using non-homogeneous sampling techniques. The QA/QC duplicates were submitted in a chilled cooler under separate chain-of-custody and custody seals to the COE QA/QC laboratory in Troutdale, Oregon. A sample acknowledgment receipt has been received from the COE laboratory.

SUMMARY

Based on the results of the laboratory reports and data quality checks reported, it is our opinion that the analytical data are acceptable for use on this project



CT&E Environmental Services Inc.

Laboratory Division

51 58

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

August 12, 1996

Mark Rogers
GeoEngineers Inc.
907 E Dowling Rd
Anchorage, AK 99518

Client Name	Linder Construction Inc.
Project ID	N/A [963488]
Printed	August 12, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than



CT&E Environmental Services Inc.

Laboratory Division

51 59

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488001
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-001-SL
Matrix Soil
Ordered By PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:20
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	90.34		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.366U		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	5.71		0.366 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK

100, 522, 035



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel. (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963488002
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-002-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:22
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	88.21		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.373U		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	3.60		0.373 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK



CT&E Environmental Services Inc.

Laboratory Division

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488003
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-003-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:25
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	81.87		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.401U		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	1.46		0.401 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK



CT&E Environmental Services Inc.

51 62

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488004
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-004-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:29
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	86.12		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.382U	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	1.86	0.382	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK

100/522/95



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL FACILITIES IN ALASKA CALIFORNIA FLORIDA ILLINOIS MARYLAND MICHIGAN MISSOURI NEW JERSEY OHIO WEST VIRGINIA



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488005
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-005-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:35
Received Date/Time 08/02/96 13.30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	85.65		%	SM18 2540G			08/06/96	KAV

PCB's by GC ECD

Aroclor-1016	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	2.70		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK



CT&E Environmental Services Inc.

51 64

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488006
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-006-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:38
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	86.70		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.377U		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	2.71		0.377 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK

100/522/95



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel. (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963488007
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-007-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:40
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Eise*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	88.42		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	2.32		0.374 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK

CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel. (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488008
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-008-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19 45
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	87.39		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.374U		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	4.39		0.374 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK

CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488009
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-009-SL
Matrix Soil
Ordered By PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:32
Collected Date/Time 07/31/96 19:48
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	89.34		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.369U		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	4.83		0.369 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel. (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963488010
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-010-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14.32
Collected Date/Time 07/31/96 19:50
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	90.69		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1221	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1232	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1242	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1248	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1254	0.358U		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK
Aroclor-1260	2.24		0.358 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK

CT&E Environmental Services Inc.

Laboratory Division

200 W. Potter Drive
 Anchorage, AK 99518-1605
 Tel. (907) 562-2343
 Fax (907) 561-5301

CT&E Ref.# 963488011
 Client Name Linder Construction Inc
 Project Name/# N/A
 Client Sample ID 96-OSS-005-SL MS
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6601
 Printed Date/Time 08/12/96 14:32
 Collected Date/Time 07/31/96 19:50
 Received Date/Time 08/02/96 13:30
 Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	85.65		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.0382U		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.0382U		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.0382U		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.487		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.0382U		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.0382U		0.0382 mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	1.51		0.382 mg/Kg	SW846-8080		08/05/96	08/09/96	GMK



CT&E Environmental Services Inc.

Laboratory Division

51 70

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963488012
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-005-SL MSD
Matrix Soil
Ordered By PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14 32
Collected Date/Time 07/31/96 19:50
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	85.65		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.0386U	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1221	0.0386U	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1232	0.0386U	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1242	0.484	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1248	0.0386U	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1254	0.0386U	0.0386	mg/Kg	SW846-8080		08/05/96	08/08/96	GMK
Aroclor-1260	1.52	0.386	mg/Kg	SW846-8080		08/05/96	08/09/96	GMK

1007572 95



Member of the SGS Group (Société Générale de Surveillance)



T&E Environmental Services Inc.

Laboratory Division

CHAIN OF CUSTODY

PO#: 6601

CT&

Page 1 of 3

Reports to:

Geo ENGINEERS, INC.
495 EAGLE STREET
ANCHORAGE, AK 99503

Invoice to:

LANDER CONSTRUCTION
8220 PETERBORO STREET
ANCHORAGE, AK 99507

Phone: 561-3478 Fax: 561-5123

Contact person for questions concerning these samples: Mack Rogers

Phone: 561-5178 Fax: 561-5123

Special Instructions: Level II Data Deliverables on 5-DAY TAT

Sample #	Date/Time Sampled	# of Containers	Sample Matrix	Comments
96-056-001-SL	7/31/98	1	S	
96-056-002-SL	19:22	1	S	
96-056-003-SL	19:25	1	S	
96-056-004-SL	19:27	1	S	
96-056-005-SL	19:35	1	S	
96-056-006-SL	19:38	1	S	
96-056-007-SL	19:40	1	S	
96-056-008-SL	19:45	1	S	
96-056-009-SL	19:48	1	S	
96-056-010-SL	7/31/98	1	S	

NO DATA DELIVERABLES ON 5-DAY TAT

Number of Containers	Sample Receipt:	Relinquished By:	Relinquished By:
COC Serials/Intact Y/N/A	Signature: <u>Mack W. Rogers</u>	Signature: <u>Mack W. Rogers</u>	Signature: <u>Monica Steinborn</u>
Temperature	Time: <u>5:15</u>	Time: <u>5:15</u>	Time: <u>1:30</u>
Turnaround Required	Date: <u>8/7/98</u>	Date: <u>8/7/98</u>	Date: <u>8/7</u>
Data Deliverables Required	Received By:	Received By:	Received at Laboratory by:
Level I Level II Level III	Signature: <u>Mack W. Rogers</u>	Signature: <u>Monica Steinborn</u>	Signature: <u>Monica Steinborn</u>
	Printed Name: <u>Mack W. Rogers</u>	Printed Name: <u>Monica Steinborn</u>	Printed Name: <u>Monica Steinborn</u>



CT&E Environmental Services Inc.
Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

August 12, 1996

Mark Rogers
GeoEngineers Inc.
907 E Dowling Rd
Anchorage, AK 99518

Client Name	Linder Construction Inc.
Project ID	N/A [963489]
Printed	August 12, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than

CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963489001
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-OSS-011-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:53
Collected Date/Time 07/31/96 00:00
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis	
							Date	Init
Total Solids	90.00		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.361U		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	2.48		0.361 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489002
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC1-001-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:53
Collected Date/Time 08/01/96 11:45
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable	Prep	Analysis	Init
					Limits	Date	Date	
Total Solids	95.16		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1221	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1232	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1242	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1248	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1254	0.349U		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM
Aroclor-1260	0.554		0.349 mg/Kg	SW846-8080			08/05/96 08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963489003
Client Name Linder Construction Inc
Project Name/# N/A
Client Sample ID 96-TC1-002-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:53
Collected Date/Time 08/01/96 12:55
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	91.94		%	SM18 2540G			08/06/96	KAV

PCB's by GC ECD

Aroclor-1016	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	0.681		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489004
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC2-001-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:53
Collected Date/Time 08/01/96 10:35
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	93.57		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	0.951		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel. (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489005
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC2-002-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:53
Collected Date/Time 08/01/96 10:55
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	92.11		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.356U		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	0.986		0.356 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963489006
Client Name Linder Construction Inc
Project Name/# N/A
Client Sample ID 96-TC2-003-GT
Matrix Other solids
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:54
Collected Date/Time 08/01/96 11:00
Received Date/Time 08/02/96 13.30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.978U	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	1.54	0.978	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489007
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC3-001-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:54
Collected Date/Time 08/01/96 15:10
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	94.57		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.351U		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	3.15		0.351 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963489008
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC3-002-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/30/96 15:09
Collected Date/Time 08/01/96 15:35
Received Date/Time 08/02/96 13:30
Technical Director: Stephen C. Ede

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	91.66		%	SM18 2540G			08/06/96	KAV
B's by GC ECD								
Aroclor-1016	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1221	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1232	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1242	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1248	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1254	0.362U		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM
Aroclor-1260	2.19		0.362 mg/Kg	SW846-8080		08/05/96	08/09/96	KJM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489009
Client Name Linder Construction Inc
Project Name/# N/A
Client Sample ID 96-TC4-001-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:54
Collected Date/Time 08/01/96 13:45
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	93.73		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.348U	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	0.979	0.348	mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963489010
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC4-002-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14:54
Collected Date/Time 08/01/96 14:10
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	92.22		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1221	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1232	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1242	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1248	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1254	0.355U		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM
Aroclor-1260	8.84		0.355 mg/Kg	SW846-8080		08/05/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489011
Client Name Linder Construction Inc.
Project Name/# N/A
Client Sample ID 96-TC4-003-SL
Matrix Soil
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 16:23
Collected Date/Time 08/01/96 00:00
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	92.71		%	SM18 2540G			08/06/96	KAV
PCB's by GC ECO								
Aroclor-1016	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1221	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1232	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1242	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1248	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1254	0.359U		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1260	3.81		0.359 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM



CT&E Environmental Services Inc.

Laboratory Division

51 84

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963489012
Client Name Linder Construcon Inc.
Project Name/# N/A
Client Sample ID 96-TC4-004-WA
Matrix Water (Surface, Eff., Ground)
Ordered By
PWSID

Client PO# 6601
Printed Date/Time 08/12/96 14 54
Collected Date/Time 08/01/96 14.15
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1221	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1232	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1242	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1248	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1254	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK
Aroclor-1260	0.00115U		0.00115 mg/L	SW846-8080		08/07/96	08/09/96	GMK

100-52795



Member of the SGS Group (Société Générale de Surveillance)

CT&E Environmental Services Inc.

Laboratory Division

200 W. Potter Drive
 Anchorage, AK 99518-1605
 Tel (907) 562-2343
 Fax (907) 561-5301

CT&E Ref.# 963489013
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC3-002-SL MS
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6601
 Printed Date/Time 08/14/96 06:57
 Collected Date/Time 08/01/96 15:35
 Received Date/Time 08/02/96 13:30
 Technical Director

Released By *Shane Peterson*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	92.22		%	SM18 2540G			08/09/96	KAV
PCB's by GC ECD								
Aroclor-1260	1.87		0.350 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1016	0.0350U		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1221	0.0350U		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1232	0.0350U		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1242	0.447		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1248	0.0350U		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1254	0.0350U		0.0350 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM

CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
 Anchorage, AK 99518-1605
 Tel (907) 562-2343
 Fax (907) 561-5301

CT&E Ref.# 963489014
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC3-002-SL MSD
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6601
 Printed Date/Time 08/14/96 06:58
 Collected Date/Time 08/01/96 15:35
 Received Date/Time 08/02/96 13:30
 Technical Director

Released By *Shane Patten*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep	Analysis	Init
						Date	Date	
Total Solids	92.22		%	SM18 2540G			08/09/96	KAV
PCB's by GC ECD								
Aroclor-1260	1.67		0.351 mg/Kg	SW846-8080		08/06/96	08/09/96	KWM
Aroclor-1016	0.0351U		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1221	0.0351U		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1232	0.0351U		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1242	0.440		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1248	0.0351U		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM
Aroclor-1254	0.0351U		0.0351 mg/Kg	SW846-8080		08/06/96	08/08/96	KWM



T&E Environmental Services Inc.
Laboratory Division

96.09

CHAIN OF CUSTODY

CT&I

Laboratory: Page 4 of 5
CT&E Environmental Services Inc
200 W Potter Dr.
Anchorage, AK 99518-1605
Phone (907) 562-2343 Fax: (907) 561-5301

Invoice to:
LINAEC CONSTRUCTION
8720 PETERSBURG STREET
ANCHORAGE, AK 99503

Reports to:
GEO ENGINEERS INC.
4251 EAGLE STREET
ANCHORAGE, AK 99503

Phone: 561-3478 Fax: 561-5123

Phone: 561-3478 Fax: 561-5123

Special Instructions: LEVEL II DATA DELIVERABLES ON 5-DAY TAT

Lab #	Sample #	Date/Time Sampled	# of Containers	Sample Matrix	Comments
					NO DELIVERABLES TO BE MADE
96-055-011-SL	1	7/24/86	1	S	
96-7C1-001-SL	1	8/4/86 11:45	1	S	
96-7C1-002-SL	1	12:55	1	S	
96-7C2-001-SL	1	10:35	1	S	
96-7C2-002-SL	1	10:55	1	S	
96-7C2-003-GT	1	11:00	1	S	
96-7C3-001-SL	1	15:10	1	S	
96-7C3-002-SL	1	15:35	1	S	
96-7C4-001-SL	1	13:05	1	S	
96-7C4-002-SL	1	8/4/86 14:10	1	S	GENEXABLE

Sample Receipt:	Relinquished By:
Number of Containers	Signature _____ Time _____
(OC) Seals/Intact Y/N/A	Printed Name _____ Date _____
Temperature	Received By:
Turnaround Required	Signature _____ Time _____
Data Deliverables Required	Printed Name _____ Date _____
Level I Level II Level III	Received at Laboratory (by)
	Signature _____ Time _____
	Printed Name _____ Date _____



CT&E Environmental Services Inc

51 89

GeoEngineers
ANCHORAGE

AUG 19 1996

Routing.
.....
File .. 0189-014-18 ..

August 16, 1996

Mark Rogers
GeoEngineers Inc.
4951 Eagle Street
Anchorage, AK 99503-7432

Client Name	Linder Construction Inc.
Project ID	N/A [963705]
Printed	August 16, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than



CT&E Environmental Services Inc

CT&E Ref.# 963705001
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC5-001-SL
 Matrix Soil
 Ordered By PWSD

Client PO# 6712
 Printed Date/Time 08/16/96 15:13
 Collected Date/Time 08/12/96 14:30
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By *Sharon Peterson*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	90.86		%	SM18 2540G			08/14/96	KAV
PCB's by GC ECD								
Aroclor-1016	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1221	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1232	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1242	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1248	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1254	3.62U		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1260	6.48		3.62 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM



CT&E Environmental Services Inc

CT&E Ref.# 963705002
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC5-002-SL
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6712
 Printed Date/Time 08/16/96 15 13
 Collected Date/Time 08/12/96 00:00
 Received Date/Time 08/13/96 14 00
 Technical Director

Released By *Sharon Paxon*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	89.19		%	SM18 2540G			08/14/96	KAV
PCB's by GC ECD								
Aroclor-1016	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1221	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1232	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1242	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1248	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1254	3.63U		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1260	6.61		3.63 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM



CT&E Environmental Services Inc.

CT&E Ref.# 963705003
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC5-003-WA
 Matrix Water (Surface, Eff., Ground)
 Ordered By
 PWSID

Client PO# 6712
 Printed Date/Time 08/16/96 15:13
 Collected Date/Time 08/12/96 15:00
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By *Shane Proton*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1221	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1232	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1242	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1248	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1254	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1260	0.00115U	0.00115	mg/L	SW846-8080		08/14/96	08/15/96	KWM


 CT&E Environmental Services Inc
 ///

CT&E Ref.# 963705004
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC5-004-SL
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6712
 Printed Date/Time 08/16/96 15:13
 Collected Date/Time 08/12/96 15:15
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By

Shane Patton

 Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	89.92		%	SM18 2540G			08/14/96	KAV
PCB's by GC ECD								
Aroclor-1016	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1221	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1232	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1242	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1248	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1254	3.67U		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM
Aroclor-1260	7.88		3.67 mg/Kg	SW846-8080		08/14/96	08/15/96	KWM


 CT&E Environmental Services Inc
 //

CT&E Ref.# 963705005
 Client Name Linder Construction Inc
 Project Name/# N/A
 Client Sample ID 96-TC5-002-SL MS
 Matrix Soil
 Ordered By
 PWSID

Client PO# 6712
 Printed Date/Time 08/16/96 15:13
 Collected Date/Time 08/12/96 00:00
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By

Shawn Patten

 Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	89.19		%	SM18 2540G			08/14/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.0366U		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1221	0.0366U		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1232	0.0366U		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1242	0.464		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1248	0.0366U		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1254	0.0366U		0.0366 mg/Kg	SW846-8080		08/14/96	08/14/96	KWM



CT&E Environmental Services Inc

CT&E Ref.# 963705006
 Client Name Linder Construction Inc.
 Project Name/# N/A
 Client Sample ID 96-TC5-002-SL MSD
 Matrix Soil
 Ordered By PWSID

Client PO# 6712
 Printed Date/Time 08/16/96 15:13
 Collected Date/Time 08/12/96 00:00
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By *Shane Preston*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Total Solids	89.19		%	SM18 2540G			08/14/96	KAV
PCB's by GC ECD								
Aroclor-1016	0.0369U	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1221	0.0369U	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1232	0.0369U	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1242	0.452	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1248	0.0369U	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM
Aroclor-1254	0.0369U	0.0369	mg/Kg	SW846-8080		08/14/96	08/14/96	KWM



CT&E Environmental Services Inc.
Laboratory Division

96.3705

CHAIN OF CUSTODY

Reports to:

GED ENGINEERS, INC.
4951 EAGLE STREET
ANCHORAGE, AK 99503

Invoice to:

LINDSE CONSTRUCTION
8220 PETERS BURG STREET
ANCHORAGE, AK 99507

CT&

Laboratory:
CT&E Environmental Services, Inc
200 W Potter Dr.
Anchorage, AK 99518-1605
Phone (907) 562-2343 Fax. (907) 561-5301

Page 1 of 1

Phone: 561-3478 Fax: 561-5123

Contact person for questions concerning these samples:

MACK ROBERTS

Special Instructions: LEVEL II DATA DELIVERABLES ON 48-HOURS (RUSH) TAT

Phone: 561-3478

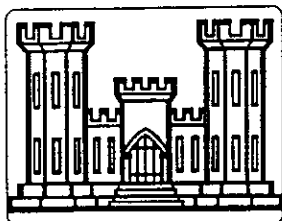
Fax: 561-5123

Project Name/Number		Sampled By		Relinquished By:		Received By:	
Lab #	Sample #	Date/Time Sampled	# of Containers	Sample Matrix	Signature	Time	Date
	96-705-001-SL	8/27/96 14:30	1	S	<i>[Signature]</i>	Time	Date
	96-705-002-SL	8/27/96	1	S	<i>[Signature]</i>	Time	Date
	96-705-003-WA	8/27/96 15:00	2	W	<i>[Signature]</i>	Time	Date
	96-705-004-SL	8/27/96 15:15	1	S	<i>[Signature]</i>	Time	Date
<p>PG&E PH 8080</p>							
<p>Equipment Base</p>							
Sample Receipt:		Relinquished By:		Relinquished By:		Received By:	
Number of Containers	5	Signature	Time	Signature	Time	Signature	Time
COC Seals/Inlets	Y/N(N/A)	Printed Name	Date	Printed Name	Date	Printed Name	Date
Temperature	27.60	Signature	Time	Signature	Time	Signature	Time
Turnaround Required		Printed Name	Date	Printed Name	Date	Printed Name	Date
Data Deliverables Required		Signature	Time	Signature	Time	Signature	Time
Level I	Level II	Level III		Level I	Level II	Level III	

Received at Laboratory By:
[Signature] Time 13:00
Date 8/13/96
[Signature] Time 13:16
Date 8/13/96

TAB

B



**U.S. Army Corps of Engineers
North Pacific Division Laboratory
Troutdale, Oregon**

Chemical Quality Assurance Report

Sparrevohn PCB

NPDL Work Order Number: 96-0204

Prepared for: **Alaska District**

Approved by:

Pamela D. Hertzberg

PAMELA D. HERTZBERG, Chief

Project Management and Data Evaluation Branch

CENPP-PE-L (96-0204)

16 Oct 96

CHEMICAL QUALITY ASSURANCE REPORT

SPARREVOHN PCB

1. SUMMARY:

- 1.1 The PCB results for 91 of the 124 field samples should be considered estimates due to non-calculable surrogate recoveries.
- 1.2 The primary and QA data comparisons are presented in Tables III through XIV. The data do not agree in Tables III, VI, X, and XI, probably due, in part, to sample matrix heterogeneity. Refer to section 8 for details.

2. **BACKGROUND:** The project samples were collected May 29 through June 2, July 31, and August 1 and 12, 1996, and received by the analytical laboratories June 3 and 7, and August 2, 7, 13, and 15, 1996.

3. OBJECTIVES:

- 3.1 One hundred twenty-three soil samples (including 12 blind duplicates and one background sample) and one geotextile sample were collected to determine the extent of the chemical contamination on the site. Three rinsate blank samples were collected to assess field contamination during sampling.
- 3.2 Twelve quality assurance (QA) soil samples were submitted to evaluate the primary laboratory's data.

4. PROJECT ORGANIZATION:

- 4.1 The project samples were collected by GeoEngineers, Inc., Anchorage, Alaska.
- 4.2 The primary samples were analyzed by CT&E Environmental Services, Inc., Anchorage, Alaska.
- 4.3 The QA samples were analyzed by Sound Analytical Services, Inc., Tacoma, Washington.

CENPP-PE-L (96-0204)
Chemical Quality Assurance Report

5. ANALYTICAL REFERENCES:

Number	Title	Date
SW-846, Third Edition	Test Methods for Evaluating Solid Waste - Final Update II	1/95

6. EVALUATION OF THE PRIMARY LABORATORY'S DATA:

- 6.1 Primary Laboratory Methods: The following is a listing of preparation and analytical methods used by the laboratory as reported in their data deliverable.

Primary Laboratory	Parameter	Preparation Method	Analytical Method
CT&E	PCB	--	EPA 8080

-- = not reported

- 6.2 Chain of Custody Records and Sample Cooler Receipt Forms: All chain of custody (COC) records and sample shipping conditions, as documented on the sample cooler receipt (SCR) form, were evaluated according to EPA and U.S. Army Corps of Engineers (USACE) ER 1110-1-263 regulations and the following notations were made. SCR forms were not included in the available copies of reports 96.2173, 96.3488, and 96.3489, and specific sample conditions could not be determined. For the remaining six reports, a lack of custody seals noted for each sample cooler is acceptable since the coolers were hand-delivered. The sample jars were not individually sealed in plastic bags.
- 6.3. Rinsate Blank Results: The rinsate blank results are presented in Table I. The absence of targeted analytes in the rinsate samples indicates that cross-contamination during sampling was unlikely.
- 6.4 Sample Holding Times, Reporting Limits, Laboratory Method Blanks, Accuracy and Precision: Sample holding times and detection/reporting limits were evaluated per EPA criteria. The laboratory method blanks were evaluated for the absence of targeted analytes. The extraction efficiency, accuracy and precision of the data, as represented by surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control (LC), and laboratory control duplicate (LCD) recoveries and relative percent difference (RPD) results, were compared to EPA or laboratory established (LE) quality control (QC) acceptance limits for out of control results.

CENPP-PE-L (96-0204)
Chemical Quality Assurance Report

- 6.4.1 Soil Matrix Polychlorinated Biphenyls (PCB): Surrogate recoveries were not calculable for 90 of the 123 soil samples and the geotextile sample (96TC2003GT) due to high concentrations of PCB resulting in required sample dilutions. The samples are flagged "D" in the surrogate recovery sections of the analytical reports. The extraction efficiency of these samples could not be determined and the results should be considered estimates. For four soil samples (9600A-008SL, -015SL, -062SL, and -064SL), one of two surrogate recoveries was outside the LE QC acceptance limits. The extraction efficiency of these samples is acceptable based on the surrogate recovery within acceptance limits. For report 96.2172, the continuing calibration standard for Aroclor 1254 analyzed on 6/10/96 was above the QC acceptance limits, and the associated LC recovery of Aroclor 1254 was also above the QC acceptance limits. Since this Aroclor was not detected in the samples and the calibration and LC recoveries for Aroclors 1260 and 1242 were within acceptable ranges, the sample data are not affected.
- 6.4.2 Water Matrix PCB: A surrogate recovery was not reported for rinsate sample 96TC4004WA (report 96.3489); however, the QC summary page indicates that all surrogate recoveries for the analytical batch were acceptable. For this same report, the apparent LC/LCD results were reported incorrectly as pertaining to a solid matrix with units of mg/Kg. The results are assumed applicable to the water matrix based on the LC/LCD concentration of 0.0100 ppm, which is about 10 times the reporting limit for water samples, but less than the reporting limit for solid samples. The RPD for this analysis is above the LE QC acceptance limits for Aroclor 1242. Since PCB was not detected (ND) in the one water sample, the unacceptable precision data does not affect the sample result.
- 6.5 Field Blind Duplicate Results: The field blind duplicate results are presented in Tables III through XIV. The primary data in Tables III, VI, VIII, X, and XI do not agree. These disagreements may be due to non-identical samples submitted for field duplicate analysis and/or sample matrix heterogeneity. Refer to section 8 for details.
- 6.6 Overall Evaluation of the Primary Laboratory's Data: The condition of the samples submitted for reports 96.2173, 96.3488, and 96.3489 could not be determined because SCR forms were not included with the reports. Surrogate recoveries were not calculable for 91 out of 124 field samples due to sample dilutions, and the PCB results for these samples should be considered estimates.

CENPP-PE-L (96-0204)
Chemical Quality Assurance Report

7. EVALUATION OF THE QA LABORATORY'S DATA:

- 7.1 QA Laboratory Methods: The following is a listing of preparation and analytical methods used by the laboratory as reported in their data deliverable.

QA Laboratory	Parameter	Preparation Method	Analytical Method
SAS	PCB	EPA 3550	EPA 8080

- 7.2 COC Records and SCR Forms: All COC records and sample shipping conditions, as documented on the SCR form, were evaluated according to EPA and USACE ER1110-1-263 regulations and the following notations were made. The temperature of the sample cooler associated with SAS report 58738 was 9.2° C upon arrival at North Pacific Division Laboratory (NPDL), which is above the EPA recommended temperature range of 4 ± 2° C. The sample jars for this same report were not sealed in plastic bags.
- 7.3 Sample Holding Times, Reporting Limits, Laboratory Method Blanks, Accuracy and Precision: Sample holding times and detection/reporting limits were evaluated per EPA criteria. The laboratory method blanks were evaluated for the absence of targeted analytes. The extraction efficiency, accuracy, and precision of the data, as represented by surrogate, MS, MSD, LC and LCD recoveries and RPD results, were compared to EPA or LE QC acceptance limits for out of control results.

The MS/MSD results for SAS report 57176 were less than the original PCB result for the unspiked sample (9600A010SL). Re-analysis of the sample resulted in a lower concentration result and acceptable MS/MSD recoveries. The original result appears to be anomalous and is probably due to a heterogeneous sample matrix, as noted by the laboratory. Other samples may also be affected by heterogeneity, based on similar sample descriptions in the report case narrative and the discrepancies between the primary and QA data for some samples (see section 8). The MS/MSD recoveries for report 58738 were below the LE QC acceptance limits. The resultant RPD is above the QC limit, although it is within the limit if calculated from the concentration results rather than the percent recoveries. The laboratory indicated that a heterogeneous sample matrix was the cause of the low recoveries, and the result for the one associated sample (96TC5101SL) should be considered an estimate due to the matrix.

- 7.4 Overall Evaluation of the QA Laboratory's Data: The sample results may, in some cases, be affected by sample matrix heterogeneity. The result for sample 96TC5101SL should be considered an estimate due to the matrix.

CENPP-PE-L (96-0204)
Chemical Quality Assurance Report

8. **COMPARISON OF THE PRIMARY AND QA LABORATORIES' DATA:** The primary and QA data comparisons are presented in Tables III through XIV. The analytical results presented in each table were reviewed for agreement with each other or their respective reporting limits and evaluated for comparability. The intra- and inter-laboratory data for a sample must be within a factor of five (for soil/sediment matrices) of each other to be considered in agreement. The primary and QA laboratories' reporting limits must be within a factor of 10 to be considered comparable. Estimated data (results which have been quantified below the reporting limit and qualified with a "J" flag) should not be considered significant for the purpose of data agreement.

The QA result does not agree with one or both of the primary results in Tables III, VI, X, and XI. In each of these tables, as well as Table VIII, the primary blind duplicate results do not agree with each other. While many of the primary sample results are considered estimates due to non-calculable surrogate recoveries, the laboratory had acceptable surrogate recoveries for non-diluted samples and produced acceptable QC results overall. The QA laboratory also submitted acceptable QC results except for some poor spike recoveries that were attributable to the sample matrix. Based on the frequency of intra- and inter-laboratory disagreements, the cause of the data discrepancies may lie with the samples themselves rather than analytical deficiencies. The field duplicate and split samples submitted for analysis may have been non-identical and/or the apparent heterogeneous nature of some samples may have resulted in non-reproducible results.

CENPP-PE-L (96-0204)
Comparison of Primary and QA Data

Sparrevohn PCB

TABLE I Rinsate Blank

Matrix: Water		Field Identification:	Primary Samples		
Parameter	Units	Analytes Detected	96-00D- Rinsate	96-TC4- 004WA	96-TC5- 003WA
PCB	µg/L		[< 1.16]	[< 1.15]	[< 1.15]

Comments: The absence of targeted analytes in the rinsate samples indicates that cross-contamination during sampling was unlikely.

TABLE II Background Sample

Matrix: Soil		Field Identification:	Primary Sample
Parameter	Units	Analytes Detected	9600C091SL
PCB	mg/Kg		[< 0.0404]

Comments: The absence of PCB in the background sample indicates that the PCB detected in each field sample is specific to the sampling location and not due to regional contamination.

TABLE III

Matrix: Soil		Field Identification:	Primary Samples		QA Sample
Parameter	Units	Analytes Detected	9600A010SL	9600A101SL	9600A010SL
PCB	mg/Kg	Aroclor 1260	2.84	0.466	0.47 C

Comments: The primary blind duplicate results do not agree with each other, and the QA result does not agree with one of the primary results. Refer to section 8 for discussion.

TABLE IV

Matrix: Soil		Field Identification:	Primary Samples		QA Sample
Parameter	Units	Analytes Detected	9600A020SL	9600A102SL	9600A020SL
PCB	mg/Kg	Aroclor 1260	0.146	0.132	0.28 J,C

Comments: The data agree.

µg/L or µg/Kg = parts per billion (ppb)
< {reporting limit} = analyte not detected
C = confirmed by second column GC

mg/L or mg/Kg = parts per million (ppm)
J = estimated concentration

CENPP-PE-L (96-0204)
Comparison of Primary and QA Data

Sparrevohn PCB

TABLE V

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600A030SL	9600A103SL	9600A030SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	1.10	1.67	2.1 C

Comments: The data agree.

TABLE VI

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600A040SL	9600A104SL	9600A040SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	1.66	85.9	56 C

Comments: The primary blind duplicate results do not agree with each other, and the QA result does not agree with one of the primary results. Refer to section 8 for discussion.

TABLE VII

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600A050SL	9600A105SL	9600A050SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	62.3	24.2	28 C

Comments: The data agree.

TABLE VIII

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600A060SL	9600A106SL	9600A060SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	5.95	0.80	2.0 C

Comments: The primary blind duplicates do not agree with each other. Refer to section 8 for discussion.

$\mu\text{g/L}$ or $\mu\text{g/Kg}$ = parts per billion (ppb)
< {reporting limit} = analyte not detected
C = confirmed by second column GC

mg/L or mg/Kg = parts per million (ppm)
J = estimated concentration

CENPP-PE-L (96-0204)
Comparison of Primary and QA Data

Sparrevohn PCB

TABLE IX

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600A070SL	9600A107SL	9600A070SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	21.1	30.8	30 C

Comments: The data agree.

TABLE X

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600B080SL	9600B108SL	9600B080SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	0.0211 J	2.81	< 0.4

Comments: The data do not agree. Refer to section 8 for discussion.

TABLE XI

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	9600C090SL	9600C109SL	9600C090SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	2.60	< 0.0340	14 C

Comments: The data do not agree. Refer to section 8 for discussion.

TABLE XII

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	960SS010SL	960SS011SL	960SS010SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	2.24	2.48	3.1 C

Comments: The data agree.

$\mu\text{g/L}$ or $\mu\text{g/Kg}$ = parts per billion (ppb)
< {reporting limit} = analyte not detected
C = confirmed by second column GC

mg/L or mg/Kg = parts per million (ppm)
J = estimated concentration

CENPP-PE-L (96-0204)
Comparison of Primary and QA Data

Sparrevohn PCB

TABLE XIII

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	96TC4002SL	96TC4003SL	96TC4101SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	8.84	3.81	2.7 C

Comments: The data agree.

TABLE XIV

			Primary Samples		QA Sample
Matrix: Soil		Field Identification:	96TC5001SL	96TC5002	96TC5101SL
Parameter	Units	Analytes Detected			
PCB	mg/Kg	Aroclor 1260	6.48	6.61	2.9 C

Comments: The data agree.

$\mu\text{g/L}$ or $\mu\text{g/Kg}$ = parts per billion (ppb)
< {reporting limit} = analyte not detected
C = confirmed by second column GC

mg/L or mg/Kg = parts per million (ppm)
J = estimated concentration

CENPP-PE-L (96-0204)
Chemical Quality Assurance Report

9. PROBLEMS ENCOUNTERED/CORRECTIVE ACTIONS TAKEN:

- 9.1 The sample comparison key provided by the sampler was incomplete. For three of the QA split samples, the identities of the associated primary samples were inferred from the sample naming protocol and the dates and times of sample collection.
- 9.2 The numerous disagreements in PCB concentration among the field blind duplicate and split samples and the apparent heterogeneity of some samples suggest that results for at least some of the sampling locations may not necessarily be representative. The QA laboratory described most of the QA samples as "rocky", and this could, in part, account for the heterogeneity and poor reproducibility of results.
- 9.3 The results of field tests for approximate PCB concentrations were included on the COC records submitted to the laboratories. Such information could bias the results reported by a laboratory.

HTRW COOLER RECEIPT FORM

Project: Sparrevohn PCB W.O.# 96-0204

Cooler received on 6/6/96 and opened on 6/6/96 by Pamela O. Amie

Pamela O. Amie
(signature)

- 1. Was cooler scanned for presence of radioactivity, and noted if found? . . . YES NO
- 2. Were custody seals on outside of cooler and intact? . . . YES NO
 - a. If YES, how many and where: 2 Frontside
 - b. Were signature and date correct? . . . YES NO
- 3. Were custody papers taped to the lid inside the cooler? . . . YES NO
- 4. Were custody papers properly filled out (ink, signed, dated, etc.)? . . . YES NO
- 5. Did you sign custody papers in the appropriate place? . . . YES NO
- 6. Did you attach shipper's packing slip to this form? . . . YES NO
- 7. What kind of packing material was used? Bubble wrap
- 8. Was sufficient ice used (if appropriate)? . . . YES NO

Approved by [Signature] Date 6/6/96 Temperature 4.6

- 9. Were all bottles sealed in separate plastic bags? . . . YES NO
- 10. Did all bottles arrive in good condition (unbroken)? . . . YES NO
- 11. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) . . . YES NO
- 12. Did all bottle labels agree with custody papers? . . . YES NO
- 13. Were correct bottles used for the tests indicated? . . . YES NO
- 14. If present, were VOA vials/containers checked for absence of air bubbles/ head space and noted if found? . . . YES NO
- 15. Was sufficient volume of sample sent in each bottle? . . . YES NO
- 16. Were correct preservatives used? . . . YES NO

Approved by: [Signature] Date 6/6/96

If not approved:
a. Name of person contacted _____ Date _____
b. Corrective action taken; if necessary: _____
(see attached)

Additional Comments: _____

HTRW COOLER RECEIPT FORM

Project: Sparre vohn W.O.# 96-204
 Cooler received on 8/6/96 and opened on 8/6/96 by Colleen F. Gross
 (signature) Colleen F. Gross

1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 1 front
 - b. Were signature and date correct? YES NO
2. Were custody papers taped to the lid inside the cooler? YES NO
3. Were custody papers properly filled out (ink, signed, dated, etc.)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? bubblewrap
7. Was sufficient ice used (if appropriate)? YES NO

Approved by [Signature] Date 8/6/96 Temperature 9.2°C

8. Were all bottles sealed in separate plastic bags? YES NO 2
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) YES NO
11. Did all bottle labels agree with custody papers? YES NO
12. Were correct bottles used for the tests indicated? YES NO
13. If present, were VOA vials/containers checked for absence of air bubbles/
 head space and noted if found? Size of bubble _____ YES NO N/A
14. Was sufficient volume of sample sent in each bottle? YES NO
15. Were correct preservatives used? YES NO N/A

Approved by: [Signature] Date 8/6/96
 If not approved:
 a. Name of person contacted Del Thomas / Mark Rogers Date 8/6/96
 b. Corrective action taken; if necessary: _____ (see attached)

Additional Comments: 1. They were put on the top, inside the cooler
(since it was a small size)
2. The 2 bottles were wrapped in bubblewrap

From: Pamela O Amie Office: CENPP-PE-L Telephone: (503) 666-8143

To: Del Thomas / Mark Rogers Office: CENPA / Geo. Eng. Telephone 907/753-2681
907/361-3478

Date: 8/06/96 Pages Sent: Header + 0 Signature: [Signature]

HTRW Discrepancy Notification Form

Project Name: Sparrevohn W.O.# 96-0204

Problems Encountered:

- 1. Custody Seals: a. None present
b. Broken
c. Signature or date did not match Chain of Custody
d. Other _____
- 2. Chain of Custody Form: a. Not signed
b. Not dated Complete date not used
c. Other _____
- 3. Temperature: a. EPA requires coolers to arrive at the lab with an internal temperature of 4 ° Celsius ± 2 °, cooler arrived at 9.2 ° Celsius.
- 4. Packing of Samples: a. Samples were not in individual plastic bags
b. Broken containers
c. Labels incomplete or did not agree with Chain of Custody
d. Improper container size used
e. Air bubbles in VOA vials, size of bubble _____
f. Head space in containers
g. Improper preservative used
h. Other _____

FAXED
DATE: 8/6/96

Comments & Corrective action taken: _____

Project: Sparrejohn PCB W.O.# 96-0204
Cooler received on 8/14/96 and opened on 8/14/96 by Mark Francisco
(signature) Mark Francisco

- 1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 2 on front
 - b. Were signature and date correct? YES NO
- 2. Were custody papers taped to the lid inside the cooler? YES NO
- 3. Were custody papers properly filled out (ink, signed, dated, etc.)? YES NO
- 4. Did you sign custody papers in the appropriate place? YES NO
- 5. Did you attach shipper's packing slip to this form? YES NO
- 6. What kind of packing material was used? Newspaper
- 7. Was sufficient ice used (if appropriate)? YES NO

Approved by [Signature] Date 8/14/96 Temperature 2.4°C

- 8. Were all bottles sealed in separate plastic bags? YES NO
- 9. Did all bottles arrive in good condition (unbroken)? YES NO
- 10. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) YES NO
- 11. Did all bottle labels agree with custody papers? YES NO
- 12. Were correct bottles used for the tests indicated? YES NO
- 13. If present, were VOA vials/containers checked for absence of air bubbles/
head space and noted if found? Size of bubble _____ YES NO ^{N/A}
- 14. Was sufficient volume of sample sent in each bottle? YES NO
- 15. Were correct preservatives used? YES NO

Approved by: [Signature] Date 8/14/96

- If not approved:
- a. Name of person contacted _____ Date _____
- b. Corrective action taken; if necessary: _____

Additional Comments: Method calls for (see attached) 1 40z, received 1 80z jar of [Signature]

SOUND ANALYTICAL SERVICES, INC. 51 113

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

ANALYTICAL NARRATIVE

Client: U.S. Army Corps of Engineers Date: June 27, 1996

Project: Sparrevohn PCB

Lab No.: 571⁷⁶~~52~~ RR

NPDL Work Order No.: 96-0204

Control Sheet No.: 96-CS-0611

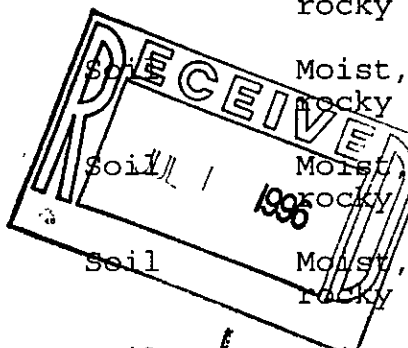
Delivered by: Fed Ex

Date Received: June 7, 1996

Condition of Samples upon Receipt: Samples were received cold and in good condition. Chain-of-custody was in order.

Sample Identification:

<u>Lab. No.</u>	<u>Field ID</u>	<u>Date Sampled</u>	<u>Matrix</u>	<u>Description</u>
57176-1	9600A010SL	5-29-96	Soil	Moist, brown silty/ rocky soil
57176-2	9600A020SL	5-29-96	Soil	Moist, brown silty/ rocky soil
57176-3	9600A030SL	5-30-96	Soil	Moist, brown silty/ rocky soil
57176-4	9600A040SL	5-30-96	Soil	Moist, brown silty/ rocky soil
57176-5	9600A050SL	5-31-96	Soil	Moist, brown silty/ rocky soil
57176-6	9600A060SL	6-1-96	Soil	Moist, brown silty/ rocky soil
57176-7	9600A070SL	6-1-96	Soil	Moist, brown silty/ rocky soil
57176-8	9600B080SL	6-1-96	Soil	Moist, brown silty/ rocky soil
57176-9	9600C090SL	6-1-96	Soil	Moist, brown silty/ rocky soil



SAMPLE PREPARATION AND ANALYSIS

Polychlorinated Biphenyls (PCBs)

Samples 57152-1 through 57152-9 were analyzed for PCBs in accordance with EPA Method 8080. The samples were extracted on 6-13-96 and analyzed on 6-14-96 and 6-15-96. Samples 57176-1 and 57176-2 were extracted one day past the required holding time.

ANALYTICAL NARRATIVE

Client: U.S. Army Corps of Engineers

Date: June 27, 1996

Project: Sparrevohn PCB

Lab No.: 57152

NPDL Work Order No.: 96-0204

Control Sheet No.: 96-CS-0611

Polychlorinated Biphenyls (PCBs), Continued

Samples 57176-4, 57176-5, 57176-7, and 57176-9 required dilution prior to analysis due to the high concentrations of Aroclor 1260 present.

The percent recoveries for Aroclor 1260 in the matrix spike and matrix spike duplicate analyses for sample 57176-1 were outside QC limits. The sample was reextracted and reanalyzed and exhibited a much lower concentration of Aroclor 1260, indicating that the sample was non-homogeneous. Calculation of Aroclor 1260 recoveries in the matrix spike and matrix spike duplicate analyses using the reextraction/reanalysis results for the sample show acceptable recoveries and an acceptable relative percent difference value. Both the original and reextraction/reanalysis sample results are included in the data report. The matrix spike/matrix spike duplicate summary report using the reextraction/reanalysis sample results is also included in the data report.

Results for target analytes that were verified as present are flagged "C" to indicate second column confirmation.

All other quality control parameters were within acceptance limits.

SOUND ANALYTICAL SERVICES, INC.

51- 115

Client Name	U S. Army Corps of Engineers
Client ID	9600A010SL
Lab ID	57176-01
Date Received:	6/7/96
Date Prepared.	6/13/96
Date Analyzed.	6/14/96
% Solids	93.23
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	90		50	150
Decachlorobiphenyl	96		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	330	
Aroclor 1221	ND	400	
Aroclor 1232	ND	200	
Aroclor 1242	ND	240	
Aroclor 1248	ND	510	
Aroclor 1254	ND	200	
Aroclor 1260	3600	400	C

SOUND ANALYTICAL SERVICES, INC.

51 116

Client Name	U. S. Army Corps of Engineers
Client ID.	9600A010SL
Lab ID:	57176X01
Date Received:	-
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	93.23
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	85		50	150
Decachlorobiphenyl	86		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	330	
Aroclor 1221	ND	410	
Aroclor 1232	ND	200	
Aroclor 1242	ND	240	
Aroclor 1248	ND	520	
Aroclor 1254	ND	200	
Aroclor 1260	470	410	C

SOUND ANALYTICAL SERVICES, INC.

51- 117

Client Name	U S Army Corps of Engineers
Client ID:	9600A020SL
Lab ID:	57176-02
Date Received:	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	96.17
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	94		50	150
Decachlorobiphenyl	100		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	330	
Aroclor 1221	ND	410	
Aroclor 1232	ND	200	
Aroclor 1242	ND	240	
Aroclor 1248	ND	520	
Aroclor 1254	ND	200	
Aroclor 1260	280	410	J C

SOUND ANALYTICAL SERVICES, INC.

51 - 118

Client Name	U. S. Army Corps of Engineers
Client ID:	9600A030SL
Lab ID.	57176-03
Date Received:	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	91.51
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	95		50	150
Decachlorobiphenyl	96		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	330	
Aroclor 1221	ND	410	
Aroclor 1232	ND	200	
Aroclor 1242	ND	240	
Aroclor 1248	ND	520	
Aroclor 1254	ND	200	
Aroclor 1260	2100	410	C

SOUND ANALYTICAL SERVICES, INC.

51- 119

Client Name	U S Army Corps of Engineers
Client ID:	9600A040SL
Lab ID:	57176-04
Date Received:	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	91.69
Dilution Factor	2000

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	125		50	150
Decachlorobiphenyl	119		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	6700	
Aroclor 1221	ND	8100	
Aroclor 1232	ND	4000	
Aroclor 1242	ND	4800	
Aroclor 1248	ND	10000	
Aroclor 1254	ND	4000	
Aroclor 1260	56000	8100	C

SOUND ANALYTICAL SERVICES, INC.

51 - 120

Client Name	U. S. Army Corps of Engineers
Client ID	9600A050SL
Lab ID	57176-05
Date Received	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	92.52
Dilution Factor	1000

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	114		50	150
Decachlorobiphenyl	116		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	3500	
Aroclor 1221	ND	4200	
Aroclor 1232	ND	2100	
Aroclor 1242	ND	2500	
Aroclor 1248	ND	5400	
Aroclor 1254	ND	2100	
Aroclor 1260	28000	4200	C

SOUND ANALYTICAL SERVICES, INC.

Client Name	U S. Army Corps of Engineers
Client ID	9600A060SL
Lab ID:	57176-06
Date Received:	6/7/96
Date Prepared.	6/13/96
Date Analyzed:	6/14/96
% Solids	94.82
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	98		50	150
Decachlorobiphenyl	103		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	320	
Aroclor 1221	ND	390	
Aroclor 1232	ND	190	
Aroclor 1242	ND	230	
Aroclor 1248	ND	500	
Aroclor 1254	ND	190	
Aroclor 1260	2000	390	C

SOUND ANALYTICAL SERVICES, INC.

51 122

Client Name	U. S. Army Corps of Engineers
Client ID:	9600A070SL
Lab ID:	57176-07
Date Received:	6/7/96
Date Prepared:	6/13/96
Date Analyzed	6/14/96
% Solids	95.45
Dilution Factor	1000

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	139		50	150
Decachlorobiphenyl	145		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	3100	
Aroclor 1221	ND	3700	
Aroclor 1232	ND	1800	
Aroclor 1242	ND	2200	
Aroclor 1248	ND	4800	
Aroclor 1254	ND	1800	
Aroclor 1260	30000	3700	C

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S Army Corps of Engineers
Client ID:	9600B080SL
Lab ID	57176-08
Date Received	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/15/96
% Solids	96.25
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	98		50	150
Decachlorobiphenyl	104		50	150

Sample results are on a dry weight basis

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	330	
Aroclor 1221	ND	400	
Aroclor 1232	ND	200	
Aroclor 1242	ND	240	
Aroclor 1248	ND	510	
Aroclor 1254	ND	200	
Aroclor 1260	ND	400	

SOUND ANALYTICAL SERVICES, INC.

51 124

Client Name	U. S. Army Corps of Engineers
Client ID:	9600C090SL
Lab ID:	57176-09
Date Received:	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/15/96
% Solids	94.44
Dilution Factor	500

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	105		50	150
Decachlorobiphenyl	110		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	1500	
Aroclor 1221	ND	1900	
Aroclor 1232	ND	920	
Aroclor 1242	ND	1100	
Aroclor 1248	ND	2400	
Aroclor 1254	ND	920	
Aroclor 1260	14000	1900	C

SOUND ANALYTICAL SERVICES, INC.

51 - 125

Lab ID:	Method Blank - PE573
Date Received:	-
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	99		50	150
Decachlorobiphenyl	100		50	150

Sample results are on an as received basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	300	
Aroclor 1221	ND	360	
Aroclor 1232	ND	180	
Aroclor 1242	ND	210	
Aroclor 1248	ND	460	
Aroclor 1254	ND	180	
Aroclor 1260	ND	360	

SOUND ANALYTICAL SERVICES, INC.

51 - 126

Matrx Spike/Matrix Spike Duplicate Report

Client Sample ID:	9600A010SL
Lab ID:	57176-01
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
QC Batch ID:	PE573

Organochlorine Pesticides and PCBs by USEPA Method 8080

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aroclor 1260	3600	1060	1380	0	1510	0	0	N

SOUND ANALYTICAL SERVICES, INC.

51 - 127

Client Name	U. S. Army Corps of Engineers
Client ID	9600A010SL - ms
Lab ID	57176S01
Date Received	6/7/96
Date Prepared	6/13/96
Date Analyzed	6/14/96
% Solids	93.23
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	92		50	150
Decachlorobiphenyl	100		50	150

Sample results are on a dry weight basis

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	1400	410	C

SOUND ANALYTICAL SERVICES, INC.

Client Name	U S. Army Corps of Engineers
Client ID.	9600A010SL - msd
Lab ID	57176D01
Date Received	6/7/96
Date Prepared:	6/13/96
Date Analyzed:	6/14/96
% Solids	93.23
Dilution Factor	100

Organochlorine Pesticides and PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	96		50	150
Decachlorobiphenyl	102		50	150

Sample results are on a dry weight basis

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	1500	410	C

SOUND ANALYTICAL SERVICES, INC.

51 129

Matrx Spike/Matrx Spike Duplicate Report

Client Sample ID	9600A010SL
Lab ID	57176-01
Date Prepared:	6/13/96
Date Analyzed	6/14/96
QC Batch ID.	PE573

Organochlorine Pesticides and PCBs by USEPA Method 8080

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aroclor 1260	460	1060	1380	86.5	1510	98.7	13	

SOUND ANALYTICAL SERVICES, INC.

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 • TELEPHONE 206-922-2310 • FAX 206-922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- B1 This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank)
- B2 This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank)
- C. Additional confirmation performed.
- D The reported result for this analyte is calculated based on a secondary dilution factor
- E The concentration of this analyte exceeded the instrument calibration range
- J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity
- MCL Maximum Contaminant Level
- MDL Method Detection Limit
- N. See analytical narrative
- ND Not Detected
- PQL Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____
- X2 Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3 Identification and quantification of peaks was complicated by matrix interference, GC/MS confirmation is recommended.
- X4. RPD for duplicates outside advisory QC limits. Sample was re-analyzed with similar results
- X4a. RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit
- X5 Matrix spike was diluted out during analysis
- X6 Recovery of matrix spike was outside advisory QC limits. Sample was re-analyzed with similar results
- X7. Recovery of matrix spike outside advisory QC limits. Matrix interference is indicated by blank spike recovery data
- X7a Recovery and/or RPD values for MS/MSD outside advisory QC limits due to high contaminant levels
- X8. Surrogate was diluted out during analysis
- X9 Surrogate recovery outside advisory QC limits due to matrix composition

SOUND ANALYTICAL SERVICES, INC.

51 131

EPA Method 8080 - Soil/Oil/Wipe

PCB matrix spike recovery and relative percent difference advisory limits:

	<u>% Recovery</u>	<u>RPD</u>
Aroclor XXXX	50 - 150	35

CHAIN OF CUSTODY

CT&E Ref:

Reports to:

GEO ENGINEERS, INC.
4951 EAGLE STREET
ANCHORAGE, ALASKA
907 561-3478 Fax: (907) 561-5123

Invoice to:

96-0204

Laboratory:

CT&E Environmental Services Inc
200 W Potter Dr.
Anchorage, AK 99518-1605
Phone (907) 562-2343
Fax: (907) 561-5301

Contact person for questions concerning these samples: Mark Rogers

Phone: 907 561-3478

Fax: 907 561-5123

PLEASE RETURN COPIES TO ABOVE ADDRESS.

Project Name/Number SPARREVOHN LLRS
Sampled By MWR / WH/SM

Special Instructions
Handle samples with caution, possible high concentration of PCBs

Lab #	Sample #	Date/Time Sampled	# of Containers	Sample Matrix	EPA 8080 PCB	Field Test Results PCB (PPM)	Comments/Notes
1	96 00A 010 SL	5/29/96 16:08	1	Soil	X	1	ALL SAMPLES TO BE ANALYZED STANDARD TAI EXTRA SAMPLE + DUPLICATE SENT TO CTE
2	96 00A 020 SL	5/29/96 19:20	1	Soil	X	1	
3	96 00A 030 SL	5/30/96 11:02	1	Soil	X	4	
4	96 00A 040 SL	5/30/96 18:45	1	Soil	X	11	
5	96 00A 050 SL	5/31/96 16:23	1	Soil	X	5	
6	96 00A 060 SL	6/1/96 16:25	1	Soil	X	4	
7	96 00A 070 SL	6/1/96 16:57	1	Soil	X	1	
8	96 00B 080 SL	6/1/96 20:10	1	Soil	X	1	
9	96 00C 090 SL	6/1/96 21:35	1	Soil	X	1	
		5/1/96	1	Soil	X		

END OF PHASE II PCB SAMPLING

Relinquished By:

Received at Laboratory By:

Number of Containers
COC Seals/Intact Y/N/A
Temperature
Remound Required
Data Deliverables Required
Level I Level II Level III

Signature: *Mark W. Rogers* Time: 08:30
Printed Name: Mark W. Rogers Date: 6/5/96

Signature: *Pamela D. Amie* Time: 1000
Printed Name: Pamela D. Amie Date: 6/6/96

Relinquished By: Pamela D. Amie 6/6/96 1000
6/7/96 9477

SAS LAB NO. 577k

PAGE 1 OF 1

COOLER RECEIPT FORM

PROJECT: Sparrowhawk PCB W.O.# 96-0204

COOLER RECEIVED ON 6-7-96 AND OPENED ON 6-7-96 BY Biang

Biang
(SIGNATURE)

Temperature upon receipt: cooler 3.0 °C
temp. blank _____ °C

- 1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 2 front (left+right)
 - b. Were signature and date correct? YES NO
- 2. Were custody papers taped to lid inside cooler? YES NO
- 3. Were custody papers properly filled out (ink, signed, etc)? YES NO
- 4. Did you sign custody papers in the appropriate place? YES NO
- 5. Did you attach shipper's packing slip to this form? YES NO
- 6. What kind of packing material was used? vermiculite
- 7. Was sufficient ice used (if appropriate)? YES NO
- 8. Were all bottles sealed in separate plastic bags? YES NO
- 9. Did all bottles arrive in good condition (unbroken)? YES NO
- 10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
- 11. Did all bottle labels and tags agree with custody papers? YES NO
- 12. Were correct bottles used for the test indicated? YES NO
- 13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
- 14. Was sufficient amount of sample sent in each bottle? YES NO
- 15. Were correct preservatives used? YES NO
- 16. Corrective action taken, if necessary:

a. Name of person contacted: _____
b. Date: _____

HTRW COOLER RECEIPT FORM

Project: Sparrevohn PCB W.O.# 96-0204
 Cooler received on 6/6/96 and opened on 6/6/96 by Pamela O. Amie
Pamela O. Amie
 (signature)

1. Was cooler scanned for presence of radioactivity, and noted if found? YES NO
 2. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 2 Frontside
 - b. Were signature and date correct? YES NO
 3. Were custody papers taped to the lid inside the cooler? YES NO
 4. Were custody papers properly filled out (ink, signed, dated, etc.)? YES NO
 5. Did you sign custody papers in the appropriate place? YES NO
 6. Did you attach shipper's packing slip to this form? YES NO
 7. What kind of packing material was used? Bubble wrap
 8. Was sufficient ice used (if appropriate)? YES NO
- Approved by JOS Date 6/6/96 Temperature 4.6

9. Were all bottles sealed in separate plastic bags? YES NO
10. Did all bottles arrive in good condition (unbroken)? YES NO
11. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) YES NO
12. Did all bottle labels agree with custody papers? YES NO
13. Were correct bottles used for the tests indicated? YES NO
14. If present, were VOA vials/containers checked for absence of air bubbles/ head space and noted if found? YES NO
15. Was sufficient volume of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO

Approved by: JOS Date 6/6/96
 if not approved.
 a. Name of person contacted _____ Date _____
 b. Corrective action taken; if necessary: _____
 (see attached)

Additional Comments. _____

8080 DATA PACKAGE

INITIAL CALIBRATION DATA

PCB %RSD

Date Analyzed: 13-Jun-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-1701

COMPOUND	10 ug/L Response	25 ug/L Response	50 ug/L Response	100 ug/L Response	250 ug/L Response	500 ug/L Response	Linear Regression Coefficient	t2
PCB 1242-1	19655	44590	112349	185881	389072	742924	8.21E-04	0.9988
PCB 1242-2	27477	70158	125392	242967	549508	1088414	5.85E-04	0.9981
PCB 1242-3	77739	158970	294176	551428	1300482	2540745	2.40E-04	0.9992
PCB1242-4	30044	69798	128549	241026	547370	1092603	5.68E-04	0.9984
PCB1242-5	22082	52550	99956	192153	442665	877794	7.33E-04	0.9980
PCB 1242 - Total	17700	15843	15208	14135	12916	12685	Average RF 15160	Std. Dev. 1903
PCB 1254-1	68923	156764	295551	558315	1315038	2493263	2.62E-04	0.9989
PCB 1254-2	100955	229033	422733	661259	1904763	3602351	1.82E-04	0.9988
PCB 1254-3	76678	179161	330747	629100	1518726	2850103	2.26E-04	0.9995
PCB 1254-4	28969	91441	171758	327401	775789	1478330	4.48E-04	0.9989
PCB 1254-5	43302	126919	233569	446090	1080781	2078247	2.59E-04	0.9999
PCB 1254 - Total	31883	31333	29087	26222	26380	25005	Average RF 28981	Std. Dev. 2882
PCB 1260-1	82364	184094	344622	659180	1596713	2987931	2.10E-04	0.9995
PCB 1260-2	103595	260605	494537	947001	2326322	4241210	1.41E-04	0.9993
PCB 1260-3	48161	139839	275989	519453	1264448	2447464	2.54E-04	0.9993
PCB 1260-4	124824	332515	634460	1244954	3034873	5622895	1.05E-04	0.9994
PCB 1260-5	117242	300150	569042	1104411	2718623	5333553	1.18E-04	0.9995
PCB 1260 - Total	47619	48688	46373	44750	43764	41266	Average RF 46239	Std. Dev. 2715
								%RSD 5.9

PCB %RSD

Date Analyzed: 13-Jun-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-608

COMPOUND	10 ug/L	25 ug/L	50 ug/L	100 ug/L	250 ug/L	500 ug/L	Linear Regression		r ²
	Response	Response	Response	Response	Response	Response	Coefficient	Std. Dev.	
PCB 1242-1	1260	2387	4329	8345	19362	37732	1.59E-01	129	0.9980
PCB 1242-2	1756	4841	8974	15974	35537	69393	8.94E-02		0.9980
PCB 1242-3	4688	10051	18379	34063	77456	149991	4.18E-02		0.9988
PCB 1242-4	1574	4022	6946	13324	29931	58643	9.76E-02		0.9996
PCB 1242-5	1919	4710	9128	18068	40062	79663	8.70E-02		0.9982
PCB 1242 - Total	1120	1040	955	898	809	791	Average RF 964	Std. Dev. 129	%RSD 13.4
PCB 1254-1	2898	6552	11790	22206	50816	93446	6.97E-02		0.9977
PCB 1254-2	3420	7787	14202	26359	60721	111630	5.82E-02		0.9977
PCB 1254-3	968	5737	10395	19648	45721	84471	7.73E-02		0.9983
PCB 1254-4	5801	13515	24335	45739	107455	191220	3.34E-02		0.9984
PCB 1254-5	4235	8622	15453	29451	70798	128998	5.20E-02		0.9991
PCB 1254 - Total	1732	1688	1524	1434	1342	1220	Average RF 1544	Std. Dev. 199	%RSD 12.9
PCB 1260-1	4791	10903	20539	38521	90096	163425	3.63E-02		0.9980
PCB 1260-2	3199	7621	15007	28557	62253	117351	5.03E-02		0.9967
PCB 1260-3	3240	8093	15356	29057	67514	127495	4.72E-02		0.9975
PCB 1260-4	9796	22340	41902	80776	188441	330232	1.65E-02		0.9960
PCB 1260-5	5359	13189	25630	51550	118568	226072	2.61E-02		0.9999
PCB 1260 - Total	2639	2486	2369	2285	2107	1929	Average RF 2377	Std. Dev. 256	%RSD 10.8

CONTINUING CALIBRATION DATA

PCB Continuing Calibration Verification Report

Date Analyzed: 14-Jun-96
 File # 06149601
 Instrument 3400-II
 Analysis Column: DB-1701

	True Value	Reported Value	% D
PCB1242-1	100	97.0	3.0
PCB1242-2	100	109.2	9.2
PCB1242-3	100	102.5	2.5
PCB1242-4	100	109.8	9.8
PCB1242-5	100	109.5	9.5

PCB1242	100	105.6	5.6
---------	-----	-------	-----

Date Analyzed: 14-Jun-96
 File # 06149601
 Instrument: 3400-II
 Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1242-1	100	102.1	2.1
PCB1242-2	100	109.9	9.9
PCB1242-3	100	107.2	7.2
PCB1242-4	100	107.0	7.0
PCB1242-5	100	111.9	11.9

PCB1242	100	107.6	7.6
---------	-----	-------	-----

The Percent Difference Acceptance Limit = $\pm 15\%$

PCB Continuing Calibration Verification Report

Date Analyzed 14-Jun-96
 File # 06149602
 Instrument 3400-II
 Analysis Column DB-1701

True Value	Reported Value	% D
------------	----------------	-----

PCB1254-1	100	109.1	9.1
PCB1254-2	100	112.2	12.2
PCB1254-3	100	104.8	4.8
PCB1254-4	100	110.3	10.3
PCB1254-5	100	89.1	10.9

PCB1254	100	105.1	5.1
---------	-----	-------	-----

Date Analyzed 14-Jun-96
 File # 06149602
 Instrument 3400-II
 Confirmation Column DB-608

True Value	Reported Value	% D
------------	----------------	-----

PCB1254-1	100	110.1	10.1
PCB1254-2	100	109.2	9.2
PCB1254-3	100	111.1	11.1
PCB1254-4	100	109.7	9.7
PCB1254-5	100	101.5	1.5

PCB1254	100	108.3	8.3
---------	-----	-------	-----

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed 14-Jun-96
 File # 06149603
 Instrument 3400-II
 Analysis Column DB-1701

True Value	Reported Value	% D
------------	----------------	-----

PCB1260-1	100	98.3	1.7
PCB1260-2	100	96.4	3.6
PCB1260-3	100	98.9	1.2
PCB1260-4	100	94.9	5.1
PCB1260-5	100	96.2	3.8

PCB1260	100	96.9	3.1
---------	-----	------	-----

Date Analyzed 14-Jun-96
 File # 06149603
 Instrument 3400-II
 Confirmation Column DB-608

True Value	Reported Value	% D
------------	----------------	-----

PCB1260-1	100	105.7	5.7
PCB1260-2	100	106.5	6.5
PCB1260-3	100	105.6	5.6
PCB1260-4	100	104.8	4.8
PCB1260-5	100	99.9	0.1

PCB1260	100	104.5	4.5
---------	-----	-------	-----

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed 14-Jun-96
 File # 06149614
 Instrument 3400-II
 Analysis Column. DB-1701

	True Value	Reported Value	% D
PCB1242-1	100	105.4	5.4
PCB1242-2	100	112.8	12.8
PCB1242-3	100	104.2	4.2
PCB1242-4	100	101.4	1.4
PCB1242-5	100	92.6	7.4
PCB1242	100	103.3	3.3

Date Analyzed 14-Jun-96
 File # 06149614
 Instrument 3400-II
 Confirmation Column DB-608

	True Value	Reported Value	% D
PCB1242-1	100	102.8	2.8
PCB1242-2	100	114.2	14.2
PCB1242-3	100	111.9	11.9
PCB1242-4	100	110.0	10.0
PCB1242-5	100	113.0	13.0
PCB1242	100	110.4	10.4

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed 14-Jun-96
 File # 06149615
 Instrument. 3400-II
 Analysis Column: DB-1701

	True Value	Reported Value	% D
PCB1254-1	100	112.4	12.4
PCB1254-2	100	105.2	5.2
PCB1254-3	100	113.2	13.2
PCB1254-4	100	106.3	6.3
PCB1254-5	100	105.6	5.6
PCB1254	100	108.6	8.6

Date Analyzed: 14-Jun-96
 File # 06149615
 Instrument: 3400-II
 Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1254-1	100	109.9	9.9
PCB1254-2	100	111.0	11.0
PCB1254-3	100	112.5	12.5
PCB1254-4	100	113.9	13.9
PCB1254-5	100	105.6	5.6
PCB1254	100	110.6	10.6

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed 15-Jun-96
 File # 06149616
 Instrument 3400-II
 Analysis Column DB-1701

	True Value	Reported Value	% D
PCB1260-1	100	102.5	2.5
PCB1260-2	100	101.0	1.0
PCB1260-3	100	101.5	1.5
PCB1260-4	100	99.8	0.2
PCB1260-5	100	101.3	1.3
PCB1260	100	101.2	1.2

Date Analyzed. 15-Jun-96
 File # 06149616
 Instrument: 3400-II
 Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1260-1	100	109.6	9.6
PCB1260-2	100	112.2	12.2
PCB1260-3	100	108.8	8.8
PCB1260-4	100	109.9	9.9
PCB1260-5	100	105.8	5.8
PCB1260	100	109.3	9.3

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed: 15-Jun-96
 File # 06149619
 Instrument: 3400-II
 Analysis Column DB-1701

True Value	Reported Value	% D
------------	----------------	-----

PCB1242-1	100	150.0	50.0
PCB1242-2	100	123.0	23.0
PCB1242-3	100	124.7	24.7
PCB1242-4	100	131.6	31.6
PCB1242-5	100	126.8	26.8

PCB1242	100	131.2	31.2
---------	-----	-------	------

Date Analyzed: 15-Jun-96
 File # 06149619
 Instrument: 3400-II
 Confirmation Column: DB-608

True Value	Reported Value	% D
------------	----------------	-----

PCB1242-1	100	129.0	29.0
PCB1242-2	100	131.9	31.9
PCB1242-3	100	128.3	28.3
PCB1242-4	100	130.5	30.5
PCB1242-5	100	131.1	31.1

PCB1242	100	130.2	30.2
---------	-----	-------	------

The Percent Difference Acceptance Limit = $\pm 15\%$

PCB Continuing Calibration Verification Report

Date Analyzed. 15-Jun-96
 File # 06149620
 Instrument 3400-II
 Analysis Column DB-1701

	True Value	Reported Value	% D
PCB1254-1	100	118.5	18.5
PCB1254-2	100	121.8	21.8
PCB1254-3	100	114.7	14.7
PCB1254-4	100	98.2	1.8
PCB1254-5	100	102.8	2.8
PCB1254	100	111.2	11.2

Date Analyzed. 15-Jun-96
 File # 06149620
 Instrument. 3400-II
 Confirmation Column DB-608

	True Value	Reported Value	% D
PCB1254-1	100	133.7	33.7
PCB1254-2	100	132.7	32.7
PCB1254-3	100	128.6	28.6
PCB1254-4	100	146.7	46.7
PCB1254-5	100	119.9	19.9
PCB1254	100	132.3	32.3

The Percent Difference Acceptance Limit = +/- 15%

PCB Continuing Calibration Verification Report

Date Analyzed 15-Jun-96
 File # 06149621
 Instrument 3400-II
 Analysis Column: DB-1701

	True Value	Reported Value	% D
PCB1260-1	100	109.2	9.2
PCB1260-2	100	107.7	7.7
PCB1260-3	100	101.7	1.7
PCB1260-4	100	107.3	7.3
PCB1260-5	100	107.4	7.4
PCB1260	100	106.7	6.7

Date Analyzed: 15-Jun-96
 File # 06149621
 Instrument: 3400-II
 Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1260-1	100	114.6	14.6
PCB1260-2	100	131.3	31.3
PCB1260-3	100	116.4	16.4
PCB1260-4	100	118.9	18.9
PCB1260-5	100	97.4	2.6
PCB1260	100	115.7	15.7

The Percent Difference Acceptance Limit = +/- 15%

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

ANALYTICAL NARRATIVE

Client: U.S. Army Corps of Engineers Date: September 4, 1996
 Project: Sparrevohn PCB Lab No.: 58542
 NPDL Work Order No.: 96-0204 Control Sheet No.: 96-CS-0818
 Delivered by: Fed Ex Date Received: August 7, 1996

Condition of Samples upon Receipt: Samples were received cold and in good condition. Chain-of-custody was in order.

Sample Identification:

<u>Lab. No.</u>	<u>Field ID</u>	<u>Date Sampled</u>	<u>Matrix</u>	<u>Description</u>
58542-1	96-OSS-101SL	7-31-96	Soil	Moist, brown sandy soil
58542-2	96-TC4-101-SL	8-1-96	Soil	Moist, brown sandy soil

SAMPLE PREPARATION AND ANALYSIS

Polychlorinated Biphenyls (PCBs)

Samples 58542-1 through 58542-10 were analyzed for PCBs in accordance with EPA SW-846 Method 8080. The samples were extracted in accordance with EPA SW-846 Method 3550 on 8-9-96 and analyzed on 8-9-96.

The percent difference values for Aroclor 1242 and Aroclor 1260 in the end-of-sequence continuing calibration verification standards on the confirmation column were outside QC limits due to column degradation, which was caused by highly contaminated samples. No action was taken based on this outlier as the percent difference values for the quantitation column were within QC acceptance limits.

All reported target analytes were confirmed by dual column analysis.

All other quality control parameters were within acceptance limits.

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S. Army Corps of Engineers
Client ID:	96-0SS-101-SL
Lab ID:	58542-01
Date Received:	8/7/96
Date Prepared:	8/9/96
Date Analyzed:	8/9/96
% Solids	88.42
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	115		50	150
Decachlorobiphenyl	123		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	360	
Aroclor 1221	ND	440	
Aroclor 1232	ND	210	
Aroclor 1242	ND	260	
Aroclor 1248	ND	560	
Aroclor 1254	ND	210	
Aroclor 1260	3100	440	

SOUND ANALYTICAL SERVICES, INC.

Client Name	U S. Army Corps of Engineers
Client ID:	96-TC4-101-SL
Lab ID:	58542-02
Date Received:	8/7/96
Date Prepared:	8/9/96
Date Analyzed:	8/9/96
% Solids	91.28
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	122		50	150
Decachlorobiphenyl	128		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	340	
Aroclor 1221	ND	420	
Aroclor 1232	ND	200	
Aroclor 1242	ND	250	
Aroclor 1248	ND	540	
Aroclor 1254	ND	200	
Aroclor 1260	2700	420	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PE468
Date Received:	-
Date Prepared:	8/9/96
Date Analyzed:	8/9/96
% Solids	
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	116		50	150
Decachlorobiphenyl	140		50	150

Sample results are on an as received basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	320	
Aroclor 1221	ND	390	
Aroclor 1232	ND	190	
Aroclor 1242	ND	230	
Aroclor 1248	ND	500	
Aroclor 1254	ND	190	
Aroclor 1260	ND	390	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID: 96-0SS-101-SL
Lab ID: 58542-01
Date Prepared: 8/9/96
Date Analyzed: 8/9/96
QC Batch ID: PE468

PCBs by USEPA Method 8080

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aroclor 1260	3100	1070	4450	131	4530	140	6.6	

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S. Army Corps of Engineers
Client ID:	96-0SS-101-SL - ms
Lab ID.	58542S01
Date Received:	8/7/96
Date Prepared:	8/9/96
Date Analyzed:	8/9/96
% Solids	88.42
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	118		50	150
Decachlorobiphenyl	126		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	4500	420	

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S. Army Corps of Engineers
Client ID:	96-0SS-101-SL - msd
Lab ID:	58542D01
Date Received:	8/7/96
Date Prepared:	8/9/96
Date Analyzed:	8/9/96
% Solids	88.42
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	125		50	150
Decachlorobiphenyl	128		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	4500	410	

SOUND ANALYTICAL SERVICES, INC.

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 • TELEPHONE 206-922-2310 • FAX 206-922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- B1. This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank)
- B2. This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank)
- C. Additional confirmation performed
- D. The reported result for this analyte is calculated based on a secondary dilution factor
- E. The concentration of this analyte exceeded the instrument calibration range
- J. The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- N. See analytical narrative
- ND Not Detected
- PQL: Practical Quantitation Limit
- X1. Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2. Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3. Identification and quantification of peaks was complicated by matrix interference, GC/MS confirmation is recommended.
- X4. RPD for duplicates outside advisory QC limits. Sample was re-analyzed with similar results.
- X4a. RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit
- X5. Matrix spike was diluted out during analysis.
- X6. Recovery of matrix spike was outside advisory QC limits. Sample was re-analyzed with similar results
- X7. Recovery of matrix spike outside advisory QC limits. Matrix interference is indicated by blank spike recovery data
- X7a. Recovery and/or RPD values for MS/MSD outside advisory QC limits due to high contaminant levels
- X8. Surrogate was diluted out during analysis.
- X9. Surrogate recovery outside advisory QC limits due to matrix composition

SOUND ANALYTICAL SERVICES, INC.

EPA Method 8080 - Soil/Oil/Wipe

PCB matrix spike recovery and relative percent difference advisory limits:

	<u>% Recovery</u>	<u>RPD</u>
Aroclor XXXX	50 - 150	35

CHAIN OF CUSTODY

HTRW COOLER RECEIPT FORM

Project: Sparre vohn W.O.# 96-204
 Cooler received on 8/6/96 and opened on 8/6/96 by Colleen F. Gross
 (signature) Colleen F. Gross

1. Were custody seals on outside of cooler and intact? YES NO
 a. If YES, how many and where: 1 front
 b. Were signature and date correct? YES NO
 2. Were custody papers taped to the lid inside the cooler? YES NO 1
 3. Were custody papers properly filled out (ink, signed, dated, etc.)? YES NO
 4. Did you sign custody papers in the appropriate place? YES NO
 5. Did you attach shipper's packing slip to this form? YES NO
 6. What kind of packing material was used? bubblewrap
 7. Was sufficient ice used (if appropriate)? YES NO
- Approved by [Signature] Date 8/6/96 Temperature 9.2°C

8. Were all bottles sealed in separate plastic bags? YES NO 2
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) YES NO
11. Did all bottle labels agree with custody papers? YES NO
12. Were correct bottles used for the tests indicated? YES NO
13. If present, were VOA vials/containers checked for absence of air bubbles/
 head space and noted if found? Size of bubble _____ YES NO N/A
14. Was sufficient volume of sample sent in each bottle? YES NO
15. Were correct preservatives used? YES NO N/A

Approved by: [Signature] Date 8/6/96
 If not approved:
 a. Name of person contacted Del Thomas / Mark Rogers Date 8/6/96
 b. Corrective action taken; if necessary: _____

(see attached)
 Additional Comments: 1. They were put on the top, inside the cooler (since it was a small size)
2. The 2 bottles were wrapped in bubblewrap

COOLER RECEIPT FORM

PROJECT: Sparrevahn PCB W.O.# 96-0204

COOLER RECEIVED ON 8-7-96 AND OPENED ON 8-7-96 BY SBiang

SBiang
(SIGNATURE)

Temperature upon receipt: cooler 4.0 °C
temp. blank _____ °C

1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 1-front left, 1-right back
 - b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? none YES NO
6. What kind of packing material was used? bubblewrap
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
sealed up in bubblewrap
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? N/A YES NO
14. Was sufficient amount of sample sent in each bottle? YES NO
15. Were correct preservatives used? YES NO
16. Corrective action taken, if necessary:
 - a. Name of person contacted: _____
 - b. Date: _____

PCB DATA PACKAGE

INITIAL CALIBRATION DATA

PCB %RSD

Date Analyzed: 7-Aug-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-1701

COMPOUND	10 ug/L Response	25 ug/L Response	50 ug/L Response	100 ug/L Response	250 ug/L Response	500 ug/L Response	Linear Regression Coefficient	r2
PCB 1242-1	5184	13046	46831	96477	221700	410754	7.43E-04	0.9988
PCB 1242-2	1.00E+04	3.09E+04	6.16E+04	1.26E+05	2.84E+05	5.14E+05	4.52E-04	0.9981
PCB 1242-3	3.10E+04	7.68E+04	1.50E+05	3.04E+05	6.75E+05	1.22E+06	1.86E-04	0.9992
PCB1242-4	1.38E+04	3.20E+04	6.40E+04	1.32E+05	2.89E+05	5.13E+05	4.35E-04	0.9984
PCB1242-5	8.53E+03	2.34E+04	4.86E+04	9.94E+04	2.28E+05	4.04E+05	5.66E-04	0.9980
PCB 1242 - Total	6856	7048	7429	7578	6792	6128	7141	7.2
PCB 1248-1	20948	49868	96123	188900	462897	830659	1.97E-04	0.9989
PCB 1248-2	30934	70834	139199	264499	647480	1157234	1.91E-04	0.9988
PCB 1248-3	19842	47037	94098	176808	450993	802264	1.73E-04	0.9995
PCB 1248-4	42748	105644	205659	386151	950362	1711447	3.45E-04	0.9989
PCB 1248-5	29913	81124	166407	305600	743407	1317482	2.51E-04	0.9999
PCB 1248 - Total	14439	14180	14030	13220	13021	11638	13778	7.5
PCB 1260-1	33004	76607	144133	295990	646251	1069250	1.76E-04	0.9995
PCB 1260-2	35799	90085	170392	348523	774676	269499	1.22E-04	0.9993
PCB 1260-3	55639	133856	263977	546104	1221629	2018580	2.10E-04	0.9993
PCB 1260-4	68607	169587	301195	679345	1526189	2530407	8.69E-05	0.9994
PCB 1260-5	65519	160754	307549	639041	1433705	2309285	9.41E-05	0.9995
PCB 1260 - Total	25857	25236	23745	25090	22410	16394	24467	14.4

PCB %RSD

Date Analyzed: 7-Aug-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-608

COMPOUND	10 ug/L Response	25 ug/L Response	50 ug/L Response	100 ug/L Response	250 ug/L Response	500 ug/L Response	Linear Regression Coefficient	r2
PCB 1242-1	539	1828	2530	6005	12872	22932	1.21E-02	0.9980
PCB 1242-2	1165	2751	5784	11497	25703	46763	6.42E-03	0.9980
PCB 1242-3	2681	6422	12101	25214	56497	105157	2.93E-03	0.9988
PCB 1242-4	872	2417	4564	9447	21178	37268	7.86E-03	0.9996
PCB 1242-5	1254	2963	6394	13085	29819	52089	5.71E-03	0.9982
PCB 1242 - Total	651	655	627	652	584	528	Average RF 634	Std. Dev. 51
PCB 1248-1	1919	4359	8079	15344	37224	66446	4.74E-03	0.9977
PCB 1248-2	1821	3450	6544	12546	30740	54177	3.89E-03	0.9977
PCB 1248-3	1548	3797	7424	14151	34197	61744	5.33E-03	0.9983
PCB 1248-4	1784	4316	8533	16292	39371	71075	2.61E-03	0.9984
PCB 1248-5	1659	3766	7457	14606	35156	64743	3.51E-03	0.9991
PCB 1248 - Total	873	788	761	729	707	636	Average RF 772	Std. Dev. 80
PCB 1260-1	3011	7045	13328	27719	61831	104151	2.61E-03	0.9980
PCB 1260-2	3362	7960	14988	31737	71962	120929	3.31E-03	0.9967
PCB 1260-3	3606	8314	16508	33219	74113	124895	3.48E-03	0.9975
PCB 1260-4	6713	16479	31293	68437	160915	267237	1.15E-03	0.9960
PCB 1260-5	3772	7451	14270	30891	70689	116215	1.98E-03	0.9999
PCB 1260 - Total	2046	1890	1808	1920	1758	1467	Average RF 1884	Std. Dev. 197
								%RSD 10.5

CONTINUING CALIBRATION DATA

PCB Continuing Calibration Verification Report

Date Analyzed: 9-Aug-96
 File # 08099602
 Instrument 3400-II
 Analysis Column DB-1701

	True Value	Reported Value	% D
PCB1242-1	100	108.7	8.7
PCB1242-2	100	104.6	4.6
PCB1242-3	100	104.1	4.1
PCB1242-4	100	105.4	5.4
PCB1242-5	100	105.7	5.7
PCB1260-1	100	106.3	6.3
PCB1260-2	100	106.6	6.6
PCB1260-3	100	108.5	8.5
PCB1260-4	100	109.3	9.3
PCB1260-5	100	108.4	8.4

PCB1242	100	105.3	5.3
PCB1260	100	108.2	8.2

Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1242-1	100	119.7	19.7
PCB1242-2	100	114.7	14.7
PCB1242-3	100	109.1	9.1
PCB1242-4	100	116.8	16.8
PCB1242-5	100	104.4	4.4
PCB1260-1	100	116.1	16.1
PCB1260-2	100	112.5	12.5
PCB1260-3	100	115.7	15.7
PCB1260-4	100	110.5	10.5
PCB1260-5	100	115.5	15.5
PCB1242	100	111.0	11.0
PCB1260	100	113.3	13.3

PCB Continuing Calibration Verification Report

Date Analyzed: 9-Aug-96
 File # 08099615
 Instrument 3400-II
 Analysis Column DB-1701

True Value	Reported Value	% D
------------	----------------	-----

PCB1242-1	100	92.7	7.3
PCB1242-2	100	103.4	3.4
PCB1242-3	100	106.9	6.9
PCB1242-4	100	110.0	10.0
PCB1242-5	100	99.1	0.9
PCB1260-1	100	110.9	10.9
PCB1260-2	100	111.3	11.3
PCB1260-3	100	112.2	12.2
PCB1260-4	100	107.7	7.7
PCB1260-5	100	107.0	7.0

PCB1242	100	104.2	4.2
PCB1260	100	109.4	9.4

Confirmation Column DB-608

True Value	Reported Value	% D
------------	----------------	-----

PCB1242-1	100	113.3	13.3
PCB1242-2	100	121.7	21.7
PCB1242-3	100	120.0	20.0
PCB1242-4	100	108.6	8.6
PCB1242-5	100	110.6	10.6
PCB1260-1	100	123.3	23.3
PCB1260-2	100	121.4	21.4
PCB1260-3	100	123.1	23.1
PCB1260-4	100	116.0	16.0
PCB1260-5	100	127.1	27.1

PCB1242	100	115.9	15.9	*
PCB1260	100	120.9	20.9	*

SOUND ANALYTICAL SERVICES, INC.

51 170

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

ANALYTICAL NARRATIVE

Client: U.S. Army Corps of Engineers Date: September 12, 1996

Project: Sparrevohn PCB Lab No.: 58738

NPDL Work Order No.: 96-0204 Control Sheet No.: 96-CS-0849

Delivered by: Fed Ex Date Received: August 15, 1996

Condition of Samples upon Receipt: Samples were received cold and in good condition. Chain-of-custody was in order.

Sample Identification:

<u>Lab. No.</u>	<u>Field ID</u>	<u>Date Sampled</u>	<u>Matrix</u>	<u>Description</u>
58738-1	96-TC5-101-SL	8-12-96	Soil	Slightly moist, black silty soil with rocks

Polychlorinated Biphenyls (PCBs)

Sample 58738-1 was analyzed for PCBs in accordance with EPA SW-846 Method 8080. The sample was extracted in accordance with EPA SW-846 Method 3550 on 8-26-96 and analyzed on 9-9-96.

The percent recoveries and relative percent difference values for Aroclor 1260 in the matrix spike/matrix spike duplicate analyses for sample 58738-1 were outside QC limits. The original sample contained a significant concentration of Aroclor 1260, and the sample matrix was non-homogeneous, which may have caused to the outliers.

The percent difference values for Aroclors 1242 and 1260 in the continuing calibration verifications for the confirmation column exceeded Method specified control limits. No action was taken, as the percent difference values quantitation column values for Aroclors 1242 and 1260 in the continuing calibration verifications were all within QC acceptance limits.

All reported target analytes were confirmed by dual column analysis.

All other quality control parameters were within acceptance limits.

SOUND ANALYTICAL SERVICES, INC.

Client Name	U S. Army Corps of Engineers
Client ID.	96-TC5-101-SL
Lab ID:	58738-01
Date Received:	8/15/96
Date Prepared:	8/26/96
Date Analyzed.	9/9/96
% Solids	89.53
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	92		50	150
Decachlorobiphenyl	109		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	340	
Aroclor 1221	ND	420	
Aroclor 1232	ND	200	
Aroclor 1242	ND	250	
Aroclor 1248	ND	540	
Aroclor 1254	ND	200	
Aroclor 1260	2900	420	

SOUND ANALYTICAL SERVICES, INC.

Lab ID.	Method Blank - PE488
Date Received.	-
Date Prepared:	8/26/96
Date Analyzed:	9/9/96
% Solids	
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	105		50	150
Decachlorobiphenyl	122		50	150

Sample results are on an as received basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1016	ND	320	
Aroclor 1221	ND	390	
Aroclor 1232	ND	190	
Aroclor 1242	ND	230	
Aroclor 1248	ND	500	
Aroclor 1254	ND	190	
Aroclor 1260	ND	390	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	96-TC5-101-SL
Lab ID:	58738-01
Date Prepared:	8/26/96
Date Analyzed:	9/9/96
QC Batch ID:	PE488

PCBs by USEPA Method 8080

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aroclor 1260	2900	1050	3190	28.4	3350	43	41	N

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S. Army Corps of Engineers
Client ID:	96-TC5-101-SL - ms
Lab ID	58738S01
Date Received:	8/15/96
Date Prepared:	8/26/96
Date Analyzed:	9/9/96
% Solids	89.53
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	94		50	150
Decachlorobiphenyl	116		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	3200	410	

SOUND ANALYTICAL SERVICES, INC.

Client Name	U. S Army Corps of Engineers
Client ID:	96-TC5-101-SL - msd
Lab ID:	58738D01
Date Received:	8/15/96
Date Prepared:	8/26/96
Date Analyzed:	9/9/96
% Solids	89.53
Dilution Factor	100

PCBs by USEPA Method 8080

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
TCMX	92		50	150
Decachlorobiphenyl	111		50	150

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	MDL	Flags
Aroclor 1260	3400	410	

SOUND ANALYTICAL SERVICES, INC.

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 • TELEPHONE 206-922-2310 • FAX 206-922-5047

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank)
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank)
- C Additional confirmation performed
- D The reported result for this analyte is calculated based on a secondary dilution factor
- E: The concentration of this analyte exceeded the instrument calibration range.
- J. The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity
- MCL Maximum Contaminant Level
- MDL Method Detection Limit
- N. See analytical narrative
- ND. Not Detected
- PQL. Practical Quantitation Limit
- X1 Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____
- X2. Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3. Identification and quantification of peaks was complicated by matrix interference, GC/MS confirmation is recommended
- X4 RPD for duplicates outside advisory QC limits. Sample was re-analyzed with similar results
- X4a RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit
- X5 Matrix spike was diluted out during analysis
- X6. Recovery of matrix spike was outside advisory QC limits. Sample was re-analyzed with similar results
- X7. Recovery of matrix spike outside advisory QC limits. Matrix interference is indicated by blank spike recovery data
- X7a: Recovery and/or RPD values for MS/MSD outside advisory QC limits due to high contaminant levels
- X8 Surrogate was diluted out during analysis
- X9 Surrogate recovery outside advisory QC limits due to matrix composition

SOUND ANALYTICAL SERVICES, INC.

EPA Method 8080 - Soil/Oil/Wipe

PCB matrix spike recovery and relative percent difference advisory limits:

	<u>% Recovery</u>	<u>RPD</u>
Aroclor XXXX	50 - 150	35

CHAIN OF CUSTODY

CHAIN OF CUSTODY RECORD

DATE 08/13/96
 PAGE 1 OF 1
 LAB _____
 LAB NO. _____

GeoEngineers, Inc.
 4951 Eagle Street
 Anchorage, AK 99503-7432
 (907) 561-3478
 Fax (907) 561-5143



PROJECT NAME/LOCATION SPACEVOHNS LABS, SPARBUHNN

PROJECT NUMBER 0189-014-18

PROJECT MANAGER _____

SAMPLED BY MAEK ROGERS

SAMPLE IDENTIFICATION	SAMPLE COLLECTION		# OF JARS
	DATE	TIME	
LAB <u>96-TC5-101-SL</u>	<u>8/12/96</u>	<u>14:30</u>	<u>1</u>

ANALYSIS REQUIRED _____

NOTES/COMMENTS
 (Preserved, filtered, etc.)

FPA 8080
PER
X

RELINQUISHED BY MAEK ROGERS
 SIGNATURE _____
 PRINTED NAME MAEK ROGERS
 DATE 8/13/96 TIME 15:55

RELINQUISHED BY _____
 SIGNATURE _____
 PRINTED NAME _____
 DATE 8/14/96 TIME 1500

RELINQUISHED BY _____
 SIGNATURE _____
 PRINTED NAME _____
 DATE _____ TIME _____

RECEIVED BY _____
 SIGNATURE _____
 PRINTED NAME _____
 DATE 8/14/96 TIME 1050

RECEIVED BY _____
 SIGNATURE _____
 PRINTED NAME _____
 DATE 8/15/96 TIME 930AM

RECEIVED BY _____
 SIGNATURE _____
 PRINTED NAME _____
 DATE _____ TIME _____

ADDITIONAL COMMENTS: USACE INVOICE #96-0204 ON STANDARD 30-DAY TURN AROUND TIME.

If SAMPLE RESULTS COME BACK < 15 PPM FOR TREATMENT CELL #5, THIS WILL BE LAST SAMPLE FOR CONFIRMATION SAMPLING AND 1996.

COOLER RECEIPT FORM

PROJECT: Sparrowhawk PCB W.O.# 96-0204COOLER RECEIVED ON 8-15-96 AND OPENED ON 8-15-96 BY SGiang
SGiang
(SIGNATURE)Temperature upon receipt: cooler 3.0 °C
temp. blank _____ °C

1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 2-front
 - b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? none YES NO
6. What kind of packing material was used? bubblewrap, vermiculite
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? N/A YES NO
14. Was sufficient amount of sample sent in each bottle? YES NO
15. Were correct preservatives used? N/A YES NO
16. Corrective action taken, if necessary:
 - a. Name of person contacted: _____
 - b. Date: _____

COE mentioned that "method call for 1-4oz, + rec'd an 8oz. jar". According to sampling guides here at SAS Inc - 8oz is correct.

HTRW COOLER RECEIPT FORM

Project: Sparre John PCB W.O.# 96-0204
 Cooler received on 8/14/96 and opened on 8/14/96 by Mark Francisco
 (signature) Mark Francisco

1. Were custody seals on outside of cooler and intact? YES NO
 - a. If YES, how many and where: 2 on front
 - b. Were signature and date correct? YES NO
2. Were custody papers taped to the lid inside the cooler? YES NO
3. Were custody papers properly filled out (ink, signed, dated, etc.)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? newspaper
7. Was sufficient ice used (if appropriate)? YES NO
 Approved by [Signature] Date 8/14/96 Temperature 2.4°C

8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) YES NO
11. Did all bottle labels agree with custody papers? YES NO
12. Were correct bottles used for the tests indicated? YES NO¹
13. If present, were VOA vials/containers checked for absence of air bubbles/
 head space and noted if found? Size of bubble _____ YES NO ^{N/A}
14. Was sufficient volume of sample sent in each bottle? YES NO
15. Were correct preservatives used? YES NO
 Approved by: [Signature] Date 8/14/96

If not approved:
 a. Name of person contacted _____ Date _____
 b. Corrective action taken; if necessary: _____

Additional Comments: Method calls for (see attached) 1 40z, received
1 80z jar of
pot

TAB

8080 Data Package

TAB

Initial Calibration Data

PCB %RSD

Date Analyzed: 7-Aug-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-1701

COMPOUND	10 ug/L Response	25 ug/L Response	50 ug/L Response	100 ug/L Response	250 ug/L Response	500 ug/L Response	Linear Regression Coefficient	r ²
PCB 1242-1	5184	13046	46831	96477	221700	410754	7.43E-04	0.9988
PCB 1242-2	1.00E+04	3.09E+04	6.16E+04	1.26E+05	2.84E+05	5.14E+05	4.52E-04	0.9981
PCB 1242-3	3.10E+04	7.68E+04	1.50E+05	3.04E+05	6.75E+05	1.22E+06	1.86E-04	0.9992
PCB1242-4	1.38E+04	3.20E+04	6.40E+04	1.32E+05	2.89E+05	5.13E+05	4.35E-04	0.9984
PCB1242-5	8.53E+03	2.34E+04	4.86E+04	9.94E+04	2.28E+05	4.04E+05	5.66E-04	0.9980
PCB 1242 - Total	6856	7048	7429	7578	6792	6128	7141	518
							Average RF	%RSD
PCB 1248-1	20948	49868	96123	188900	462897	830659	1.97E-04	0.9989
PCB 1248-2	30934	70834	139199	264499	647480	1157234	1.91E-04	0.9988
PCB 1248-3	19842	47037	94098	176808	450993	802264	1.73E-04	0.9995
PCB 1248-4	42748	105644	205659	386151	950362	1711447	3.45E-04	0.9989
PCB 1248-5	29913	81124	166407	305600	743407	1317482	2.51E-04	0.9999
PCB 1248 - Total	14439	14180	14030	13220	13021	11638	13778	1036
							Average RF	%RSD
PCB 1260-1	33004	76607	144133	295990	646251	1069250	1.76E-04	0.9995
PCB 1260-2	35799	90085	170392	348523	774676	269499	1.22E-04	0.9993
PCB 1260-3	55639	133856	263977	546104	1221629	2018580	2.10E-04	0.9993
PCB 1260-4	68607	169587	301195	679345	1526189	2530407	8.69E-05	0.9994
PCB 1260-5	65519	160754	307549	639041	1433705	2309285	9.41E-05	0.9995
PCB 1260 - Total	25857	25236	23745	25090	22410	16394	24467	3521
							Average RF	%RSD
								14.4

PCB %RSD

Date Analyzed: 7-Aug-96
 Instrument: 3400 Dual Column
 Analytical Column: DB-608

COMPOUND	10 ug/L Response	25 ug/L Response	50 ug/L Response	100 ug/L Response	250 ug/L Response	500 ug/L Response	Linear Regression Coefficient	r2	
PCB 1242-1	539	1828	2530	6005	12872	22932	1.21E-02	0.9980	
PCB 1242-2	1165	2751	5784	11497	25703	46763	6.42E-03	0.9980	
PCB 1242-3	2681	6422	12101	25214	56497	105157	2.93E-03	0.9988	
PCB 1242-4	872	2417	4564	9447	21178	37268	7.86E-03	0.9996	
PCB 1242-5	1254	2963	6394	13085	29819	52089	5.71E-03	0.9982	
PCB 1242 - Total	651	655	627	652	584	528	Average RF 634	Std. Dev. 51	%RSD 8.0
PCB 1248-1	1919	4359	8079	15344	37224	66446	4.74E-03	0.9977	
PCB 1248-2	1821	3450	6544	12546	30740	54177	3.89E-03	0.9977	
PCB 1248-3	1548	3797	7424	14151	34197	61744	5.33E-03	0.9983	
PCB 1248-4	1784	4316	8533	16292	39371	71075	2.61E-03	0.9984	
PCB 1248-5	1659	3766	7457	14606	35156	64743	3.51E-03	0.9991	
PCB 1248 - Total	873	788	761	729	707	636	Average RF 772	Std. Dev. 80	%RSD 10.3
PCB 1260-1	3011	7045	13328	27719	61831	104151	2.61E-03	0.9980	
PCB 1260-2	3362	7960	14988	31737	71962	120929	3.31E-03	0.9967	
PCB 1260-3	3606	8314	16508	33219	74113	124895	3.48E-03	0.9975	
PCB 1260-4	6713	16479	31293	68437	160915	267237	1.15E-03	0.9960	
PCB 1260-5	3772	7451	14270	30891	70689	116215	1.98E-03	0.9999	
PCB 1260 - Total	2046	1890	1808	1920	1758	1467	Average RF 1884	Std. Dev. 197	%RSD 10.5

TAB

Continuing Calibration Data

PCB Continuing Calibration Verification Report

Date Analyzed 9-Sep-96
 File # 09099604
 Instrument: 3400-II
 Analysis Column: DB-1701

	True Value	Reported Value	% D
PCB1242-1	100	119.0	19.0
PCB1242-2	100	129.3	29.3
PCB1242-3	100	132.9	32.9
PCB1242-4	100	137.6	37.6
PCB1242-5	100	127.5	27.5
PCB1260-1	100	126.1	26.1
PCB1260-2	100	126.4	26.4
PCB1260-3	100	128.1	28.1
PCB1260-4	100	122.8	22.8
PCB1260-5	100	125.1	25.1

PCB1242	100	130.6	30.6
PCB1260	100	125.4	25.4

Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1242-1	100	100.5	0.5
PCB1242-2	100	101.3	1.3
PCB1242-3	100	93.9	6.1
PCB1242-4	100	87.6	12.4
PCB1242-5	100	82.6	17.4
PCB1260-1	100	89.6	10.4
PCB1260-2	100	86.6	13.5
PCB1260-3	100	93.6	6.4
PCB1260-4	100	85.0	15.0
PCB1260-5	100	94.3	5.7

PCB1242	100	95.8	4.2
PCB1260	100	88.9	11.1

PCB Continuing Calibration Verification Report

Date Analyzed 9-Sep-96
 File # 09099611
 Instrument 3400-II
 Analysis Column DB-1701

	True Value	Reported Value	% D
PCB1242-1	100	123.2	23.2
PCB1242-2	100	133.1	33.1
PCB1242-3	100	134.9	34.9
PCB1242-4	100	139.4	39.4
PCB1242-5	100	131.2	31.2
PCB1260-1	100	128.6	28.6
PCB1260-2	100	128.0	28.0
PCB1260-3	100	128.6	28.6
PCB1260-4	100	126.1	26.1
PCB1260-5	100	127.5	27.5

PCB1242	100	133.3	33.3
PCB1260	100	127.6	27.6

Confirmation Column: DB-608

	True Value	Reported Value	% D
PCB1242-1	100	108.6	8.6
PCB1242-2	100	101.4	1.4
PCB1242-3	100	96.7	3.3
PCB1242-4	100	92.7	7.3
PCB1242-5	100	92.9	7.1
PCB1260-1	100	93.6	6.4
PCB1260-2	100	90.5	9.5
PCB1260-3	100	94.0	6.0
PCB1260-4	100	87.9	12.1
PCB1260-5	100	99.9	0.1

PCB1242	100	100.7	0.7
PCB1260	100	92.1	7.9

TAB

C



CT&E Environmental Services Inc.

51 -190

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

RECEIVED OCT - 2 1996

August 12, 1996

Tom Box
Terra-Kleen
P.O. Box 196950
Anchorage, AK 99519-6950

Client Name	Terra-Kleen
Project ID	Sparrevohn LRRS [963490]
Printed	August 12, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than

JOB 7008 PREDID

LEAD	
ADH	
PROJ MGR	<u>DAVE</u>
ADMIN MGR	
ACCOUNTING	
SUPPLEMENTAL	
FILE DESIGNATION	<u>Terra Kleen</u>



CT&E Environmental Services Inc.

51 - 191

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490001
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID DS
Matrix Other Liquids
Ordered By PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17.14
Collected Date/Time 08/01/96 10:00
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1221	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1232	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1242	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1248	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1254	1.00U		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM
Aroclor-1260	10.6		1.00 mg/L	SW846-8080		08/02/96	08/11/96	KWM



Member of the SGS Group (Société Générale de Surveillance)



CT&E Ref.# 963704001
 Client Name Terra-Kleen
 Project Name/# Sparrevohn
 Client Sample ID CS
 Matrix Other Liquids
 Ordered By
 PWSID

Client PO# 81396
 Printed Date/Time 08/15/96 19:10
 Collected Date/Time 08/13/96 08:20
 Received Date/Time 08/13/96 14:00
 Technical Director

Released By *Sharon Peterson*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM
Aroclor-1260	0.0975J		0.100 mg/L	SW846-8080		08/15/96	08/15/96	KWM



CT&E Environmental Services Inc.

51 - 193

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963490002
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID CS
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17 14
Collected Date/Time 08/01/96 10:05
Received Date/Time 08/02/96 13.30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1260	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 - 194

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490003
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID S I
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17:14
Collected Date/Time 08/01/96 10:10
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM
Aroclor-1260	0.140		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KLM

100 427 96



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS MARYLAND MICHIGAN, MISSOURI, NEW JERSEY OHIO, WEST VIRGINIA



CT&E Environmental Services Inc.

51 - 195

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490004
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID S II
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17:14
Collected Date/Time 08/01/96 10:15
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1260	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 - 196

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490005
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID S IV
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17:14
Collected Date/Time 08/01/96 10:20
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1260	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA



CT&E Environmental Services Inc.

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490006
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID S V
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17:14
Collected Date/Time 08/01/96 10:25
Received Date/Time 08/02/96 13:30
Technical Director

Released By

Stephen C. Ede

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Int:
PCB's by GC ECO								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1260	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 - 198

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963490007
Client Name Terra-Kleen
Project Name/# Sparrevohn LRRS
Client Sample ID S VI
Matrix Other Liquids
Ordered By
PWSID

Client PO# 8296
Printed Date/Time 08/12/96 17.15
Collected Date/Time 08/01/96 10:30
Received Date/Time 08/02/96 13:30
Technical Director

Released By *Stephen C. Ede*

Sample Remarks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
PCB's by GC ECD								
Aroclor-1016	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1221	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1232	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1242	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1248	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1254	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM
Aroclor-1260	0.100U		0.100 mg/L	SW846-8080		08/02/96	08/06/96	KWM



Member of the SGS Group (Société Générale de Surveillance)

ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA ILLINOIS MARYLAND, MICHIGAN, MISSOURI NEW JERSEY OHIO, WEST VIRGINIA



August 15, 1996

Tom Box
Terra-Kleen
P.O. Box 196950
Anchorage, AK 99519-6950

Client Name	Terra-Kleen
Project ID	Sparrevohn [963704]
Printed	August 15, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than

TAB

D

CU 445670
51-201

Please print or type (Form designed for use on elite (12-pitch) typewriter) Job# 90428 Form Approved. OMB no. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No
AKS 570 023 709

Manifest Document No.
90058

2 Page 1 of 1
Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
UNITED STATES AIR FORCE, SHARROVDIN LRRE
C/O P.O. BOX 195950, ANCHORAGE, AK 99510-6950

4 Generator's Phone (907) 349-6022

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name
SOUTHERN AIR TRANSPORT

6 US EPA ID Number
PLD 982 157 133

C. State Transporter's ID

D. Transporter's Phone (907) 243-3003

7. Transporter 2 Company Name
DUPLIN/TM ENVIRONMENTAL

8. US EPA ID Number
AKD 953 008 600

E. State Transporter's ID

F. Transporter's Phone (907) 272-9007

9. Designated Facility Name and Site Address
DUPLIN/TM ENVIRONMENTAL INC.
20245 77TH AVE. SOUTH
KEITH, WA 99827

10 US EPA ID Number
WAD 901 091 707

G. State Facility's ID

H. Facility's Phone
(206) 872-8030

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12 Containers		13 Total Quantity	14 Unit Wt/Vol	1. Waste No.
	No	Type			
a. <input checked="" type="checkbox"/> POLYCHLORINATED BI-PHENYLS 9, UNKNOWN ID (EPCG#171)	5	CM	4773	F	PCB1
b.					
c.					
d.					

Additional Descriptions for Materials Listed Above:
a) Profile # 146416 - Carbon canisters from TSCA source
(500ppm) OUT OF SERVICE DATE: 8-26-96

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

CERTIFICATE OF RECEIPT RECEIVED

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford

Printed/Typed Name: RICHARD J. JARVIS
Signature: [Signature]
Month Day Year: 7 28 96

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: G.T. Jones
Signature: [Signature]
Month Day Year: 8 28 96

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: LARRY RIVER
Signature: [Signature]
Month Day Year: 8 28 96

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19
Printed/Typed Name: Jennifer Varner
Signature: [Signature]
Month Day Year: 09 12 96

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved OMB no 2050-0039 Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No. AKS 570 028 709	Manifest Document No. 96258	22. Page of 3 2	Information in the shaded areas is not required by Federal law.
--	--------------------------------	-----------------------	---

Generator's Name
UNITED STATES AIR FORCE, SPARREVOHN LRRS
C/O P.O. BOX 196950, ANCHORAGE, AK 99519-6950
(907) 349-6222

L. State Manifest Document Number
M. State Generator's ID

24. Transporter 3 Company Name K&W DIVISION OF CARLILE	25. US EPA ID Number AKD 122 081 243	N. State Transporter's ID O. Transporter's Phone (907) 276-7797
---	---	---

26. Transporter 4 Company Name ALASKA RAILROAD CORPORATION	27. US EPA ID Number AKD 981 767 403	P. State Transporter's ID Q. Transporter's Phone (907) 265-2449
---	---	---

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	29. Containers		30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
	No.	Type			
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

33. Transporter 3 Acknowledgement of Receipt of Materials	Date
Printed/Typed Name LISA MARQUISS <i>LISA MARQUISS</i>	Signature <i>Lisa Marquiss</i>
33. Transporter 4 Acknowledgement of Receipt of Materials	Date
Printed/Typed Name GARY H. PHILLIPS <i>GARY H. PHILLIPS</i>	Signature <i>Gary H. Phillips</i>

35. Discrepancy Indication Space

Please print or type (Form designed for use on elite (12-pitch) typewriter)

IND-ANC

Job# 96A258

51 203

Form Approved OMB no. 2050-0039 Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator's US EPA ID No. AK5 570 028 709	Manifest Document No. 96258	22. Page 3 of 3	Information in the shaded areas is not required by Federal law.
--	--	--------------------------------	-----------------	---

23. Generator's Name UNITED STATES AIR FORCE, SPARREVOHN LRRS C/O P.O. BOX 196950, ANCHORAGE, AK 99519-6950 (907) 349-6222		L. State Manifest Document Number
24. Transporter <u>5</u> Company Name CROWLEY MARINE SERVICES		M. State Generator's ID
25. US EPA ID Number WAD 008 958 027		N. State Transporter's ID
26. Transporter <u>6</u> Company Name BURLINGTON ENVIRONMENTAL		O. Transporter's Phone (907) 563-1114
27. US EPA ID Number WAR 000 001 743		P. State Transporter's ID
		Q. Transporter's Phone (206) 383-3044

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	29. Containers		30. Total Quantity	31. Unit Wt/Vol	R Waste No
	No.	Type			
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

S. Additional Descriptions for Materials Listed Above	T. Handling Codes for Wastes Listed Above
---	---

32. Special Handling Instructions and Additional Information

33. Transporter <u>5</u> Acknowledgement of Receipt of Materials Printed/Typed Name: <u>Regina Palmer</u> Signature: <u>[Signature]</u> Date: <u>09/27/96</u>	34. Transporter <u>6</u> Acknowledgement of Receipt of Materials Printed/Typed Name: <u>JAMES NEEDIN</u> Signature: <u>[Signature]</u> Date: <u>09/24/96</u>
--	---

35. Discrepancy Indication Space

GENERATOR TRANSPORTER FACILITY



200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

RECEIVED OCT - 2 1996

August 20, 1996

Tom Box
Terra-Kleen
P.O. Box 196950
Anchorage, AK 99519-6950

Client Name	Terra-Kleen
Project ID	Sparrevohn [963722]
Printed	August 20, 1996

Enclosed are the analytical results associated with the above project.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

- U - Indicates the compound was analyzed for but not detected.
- J - Indicates an estimated value that falls below PQL, but is greater than the MDL.
- B - Indicates the analyte is found in the blank associated with the sample.
- * - The analyte has exceeded allowable limits.
- GT - Greater Than
- D - Secondary Dilution
- LT - Less Than





CT&E Environmental Services Inc.

51 205

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722001
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S I
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16.00
Technical Director

Released By

Sample Remarks:

8240 analysis contained acetone & library search indicated possible presence of isopropyl alcohol at an approximate values of (2430 & 13700) ppb respectively.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatiles by GC/MS								
Bromochloromethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Chloromethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Vinyl chloride	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Bromomethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Chloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
1,1-Dichloroethene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Carbon disulfide	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Methylene chloride	10U		10 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
trans-1,2-Dichloroethene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
1,1-Dichloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
2-Butanone (MEK)	10U		10 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Bromochloromethane <IS>	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Chloroform	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
1,1,1-Trichloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Carbon tetrachloride	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Benzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
1,2-Dichloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Trichloroethene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Bromodichloromethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
cis-1,3-Dichloropropene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
4-Methyl-2-pentanone	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Toluene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
trans-1,3-Dichloropropene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
1,1,2-Trichloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Tetrachloroethene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
2-Hexanone	10U		10 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Dibromochloromethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH
Chlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JBH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 206

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963722001
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S I
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	2.6		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
P & M -Xylene	2.3		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
o-Xylene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
Styrene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
Bromoform	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
Bromobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
1,1,2,2-Tetrachloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
1,3-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
1,4-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH
1,2-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/17/96	JSH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 207

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963722002
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S II
Matrix Other solids
Ordered By PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By [Signature]

Sample Remarks:

8240 analysis contained acetone & library search indicated possible presence of Isopropyl alcohol at an approximate values of (3940 & 12700) ppb respectively.

Table with columns: Parameter, Results, PQL, Units, Method, Allowable Limits, Prep Date, Analysis Date, Init. Rows include Volatiles by GC/MS and various chemical compounds like Bromochloromethane, Chloromethane, Vinyl chloride, etc.



CT&E Environmental Services Inc.

51 208

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722002
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S II
Matrix Other solids
Ordered By PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
P & M -Xylene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
o-Xylene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Styrene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromoform	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
Bromobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2,2-Tetrachloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,3-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,4-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.
Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722003
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S III
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10.21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16.00
Technical Director

Released By *[Signature]*

Sample Remarks:
8240 analysis contained acetone & library search indicated
possible presence of Isopropyl alcohol at an approximate values of (2200 & 15800) ppb respectively.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Ini
Volatiles by GC/MS								
Bromochloromethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JB
Chloromethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JB
Vinyl chloride	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JB
Bromomethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JB
Chloroethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	J
1,1-Dichloroethene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	J
Carbon disulfide	9.8U		9.8 mg/Kg	SW846-8240		08/16/96	08/16/96	J
Methylene chloride	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	J
trans-1,2-Dichloroethene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	J
1,1-Dichloroethane	9.8U		9.8 mg/Kg	SW846-8240		08/16/96	08/16/96	
2-Butanone (MEK)	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Bromochloromethane <IS>	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Chloroform	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
1,1,1-Trichloroethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Carbon tetrachloride	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Benzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
1,2-Dichloroethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Trichloroethene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Bromodichloromethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
cis-1,3-Dichloropropene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
4-Methyl-2-pentanone	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Toluene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
trans-1,3-Dichloropropene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
1,1,2-Trichloroethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Tetrachloroethene	9.8U		9.8 mg/Kg	SW846-8240		08/16/96	08/16/96	
2-Hexanone	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Dibromochloromethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	
Chlorobenzene								



CT&E Environmental Services Inc.

51 210

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722003
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S III
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10.21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
P & M -Xylene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
o-Xylene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Styrene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromoform	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromobenzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2,2-Tetrachloroethane	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,3-Dichlorobenzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,4-Dichlorobenzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichlorobenzene	0.98U		0.98 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH



Member of the SGS Group (Société Generale de Surveillance)



CT&E Environmental Services Inc.

Laboratory Division

51 211

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963722004
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S IV
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Sample Remarks:

8240 analysis contained acetone & library search indicated possible presence of Isopropyl alcohol an approximate values of (1590 & 12400) ppb respectively.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Anal. In.:
Volatiles by GC/MS								
Bromochloromethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloromethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Vinyl chloride	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromomethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1-Dichloroethene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Carbon disulfide	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Methylene chloride	11U		11 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
trans-1,2-Dichloroethene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1-Dichloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
2-Butanone (MEK)	11U		11 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromochloromethane <IS>	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloroform	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,1-Trichloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Carbon tetrachloride	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Benzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Trichloroethene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromodichloromethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
cis-1,3-Dichloropropene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
4-Methyl-2-pentanone	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Toluene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
trans-1,3-Dichloropropene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2-Trichloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Tetrachloroethene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
2-Hexanone	11U		11 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Dibromochloromethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chlorobenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 212

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963722004
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S IV
Matrix Other solids
Ordered By PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10.21
Collected Date/Time 08/14/96 14.00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
P & M -Xylene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
o-Xylene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
Styrene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
Bromoform	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
Bromobenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
1,1,2,2-Tetrachloroethane	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
1,3-Dichlorobenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
1,4-Dichlorobenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH
1,2-Dichlorobenzene	1.1U		1.1 mg/Kg	SW846-8240		08/16/96	08/16/96	JSH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 213

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722005
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S V
Matrix Other solids
Ordered By PWSD

Client PO# 81496
Printed Date/Time 08/20/96 10:21
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

[Signature]

Sample Remarks:

8240 analysis contained acetone & library search indicated possible presence of Isopropyl alcohol at an approximate values of (1910 & 11100) ppb respectively.

Table with columns: Parameter, Results, PQL, Units, Method, Allowable Limits, Prep Date, Analysis Date, Initials. Rows include Volatiles by GC/MS and various chemical compounds like Bromochloromethane, Chloromethane, Vinyl chloride, etc.



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 214

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax (907) 561-5301

CT&E Ref.# 963722005
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S V
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:22
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
P & M -Xylene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
o-Xylene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Styrene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromoform	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2,2-Tetrachloroethane	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,3-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,4-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichlorobenzene	1.0U		1.0 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH

10/15/96



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 215

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax: (907) 561-5301

CT&E Ref.# 963722006
Client Name Terra-Kleen
Project Name/# Sparrevohn
Client Sample ID S VI
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:22
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Sample Remarks:

8240 analysis contained acetone & library search indicated possible presence of Isopropyl alcohol at an approximate values of (1990 & 14100) ppb respectively.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatiles by GC/MS								
Bromochloromethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloromethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Vinyl chloride	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromomethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1-Dichloroethene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Carbon disulfide	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Methylene chloride	9.3U		9.3 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
trans-1,2-Dichloroethene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1-Dichloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
2-Butanone (MEK)	9.3U		9.3 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromochloromethane <IS>	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chloroform	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,1-Trichloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Carbon tetrachloride	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Benzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Trichloroethene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromodichloromethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
cis-1,3-Dichloropropene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
4-Methyl-2-pentanone	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Toluene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
trans-1,3-Dichloropropene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2-Trichloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Tetrachloroethene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
2-Hexanone	9.3U		9.3 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Dibromochloromethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Chlorobenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH



Member of the SGS Group (Société Générale de Surveillance)



CT&E Environmental Services Inc.

51 216

Laboratory Division

200 W Potter Drive
Anchorage, AK 99518-1605
Tel (907) 562-2343
Fax. (907) 561-5301

CT&E Ref.# 963722006
Client Name Terra-Kleen
Project Name/# Sparrevoohn
Client Sample ID S VI
Matrix Other solids
Ordered By
PWSID

Client PO# 81496
Printed Date/Time 08/20/96 10:22
Collected Date/Time 08/14/96 14:00
Received Date/Time 08/14/96 16:00
Technical Director

Released By

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Ethylbenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
P & M -Xylene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
o-Xylene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Styrene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromoform	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
Bromobenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,1,2,2-Tetrachloroethane	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,3-Dichlorobenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,4-Dichlorobenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH
1,2-Dichlorobenzene	0.93U		0.93 mg/Kg	SW846-8240		08/16/96	08/16/96	JBH



Member of the SGS Group (Société Générale de Surveillance)

TAB

E

Please print or type (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB no. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST		1 Generator's US EPA ID No AK 570 028 509	Manifest Document No. 96248	2 Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address U. S. AIR FORCE SPARREVOHN LRRS, AK				A. State Manifest Document Number		
4 Generator's Phone				B. State Generator's ID		
5 Transporter 1 Company Name SOUTHERN AIR TRANSPORT		6 US EPA ID Number PIL 982 557 107	C. State Transporter's ID			
7. Transporter 2 Company Name BURLINGTON ENVIRONMENTAL		8 US EPA ID Number AKD 982 268 507	D. Transporter's Phone 907-743-3323			
9 Designated Facility Name and Site Address DRMO-WBCB BLDG 34-583 SIEMENS AFB, AK 99505		10 US EPA ID Number AK 570 028 549	E. State Transporter's ID			
			F. Transporter's Phone 907-777-9007			
			G. State Facility's ID			
			H. Facility's Phone 907-552-7200 7208			
11 US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)		12. Containers	13. Total Quantity	14 Unit Wt/Vol	I. Waste No.	
a <input checked="" type="checkbox"/> POLYCHLORINATED BIPHENYLS 9 UN2315 PGII ERG31		No Type	364	K	PCB1	
b <input checked="" type="checkbox"/> POLYCHLORINATED BIPHENYLS 9 UN2315 PGII ERG31		3 DM	273	K	PCB01	
c <input checked="" type="checkbox"/> WASTE FLAMMABLE LIQUID, N. O. S. (METHANOL, POLYCHLORINATED BIPHENYLS) 9 UN1993 PGII RD/D001, F003 ERG27		1 DM	100	P	D001 F003 PCB1	
d						
J. Additional Descriptions for Materials Listed Above A. CONTAMINATED DEBRIS WITH <100PPM PCB'S B. CONTAMINATED DEBRIS WITH <100PPM PCB'S C. CONTAMINATED DEBRIS/TEST KITS WITH <100PPM PCB'S, METHANOL				K. Handling Codes for Wastes Listed Above		
15 Special Handling Instructions and Additional Information						
16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway air, rail & water according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford						
Printed/Typed Name Frank M. D. Bf.		Signature On behalf of USAF 611 CES/KC Frank M. D. Bf.		Month Day Year 10 13 96		
17 Transporter 1 Acknowledgement of Receipt of Materials						
Printed/Typed Name Steve Scott		Signature Steve Scott		Month Day Year 10 13 96		
18. Transporter 2 Acknowledgement of Receipt of Materials						
Printed/Typed Name LARRY REITER		Signature Larry Reiter		Month Day Year 10 6 96		
19. Discrepancy Indication Space						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19						
Printed/Typed Name DENNIS SCHULTZ		Signature Dennis Schultz		Month Day Year 10 11 96		

TAB

F

**PRELIMINARY REPORT
SOIL STOCKPILE CHARACTERIZATION
SPARREVOHN AIR FORCE STATION,
ALASKA**

Submitted To:
Linder Construction, Inc.
Anchorage, Alaska

Submitted By:
AGRA Earth & Environmental
Anchorage, Alaska

August 23, 1995
31-0158701

Linder Construction, Inc.
Preliminary Report, Soil Stockpile Characterization
Sparrevohn Air Force Station

31-0158701
August 23, 1995
Page i

Table of Contents

1.0 PROJECT SUMMARY 1

2.0 ANALYTICAL RESULTS 2

3.0 LIMITATIONS 2

Tables

Table 1 Polychlorinated Biphenyl Concentrations in Soil Stockpiles

Figures

Figure 1 Site Vicinity map
Figure 2 Stockpiled Soil Sample Locations

**PRELIMINARY REPORT
SOIL STOCKPILE CHARACTERIZATION
SPARREVOHN AIR FORCE STATION, ALASKA**

AGRA Earth & Environmental, Inc. (AEE) is pleased to present this preliminary report on the soil stockpile sampling that was conducted at Sparrevohn Air Force Station (SAFS), Alaska in July 1995. This preliminary report consists of the tabulated results of analysis for the soil samples collected and is submitted in accordance with the Sampling and Analyses Plan, prepared by Linder Construction, Inc. (Linder), dated July 17, 1995. The results of the contract laboratory analysis are tabulated on Table 1. U.S. Army Corps of Engineers (COE) QA laboratory data were not available as of the date of this report. AEE will provide copies of the analytical reports from the contract laboratory in the final report. Because we have not received the COE QA report, the QA/QC analysis of the results is not complete and the table in this document contain unreviewed data as reported by the laboratory.

1.0 PROJECT SUMMARY

AEE and Linder collected the soil samples on July 18 and 19, 1995 from one stockpile located on SAFS. SAFS is approximately 200 miles west of Anchorage, Alaska at approximately 61.1°N and 155.6°W (Figure 1). The sampling program was part of a soil stockpile characterization and remediation program being conducted under Delivery Order number 0005 of COE Contract Number DACA 85-94-D0014. Sample collection was performed by personnel from AEE's Anchorage office. Excavation of the sample locations required for sample collection was performed by AEE and Linder personnel. The COE contact person for this project, Howard Schoun, and the U.S. Air Force contact person, Patricia Striebich, were on site during the sampling activities.

The soil in the stockpile originated from excavation activities at SAFS in 1989. The analytical program was designed to assess the concentration of those contaminants suspected to be present within the stockpile, and to evaluate the soil conditions around the perimeter of the soil stockpile.

Prior to collecting the analytical samples, AEE calculated the volume of the stockpile. The volume of soil in the stockpile was calculated from measurements of the stockpile obtained with a 100 foot nylon tape. AEE measured the total length (52 feet), width (39 feet), and height (4 feet). All four sides of the stockpile were calculated to have a slope of approximately 30°, based on a measured rise of six inches over a horizontal distance of 12 inches.

The calculated volume of soil in the stockpile is approximately 200 yards with an estimated error of +/- 10%. The excavation of the stockpile for transportation to the treatment/disposal facility will loosen the soils. As a result the volume of the soil may increase an estimated 10 to 20%.

AEE collected seven analytical samples from the estimated 200 cubic yards of soil. Soils at each sample location were dug with a decontaminated shovel or posthole digger. Sample

Linder Construction, Inc.
Preliminary Report, Soil Stockpile Characterization
Sparrevohn Air Force Station

31-0158701
August 23, 1995
Page 2

collection was performed as stated in the Sampling and Analysis Plan written for this project. Many cobbles, rocks, and gravel were encountered in the first stockpile sampling location. Sample 95-SPV-007-SL was collected 28 inches below the surface of the pile. The soil was wet and the bottom liner encountered was intact. Based on the discussions of these conditions with the COE and USAF on site representatives, it was determined that sampling beneath the stockpile at the grid locations was not practical. Eight samples were collected around the perimeter of the stockpile. The sample locations are identified in Figure 2. A total of four QA/QC samples were collected. Two were submitted to the contract laboratory and two were submitted to the QA laboratory. The soil samples and their associated contract laboratory QA/QC samples are listed in Table 1. The two COE QA/QC samples were identified with the same number as the samples from which they were derived (95-SPV-010-SL and 95-SPV-015-SL).

The numbering scheme for the analytical samples was in accordance with the SAP. In general the sample numbering scheme included the year (95), location (SPV for Sparrevohn), the number (001 to 015), and the matrix (SL for soil). A total of 15 samples plus two duplicates were submitted to Analytica Alaska, Inc. Two duplicate samples were submitted to the COE QA laboratory in Troutdale, Oregon.

2.0 ANALYTICAL RESULTS

All soil samples were analyzed for polychlorinated biphenyls (PCBs) by EPA Method 3550B/8080. One sample, 95-SPV-007-SL, was tested for moisture content by ASTM method D2216 as per the request of Howard Schoun. The analytical results are tabulated in Table 1. Aracior 1260 was the only araclor detected in the PCB analyses. The PCB concentration in the seven stockpile soil samples ranged from 13,000 to 68,000 $\mu\text{g}/\text{kg}$. The PCB concentrations in the eight samples collected from the perimeter of the stockpile ranged from non-detectable to 6,300 $\mu\text{g}/\text{kg}$. The percent moisture content in sample number 95-SPV-007-SL was 9.0%.

AEE sample number 95-SPV-DUP-SL is a duplicate of AEE sample number 95-SPV-009-SL. The relative percent difference (RPD) between these two samples cannot be calculated since the PCB concentration in 95-SPV-009-SL is non-detectable. The calculated RPD between AEE sample number 95-SPV-013-SL and its duplicate sample, 95-SPV-DUP2-SL, is 16%. This is within the acceptable limit of $\pm 40\%$ stated in the SAP.

3.0 LIMITATIONS

This report has been prepared for, and is intended for the exclusive use of, Linder and its designated representatives. The contents of this report should not be used by any other party without the express written consent of Linder.

The observations and findings presented in this report are professional opinions based on the information gained from a limited number of soil samples from the stockpiles in question. Due to the possibility of contaminant variations within the stockpile, the measured concentrations

Linder Construction, Inc.
Preliminary Report, Soil Stockpile Characterization
Sparrevohn Air Force Station

31-0158701
August 23, 1995
Page 3

of contaminants may not be representative of conditions within unsampled portions of those stockpiles. Laboratory analyses were performed for specific parameters in accordance with known past land use of the place of origin for each stockpile. Additional constituents not searched for during the investigation may be present. No warranty or guarantee is expressed or implied.

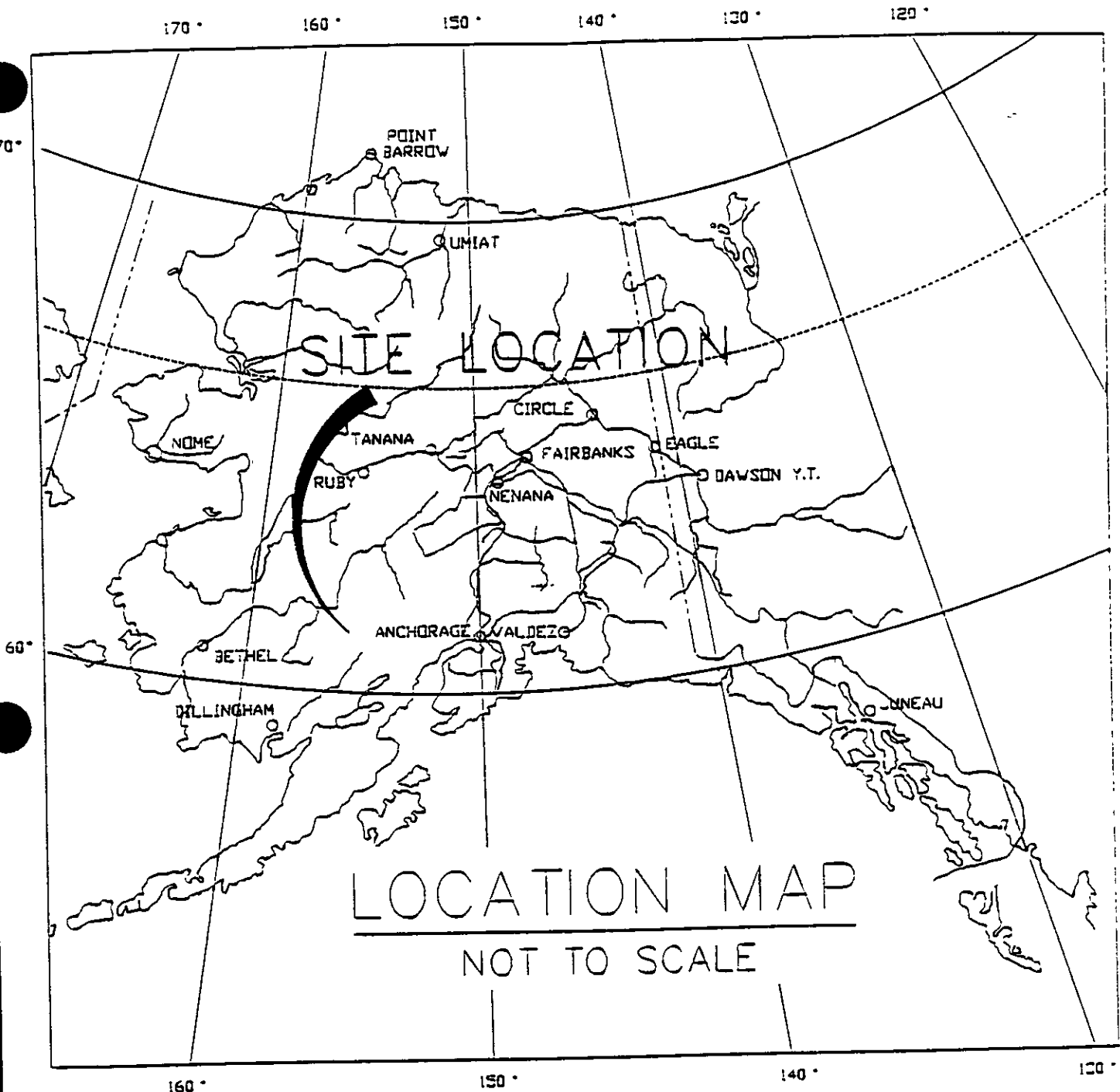
e:\projects\linder\31-01687\31-01687 doc

Sparrevohn Air Force Station
PCB Sampling

Table 1
Analytical Results

AEE Sample No.	Analytica Sample No.	Location	Sample Depth	PCB by EPA Method 8080 Aracor 1260 (µg/kg)	% Moisture ASTM D2216
95-SPV-001-SL	95-07-155-01A	Stockpiled Soil	24 inches	41000	NT
95-SPV-002-SL	95-07-155-02A	Stockpiled Soil	14 inches	13000	NT
95-SPV-003-SL	95-07-155-03A	Stockpiled Soil	14 inches	52000	NT
95-SPV-004-SL	95-07-155-04A	Stockpiled Soil	14 inches	59000	NT
95-SPV-005-SL	95-07-155-05A	Stockpiled Soil	14 inches	68000	NT
95-SPV-006-SL	95-07-155-06A	Stockpiled Soil	14 inches	40000	NT
95-SPV-007-SL	95-07-155-07A	Stockpiled Soil	28 inches	28000	9.0
95-SPV-008-SL	95-07-155-08A	Perimeter of Stockpile	18 inches	840	NT
95-SPV-009-SL	95-07-155-09A	Perimeter of Stockpile	18 inches	ND(17)	NT
95-SPV-DUP-SL ⁽¹⁾	95-07-155-16A	Perimeter of Stockpile	18 inches	23	NT
95-SPV-010-SL	95-07-155-10A	Perimeter of Stockpile	18 inches	ND(17)	NT
95-SPV-011-SL	95-07-155-11A	Perimeter of Stockpile	18 inches	4000	NT
95-SPV-012-SL	95-07-155-12A	Perimeter of Stockpile	18 inches	840	NT
95-SPV-013-SL	95-07-155-13A	Perimeter of Stockpile	18 inches	230	NT
95-SPV-DUP2-SL ⁽²⁾	95-07-155-17A	Perimeter of Stockpile	18 inches	270	NT
95-SPV-014-SL	95-07-155-14A	Perimeter of Stockpile	18 inches	6300	NT
95-SPV-015-SL	95-07-155-15A	Perimeter of Stockpile	18 inches	1700	NT

Notes. (1) Duplicate of 95-SPV-009-SL
(2) Duplicate of 95-SPV-013-SL.



AGRA
 Earth & Environmental
 711 + Street, Suite 450
 Anchorage, AK, U.S.A 99501

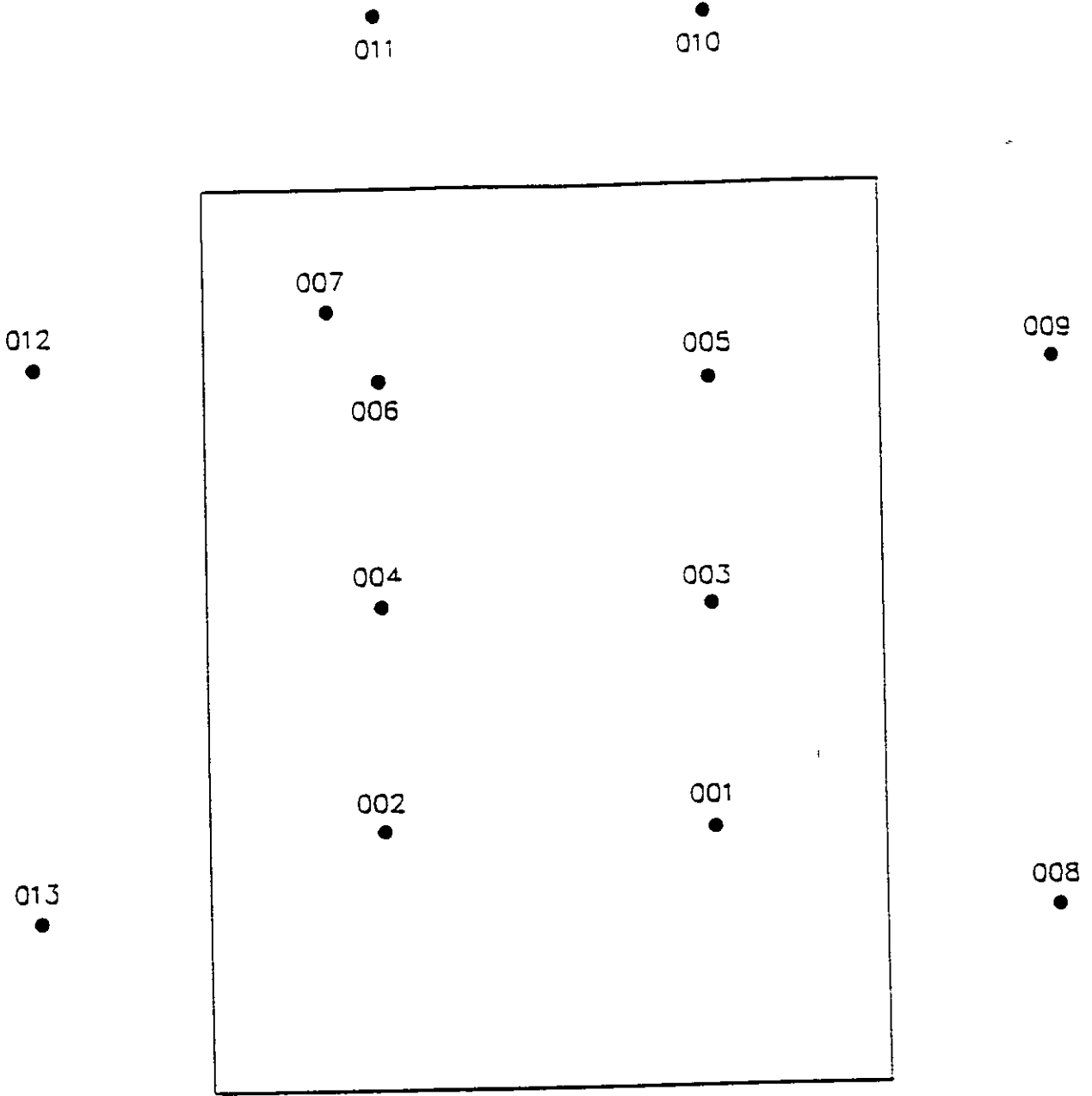
NO	31-01587-01
DESIGN	JLL
DRAWN	RRM
DATE	AUGUST
SCALE	NOT TO SCALE

SPARREVOCHN AIR FORCE STATION
 ALASKA

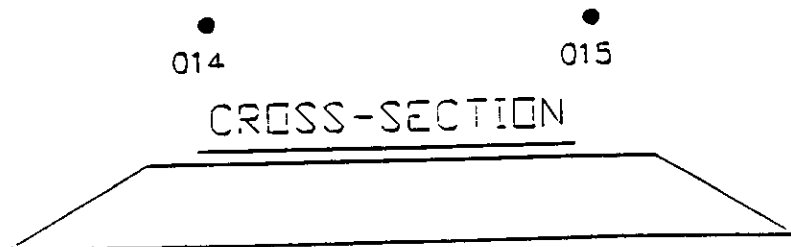
SITE LOCATION MAP
 FIGURE 1

PLAN VIEW

51 227



CROSS-SECTION



● 001 SAMPLE LOCATION AND NUMBER

0 10
SCALE IN FEET

AGRA
Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

NO 21-01587-01
DESIGN JLL
DRAWN RRM
DATE AUGUST 1995
SCALE 1"=10' approx.

SPARREVOHN AIR FORCE STATION
ALASKA

STOCKPILE SOIL SAMPLE LOCATIONS
FIGURE 2

ANALYTICA ALASKA INC

811 W 8th Ave
Anchorage, AK 99501
(907) 258-2155
FAX: (907) 258-6634

325 Interlocken Parkway, Suite 200
Broomfield, Colorado 80021
(303) 469-8868
FAX (303) 469-5254

LGN
CSN

Chain of Custody Record / Analysis Request

Client Name <i>Alaska Environmental</i>	Project Name <i>Sporex but LARS Stackle Soil Sampling</i>	Report To <i>James Landry</i>	BTEX by 5030/8020	GRPH by 5030/8015M	DRPH by 3550/8100M	TPH by 3540/4181	BTEX by 602	Metals by ICP (specify)	Metals by GFAA (specify)	TCLP by EPA 1311	Volatiles by EPA 8240 or 624	Sem-Volatiles by EPA 8270 or 625	PCB by EPA 8080 or 608	Moisture content	LAB ID
Client Address <i>1111 S. ...</i>	Sampler <i>Darcin Lawless</i>	P O Number <i>31-158701</i>	# Containers/Preservation		Time Collected		Matrix		Date Collected		Sample ID		RUSH (see below)		Hold for Further Analysis
Telephone <i>...</i>	8 oz Glass	4 oz Glass	40 ml VOACH	1 L Glass /	1 L Poly /										
FAX <i>...</i>	1910	1840	1820	1730	1610	1435	1415	1350	1330	1310	1310	1310	1310	1310	1310
Sample ID <i>95-S1V-001-SL</i>	95-S1V-001-SL	95-S1V-002-SL	95-S1V-003-SL	95-S1V-004-SL	95-S1V-005-SL	95-S1V-006-SL	95-S1V-007-SL	95-S1V-008-SL	95-S1V-009-SL	95-S1V-010-SL	95-S1V-011-SL	95-S1V-012-SL	95-S1V-013-SL	95-S1V-014-SL	95-S1V-015-SL

RECEIVED BY	RECEIVED BY	RECEIVED BY
Signature	Signature	Signature
Printed Name	Printed Name	Printed Name
Firm	Firm	Firm
Date/Time	Date/Time	Date/Time
ANALYTICA USE ONLY		
Airbill / Freight #		
Total # Containers		
Condition of Containers / Seals?		

ANALYTICA ALASKA INC

811 W 8th Ave
Anchorage, AK 99501
(907) 258-2155
FAX: (907) 258 6634

325 Interlocken Parkway, Suite 200
Broomfield, Colorado 80021
(303) 469-8868
FAX: (303) 469-5254

LGN.
CSN

Chain of Custody Record / Analysis Request

Client Name <i>AGRAH... Inc.</i>	Project Name <i>Sparrerevohi LKRS Stockpne Soil Sampling</i>	Report To <i>James Lindley</i>	Metals by ICP (specify)	Metals by GFAA (specify)	TCLP by EPA 1311	Volatiles by EPA 8240 or 624	Semi-Volatiles by EPA 8270 or 625	PGB by EPA 8080 or 608	LAB ID
Client Address <i>2115... 450</i>	Sampler <i>Dawn Leinass</i>	P.O. Number <i>31-158701</i>	BTEX by 602	TPH by 3540/418.1	DRPH by 3550/8100M	GRPH by 5030/8015M	BTEX by 5030/8020	Hold for Further Analysis	RUSH (see below)
Telephone <i>(907) 258-2155</i>	Date Collected	Time Collected	Matrix	# Containers/Preservation	8 oz Glass	4 oz Glass	40 ml VOAHC	1 L Glass /	1 L Poly /
FAX (907) 258-2155	7/19/95	19255	S	1	1	1	1	1	1
Sample ID <i>95-SPV-112-SL</i>	7/19/95	19255	S	1	1	1	1	1	1
<i>95-SPV-113-SL</i>	7/19/95	19255	S	1	1	1	1	1	1
<i>95-SPV-114-SL</i>	7/19/95	19255	S	1	1	1	1	1	1

QA/QC LEVEL
 ADEC Deliverables Standard
 TURNAROUND
 2 business days
 5 business days
 15 business days
 other (4) business day

ANALYTICA USE ONLY
 Airbill / Freight #
 Total # Containers
 Condition of Containers / Seals?

RECEIVED BY
 Signature
 Printed Name
 Firm
 Date/Time

REIQUISHED BY
 Signature
 Printed Name
 Firm
 Date/Time

COMMENTS



an Analytica Group company

51 230
325 Interlocken Parkway
Suite 200
Broomfield CO 80020
(303) 469-8888
(800) 873-8707
FAX (303) 469-525-

AGRA Earth & Environmental
711 H Street, Ste. 450
Anchorage, AK 99501

Attn: James Landry - Smith

Order #: 95-07-155
Date: 08/15/95 16:01
Work ID: Sparrevohn LRRS, Stockpile
Date Received: 07/25/95
Date Completed: 08/15/95

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Client Description</u>	<u>Sample Number</u>	<u>Client Description</u>
01	95-SPV-001-SL	10	95-SPV-010-SL
02	95-SPV-002-SL	11	95-SPV-011-SL
03	95-SPV-003-SL	12	95-SPV-012-SL
04	95-SPV-004-SL	13	95-SPV-013-SL
05	95-SPV-005-SL	14	95-SPV-014-SL
06	95-SPV-006-SL	15	95-SPV-015-SL
07	95-SPV-007-SL	16	95-SPV-DUP-SL
08	95-SPV-008-SL	17	95-SPV-DUP2-SL
09	95-SPV-009-SL		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

James D. Robinson
Project Manager

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
CASE NARRATIVE

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 (Third Edition (September, 1986), as amended by Update I (September, 1994))

Problems encountered with the analyses are discussed in the following narrative.

The PCB analyses for samples 9507155-01A to 07A, 11A, 12A, 14A, 15A are reported with no surrogate standard recoveries. This is due to analytical dilutions which diluted out the surrogate standards.

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Sample: 01A 95-SPV-001-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		41000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Sample: 02A 95-SPV-002-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		6700	ug/Kg	08/12/95
PCB-1232		ND		3300	ug/Kg	08/12/95
PCB-1242		ND		330	ug/Kg	08/12/95
PCB-1248		ND		330	ug/Kg	08/12/95
PCB-1254		ND		330	ug/Kg	08/12/95
PCB-1260		13000	D	330	ug/Kg	08/12/95
PCB-1016		ND		330	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Sample: 03A 95-SPV-003-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		52000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Page 4

Sample: 04A 95-SPV-004-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		67000	ug/Kg	08/12/95
PCB-1232		ND		33000	ug/Kg	08/12/95
PCB-1242		ND		3300	ug/Kg	08/12/95
PCB-1248		ND		3300	ug/Kg	08/12/95
PCB-1254		ND		3300	ug/Kg	08/12/95
PCB-1260		59000	D	3300	ug/Kg	08/12/95
PCB-1016		ND		3300	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Sample: 05A 95-SPV-005-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		67000	ug/Kg	08/12/95
PCB-1232		ND		33000	ug/Kg	08/12/95
PCB-1242		ND		3300	ug/Kg	08/12/95
PCB-1248		ND		3300	ug/Kg	08/12/95
PCB-1254		ND		3300	ug/Kg	08/12/95
PCB-1260		68000	D	3300	ug/Kg	08/12/95
PCB-1016		ND		3300	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Sample: 06A 95-SPV-006-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		40000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50		Max: 150
Decachlorobiphenyl		0 *		Min: 50		Max: 150

Sample: 07A 95-SPV-007-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
PERCENT MOISTURE	ASTM D2216	9.00		0.1	WT%	08/09/95

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Page 5

Sample: 07A 95-SPV-007-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		37000	ug/Kg-DRY	08/12/95
PCB-1232		ND		18000	ug/Kg-DRY	08/12/95
PCB-1242		ND		1800	ug/Kg-DRY	08/12/95
PCB-1248		ND		1800	ug/Kg-DRY	08/12/95
PCB-1254		ND		1800	ug/Kg-DRY	08/12/95
PCB-1260		28000	D	1800	ug/Kg-DRY	08/12/95
PCB-1016		ND		1800	ug/Kg-DRY	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min:	50	Max: 150
Decachlorobiphenyl		0	*	Min:	50	Max: 150

Sample: 08A 95-SPV-008-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		670	ug/Kg	08/13/95
PCB-1232		ND		330	ug/Kg	08/13/95
PCB-1242		ND		33	ug/Kg	08/13/95
PCB-1248		ND		33	ug/Kg	08/13/95
PCB-1254		ND		33	ug/Kg	08/13/95
PCB-1260		840	D	33	ug/Kg	08/13/95
PCB-1016		ND		33	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		40.8	*	Min:	50	Max: 150
Decachlorobiphenyl		59.2		Min:	50	Max: 150

Sample: 09A 95-SPV-009-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/12/95
PCB-1232		ND		170	ug/Kg	08/12/95
PCB-1242		ND		17	ug/Kg	08/12/95
PCB-1248		ND		17	ug/Kg	08/12/95
PCB-1254		ND		17	ug/Kg	08/12/95
PCB-1260		ND		17	ug/Kg	08/12/95
PCB-1016		ND		17	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		56.7		Min:	50	Max: 150
Decachlorobiphenyl		109		Min:	50	Max: 150

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Page 4

Sample: 10A 95-SPV-010-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analysed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		ND		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		55.2		Min: 50	Max: 150	
Decachlorobiphenyl		122		Min: 50	Max: 150	

Sample: 11A 95-SPV-011-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analysed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/13/95
PCB-1232		ND		17000	ug/Kg	08/13/95
PCB-1242		ND		1700	ug/Kg	08/13/95
PCB-1248		ND		1700	ug/Kg	08/13/95
PCB-1254		ND		1700	ug/Kg	08/13/95
PCB-1260		4000	D	1700	ug/Kg	08/13/95
PCB-1016		ND		1700	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 12A 95-SPV-012-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analysed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		1700	ug/Kg	08/13/95
PCB-1232		ND		830	ug/Kg	08/13/95
PCB-1242		ND		83	ug/Kg	08/13/95
PCB-1248		ND		83	ug/Kg	08/13/95
PCB-1254		ND		83	ug/Kg	08/13/95
PCB-1260		840	D	83	ug/Kg	08/13/95
PCB-1016		ND		83	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Sample: 13A 95-SPV-013-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyst</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		230		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		73.1		Min: 50	Max: 150	
Decachlorobiphenyl		149		Min: 50	Max: 150	

Sample: 14A 95-SPV-014-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyst</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		6700	ug/Kg	08/13/95
PCB-1232		ND		3300	ug/Kg	08/13/95
PCB-1242		ND		330	ug/Kg	08/13/95
PCB-1248		ND		330	ug/Kg	08/13/95
PCB-1254		ND		330	ug/Kg	08/13/95
PCB-1260		6300	D	330	ug/Kg	08/13/95
PCB-1016		ND		330	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Sample: 15A 95-SPV-015-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyst</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		1700	ug/Kg	08/13/95
PCB-1232		ND		830	ug/Kg	08/13/95
PCB-1242		ND		83	ug/Kg	08/13/95
PCB-1248		ND		83	ug/Kg	08/13/95
PCB-1254		ND		83	ug/Kg	08/13/95
PCB-1260		1700	D	83	ug/Kg	08/13/95
PCB-1016		ND		83	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Sample: 16A 95-SPV-DUP-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		23		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		47.8	*	Min:	50	Max: 150
Decachlorobiphenyl		133		Min:	50	Max: 150

Sample: 17A 95-SPV-DUP2-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		270		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		55.2		Min:	50	Max: 150
Decachlorobiphenyl		209	*	Min:	50	Max: 150

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST METHODOLOGIES

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...

- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:

- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

ANALYTICA

A I A S K A I N C

811 W 8th Ave.
Anchorage, AK 99501
(907) 258-2155
FAX (907) 258-6634

325 Interlocken Parkway, Suite 200
Broomfield, Colorado 80021
(303) 469-8868
FAX: (303) 469-5254

LGN:
CSN

Chain of Custody Record / Analysis Request

Client Name <i>AGRI... Inc.</i>	Project Name <i>Sparrevohn LRRS Stockpile Soil Sampling</i>	Report To: <i>James Lindley</i>	Matrix	Date Collected	Time Collected	# Containers/Preservation	8 oz Glass	4 oz Glass	40 ml VMAD	1 L Glass /	1 L Poly /	BTEX by 5030/8020	GRPH by 5030/8015M	DRPH by 3550/8100M	TPH by 3540/418.1	BTEX by 602	Metals by ICP (specify)	Metals by GFA (specify)	TCLP by EPA 1311	Volatiles by EPA 8240 or 624	Semi-Volatiles by EPA 8270 or 625	PCB by EPA 8080 or 608	LAB ID
Client Address <i>...</i>	Sampler: <i>Darlin Lawless</i>	P O Number <i>31-158701</i>																					
Telephone <i>(907) ...</i>																							
FAX <i>(907) ...</i>																							
Sample ID <i>95-SPL-113-SL</i>																							

COMMENTS

QA/QC LEVEL
 ADEC Deliverables Standard
 TURNAROUND
 2 business days
 5 business days
 15 business days
 other (#) business day

ANALYTICA USE ONLY
 Airbill / Freight #
 Total # Containers
 Condition of Containers / Seals?

RELINQUISHED BY SAMPLER	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature <i>Darlin Lawless</i>	Signature <i>James Lindley</i>	Signature <i>Darlin Lawless</i>	Signature <i>James Lindley</i>
Printed Name <i>Darlin Lawless</i>	Printed Name <i>James Lindley</i>	Printed Name <i>Darlin Lawless</i>	Printed Name <i>James Lindley</i>
Firm <i>AGRI...</i>	Firm <i>ANALYTICA</i>	Firm <i>AGRI...</i>	Firm <i>ANALYTICA</i>
Date/Time <i>...</i>	Date/Time <i>...</i>	Date/Time <i>...</i>	Date/Time <i>...</i>

PAGE 2 OF 2

325 Interlocken Parkway
 Suite 200
 Broomfield CO 80021
 (303) 469-6265
 (800) 373-8707
 FAX (303) 469-5235



an Analytica Group company

AGRA Earth & Environmental
 711 H Street, Ste. 450
 Anchorage, AK 99501

Attn: James Landry - Smith

Order #: 95-07-155
 Date: 08/15/95 16:01
 Work ID: Sparrevohn LRRS, Stockpile
 Date Received: 07/25/95
 Date Completed: 08/15/95

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Client Description</u>	<u>Sample Number</u>	<u>Client Description</u>
01	95-SPV-001-SL	10	95-SPV-010-SL
02	95-SPV-002-SL	11	95-SPV-011-SL
03	95-SPV-003-SL	12	95-SPV-012-SL
04	95-SPV-004-SL	13	95-SPV-013-SL
05	95-SPV-005-SL	14	95-SPV-014-SL
06	95-SPV-006-SL	15	95-SPV-015-SL
07	95-SPV-007-SL	16	95-SPV-DUP-SL
08	95-SPV-008-SL	17	95-SPV-DUP2-SL
09	95-SPV-009-SL		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

James D. Robinson
 Project Manager

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
CASE NARRATIVE

Page 2

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Update I (September, 1994)]

Problems encountered with the analyses are discussed in the following narrative.

The PCB analyses for samples 9507155-01A to 07A, 11A, 12A, 14A, 15A are reported with no surrogate standard recoveries. This is due to analytical dilutions which diluted out the surrogate standards.

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Page :

Sample: 01A 95-SPV-001-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		41000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 02A 95-SPV-002-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		6700	ug/Kg	08/12/95
PCB-1232		ND		3300	ug/Kg	08/12/95
PCB-1242		ND		330	ug/Kg	08/12/95
PCB-1248		ND		330	ug/Kg	08/12/95
PCB-1254		ND		330	ug/Kg	08/12/95
PCB-1260		13000	D	330	ug/Kg	08/12/95
PCB-1016		ND		330	ug/Kg	08/12/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 03A 95-SPV-003-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		52000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Sample: 04A 95-SPV-004-SL Collected: 07/19/95 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analysed
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		67000	ug/Kg	08/12/95
PCB-1232		ND		33000	ug/Kg	08/12/95
PCB-1242		ND		3300	ug/Kg	08/12/95
PCB-1248		ND		3300	ug/Kg	08/12/95
PCB-1254		ND		3300	ug/Kg	08/12/95
PCB-1260		59000	D	3300	ug/Kg	08/12/95
PCB-1016		ND		3300	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 05A 95-SPV-005-SL Collected: 07/19/95 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analysed
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		67000	ug/Kg	08/12/95
PCB-1232		ND		33000	ug/Kg	08/12/95
PCB-1242		ND		3300	ug/Kg	08/12/95
PCB-1248		ND		3300	ug/Kg	08/12/95
PCB-1254		ND		3300	ug/Kg	08/12/95
PCB-1260		68000	D	3300	ug/Kg	08/12/95
PCB-1016		ND		3300	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 06A 95-SPV-006-SL Collected: 07/19/95 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analysed
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/12/95
PCB-1232		ND		17000	ug/Kg	08/12/95
PCB-1242		ND		1700	ug/Kg	08/12/95
PCB-1248		ND		1700	ug/Kg	08/12/95
PCB-1254		ND		1700	ug/Kg	08/12/95
PCB-1260		40000	D	1700	ug/Kg	08/12/95
PCB-1016		ND		1700	ug/Kg	08/12/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0	*	Min: 50	Max: 150	
Decachlorobiphenyl		0	*	Min: 50	Max: 150	

Sample: 07A 95-SPV-007-SL Collected: 07/19/95 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analysed
PERCENT MOISTURE	ASTM D2216	9.00		0.1	WT%	08/09/95

Sample: 07A 95-SPV-007-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		37000	ug/Kg-DRY	08/12/95
PCB-1232		ND		18000	ug/Kg-DRY	08/12/95
PCB-1242		ND		1800	ug/Kg-DRY	08/12/95
PCB-1248		ND		1800	ug/Kg-DRY	08/12/95
PCB-1254		ND		1800	ug/Kg-DRY	08/12/95
PCB-1260		28000	D	1800	ug/Kg-DRY	08/12/95
PCB-1016		ND		1800	ug/Kg-DRY	08/12/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Sample: 08A 95-SPV-008-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		670	ug/Kg	08/13/95
PCB-1232		ND		330	ug/Kg	08/13/95
PCB-1242		ND		33	ug/Kg	08/13/95
PCB-1248		ND		33	ug/Kg	08/13/95
PCB-1254		ND		33	ug/Kg	08/13/95
PCB-1260		840	D	33	ug/Kg	08/13/95
PCB-1016		ND		33	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		40.8 *		Min: 50	Max: 150	
Decachlorobiphenyl		59.2		Min: 50	Max: 150	

Sample: 09A 95-SPV-009-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/12/95
PCB-1232		ND		170	ug/Kg	08/12/95
PCB-1242		ND		17	ug/Kg	08/12/95
PCB-1248		ND		17	ug/Kg	08/12/95
PCB-1254		ND		17	ug/Kg	08/12/95
PCB-1260		ND		17	ug/Kg	08/12/95
PCB-1016		ND		17	ug/Kg	08/12/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		56.7		Min: 50	Max: 150	
Decachlorobiphenyl		109		Min: 50	Max: 150	

Sample: 10A 95-SPV-010-SL

Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		ND		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		55.2		Min: 50	Max: 150	
Decachlorobiphenyl		122		Min: 50	Max: 150	

Sample: 11A 95-SPV-011-SL

Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		33000	ug/Kg	08/13/95
PCB-1232		ND		17000	ug/Kg	08/13/95
PCB-1242		ND		1700	ug/Kg	08/13/95
PCB-1248		ND		1700	ug/Kg	08/13/95
PCB-1254		ND		1700	ug/Kg	08/13/95
PCB-1260		4000 D		1700	ug/Kg	08/13/95
PCB-1016		ND		1700	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Sample: 12A 95-SPV-012-SL

Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		1700	ug/Kg	08/13/95
PCB-1232		ND		830	ug/Kg	08/13/95
PCB-1242		ND		83	ug/Kg	08/13/95
PCB-1248		ND		83	ug/Kg	08/13/95
PCB-1254		ND		83	ug/Kg	08/13/95
PCB-1260		840 D		83	ug/Kg	08/13/95
PCB-1016		ND		83	ug/Kg	08/13/95
SURROGATES, & Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Page 7

Sample: 13A 95-SPV-013-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		230		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		73.1		Min: 50	Max: 150	
Decachlorobiphenyl		149		Min: 50	Max: 150	

Sample: 14A 95-SPV-014-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		6700	ug/Kg	08/13/95
PCB-1232		ND		3300	ug/Kg	08/13/95
PCB-1242		ND		330	ug/Kg	08/13/95
PCB-1248		ND		330	ug/Kg	08/13/95
PCB-1254		ND		330	ug/Kg	08/13/95
PCB-1260		6300	D	330	ug/Kg	08/13/95
PCB-1016		ND		330	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Sample: 15A 95-SPV-015-SL

Collected: 07/19/95

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		1700	ug/Kg	08/13/95
PCB-1232		ND		830	ug/Kg	08/13/95
PCB-1242		ND		83	ug/Kg	08/13/95
PCB-1248		ND		83	ug/Kg	08/13/95
PCB-1254		ND		83	ug/Kg	08/13/95
PCB-1260		1700	D	83	ug/Kg	08/13/95
PCB-1016		ND		83	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		0 *		Min: 50	Max: 150	
Decachlorobiphenyl		0 *		Min: 50	Max: 150	

Order # 95-07-155
ANALYTICA, INC.

AGRA Earth & Environmental
TEST RESULTS by SAMPLE

Sample: 16A 95-SPV-DUP-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		23		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		47.8 *		Min:	50	Max: 150
Decachlorobiphenyl		133		Min:	50	Max: 150

Sample: 17A 95-SPV-DUP2-SL Collected: 07/19/95 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyses</u>
POLYCHLORINATED BIPHENYLS	SW 8080					
PCB-1221		ND		330	ug/Kg	08/13/95
PCB-1232		ND		170	ug/Kg	08/13/95
PCB-1242		ND		17	ug/Kg	08/13/95
PCB-1248		ND		17	ug/Kg	08/13/95
PCB-1254		ND		17	ug/Kg	08/13/95
PCB-1260		270		17	ug/Kg	08/13/95
PCB-1016		ND		17	ug/Kg	08/13/95
SURROGATES, % Recovery						
Tetrachlorometaxylene		55.2		Min:	50	Max: 150
Decachlorodiphenyl		209 *		Min:	50	Max: 150

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...

- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:

- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Linder Construction
Project: Sparrevohn LRRS
Sample Matrix: Soil

Date Received: 8/31/95
Work Order No: A9500654

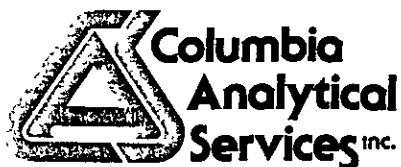
CASE NARRATIVE

All analyses were performed consistent with generally accepted analytical principles and practices.

-Acronyms-

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
DRO Diesel Range Organics
GRO Gasoline Range Organics

Approved by JFW September 28, 1995



September 28, 1995

Mike Lucky
Linder Construction
8220 Petersburg Street
Anchorage, AK 99507

Service Request No: A9500654

Re: Sparrevohn LRRS

Dear Mike:

Attached are the results of the samples submitted to our lab on August 31, 1995. For your reference, our service request number for this work is A9500654.

All analyses were performed consistent with generally accepted analytical laboratory principles and practices. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Along with these results, we have enclosed a copy of our invoice. This is only a copy. The invoice you will submit payment for will be mailed to your accounting office in a week to ten days. Please do not submit payment at this time.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

A handwritten signature in cursive script that reads "Jane F. Whitsett".

Jane F. Whitsett
Laboratory Manager

JFW/sh

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

Total Moisture (%)

Prep Method: NONE
 Analysis Method: TS AK
 Test Notes:

Units: PERCENT
 Basis: Dry

Sample Name	Lab Code	Date Analyzed	Result	Result Notes
95-SPV-016-SL	A9500654-1	9/8/95	8.5	
95-SPV-017-SL	A9500654-2	9/8/95	9.3	

Approved By.

Matthew Steinhilber

Date:

9-14-95

Total Solids/042895

00654PHC PM2 - Total Solids 9/14/95

3

Page No

Analytical Report

Client: Linder Construction
 Project: Sparrevoohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

Total Metals

Sample Name: 95-SPV-016-SL
 Lab Code: A9500654-1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aluminum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	19300	
Antimony	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Barium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	200	
Beryllium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Boron	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Cadmium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Calcium	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	5390	
Chromium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	65	
Cobalt	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	21	
Copper	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	57	
Iron	EPA 3050A	6010A	4	2	1	9/24/95	9/25/95	36300	
Magnesium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	11000	
Manganese	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	701	
Molybdenum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Nickel	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	63	
Phosphorus, Total	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	900	
Potassium	EPA 3050A	6010A	400	200	1	9/24/95	9/25/95	1000	
Silver	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Sodium	EPA 3050A	6010A	20	10	1	9/24/95	9/25/95	90	
Strontium	EPA 3050A	6010A	50	20	1	9/24/95	9/25/95	ND	
Thallium	EPA 3050A	6010A	200	50	1	9/24/95	9/25/95	ND	
Titanium	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	1000	
Tin	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	ND	
Vanadium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	60	
Zinc	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	170	

Approved By: _____

Mike Shelton

Date

9/27/95

Analytical Report

Client: Linder Contstruction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

Total Metals

Sample Name: 95-SPV-017-SL
 Lab Code: A9500654-2
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aluminum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	22500	
Antimony	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Barium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	213	
Beryllium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Boron	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Cadmium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Calcium	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	4810	
Chromium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	70	
Cobalt	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	21	
Copper	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	61	
Iron	EPA 3050A	6010A	4	2	1	9/24/95	9/25/95	39600	
Magnesium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	12100	
Manganese	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	720	
Molybdenum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Nickel	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	67	
Phosphorus, Total	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	900	
Potassium	EPA 3050A	6010A	400	200	1	9/24/95	9/25/95	1700	
Silver	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Sodium	EPA 3050A	6010A	20	10	1	9/24/95	9/25/95	100	
Strontium	EPA 3050A	6010A	50	20	1	9/24/95	9/25/95	ND	
Thallium	EPA 3050A	6010A	200	50	1	9/24/95	9/25/95	ND	
Titanium	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	800	
Tin	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	ND	
Vanadium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	70	
Zinc	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	134	

Approved By

Mike Shelton

Date

9/27/95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

Total Metals

Sample Name: Method Blank
 Lab Code: A950924-SB1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Aluminum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Antimony	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Barium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Beryllium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Boron	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Cadmium	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Calcium	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Chromium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Cobalt	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Copper	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Iron	EPA 3050A	6010A	4	2	1	9/24/95	9/25/95	ND	
Magnesium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Manganese	EPA 3050A	6010A	1	1	1	9/24/95	9/25/95	ND	
Molybdenum	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Nickel	EPA 3050A	6010A	10	5	1	9/24/95	9/25/95	ND	
Phosphorus, Total	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	ND	
Potassium	EPA 3050A	6010A	400	200	1	9/24/95	9/25/95	ND	
Silver	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Sodium	EPA 3050A	6010A	20	10	1	9/24/95	9/25/95	ND	
Strontium	EPA 3050A	6010A	50	20	1	9/24/95	9/25/95	ND	
Thallium	EPA 3050A	6010A	200	50	1	9/24/95	9/25/95	ND	
Titanium	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	ND	
Tin	EPA 3050A	6010A	100	50	1	9/24/95	9/25/95	ND	
Vanadium	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	
Zinc	EPA 3050A	6010A	2	1	1	9/24/95	9/25/95	ND	

Approved By: Mike Shelton Date: 9/27/95

Analytical Report

Client: Linder Construction
Project: Sparrevohn LRRS
Sample Matrix: Soil

Service Request: A9500654
Date Collected: 8/31/95
Date Received: 8/31/95

Total Metals

Sample Name: 95-SPV-016-SL
Lab Code: A9500654-1
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic	EPA 3050A	7060	1	1	1	9/24/95	9/24/95	11	
Lead	EPA 3050A	7420	10	5	1	9/24/95	9/24/95	ND	

Approved By: _____

Michele Stell

Date: _____

9/27/95

Page No 7

Analytical Report

Client: Linder Construction
Project: Sparrevohn LRRS
Sample Matrix: Soil

Service Request: A9500654
Date Collected: 8/31/95
Date Received: 8/31/95

Total Metals

Sample Name: 95-SPV-017-SL
Lab Code: A9500654-2
Test Notes:

Units mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic	EPA 3050A	7060	1	1	1	9/24/95	9/24/95	13	
Lead	EPA 3050A	7420	10	5	1	9/24/95	9/24/95	ND	

Approved By: _____

Mike Steh

Date: _____

9/27/95

COLUMBIA ANALYTICAL SERVICES, INC.

51 - 258

Analytical Report

Client: Linder Construction
Project: Sparrevohn LRRS
Sample Matrix: Soil

Service Request: A9500654
Date Collected: 8/31/95
Date Received: 8/31/95

Total Metals

Sample Name: Method Blank
Lab Code: A950924-SB1
Test Notes:

Units: mg/Kg (ppm)
Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Arsenic	EPA 3050A	7060	1	1	1	9/24/95	9/24/95	ND	
Lead	EPA 3050A	7420	10	5	1	9/24/95	9/24/95	ND	

Approved By

Mike Shell

Date: *9/27/95*

1S44/042895

00654ICP DGI - Sample (3) 9/24/95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

(8240 Analyte List)
 Volatile Organic Compounds by GC/MS

Sample Name: 95-SPV-016-SL
 Lab Code: A9500654-1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Vinyl Chloride	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromomethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Chloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Trichlorofluoromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Acetone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
1,1-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Carbon Disulfide	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Dichloromethane	EPA 5030A	8260A	0.5	0.1	1	9/5/95	9/6/95	ND	
trans-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1-Dichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
2-Butanone (MEK)	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
cis-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Chloroform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,1-Trichloroethane (T)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Carbon Tetrachloride	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichloroethane (ED)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Benzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Trichloroethene (TCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichloropropane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromodichloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
2-Hexanone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
cis-1,3-Dichloropropene	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
Toluene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
trans-1,3-Dichloropropene	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,1,2-Trichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
4-Methyl-2-pentanone (M)	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
Tetrachloroethene (PCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Dibromochloromethane	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
Chlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Ethylbenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Xylenes, Total	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Styrene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromoform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,2,2-Tetrachloroethane	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,3-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,4-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,2-Trichlorotrifluoroethane	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
Vinyl Acetate	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
2-Chloroethyl Vinyl Ether	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	

Approved By:

Michael L. Ouellette

Date: 22 SEP 95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

(8240 Analyte List)
 Volatile Organic Compounds by GC/MS

Sample Name: 95-SPV-017-SL
 Lab Code: A9500654-2
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Vinyl Chloride	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromomethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Chloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Trichlorofluoromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Acetone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
1,1-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Carbon Disulfide	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Dichloromethane	EPA 5030A	8260A	0.5	0.1	1	9/5/95	9/6/95	ND	
trans-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1-Dichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
2-Butanone (MEK)	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
cis-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Chloroform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,1-Trichloroethane (T)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Carbon Tetrachloride	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichloroethane (ED)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Benzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Trichloroethene (TCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichloropropane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromodichloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
2-Hexanone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
cis-1,3-Dichloropropene	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
Toluene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
trans-1,3-Dichloropropen	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,1,2-Trichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
4-Methyl-2-pentanone (EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
Tetrachloroethene (PCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Dibromochloromethane	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
Chlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Ethylbenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Xylenes, Total	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Styrene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
Bromoform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,2,2-Tetrachloroethan	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/6/95	ND	
1,3-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,4-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,2-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/6/95	ND	
1,1,2-Trichlorotrifluoroet	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
Vinyl Acetate	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	
2-Chloroethyl Vinyl Ethe	EPA 5030A	8260A	1	0.5	1	9/5/95	9/6/95	ND	

Approved By

Michael L. Ouellette

Date 22 SEP 95

1S44/042895

00654VOA KMI - 8240 (2) 9/22/95

Page No

11

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: NA
 Date Received: NA

(8240 Analyte List)
 Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
 Lab Code: A950905-SB1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Vinyl Chloride	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Bromomethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Chloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Trichlorofluoromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Acetone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
1,1-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Carbon Disulfide	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Dichloromethane	EPA 5030A	8260A	0.5	0.1	1	9/5/95	9/5/95	ND	
trans-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,1-Dichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
2-Butanone (MEK)	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
cis-1,2-Dichloroethene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Chloroform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,1,1-Trichloroethane (T)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Carbon Tetrachloride	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/5/95	ND	
1,2-Dichloroethane (ED)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Benzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Trichloroethene (TCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,2-Dichloropropane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Bromodichloromethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
2-Hexanone	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
cis-1,3-Dichloropropene	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/5/95	ND	
Toluene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
trans-1,3-Dichloropropen	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/5/95	ND	
1,1,2-Trichloroethane	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
4-Methyl-2-pentanone (EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
Tetrachloroethene (PCE)	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Dibromochloromethane	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/5/95	ND	
Chlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Ethylbenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Xylenes, Total	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Styrene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
Bromoform	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,1,2,2-Tetrachloroethan	EPA 5030A	8260A	0.3	0.1	1	9/5/95	9/5/95	ND	
1,3-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,4-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,2-Dichlorobenzene	EPA 5030A	8260A	0.2	0.1	1	9/5/95	9/5/95	ND	
1,1,2-Trichlorotrifluoroet	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
Vinyl Acetate	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	
2-Chloroethyl Vinyl Ethe	EPA 5030A	8260A	1	0.5	1	9/5/95	9/5/95	ND	

Approved By

Michael L. Ouellette

Date: 22SEP95

IS44/042895

00654VOA.KM1 - MB 9/22/95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

BNA Semi-Volatile GC/MS

Sample Name: 95-SPV-016-SL
 Lab Code: A9500654-1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
N-Nitrosodimethylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Aniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroethyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Phenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Chlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,3-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,4-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,2-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzyl Alcohol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroisopropyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachloroethane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
N-Nitrosodi-n-propylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Nitrobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Isophorone	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Nitrophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4-Dimethylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroethoxy)methane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4-Dichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzoic Acid	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
1,2,4-Trichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	0.6	a, b
Naphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chloroaniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorobutadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chloro-3-methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Methylnaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorocyclopentadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4,6-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4,5-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Chloronaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Acenaphthylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Dimethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,6-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Acenaphthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2,4-Dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Dibenzofuran	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Nitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2,4-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Fluorene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chlorophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	

a Matrix interference suspected
 b EPA Flag - Estimated Value

Approved By: Michael L. Oseltine Date: 27SEP95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

BNA Semi-Volatile GC/MS

Sample Name: 95-SPV-016-SL
 Lab Code: A9500654-1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2-Methyl-4,6-dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
N-Nitrosodiphenylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Bromophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Pentachlorophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Phenanthrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
D1-n-butyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Butylbenzyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3,3'-Dichlorobenzidine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benz(a)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Chrysene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-ethylhexyl) Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
D1-n-octyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(b)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(k)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(a)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Indeno(1,2,3-cd)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Dibenz(a,h)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(g,h,i)perylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	

Approved By

Michael L. Ouellette

Date: 27SEP95

1S2p/042895

00654SVM SG2 - 68270 9/27/95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

BNA Semi-Volatile GC/MS

Sample Name: 95-SPV-017-SL
 Lab Code: A9500654-2
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
N-Nitrosodimethylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Aniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroethyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Phenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Chlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,3-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,4-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
1,2-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzyl Alcohol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroisopropyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachloroethane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
N-Nitrosodi-n-propylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Nitrobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Isophorone	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Nitrophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4-Dimethylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-chloroethoxy)methane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4-Dichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzoic Acid	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	2.4	a,b
1,2,4-Trichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Naphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chloroaniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorobutadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chloro-3-methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Methylnaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorocyclopentadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4,6-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,4,5-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Chloronaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Acenaphthylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Dimethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
2,6-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Acenaphthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2,4-Dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Dibenzofuran	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Nitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2,4-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Fluorene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Chlorophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	

a Matrix interference suspected
 b EPA Flag - Estimated Value

Approved By: Michael L. Ouellette Date: 27 SEP 95

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 8/31/95
 Date Received: 8/31/95

BNA Semi-Volatile GC/MS

Sample Name: 95-SPV-017-SL
 Lab Code: A9500654-2
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
2-Methyl-4,6-dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
N-Nitrosodiphenylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
4-Bromophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Hexachlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Pentachlorophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/20/95	ND	
Phenanthrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Di-n-butyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Butylbenzyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
3,3'-Dichlorobenzidine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benz(a)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Chrysene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Bis(2-ethylhexyl) Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Di-n-octyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(b)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(k)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(a)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Indeno(1,2,3-cd)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Dibenz(a,h)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	
Benzo(g,h,i)perylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/20/95	ND	

Approved By

Michael L. Ouellette

Date 27SEP95

Analytical Report

Client: Linder Construction
 Project: Sparrevojn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 9/7/95
 Date Received: 9/7/95

BNA Semi-Volatile GC/MS

Sample Name: Method Blank
 Lab Code: A950907-SB1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
N-Nitrosodimethylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Aniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Bis(2-chloroethyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Phenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Chlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
1,3-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
1,4-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
1,2-Dichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzyl Alcohol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Bis(2-chloroisopropyl) Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Hexachloroethane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
N-Nitrosodi-n-propylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
3-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Nitrobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Isophorone	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Nitrophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2,4-Dimethylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Bis(2-chloroethoxy)methane	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2,4-Dichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzoic Acid	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
1,2,4-Trichlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Naphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Chloroaniline	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Hexachlorobutadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Chloro-3-methylphenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Methylnaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Hexachlorocyclopentadiene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2,4,6-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2,4,5-Trichlorophenol	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Chloronaphthalene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
Acenaphthylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Dimethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
2,6-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Acenaphthene	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
3-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
2,4-Dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
Dibenzofuran	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Nitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
2,4-Dinitrotoluene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Fluorene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Chlorophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	

Approved By: Michael L. Ouellette Date: 27SEP95

COLUMBIA ANALYTICAL SERVICES, INC.

51 267

Analytical Report

Client: Linder Construction
 Project: Sparrevohn LRRS
 Sample Matrix: Soil

Service Request: A9500654
 Date Collected: 9/7/95
 Date Received: 9/7/95

BNA Semi-Volatile GC/MS

Sample Name: Method Blank
 Lab Code: A950907-SB1
 Test Notes:

Units: mg/Kg (ppm)
 Basis: Dry

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diethyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Nitroaniline	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
2-Methyl-4,6-dinitrophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
N-Nitrosodiphenylamine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
4-Bromophenyl Phenyl Ether	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Hexachlorobenzene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Pentachlorophenol	EPA 3540	EPA 8270A	2	1	1	9/7/95	9/9/95	ND	
Phenanthrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Di-n-butyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Butylbenzyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
3,3'-Dichlorobenzidine	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benz(a)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Chrysene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Bis(2-ethylhexyl) Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Di-n-octyl Phthalate	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzo(b)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzo(k)fluoranthene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzo(a)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Indeno(1,2,3-cd)pyrene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Dibenz(a,h)anthracene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	
Benzo(g,h,i)perylene	EPA 3540	EPA 8270A	0.3	0.1	1	9/7/95	9/9/95	ND	

Approved By:

Michael L. Ouellette

Date: 27SEP95

1S2p/042895

00654SVM SG2 - s8270mb 9/27/95

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE