Consulting Scientists, Engineers, and Geologists

July 14, 2006

Mr. Craig Hunt, Ph.D., Water Resource Control Engineer Regional Water Quality Control Board—North Coast Region 5550 Skylane Boulevard, Suite A Santa Rosa, CA 95403 Via Overnight Mail

16017.08

Subject: Dioxin Sampling and Analysis Report Georgia-Pacific California Wood Products Manufacturing Facility 90 West Redwood Avenue Fort Bragg, California

Dr. Hunt:

Enclosed please find a hard copy of *Dioxin Sampling and Analysis Report* for the Georgia-Pacific Corporation California Wood Products Manufacturing Facility located at 90 West Redwood Avenue, Fort Bragg, California

Please do not hesitate to call should you have any questions.

Very truly yours,

ACTON • MICKELSON • ENVIRONMENTAL, INC.

milaat

Michael A. Acton Vice President

Enclosures

- cc: Ms. Julie Raming, Georgia-Pacific Corporation
 - Mr. Doug Heitmeyer, Georgia-Pacific Corporation
 - Ms. Linda Ruffing, City of Fort Bragg
 - Ms. Kay Johnson, Tetra Tech, Inc.
 - Mr. Glenn Young, Fugro West, Inc.
 - Mr. Mark Stelljes, SLR International Corp.

JRH:MAA:tcm

Dioxin Sampling and Analysis Report

Georgia-Pacific Corporation California Wood Products Manufacturing Facility 90 West Redwood Avenue, Fort Bragg, California



Prepared By

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JULY 14, 2006

DIOXIN SAMPLING AND ANALYSIS REPORT

PREPARED FOR

Georgia-Pacific Corporation California Wood Products Manufacturing Facility 90 West Redwood Avenue Fort Bragg, California

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1. INTRODUCTION

In response to the order issued by the California Regional Water Quality Control Board, North Coast Region (North Coast Water Board) on June 13, 2006 (Appendix A), this *Dioxin Sampling and Analysis Report* (report) contains preliminary results for sampling and analysis for chlorinated dioxins and dibenzofurans at the former Georgia-Pacific (G-P) California Wood Products Manufacturing Facility located at 90 West Redwood Avenue in Fort Bragg, California (site; **Figures 1** and **2**). A summary of fly ash handling and disposal based on a review of currently available documents, the soil and ground water sampling technical approach, and soil boring logs and analytical results through May 2006 are presented in this report. Analysis of the subject data, results of a review of additional fly ash handling documentation, proposals for additional remedial investigation where appropriate, and other recommendations are pending and will be provided in future submittals; thus, the results presented herein should be considered preliminary.

2. BACKGROUND

2.1 Site Description

The site is located along the Pacific Ocean coastline in the City of Fort Bragg, Mendocino County, California. Located on approximately 445 acres west of Highway One, the site is bounded to the south by Noyo Bay, to the west and northwest by open coastline, and to the northeast and east by the City of Fort Bragg. The site was divided into ten parcels during previous investigations based on historical operations and land use. **Figure 2** is a site map showing the locations of parcels, major buildings, ponds, and other features.

2.2 Fly Ash Handling and Disposal

Information sources for this section include:

- G-P file
- Paul E. Johnson, G-P
- Douglas A. Heitmeyer, Environmental Coordinator, G-P
- North Coast Water Board (review of a portion of the file originally made available to G-P; review of the remainder of the file will be documented in a future submittal)

A list of references is presented in Section 6.

2.2.1 Source of Fly Ash

Steam used to power sawmill operations was generated from three boilers in the Powerhouse fired by hog fuel comprised of chipped/ground-up green sawdust and bark (**Figure 2**). When necessary, oil was used to fire the boilers. Fly ash was generated at the site by burning the hog fuel in boilers at the Powerhouse.

2.2.2 Powerhouse Operations - Mid 1970s to 1996

From the approximate mid-1970s to 1996, fly ash emissions from the boilers were controlled by multi-cyclone collectors, followed by wet scrubbers. Accumulated fly ash in the multi-cyclone collectors was placed in a dump hopper for removal and placement at an offsite location.

Scrubber water from the boilers contained fly ash and was piped to two dewatering slabs, where after drying the residual fly ash was also placed in a dump hopper for removal and placement at an offsite location (**Figure 2**). The terminus of the pipe conveying scrubber water used a nozzle situated between the two dewatering slabs to direct flow. Water on the dewatering slabs that did not evaporate was conveyed to Pond 7 (Blow-Down Pond). Pond 7 also received wash water from the Powerhouse by way of a sump pump and covered concrete trench as well as ground water and surface runoff from the Powerhouse area (Heitmeyer and Johnson 2006).

Two pumps located immediately west of Pond 7 conveyed water in the same pipeline from Pond 7 to Pond 1. Water was conveyed by gravity in a pipe from Pond 1 to Pond 3 and then to Pond 8. Pond 1 could discharge through a culvert into Pond 2 during a high-water emergency. Pond 2 was comprised of Pudding Creek water and storm water runoff except when a high-water emergency necessitated transfer of Pond 1 water to Pond 2. Under high-water conditions, water could flow by pipe from Pond 2 to Pond 3. Water from Pond 8 is discharged to the Pacific Ocean (Heitmeyer and Johnson 2006).

2.2.3 Powerhouse Operations -1996 to 2002 (Termination of Mill Operations)

In 1996, two changes were incorporated into the system described above. First, an ash re-injection system was installed, which eliminated use of the dewatering slabs. Process water from the boilers was conveyed directly to Pond 7. Second, Pond 4 was excavated to receive water conveyed by pipe from Pond 7. Overflow from Pond 4 was conveyed by gravity pipe to Pond 1. From Pond 1, water followed a course similar to that described in Section 2.2.2 above.

2.2.4 Solid Fly Ash

From approximately 1985 through 2002, solid fly ash from the multi-cyclone collectors, the dewatering slabs, or from dredging of Ponds 1, 4, and 7 was placed in dump hoppers for transport to offsite locations for use as a soil amendment (Heitmeyer and Johnson 2006).

Pond 1 was dredged once in 1996 when Pond 4 was excavated. The volume of material removed during the event is unknown. Pond 4 was dredged approximately once or twice annually from 1996 to 2002, with roughly 70 cubic yards of material removed during each event. Pond 7 was dredged approximately twice, with approximately 90 cubic yards of material removed during each event.

Around October 1983, fly ash was transported to Redwood School in Fort Bragg for use as a soil amendment on athletic fields comprising approximately 3 acres. The volume of fly ash used is not known. The City of Fort Bragg Fire Department applied water to the area of amendment for dust suppression purposes (Heitmeyer and Johnson 2006).

From February 1986 until October 1991, fly ash was transported to G-P property in Little Valley for use as a soil amendment initially under Order No. 86-3 Waste Discharge Requirements issued January 30, 1986 by the North Coast Water Board. Cleanup and Abatement Order No. 86-43 was issued on February 13, 1986 because of ash discharge to area surface streams. Cleanup and Abatement Order No. 86-43 was rescinded by Order No. 87-80 issued on June 1, 1987 after appropriate corrective actions had been implemented by G-P. Order No. 90-32 Waste Discharge Requirements was issued in 1990 to allow for interim ash stockpiling so that the bioaccumulation and hazard potential of the fly ash could be assessed. Order No. 90-154 Waste Discharge Requirements was issued August 16, 1990 to allow resumption of soil amendment activities. Order No. 91-93 Waste Discharge Requirements was issued on June 27, 1991 as an interim permit to allow for continued stockpiling and amending until a review of all sampling data was completed. Order No. 91-93 Waste Discharge Requirements, and allowed for continued soil amendment at Little Valley.

The use of fly ash as a soil amendment in Little Valley and subsequent soil sampling and analysis is documented in *TCDF Study on Fly Ash Amended Soil and Related Environmental Vectors* submitted to the North Coast Water Board on December 21, 1989. The volume of fly ash transported from the site to Little Valley is currently unknown but will be reported in future documentation to the North Coast Water Board if ascertained from further review of the record.

From approximately 1992 through 2002, fly ash was transported to McGuire Ranch for use as a soil amendment under Order No. 92-26 Waste Discharge Requirements issued on February 26, 1992 and Order 96-96 Waste Discharge Requirements issued on December 5, 1996, which allowed for biosolids from the Mendocino City Community Services District to be incorporated into the soil amendment. Approximately 180 acres of McGuire Ranch land were amended with fly ash. The use of fly ash at McGuire Ranch will be documented in a report to be submitted to the North Coast Water Board following further review of the record and completion of an investigation to evaluate potential impacts of dioxin and other constituents of potential concern. A work plan outlining this investigation will be submitted by August 14, 2006 to the North Coast Water Board for approval prior to initiation of activities.

Offsite disposal of fly ash ended when mill operations were terminated in 2002. The fly ash stockpile currently located onsite is the result of 2002 Pond 4 dredging.

Currently available documentation indicates that fly ash may have been received or used as a soil amendment at the following locations:

- Bald Hill and Canyon Road (no number address), Fort Bragg, California (correspondence dated August 30, 1985)
- Mendocino High School (correspondence dated February 26, 1986)
- Michael Cleary, P.O. Box 14, Fort Bragg, California 95437 (correspondence dated April 14 and 23 and May 28, 1986)
- Kristy Sarconi, P.O. Box 284, Comptche, California 95427 (correspondence dated May 29, 1986)
- Spring Ranch, Highway 1 Little Valley area (correspondence dated June 10, 1986)
- Green Valley Nursery, Parcels 019/570/04 and 017/262/220 Fort Bragg (correspondence dated June 17, 1986)
- Tom Estes, 22560 Highway 1, Fort Bragg, California, 95437 (correspondence dated December 8 and 31, 1986)
- L.M. Remstedt, 44200 Johnson Peak Road, East Caspar, California (correspondence dated May 8, 1987)
- Thor Coblenz, P.O. Box 1378, Mendocino, California 95460 (correspondence dated May 29, 1987)

- Dan Murray, 31550 Little Valley Road, Fort Bragg, California 95437 (correspondence dated May 29, 1987)
- Linora Salpen, 33550 Gibney Lane, Fort Bragg, California 95437 (correspondence dated June 25, 1987)
- Additional storage area south of Ross Ranch (document dated February 3, 1992)

3. TECHNICAL APPROACH

3.1 Field Sampling Procedures

Soil borings and sampling were performed under the direction of an appropriately registered Acton • Mickelson • Environmental, Inc. professional. Soil borings were advanced using:

- Hand sampling
- Hand auger and hand-held drive sampler
- Truck-mounted or barge-mounted direct push rig
- Truck-mounted, hollow-stem auger drill rig

Soil boring permits are in Appendix B.

3.1.1 Hand Sampling

Surface samples were collected by advancing a 2- by 6-inch stainless steel sampling tube into underlying material by either manually pushing or tapping with a hammer.

3.1.2 Hand Auger, Hand-Held Drive Sampler

Samples deeper than 6 inches were collected at each location in the ash stockpile by advancing a hand auger to the desired depth and driving a 2- by 6-inch stainless steel sampling tube into underlying material using a slide hammer. Upon recovery of the sampler, the stainless-steel tubes containing the soil were removed and the ends sealed with Teflon[®] tape and plastic end caps.

Upon retrieval of the sampling tube, all sampling tools were decontaminated in accordance with standard procedures described in Appendix C.

3.1.3 Truck-Mounted or Barge-Mounted Direct Push Rig

A truck-mounted direct push rig was used for collecting samples at soil borings in Parcels 3, 8, and 10, and deeper samples at the ash stockpile. A barge-mounted direct push rig was used for all pond drilling operations.

A continuous core was collected by pushing a sampler containing a 4-foot-long acrylic or polyvinyl chloride (PVC) tube. Soil samples selected for laboratory analysis were obtained by saw cutting a 6-inch length from the soil-filled tube and sealing the ends of the removed segment with Teflon[®] tape and plastic end caps.

3.1.4 Truck-Mounted Hollow-Stem Auger Drill Rig

A truck-mounted hollow-stem auger drill rig was used to obtain samples from the Former South Pond site. Soil samples were collected at 5-foot vertical intervals in general accordance with ASTM D1586-84 (re-approved 1992) modified to allow the use of a 2-inch-diameter, split-barrel sampler. Using this procedure, three 2-inch-diameter, 6-inch-long stainless-steel tubes were placed in a California-type split-barrel sampler, which was driven 18 inches into underlying material by a

140-pound hammer falling 30 inches. Upon recovery of the split-barrel sampler, the stainless-steel tubes containing the soil were removed. The lowermost tube was then sealed at the ends with Teflon[®] tape and plastic end caps.

The split-barrel sampler was cleaned to prevent cross-contamination for each sampling interval. After drilling, borings were backfilled with neat cement.

3.1.5 Grass Sampling

Low-lying green grass was sampled around previous soil sample locations at the ash stockpile. A handful of grass was trimmed with shears above ground level. Grass was not pulled out or roots collected, and soil and ash were avoided. Approximately 1 quart of grass was collected at each location. The grass was rinsed in the field with distilled water to remove soil, dust, or dry deposition. Excess moisture was removed by washing and drying. Samples were placed in clean, dry, and clear glass jars for transport to the laboratory for analysis.

3.1.6 Soil Boring Logging and Sample Handling

Soil was examined for composition, color, moisture content, relative density, grain size and shape, and other identifiers that would define soil types. A complete log of soil conditions was recorded on a soil boring log (Appendix D) using the Unified Soil Classification System.

Sample tubes were taken on a clean, dry surface (on a plastic-covered surface if necessary) to avoid contact with contaminated surfaces or water during both hand sampling and drilling operations. Sample tubes were labeled with an identification number, time, and date, then placed in a plastic bag and stored at approximately 4 degrees Celsius in an ice chest for transport to the laboratory (Appendix C).

3.1.7 Grab Ground Water and Surface Water Sampling

Grab ground water samples were obtained using exposed-screen PVC pipe and a peristaltic pump in general accordance with ASTM D6001 (re-approved 2002). At the target interval at the boring location, a PVC pipe was lowered to the formation from which a grab ground water sample was collected with a peristaltic pump and polyethylene tubing. The sample was then transferred to the laboratory-supplied containers for analysis. For sampling at the Pond 8 outfall, polyethylene tubing was lowered 12 inches from the bottom of the outfall from which a grab water sample was collected using a peristaltic pump and polyethylene tubing.

3.1.8 Chain-of-Custody

Chain-of-custody records were completed and accompanied every sample and sample shipment to the analytical laboratory in order to establish necessary documentation to trace sample possession from the time of collection (Appendix C). The laboratory portion of the form was completed by laboratory personnel.

3.2 Quality Assurance/Quality Control

Laboratory data were validated based on data quality objectives and parameters presented in the Quality Assurance Plan (QAP). Included in this validation process was evaluation of the following criteria:

- Sample condition upon laboratory receipt
- Holding times
- Laboratory method blanks
- Ongoing precision and recovery sample results
- Internal standard recoveries
- Cleanup standard recoveries
- Identification and quantitation of target compounds
- Verification of electronic deliverables

3.3 Investigation-Derived Waste

All waste soil produced from hollow stem auger and direct push drilling operations was collected at each boring location and transported via 5-gallon buckets or Bobcat front-end loader to onsite soil storage bins. The bins were lined with visqueen and sealed to inhibit rainwater entry. Fluids resulting from grab ground water sampling were containerized in 5-gallon buckets and stored in onsite poly tanks until disposed of in accordance with jurisdictional requirements. Hand-sampled ash stockpile locations produced no waste for containerization due to the sampling methods used.

4. **RESULTS**

4.1 Stratigraphy

Please see the boring logs presented in Appendix D.

4.2 Analytical Results

Reported concentrations of dioxins and furans are listed in **Tables 1** and **2** and shown on **Figure 3**. Laboratory analytical reports are in Appendix E.

4.2.1 Fly Ash

Within the fly ash stockpile, dioxin Toxicity Equivalency Quotient (TEQ) values ranged from 767 picograms per gram (pg/g) (AS-7.2) to 991 pg/g (AS-7.1).

4.2.2 Soil

Within the soil sampling areas in Parcels 3, 8, and 10, dioxin TEQ values ranged from 0.00013 pg/g (DP-10.9-95) to 2.17 pg/g (DP-8.9-2.5).

4.2.3 Sediment

Within pond sediments, dioxin TEQ values ranged from 0.00 pg/g (DP-7.16-10 [Pond 3]) to 1,730 pg/g (DP-4.12-13 [Pond 7]).

4.2.4 Grass

In grass samples taken from on top of the fly ash stockpile, dioxin TEQ values ranged from 0.0635 pg/g (AS-7.1-GRASS) to 0.646 pg/g (AS-7.2-GRASS).

4.2.5 Ground Water

Grab ground water samples were collected from two direct push borings located northwest of Dry Shed 4. In those ground water samples, reported dioxin TEQ values ranged from 5.2 picograms per liter (pg/L) at DP-3.59 to 14.02 pg/L at DP-3.60, northwest of Dry Shed 4. These samples were unfiltered. The presence of turbidity may result in reported concentrations that are greater than actual dissolved phase concentrations.

4.2.6 Surface Water

A surface water sample was collected from the south outfall of Pond 8. (The north outfall is dry except during high flows.) This sample was filtered in the field. The reported dioxin TEQ value was 0 pg/L.

4.3 Data Validation Results

Data validation was performed using procedures outlined in the QAP. Data qualifiers appended to the laboratory results have been added to the tables summarizing the sample analytical data. Data validation summary reports are in Appendix F

Results of the data validation process indicate that most quality control criteria, including holding times, method blanks, and internal standards, were met by the laboratory.

Overall assessment of analytical results indicates data are acceptable and usable, although occasional deviations from control limits required that some reported values be qualified. Most of these control limit deviations are the result of method blank holding times.

In general, validation of the laboratory reports indicated that the majority of laboratory data meet the QAP-specified criteria for precision, accuracy, representativeness, comparability, and completeness. No systemic laboratory quality control issues were identified, and no corrective actions were required.

5. REMARKS

This report represents our professional opinions, which are based in part on client-supplied and currently available information and are arrived at in accordance with accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended. This report was prepared solely for the use of our client. Any reliance on the information contained in the ground water monitoring report by third parties shall be at such parties' sole risk.

6. **REFERENCES**

Annual Report – Georgia-Pacific Soil Amending Project. n.d.

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 - _____. 1991c. Letter from Steven Petrin, Senior Environmental Planner for Western Area Building Products, to Mark Neely, Associate Engineering Geologist, North Coast Water Board, re: Georgia-Pacific Corporation Boiler Ash Soil Amendment Project Amendment to Report of Waste Discharge. October 28.

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North Coast Water Board. 1986. Order No. 86-3, ID No. 1B85030RMEN, Waste Discharge Requirements for Georgia-Pacific Corporation Fort Bragg Soil Amendment. January 30.

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- _____. 1988. Revised Monitoring and Reporting Program No. 86-3 for Georgia-Pacific Corporation Fort Bragg Soil Amendment. May 23.
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____. 1992. Notice of Adoption of Waste Discharge Requirements for Georgia-Pacific Corporation and James I. and Barbara McGuire Soil Amendment. March 4.

Warner, Susan. 1986. Letter to Donald Kilpatrick, Mendocino Unified School District. February 26.

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-1.5	5	Soil	4/27/2006	DP-1.5-5	2,3,7,8-TCDD	ND	0.0227	
					1,2,3,7,8-PeCDD	ND	0.0369	
					1,2,3,4,7,8-HxCDD	ND	0.0373	
					1,2,3,6,7,8-HxCDD	ND	0.0378	
					1,2,3,7,8,9-HxCDD	ND	0.0379	
					1,2,3,4,6,7,8-HpCDD	0.222 J		
					1,2,3,4,6,7,8,9-OCDD	1.58 J		
					2,3,7,8-TCDF	ND	0.0308	
					1,2,3,7,8-PeCDF	ND	0.0318	
					2,3,4,7,8-PeCDF	ND	0.032	
					1,2,3,4,7,8-HxCDF	ND	0.0269	
					1,2,3,6,7,8-HxCDF	ND	0.0279	
					2,3,4,6,7,8-HxCDF	ND	0.0305	
					1,2,3,7,8,9-HxCDF	0.148 J		
					1,2,3,4,6,7,8-HpCDF	0.144 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.0797	
					1,2,3,4,6,7,8,9-OCDF	0.446 J,Bu		
					Total TCDD	ND	0.0227	
					Total PeCDD	ND	0.0369	
					Total HxCDD	ND	0.0377	
					Total HpCDD	0.43		
				Total TCDF	ND	0.0308		
			Total PeCDF	ND	0.0319			
				Total HxCDF	0.148 B			
				Total HpCDF	0.144 Bu			
					2,3,7,8-TCDD TEQ (ITEF)	0.0187		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-3.59	1	Soil	10/10/2005	DP-3.59-1	2,3,7,8-TCDD	ND	0.178	
					1,2,3,7,8-PeCDD	0.737 J		
					1,2,3,4,7,8-HxCDD	3.07		
					1,2,3,6,7,8-HxCDD	22.8		
					1,2,3,7,8,9-HxCDD	9.19		
					1,2,3,4,6,7,8-HpCDD	559		
					1,2,3,4,6,7,8,9-OCDD	3560		
					2,3,7,8-TCDF	0.653		
					1,2,3,7,8-PeCDF	1.55 J		
					2,3,4,7,8-PeCDF	2.35 J		
					1,2,3,4,7,8-HxCDF	8.06		
					1,2,3,6,7,8-HxCDF	10.2		
					2,3,4,6,7,8-HxCDF	9.11		
					1,2,3,7,8,9-HxCDF	1.46 J		
					1,2,3,4,6,7,8-HpCDF	208		
					1,2,3,4,7,8,9-HpCDF	10		
					1,2,3,4,6,7,8,9-OCDF	336		
					Total TCDD	ND	0.178	
					Total PeCDD	4.29		
					Total HxCDD	109		
					Total HpCDD	879		
				Total TCDF	8.14			
					Total PeCDF	40.9		
					Total HxCDF	213		
					Total HpCDF	506		
					2,3,7,8-TCDD TEQ (ITEF)	16.6		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	1	Soil	4/17/2006	DP-4.7-1b	2,3,7,8-TCDD	1.62 Jj		
					1,2,3,7,8-PeCDD	1.27 Jj		
					1,2,3,4,7,8-HxCDD	ND uj	0.792	
					1,2,3,6,7,8-HxCDD	1.2 Jj		
					1,2,3,7,8,9-HxCDD	1.17 Jj		
					1,2,3,4,6,7,8-HpCDD	21.1 ј		
					1,2,3,4,6,7,8,9-OCDD	325 ј		
					2,3,7,8-TCDF	11 ј		
					1,2,3,7,8-PeCDF	ND uj		3.38
					2,3,4,7,8-PeCDF	4.72 Jj		
					1,2,3,4,7,8-HxCDF	ND uj		1.43
					1,2,3,6,7,8-HxCDF	1.38 Jj		
					2,3,4,6,7,8-HxCDF	1.35 Jj		
					1,2,3,7,8,9-HxCDF	ND uj	0.596	
					1,2,3,4,6,7,8-HpCDF	4.46 J,Bj		
					1,2,3,4,7,8,9-HpCDF	ND uj	0.446	
					1,2,3,4,6,7,8,9-OCDF	28.2 ј		
					Total TCDD	15.3 j		19.7
					Total PeCDD	11.5 ј		13.4
					Total HxCDD	11.6 ј		
					Total HpCDD	39.7 ј		
				Total TCDF	184 j		187	
				Total PeCDF	47 ј		51	
				Total HxCDF	13.9 j		15.3	
				Total HpCDF	17 Bj			
					2,3,7,8-TCDD TEQ (ITEF)	7.15		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	15	Soil	4/17/2006	DP-4.7-15	2,3,7,8-TCDD	ND	0.0235	
					1,2,3,7,8-PeCDD	ND	0.0373	
					1,2,3,4,7,8-HxCDD	ND	0.0417	
					1,2,3,6,7,8-HxCDD	ND	0.0431	
					1,2,3,7,8,9-HxCDD	ND	0.0428	
					1,2,3,4,6,7,8-HpCDD	1.46 J		
					1,2,3,4,6,7,8,9-OCDD	11.2 Bu		
					2,3,7,8-TCDF	ND	0.0255	
					1,2,3,7,8-PeCDF	ND	0.029	
					2,3,4,7,8-PeCDF	ND	0.0277	
					1,2,3,4,7,8-HxCDF	0.125 J		
					1,2,3,6,7,8-HxCDF	0.0862 J		
					2,3,4,6,7,8-HxCDF	ND	0.0312	
					1,2,3,7,8,9-HxCDF	ND	0.0491	
					1,2,3,4,6,7,8-HpCDF	0.57 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.069	
					1,2,3,4,6,7,8,9-OCDF	1.25 J		
					Total TCDD	0.177		
					Total PeCDD	0.122		
					Total HxCDD	1		
					Total HpCDD	2.86		
				Total TCDF	0.147			
				Total PeCDF	0.37			
				Total HxCDF	0.911			
					Total HpCDF	1.47		
					2,3,7,8-TCDD TEQ (ITEF)	0.0427		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	20	Soil	4/17/2006	DP-4.7-20b	2,3,7,8-TCDD	18.5 j		
					1,2,3,7,8-PeCDD	17.9 j		
					1,2,3,4,7,8-HxCDD	7.72 ј		
					1,2,3,6,7,8-HxCDD	9.99 j		
					1,2,3,7,8,9-HxCDD	7.92 ј		
					1,2,3,4,6,7,8-HpCDD	30.9 j		
					1,2,3,4,6,7,8,9-OCDD	48.7 j		
					2,3,7,8-TCDF	178 ј		
					1,2,3,7,8-PeCDF	57.2 ј		
					2,3,4,7,8-PeCDF	78.9 j		
					1,2,3,4,7,8-HxCDF	16.7 j		
					1,2,3,6,7,8-HxCDF	20.6 j		
					2,3,4,6,7,8-HxCDF	23.6 ј		
					1,2,3,7,8,9-HxCDF	7.82 ј		
					1,2,3,4,6,7,8-HpCDF	12.8 Bj		
					1,2,3,4,7,8,9-HpCDF	4.06 j		
					1,2,3,4,6,7,8,9-OCDF	4.65 Jj		
					Total TCDD	326 ј		
					Total PeCDD	199 j		
					Total HxCDD	117 ј		
					Total HpCDD	54.4 j		
					Total TCDF	2820 ј		
			Total PeCDF	842 Dj	1			
			Total HxCDF	209 ј				
			Total HpCDF	31 Bj				
					2,3,7,8-TCDD TEQ (ITEF)	106		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.9	4.5	Soil	4/25/2006	DP-4.9-4.5	2,3,7,8-TCDD	0.253 J		
					1,2,3,7,8-PeCDD	0.421 J		
					1,2,3,4,7,8-HxCDD	0.325 J		
					1,2,3,6,7,8-HxCDD	2.41 J		
					1,2,3,7,8,9-HxCDD	1.01 J		
					1,2,3,4,6,7,8-HpCDD	29.9		
					1,2,3,4,6,7,8,9-OCDD	215 B		
					2,3,7,8-TCDF	0.996		
					1,2,3,7,8-PeCDF	0.406 J		
					2,3,4,7,8-PeCDF	1.21 J		
					1,2,3,4,7,8-HxCDF	0.451 J		
					1,2,3,6,7,8-HxCDF	0.515 J		
					2,3,4,6,7,8-HxCDF	0.704 J		
					1,2,3,7,8,9-HxCDF	0.161 J		
					1,2,3,4,6,7,8-HpCDF	6.53		
					1,2,3,4,7,8,9-HpCDF	0.383 J		
					1,2,3,4,6,7,8,9-OCDF	18.5		
					Total TCDD	3.77		
					Total PeCDD	4.33		
					Total HxCDD	21		
					Total HpCDD	59.3		
					Total TCDF	18.1 D	1	
			Total PeCDF	14.8 D				
			Total HxCDF	13.3	1			
					Total HpCDF	18.5	1	
					2,3,7,8-TCDD TEQ (ITEF)	2.35	1	

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.9	10	Soil	4/25/2006	DP-4.9-10	2,3,7,8-TCDD	ND		0.151
					1,2,3,7,8-PeCDD	ND		0.109
					1,2,3,4,7,8-HxCDD	ND	0.0417	
					1,2,3,6,7,8-HxCDD	0.168 J		
					1,2,3,7,8,9-HxCDD	0.119 J		
					1,2,3,4,6,7,8-HpCDD	1.25 J		
					1,2,3,4,6,7,8,9-OCDD	6.79 Bu		
					2,3,7,8-TCDF	0.928		
					1,2,3,7,8-PeCDF	0.227 J		
					2,3,4,7,8-PeCDF	0.352 J		
					1,2,3,4,7,8-HxCDF	0.0841 J		
					1,2,3,6,7,8-HxCDF	0.0728 J		
					2,3,4,6,7,8-HxCDF	0.0826 J		
					1,2,3,7,8,9-HxCDF	ND	0.0231	
					1,2,3,4,6,7,8-HpCDF	0.288 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0255	
					1,2,3,4,6,7,8,9-OCDF	0.603 J		
					Total TCDD	1.6		
					Total PeCDD	0.935		
					Total HxCDD	1.54		
					Total HpCDD	2.32		
					Total TCDF	14.1		
				Total PeCDF	2.69	1		
			Total HxCDF	0.739	1			
			Total HpCDF	0.565				
					2,3,7,8-TCDD TEQ (ITEF)	0.349		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.10	11	Soil	4/18/2006	DP-4.10-11	2,3,7,8-TCDD	43.4		
					1,2,3,7,8-PeCDD	34		
					1,2,3,4,7,8-HxCDD	10.9		
					1,2,3,6,7,8-HxCDD	14.7		
					1,2,3,7,8,9-HxCDD	12.8		
					1,2,3,4,6,7,8-HpCDD	56.8		
					1,2,3,4,6,7,8,9-OCDD	167 B		
					2,3,7,8-TCDF	398		
					1,2,3,7,8-PeCDF	110		
					2,3,4,7,8-PeCDF	136		
					1,2,3,4,7,8-HxCDF	24.7		
					1,2,3,6,7,8-HxCDF	29.6 D		
					2,3,4,6,7,8-HxCDF	28.3 D		
					1,2,3,7,8,9-HxCDF	10.1		
					1,2,3,4,6,7,8-HpCDF	18.5		
					1,2,3,4,7,8,9-HpCDF	4.71		
					1,2,3,4,6,7,8,9-OCDF	11.8		
					Total TCDD	572		
					Total PeCDD	333		
					Total HxCDD	196		
					Total HpCDD	102		
				Total TCDF	5820			
				Total PeCDF	1400 D			
					Total HxCDF	266 D		
				Total HpCDF	41.5			
					2,3,7,8-TCDD TEQ (ITEF)	205		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.10	16	Soil	4/18/2006	DP-4.10-16b	2,3,7,8-TCDD	ND uj	0.197	
					1,2,3,7,8-PeCDD	ND uj	0.142	
					1,2,3,4,7,8-HxCDD	ND uj	0.119	
					1,2,3,6,7,8-HxCDD	ND uj	0.118	
					1,2,3,7,8,9-HxCDD	ND uj	0.115	
					1,2,3,4,6,7,8-HpCDD	ND uj	0.347	
					1,2,3,4,6,7,8,9-OCDD	0.857 Jj		
					2,3,7,8-TCDF	0.224 Jj		
					1,2,3,7,8-PeCDF	ND uj	0.248	
					2,3,4,7,8-PeCDF	ND uj	0.232	
					1,2,3,4,7,8-HxCDF	ND uj	0.0972	
					1,2,3,6,7,8-HxCDF	ND uj	0.0867	
					2,3,4,6,7,8-HxCDF	ND uj	0.097	
					1,2,3,7,8,9-HxCDF	ND uj	0.134	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0897	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.106	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.258	
					Total TCDD	ND uj	0.197	
					Total PeCDD	ND uj		0.249
					Total HxCDD	ND uj	0.291	
					Total HpCDD	ND uj	0.347	
					Total TCDF	1.82 j		
			Total PeCDF	ND uj	0.24			
			Total HxCDF	ND uj	0.102			
			Total HpCDF	ND uj	0.097			
					2,3,7,8-TCDD TEQ (ITEF)	0.0225		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.11	13	Soil	4/17/2006	DP-4.11-13	2,3,7,8-TCDD	198		
					1,2,3,7,8-PeCDD	466		
					1,2,3,4,7,8-HxCDD	313		
					1,2,3,6,7,8-HxCDD	465		
					1,2,3,7,8,9-HxCDD	400		
					1,2,3,4,6,7,8-HpCDD	1960		
					1,2,3,4,6,7,8,9-OCDD	3260 B		
					2,3,7,8-TCDF	1190		
					1,2,3,7,8-PeCDF	623		
					2,3,4,7,8-PeCDF	1090		
					1,2,3,4,7,8-HxCDF	381		
					1,2,3,6,7,8-HxCDF	419 D		
					2,3,4,6,7,8-HxCDF	494 D		
					1,2,3,7,8,9-HxCDF	150 D		
					1,2,3,4,6,7,8-HpCDF	528 D		
					1,2,3,4,7,8,9-HpCDF	126		
					1,2,3,4,6,7,8,9-OCDF	213		
					Total TCDD	5570		
					Total PeCDD	6270		
					Total HxCDD	6360		
					Total HpCDD	3420		
				Total TCDF	22900 D			
			Total PeCDF	10300 D				
				Total HxCDF	3890 D			
					Total HpCDF	1050 D		
					2,3,7,8-TCDD TEQ (ITEF)	1650		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.12	13	Soil	4/18/2006	DP-4.12-13	2,3,7,8-TCDD	192		
					1,2,3,7,8-PeCDD	476		
					1,2,3,4,7,8-HxCDD	342		
					1,2,3,6,7,8-HxCDD	495		
					1,2,3,7,8,9-HxCDD	430		
					1,2,3,4,6,7,8-HpCDD	2000		
					1,2,3,4,6,7,8,9-OCDD	2940 B		
					2,3,7,8-TCDF	1250		
					1,2,3,7,8-PeCDF	676		
					2,3,4,7,8-PeCDF	1190		
					1,2,3,4,7,8-HxCDF	402		
					1,2,3,6,7,8-HxCDF	459 D		
					2,3,4,6,7,8-HxCDF	549 D		
					1,2,3,7,8,9-HxCDF	173 D		
					1,2,3,4,6,7,8-HpCDF	579 D		
					1,2,3,4,7,8,9-HpCDF	143		
					1,2,3,4,6,7,8,9-OCDF	227		
					Total TCDD	6270		
					Total PeCDD	6920		
					Total HxCDD	7300		
					Total HpCDD	3450		
				Total TCDF	25600 D			
			Total PeCDF	11400 D				
				Total HxCDF	4310 D	1		
				Total HpCDF	1200 D	1		
					2,3,7,8-TCDD TEQ (ITEF)	1730		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.12	18	Soil	4/18/2006	DP-4.12-18b	2,3,7,8-TCDD	ND uj	0.175	
					1,2,3,7,8-PeCDD	ND uj	0.245	
					1,2,3,4,7,8-HxCDD	ND uj	0.184	
					1,2,3,6,7,8-HxCDD	ND uj	0.177	
				1,2,3,7,8,9-HxCDD	ND uj	0.372		
					1,2,3,4,6,7,8-HpCDD	0.294 Jj		
					1,2,3,4,6,7,8,9-OCDD	0.722 Jj		
					2,3,7,8-TCDF	0.24 Jj		
				1,2,3,7,8-PeCDF	ND uj	0.349		
					2,3,4,7,8-PeCDF	ND uj	0.341	
					1,2,3,4,7,8-HxCDF	ND uj	0.0842	
					1,2,3,6,7,8-HxCDF	ND uj	0.078	
					2,3,4,6,7,8-HxCDF	ND uj	0.0826	
					1,2,3,7,8,9-HxCDF	ND uj	0.105	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0652	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0813	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.267	
					Total TCDD	ND uj	0.175	
					Total PeCDD	ND uj	0.314	
					Total HxCDD	ND uj	0.381	
				Total HpCDD	0.5 j			
				Total TCDF	1.89 j			
					Total PeCDF	0.0906 j		
					Total HxCDF	0.0798 j		
					Total HpCDF	ND uj	0.0727	
					2,3,7,8-TCDD TEQ (ITEF)	0.027		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.13	6	Soil	4/18/2006	DP-4.13-6	2,3,7,8-TCDD	95.4		
					1,2,3,7,8-PeCDD	235		
					1,2,3,4,7,8-HxCDD	171		
					1,2,3,6,7,8-HxCDD	266		
					1,2,3,7,8,9-HxCDD	235		
					1,2,3,4,6,7,8-HpCDD	1070		
					1,2,3,4,6,7,8,9-OCDD	1500 B		
					2,3,7,8-TCDF	631		
					1,2,3,7,8-PeCDF	362		
				2,3,4,7,8-PeCDF	615			
					1,2,3,4,7,8-HxCDF	209		
					1,2,3,6,7,8-HxCDF	232 D		
					2,3,4,6,7,8-HxCDF	289 D		
					1,2,3,7,8,9-HxCDF	88.4		
					1,2,3,4,6,7,8-HpCDF	295		
					1,2,3,4,7,8,9-HpCDF	71		
					1,2,3,4,6,7,8,9-OCDF	118		
					Total TCDD	3140		
					Total PeCDD	3590		
					Total HxCDD	3840		
					Total HpCDD	1840		
				Total TCDF	13000 D			
					Total PeCDF	5880 D		
					Total HxCDF	2250 D		
					Total HpCDF	592		
					2,3,7,8-TCDD TEQ (ITEF)	883		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.14	6	Soil	4/24/2006	DP-4.14-6	2,3,7,8-TCDD	4.08		
					1,2,3,7,8-PeCDD	2.49 J		
					1,2,3,4,7,8-HxCDD	2.51 J		
					1,2,3,6,7,8-HxCDD	18		
					1,2,3,7,8,9-HxCDD	12.7		
					1,2,3,4,6,7,8-HpCDD	233		
					1,2,3,4,6,7,8,9-OCDD	618 B		
					2,3,7,8-TCDF	1.07		
					1,2,3,7,8-PeCDF	1.24 J		
				2,3,4,7,8-PeCDF	20			
				1,2,3,4,7,8-HxCDF	2.01 J			
					1,2,3,6,7,8-HxCDF	6.8 D		
					2,3,4,6,7,8-HxCDF	7.61		
					1,2,3,7,8,9-HxCDF	1.18 J		
					1,2,3,4,6,7,8-HpCDF	15.2		
					1,2,3,4,7,8,9-HpCDF	0.646 J		
					1,2,3,4,6,7,8,9-OCDF	8.3		
					Total TCDD	16.6		
					Total PeCDD	33.2		
					Total HxCDD	190		
					Total HpCDD	378		
					Total TCDF	110 D		
					Total PeCDF	237 D		
					Total HxCDF	118 D		
					Total HpCDF	31.7		
					2,3,7,8-TCDD TEQ (ITEF)	24.4		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.15	5	Soil	4/20/2006	DP-4.15-5	2,3,7,8-TCDD	2.41		
					1,2,3,7,8-PeCDD	9.15		
					1,2,3,4,7,8-HxCDD	9.73		
					1,2,3,6,7,8-HxCDD	41.3		
					1,2,3,7,8,9-HxCDD	28.5		
					1,2,3,4,6,7,8-HpCDD	861		
					1,2,3,4,6,7,8,9-OCDD	4090 B		
					2,3,7,8-TCDF	3.78		
					1,2,3,7,8-PeCDF	3.38 J		
					2,3,4,7,8-PeCDF	7.81		
				1,2,3,4,7,8-HxCDF	4.01 J			
					1,2,3,6,7,8-HxCDF	12.2		
					2,3,4,6,7,8-HxCDF	6.92		
					1,2,3,7,8,9-HxCDF	1.94 J		
					1,2,3,4,6,7,8-HpCDF	83.5		
					1,2,3,4,7,8,9-HpCDF	6.14		
					1,2,3,4,6,7,8,9-OCDF	218		
					Total TCDD	18.6		
					Total PeCDD	45.2		
					Total HxCDD	353		
					Total HpCDD	1490		
					Total TCDF	81.1 D		
					Total PeCDF	116 D		
					Total HxCDF	146 D		
					Total HpCDF	244		
					2,3,7,8-TCDD TEQ (ITEF)	36.4		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.15	10	Soil	4/20/2006	DP-4.15-10b	2,3,7,8-TCDD	ND uj	0.0974	
					1,2,3,7,8-PeCDD	ND uj	0.132	
					1,2,3,4,7,8-HxCDD	ND uj	0.201	
					1,2,3,6,7,8-HxCDD	ND uj	0.2	
					1,2,3,7,8,9-HxCDD	ND uj	0.194	
					1,2,3,4,6,7,8-HpCDD	ND uj		0.265
					1,2,3,4,6,7,8,9-OCDD	0.95 Jj		
				2,3,7,8-TCDF	ND uj	0.0861		
				1,2,3,7,8-PeCDF	ND uj	0.104		
					2,3,4,7,8-PeCDF	ND uj	0.0976	
					1,2,3,4,7,8-HxCDF	ND uj	0.0563	
					1,2,3,6,7,8-HxCDF	ND uj	0.0514	
					2,3,4,6,7,8-HxCDF	ND uj	0.0527	
					1,2,3,7,8,9-HxCDF	ND uj	0.0809	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0818	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0975	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.444	
					Total TCDD	ND uj		0.115
					Total PeCDD	ND uj	0.207	
					Total HxCDD	ND uj	0.198	
					Total HpCDD	ND uj		0.265
				Total TCDF	ND uj	0.144		
					Total PeCDF	ND uj	0.179	
					Total HxCDF	ND uj	0.0592	
					Total HpCDF	ND uj	0.089	
					2,3,7,8-TCDD TEQ (ITEF)	0.000095		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
HSA-4.5	16	Soil	1/24/2006	HSA-4.5-16b	2,3,7,8-TCDD	ND	0.12	
					1,2,3,7,8-PeCDD	ND	0.143	
					1,2,3,4,7,8-HxCDD	ND	0.126	
					1,2,3,6,7,8-HxCDD	ND	0.133	
					1,2,3,7,8,9-HxCDD	ND	0.125	
					1,2,3,4,6,7,8-HpCDD	1.88 J		
					1,2,3,4,6,7,8,9-OCDD	13.2		
					2,3,7,8-TCDF	ND	0.106	
					1,2,3,7,8-PeCDF	ND	0.124	
					2,3,4,7,8-PeCDF	ND	0.109	
				1,2,3,4,7,8-HxCDF	ND	0.0292		
					1,2,3,6,7,8-HxCDF	ND	0.0278	
					2,3,4,6,7,8-HxCDF	ND	0.0311	
					1,2,3,7,8,9-HxCDF	ND	0.0482	
					1,2,3,4,6,7,8-HpCDF	ND		0.195
					1,2,3,4,7,8,9-HpCDF	ND	0.0502	
					1,2,3,4,6,7,8,9-OCDF	0.289 J		
					Total TCDD	ND	0.12	
					Total PeCDD	ND	0.143	
					Total HxCDD	0.2		
					Total HpCDD	3.33		
					Total TCDF	ND	0.106	
					Total PeCDF	ND	0.117	
					Total HxCDF	ND	0.0334	
					Total HpCDF	0.235		0.43
					2,3,7,8-TCDD TEQ (ITEF)	0.0201		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.60	8	Soil	4/20/2006	DP-5.60-8	2,3,7,8-TCDD	ND		0.145
					1,2,3,7,8-PeCDD	0.374 J		
					1,2,3,4,7,8-HxCDD	0.223 J		
					1,2,3,6,7,8-HxCDD	0.889 J		
					1,2,3,7,8,9-HxCDD	0.577 J		
					1,2,3,4,6,7,8-HpCDD	10.5		
					1,2,3,4,6,7,8,9-OCDD	49.3 B		
					2,3,7,8-TCDF	0.274 J		
				1,2,3,7,8-PeCDF	ND		0.122	
				2,3,4,7,8-PeCDF	0.379 J			
				1,2,3,4,7,8-HxCDF	0.136 J			
					1,2,3,6,7,8-HxCDF	0.209 J		
					2,3,4,6,7,8-HxCDF	0.219 J		
					1,2,3,7,8,9-HxCDF	ND	0.0435	
					1,2,3,4,6,7,8-HpCDF	1.31 J		
					1,2,3,4,7,8,9-HpCDF	0.114 J		
					1,2,3,4,6,7,8,9-OCDF	3.06 J		
					Total TCDD	0.589		
					Total PeCDD	1.79		
					Total HxCDD	8.55		
				Total HpCDD	20.9			
				Total TCDF	4.68	1		
					Total PeCDF	4.49	1	
					Total HxCDF	3.93		
					Total HpCDF	4.19	1	
					2,3,7,8-TCDD TEQ (ITEF)	0.941		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.60	13	Soil	4/20/2006	DP-5.60-13	2,3,7,8-TCDD	ND	0.0302	
					1,2,3,7,8-PeCDD	0.276 J		
					1,2,3,4,7,8-HxCDD	0.191 J		
					1,2,3,6,7,8-HxCDD	0.739 J		
					1,2,3,7,8,9-HxCDD	0.627 J		
					1,2,3,4,6,7,8-HpCDD	9.31		
					1,2,3,4,6,7,8,9-OCDD	44.5 B		
					2,3,7,8-TCDF	0.192 J		
					1,2,3,7,8-PeCDF	0.103 J		
					2,3,4,7,8-PeCDF	0.252 J		
					1,2,3,4,7,8-HxCDF	ND		0.105
					1,2,3,6,7,8-HxCDF	0.134 J		
					2,3,4,6,7,8-HxCDF	ND		0.143
					1,2,3,7,8,9-HxCDF	ND	0.0522	
					1,2,3,4,6,7,8-HpCDF	1.04 J		
					1,2,3,4,7,8,9-HpCDF	0.136 J		
					1,2,3,4,6,7,8,9-OCDF	2.88 J		
					Total TCDD	ND	0.0302	
					Total PeCDD	0.913		
					Total HxCDD	7.09		
					Total HpCDD	17.5		
					Total TCDF	2.67		
				Total PeCDF	2.67	1		
				Total HxCDF	2.59	1		
				Total HpCDF	3.17	1		
					2,3,7,8-TCDD TEQ (ITEF)	0.705	1	

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.61	10	Soil	4/19/2006	DP-5.61-10	2,3,7,8-TCDD	3.09		
					1,2,3,7,8-PeCDD	8.46		
					1,2,3,4,7,8-HxCDD	4.24		
					1,2,3,6,7,8-HxCDD	18.1		
					1,2,3,7,8,9-HxCDD	10.6		
					1,2,3,4,6,7,8-HpCDD	132		
					1,2,3,4,6,7,8,9-OCDD	498 B		
					2,3,7,8-TCDF	10.9		
					1,2,3,7,8-PeCDF	7.52		
					2,3,4,7,8-PeCDF	315		
					1,2,3,4,7,8-HxCDF	19.4		
					1,2,3,6,7,8-HxCDF	53.2 D		
					2,3,4,6,7,8-HxCDF	122		
					1,2,3,7,8,9-HxCDF	15.8		
					1,2,3,4,6,7,8-HpCDF	60.8		
					1,2,3,4,7,8,9-HpCDF	5.79		
					1,2,3,4,6,7,8,9-OCDF	55.8		
					Total TCDD	56.6		
					Total PeCDD	119		
					Total HxCDD	223		
					Total HpCDD	265		
				Total TCDF	1760 D	1		
				Total PeCDF	4180 D			
				Total HxCDF	1580 D			
					Total HpCDF	157		
					2,3,7,8-TCDD TEQ (ITEF)	197		1

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.61	20	Soil	4/19/2006	DP-5.61-20	2,3,7,8-TCDD	ND	0.0243	
					1,2,3,7,8-PeCDD	ND	0.0376	
					1,2,3,4,7,8-HxCDD	ND	0.0419	
					1,2,3,6,7,8-HxCDD	ND	0.0413	
					1,2,3,7,8,9-HxCDD	ND	0.0419	
					1,2,3,4,6,7,8-HpCDD	0.237 J		
					1,2,3,4,6,7,8,9-OCDD	1.56 J,Bu		
					2,3,7,8-TCDF	ND	0.0349	
					1,2,3,7,8-PeCDF	ND	0.0307	
					2,3,4,7,8-PeCDF	ND	0.0283	
					1,2,3,4,7,8-HxCDF	ND	0.0216	
					1,2,3,6,7,8-HxCDF	ND	0.0204	
					2,3,4,6,7,8-HxCDF	ND	0.0217	
					1,2,3,7,8,9-HxCDF	ND	0.0317	
					1,2,3,4,6,7,8-HpCDF	0.0476 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0237	
					1,2,3,4,6,7,8,9-OCDF	ND	0.0459	
					Total TCDD	ND	0.0243	
					Total PeCDD	ND	0.0376	
					Total HxCDD	0.147		
					Total HpCDD	0.41		
					Total TCDF	ND	0.0349	
					Total PeCDF	0.159	1	
				Total HxCDF	0.166			
					Total HpCDF	0.0923		
					2,3,7,8-TCDD TEQ (ITEF)	0.003		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	4	Soil	4/24/2006	DP-5.62-4	2,3,7,8-TCDD	4.11		
					1,2,3,7,8-PeCDD	24		
					1,2,3,4,7,8-HxCDD	24.9		
					1,2,3,6,7,8-HxCDD	81.8		
					1,2,3,7,8,9-HxCDD	51.8		
					1,2,3,4,6,7,8-HpCDD	1140		
					1,2,3,4,6,7,8,9-OCDD	10100 B		
					2,3,7,8-TCDF	3.33		
					1,2,3,7,8-PeCDF	2.92		
					2,3,4,7,8-PeCDF	9.01		
					1,2,3,4,7,8-HxCDF	12.7		
					1,2,3,6,7,8-HxCDF	11.2 D		
					2,3,4,6,7,8-HxCDF	14.4		
					1,2,3,7,8,9-HxCDF	2.94		
					1,2,3,4,6,7,8-HpCDF	253 D		
					1,2,3,4,7,8,9-HpCDF	14.2		
					1,2,3,4,6,7,8,9-OCDF	804		
					Total TCDD	26.9		
					Total PeCDD	79.7		
					Total HxCDD	492		
					Total HpCDD	1910		
					Total TCDF	68.7 D	1	
					Total PeCDF	145 D		
				Total HxCDF	340 D			
					Total HpCDF	749 D		
					2,3,7,8-TCDD TEQ (ITEF)	68.2		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	9	Soil	4/24/2006	DP-5.62-9	2,3,7,8-TCDD	5.56		
					1,2,3,7,8-PeCDD	16		
					1,2,3,4,7,8-HxCDD	14.8		
					1,2,3,6,7,8-HxCDD	52.7		
					1,2,3,7,8,9-HxCDD	43.2		
					1,2,3,4,6,7,8-HpCDD	996		
					1,2,3,4,6,7,8,9-OCDD	4200 B		
					2,3,7,8-TCDF	2.7		
					1,2,3,7,8-PeCDF	2.13 J		
					2,3,4,7,8-PeCDF	24.3		
					1,2,3,4,7,8-HxCDF	8.11 J		
					1,2,3,6,7,8-HxCDF	10.1 D		
					2,3,4,6,7,8-HxCDF	14		
					1,2,3,7,8,9-HxCDF	3.1 J		
					1,2,3,4,6,7,8-HpCDF	133 D		
					1,2,3,4,7,8,9-HpCDF	8.01 J		
					1,2,3,4,6,7,8,9-OCDF	422		
					Total TCDD	24.8		
					Total PeCDD	72.3		
					Total HxCDD	467		
					Total HpCDD	1650		
					Total TCDF	147 D		
				Total PeCDF	324 D			
			Total HxCDF	275 D				
					Total HpCDF	400 D		
					2,3,7,8-TCDD TEQ (ITEF)	60.6		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	14	Soil	4/24/2006	DP-5.62-14	2,3,7,8-TCDD	0.218 J		
					1,2,3,7,8-PeCDD	0.223 J		
					1,2,3,4,7,8-HxCDD	0.16 J		
					1,2,3,6,7,8-HxCDD	0.387 J		
					1,2,3,7,8,9-HxCDD	0.524 J		
					1,2,3,4,6,7,8-HpCDD	2.16 J		
					1,2,3,4,6,7,8,9-OCDD	5.29 Bu		
					2,3,7,8-TCDF	1.84		
					1,2,3,7,8-PeCDF	0.655 J		
					2,3,4,7,8-PeCDF	0.51 J		
					1,2,3,4,7,8-HxCDF	ND		0.214
					1,2,3,6,7,8-HxCDF	0.239 J		
					2,3,4,6,7,8-HxCDF	0.205 J		
					1,2,3,7,8,9-HxCDF	0.471 J		
					1,2,3,4,6,7,8-HpCDF	0.422 J		
					1,2,3,4,7,8,9-HpCDF	0.14 J		
					1,2,3,4,6,7,8,9-OCDF	0.362 J		
					Total TCDD	13.8		
					Total PeCDD	10.1		
					Total HxCDD	15.3		
					Total HpCDD	3.47		
				Total TCDF	33.9			
				Total PeCDF	6.52	1		
				Total HxCDF	2.29			
				Total HpCDF	0.756			
					2,3,7,8-TCDD TEQ (ITEF)	1.14		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.63	12	Soil	4/25/2006	DP-5.63-12	2,3,7,8-TCDD	10		
					1,2,3,7,8-PeCDD	1.7 J		
					1,2,3,4,7,8-HxCDD	1.67 J		
					1,2,3,6,7,8-HxCDD	5.28		
					1,2,3,7,8,9-HxCDD	3.39		
					1,2,3,4,6,7,8-HpCDD	84.1		
					1,2,3,4,6,7,8,9-OCDD	553 B		
					2,3,7,8-TCDF	1.53		
					1,2,3,7,8-PeCDF	0.939 J		
					2,3,4,7,8-PeCDF	24.8		
					1,2,3,4,7,8-HxCDF	2.28 J		
					1,2,3,6,7,8-HxCDF	4.34 D		
					2,3,4,6,7,8-HxCDF	9.42		
					1,2,3,7,8,9-HxCDF	1.39 J		
					1,2,3,4,6,7,8-HpCDF	28.7		
					1,2,3,4,7,8,9-HpCDF	1.47 J		
					1,2,3,4,6,7,8,9-OCDF	65.8		
					Total TCDD	19.2		
					Total PeCDD	15.3		
					Total HxCDD	45.7		
					Total HpCDD	154		
					Total TCDF	106 D		
				Total PeCDF	287 D			
				Total HxCDF	148 D			
					Total HpCDF	79.4		
					2,3,7,8-TCDD TEQ (ITEF)	28.3		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.1	0	Fly Ash Cinder	10/24/2005	AS-7.1	2,3,7,8-TCDD	124		
					1,2,3,7,8-PeCDD	230		
					1,2,3,4,7,8-HxCDD	159		
					1,2,3,6,7,8-HxCDD	237		
					1,2,3,7,8,9-HxCDD	222		
					1,2,3,4,6,7,8-HpCDD	1020		
					1,2,3,4,6,7,8,9-OCDD	1060		
					2,3,7,8-TCDF	982		
					1,2,3,7,8-PeCDF	494		
					2,3,4,7,8-PeCDF	695		
					1,2,3,4,7,8-HxCDF	230		
					1,2,3,6,7,8-HxCDF	260 D		
					2,3,4,6,7,8-HxCDF	309		
					1,2,3,7,8,9-HxCDF	108		
					1,2,3,4,6,7,8-HpCDF	290		
					1,2,3,4,7,8,9-HpCDF	92		
					1,2,3,4,6,7,8,9-OCDF	109		
					Total TCDD	3650		
					Total PeCDD	3760		
					Total HxCDD	3540		
					Total HpCDD	1680		
					Total TCDF	16300 D		
					Total PeCDF	6790 D		
					Total HxCDF	2420 D		
					Total HpCDF	653		
					2,3,7,8-TCDD TEQ (ITEF)	992		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.1	0	Plant Tissue	5/3/2006	AS-7.1-GRASS	2,3,7,8-TCDD	ND	0.0528	
					1,2,3,7,8-PeCDD	ND		0.135
					1,2,3,4,7,8-HxCDD	ND	0.0753	
					1,2,3,6,7,8-HxCDD	ND	0.0803	
					1,2,3,7,8,9-HxCDD	ND	0.0786	
					1,2,3,4,6,7,8-HpCDD	0.851 J		
					1,2,3,4,6,7,8,9-OCDD	4.72 J		
					2,3,7,8-TCDF	0.406 J		
					1,2,3,7,8-PeCDF	0.187 J		
					2,3,4,7,8-PeCDF	ND	0.0685	
					1,2,3,4,7,8-HxCDF	ND	0.0517	
					1,2,3,6,7,8-HxCDF	ND	0.0516	
					2,3,4,6,7,8-HxCDF	ND	0.0578	
					1,2,3,7,8,9-HxCDF	ND	0.079	
					1,2,3,4,6,7,8-HpCDF	0.444 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.114	
					1,2,3,4,6,7,8,9-OCDF	1 J,Bu		
					Total TCDD	1.06		
					Total PeCDD	1.99		
					Total HxCDD	1.94		
					Total HpCDD	2.24		
					Total TCDF	7.02		
					Total PeCDF	2.01 B		
				Total HxCDF	0.49 Bj+			
					Total HpCDF	0.654 Bj+		
					2,3,7,8-TCDD TEQ (ITEF)	0.0635		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.2	0	Fly Ash Cinder	10/24/2005	AS-7.2	2,3,7,8-TCDD	146		
					1,2,3,7,8-PeCDD	154		
					1,2,3,4,7,8-HxCDD	66.4		
					1,2,3,6,7,8-HxCDD	68.7		
					1,2,3,7,8,9-HxCDD	69.5		
					1,2,3,4,6,7,8-HpCDD	195		
					1,2,3,4,6,7,8,9-OCDD	233		
					2,3,7,8-TCDF	1110		
					1,2,3,7,8-PeCDF	420		
					2,3,4,7,8-PeCDF	533		
					1,2,3,4,7,8-HxCDF	120		
					1,2,3,6,7,8-HxCDF	138 D		
					2,3,4,6,7,8-HxCDF	145		
					1,2,3,7,8,9-HxCDF	46.2		
					1,2,3,4,6,7,8-HpCDF	88.7		
					1,2,3,4,7,8,9-HpCDF	23.9		
					1,2,3,4,6,7,8,9-OCDF	24.1		
					Total TCDD	2170		
					Total PeCDD	1540		
					Total HxCDD	938		
					Total HpCDD	343		
					Total TCDF	16300 D	1	
					Total PeCDF	5200 D		
					Total HxCDF	1220 D		
					Total HpCDF	188		
					2,3,7,8-TCDD TEQ (ITEF)	766		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.2	0	Plant Tissue	5/3/2006	AS-7.2-GRASS	2,3,7,8-TCDD	ND		0.166
					1,2,3,7,8-PeCDD	0.238 J		
					1,2,3,4,7,8-HxCDD	0.109 J		
					1,2,3,6,7,8-HxCDD	ND		0.168
					1,2,3,7,8,9-HxCDD	0.137 J		
					1,2,3,4,6,7,8-HpCDD	1.07 J		
					1,2,3,4,6,7,8,9-OCDD	4.29 J		
					2,3,7,8-TCDF	0.657 J		
					1,2,3,7,8-PeCDF	0.31 J		
					2,3,4,7,8-PeCDF	0.459 J		
					1,2,3,4,7,8-HxCDF	0.175 J,Bu		
					1,2,3,6,7,8-HxCDF	0.184 J,Bu		
					2,3,4,6,7,8-HxCDF	0.214 J		
					1,2,3,7,8,9-HxCDF	ND	0.0672	
					1,2,3,4,6,7,8-HpCDF	0.338 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.0733	
					1,2,3,4,6,7,8,9-OCDF	ND		0.581
					Total TCDD	2.42		
					Total PeCDD	2.68		
					Total HxCDD	2.75		
					Total HpCDD	2.4		
					Total TCDF	13.2		
					Total PeCDF	4.7 B		
			Total HxCDF	1.71 Bj+				
			Total HpCDF	0.53 Bj+				
					2,3,7,8-TCDD TEQ (ITEF)	0.646		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.3	0	Fly Ash Cinder	2/14/2006	AS-7.3-COMPOSITE	2,3,7,8-TCDD	83.6		
					1,2,3,7,8-PeCDD	225		
					1,2,3,4,7,8-HxCDD	151		
					1,2,3,6,7,8-HxCDD	243		
					1,2,3,7,8,9-HxCDD	197		
					1,2,3,4,6,7,8-HpCDD	981		
					1,2,3,4,6,7,8,9-OCDD	1190		
					2,3,7,8-TCDF	494		
					1,2,3,7,8-PeCDF	290		
					2,3,4,7,8-PeCDF	495		
					1,2,3,4,7,8-HxCDF	191		
					1,2,3,6,7,8-HxCDF	210		
					2,3,4,6,7,8-HxCDF	273		
					1,2,3,7,8,9-HxCDF	80.2		
					1,2,3,4,6,7,8-HpCDF	271		
					1,2,3,4,7,8,9-HpCDF	75.4		
					1,2,3,4,6,7,8,9-OCDF	108		
					Total TCDD	2760		
					Total PeCDD	3580		
					Total HxCDD	3180		
					Total HpCDD	1830		
					Total TCDF	9980		
					Total PeCDF	4700		
					Total HxCDF	2060		
					Total HpCDF	617		
					2,3,7,8-TCDD TEQ (ITEF)	768		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.4	5	Fly Ash Cinder	5/16/2006	AS-7.4-5	2,3,7,8-TCDD	19.3		
					1,2,3,7,8-PeCDD	16.1		
					1,2,3,4,7,8-HxCDD	7.09		
					1,2,3,6,7,8-HxCDD	9.36		
					1,2,3,7,8,9-HxCDD	8.11		
					1,2,3,4,6,7,8-HpCDD	28.9		
					1,2,3,4,6,7,8,9-OCDD	32.7		
					2,3,7,8-TCDF	180		
					1,2,3,7,8-PeCDF	60.7		
					2,3,4,7,8-PeCDF	72.4		
					1,2,3,4,7,8-HxCDF	18.8		
					1,2,3,6,7,8-HxCDF	21.2		
					2,3,4,6,7,8-HxCDF	20.7		
					1,2,3,7,8,9-HxCDF	8.17		
					1,2,3,4,6,7,8-HpCDF	15.8 B		
					1,2,3,4,7,8,9-HpCDF	5.19		
					1,2,3,4,6,7,8,9-OCDF	4.99 J		
					Total TCDD	389		
					Total PeCDD	240		
					Total HxCDD	166		
					Total HpCDD	51.2		
				Total TCDF	2370			
				Total PeCDF	744 D			
				Total HxCDF	198 B,D			
				F	Total HpCDF	33.9 B		
					2,3,7,8-TCDD TEQ (ITEF)	102		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.9	5	Soil	4/12/2006	DP-7.9-5	2,3,7,8-TCDD	1.75		
					1,2,3,7,8-PeCDD	1.43 J		
			1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-HxCDD	0.6 J			
					1,2,3,6,7,8-HxCDD	0.871 J		
					1,2,3,7,8,9-HxCDD	0.688 J		
					1,2,3,4,6,7,8-HpCDD	4.48		
					1,2,3,4,6,7,8,9-OCDD	17		
					2,3,7,8-TCDF	17.3		
					1,2,3,7,8-PeCDF	5.03		
					2,3,4,7,8-PeCDF	6.03		
					1,2,3,4,7,8-HxCDF	1.33 J		
					1,2,3,6,7,8-HxCDF	1.46 J		
					2,3,4,6,7,8-HxCDF	1.53 J		
					1,2,3,7,8,9-HxCDF	0.565 J		
					1,2,3,4,6,7,8-HpCDF	1.43 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.295	
					1,2,3,4,6,7,8,9-OCDF	1.81 J		
					Total TCDD	20.1		23.5
					Total PeCDD	14.4		14.8
					Total HxCDD	9.33		
					Total HpCDD	8.38		
				Total TCDF	242			
				Total PeCDF	61.7		62.7	
				Total HxCDF	14.4 B			
			Total HpCDF	3				
					2,3,7,8-TCDD TEQ (ITEF)	8.95		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.10	2	Soil	4/12/2006	DP-7.10-2	2,3,7,8-TCDD	0.324 J		
					1,2,3,7,8-PeCDD	ND		0.251
					1,2,3,4,7,8-HxCDD	ND	0.104	
					1,2,3,6,7,8-HxCDD	0.231 J		
					1,2,3,7,8,9-HxCDD	ND	0.1	
					1,2,3,4,6,7,8-HpCDD	1.18 J		
					1,2,3,4,6,7,8,9-OCDD	3.83 J		
					2,3,7,8-TCDF	2.79		
					1,2,3,7,8-PeCDF	0.952 J		
					2,3,4,7,8-PeCDF	1.03 J		
					1,2,3,4,7,8-HxCDF	ND		0.243
					1,2,3,6,7,8-HxCDF	0.3 J		
					2,3,4,6,7,8-HxCDF	0.289 J		
					1,2,3,7,8,9-HxCDF	ND	0.179	
					1,2,3,4,6,7,8-HpCDF	0.296 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0709	
					1,2,3,4,6,7,8,9-OCDF	ND	0.251	
					Total TCDD	3.77		
					Total PeCDD	1.77		2.82
					Total HxCDD	1.93		
					Total HpCDD	1.98		
				Total TCDF	39.1		40.9	
				Total PeCDF	10.6			
				Total HxCDF	1.59 B		1.99	
				Total HpCDF	0.296			
				2,3,7,8-TCDD TEQ (ITEF)	1.26			

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.11	10	Soil	4/5/2006	DP-7.11-10	2,3,7,8-TCDD	26.7		
					1,2,3,7,8-PeCDD	24.7		
					1,2,3,4,7,8-HxCDD	14		
					1,2,3,6,7,8-HxCDD	26.9		
					1,2,3,7,8,9-HxCDD	26.3		
					1,2,3,4,6,7,8-HpCDD	728		
					1,2,3,4,6,7,8,9-OCDD	6090		
					2,3,7,8-TCDF	244		
					1,2,3,7,8-PeCDF	69.8		
					2,3,4,7,8-PeCDF	90.2		
					1,2,3,4,7,8-HxCDF	23.7		
					1,2,3,6,7,8-HxCDF	25.8 D		
					2,3,4,6,7,8-HxCDF	28.5		
					1,2,3,7,8,9-HxCDF	8.01		
					1,2,3,4,6,7,8-HpCDF	162		
					1,2,3,4,7,8,9-HpCDF	19.9		
					1,2,3,4,6,7,8,9-OCDF	605		
					Total TCDD	389		
					Total PeCDD	265		
					Total HxCDD	222		
					Total HpCDD	1080		
					Total TCDF	3550		
			Total PeCDF	902 D				
			Total HxCDF	327 B,D	1			
					Total HpCDF	509	1	
					2,3,7,8-TCDD TEQ (ITEF)	149	1	

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.12	10	Soil	4/5/2006	DP-7.12-10	2,3,7,8-TCDD	ND	0.154	
					1,2,3,7,8-PeCDD	ND	0.148	
					1,2,3,4,7,8-HxCDD	ND	0.212	
					1,2,3,6,7,8-HxCDD	ND	0.211	
					1,2,3,7,8,9-HxCDD	ND	0.205	
					1,2,3,4,6,7,8-HpCDD	1.17 J		
					1,2,3,4,6,7,8,9-OCDD	10.6		
					2,3,7,8-TCDF	0.299 J		
					1,2,3,7,8-PeCDF	ND	0.233	
					2,3,4,7,8-PeCDF	ND	0.239	
					1,2,3,4,7,8-HxCDF	ND	0.0815	
					1,2,3,6,7,8-HxCDF	ND	0.0789	
					2,3,4,6,7,8-HxCDF	ND	0.0888	
					1,2,3,7,8,9-HxCDF	ND	0.146	
					1,2,3,4,6,7,8-HpCDF	0.195 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.239	
					1,2,3,4,6,7,8,9-OCDF	1.04 J		
					Total TCDD	ND	0.154	
					Total PeCDD	ND	0.148	
					Total HxCDD	ND	0.209	
					Total HpCDD	1.17		
					Total TCDF	1.25		
			Total PeCDF	ND	0.236			
			Total HxCDF	ND	0.0952			
			Total HpCDF	0.195				
					2,3,7,8-TCDD TEQ (ITEF)	0.0447		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.13	8	Soil	4/6/2006	DP-7.13-8	2,3,7,8-TCDD	37.7		
					1,2,3,7,8-PeCDD	48.8		
					1,2,3,6,7,8-HxCDD	82.4		
					1,2,3,7,8,9-HxCDD	46.3		
					1,2,3,4,6,7,8-HpCDD	286		
					1,2,3,4,6,7,8,9-OCDD	833		
					2,3,7,8-TCDF	350		
					1,2,3,7,8-PeCDF	111		
					2,3,4,7,8-PeCDF	155		
					1,2,3,4,7,8-HxCDF	37.8		
					1,2,3,6,7,8-HxCDF	47		
					2,3,4,6,7,8-HxCDF	51.5		
					1,2,3,7,8,9-HxCDF	16.7		
					1,2,3,4,6,7,8-HpCDF	43.9		
					1,2,3,4,7,8,9-HpCDF	11.3		
					1,2,3,4,6,7,8,9-OCDF	26.4		
					Total TCDD	632		
					Total PeCDD	527		
					Total HxCDD	852		
					Total HpCDD	532		
				Total TCDF	5240			
				Total PeCDF	1610 D			
				Total HxCDF	471 B			
					Total HpCDF	99		
					2,3,7,8-TCDD TEQ (ITEF)	238		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.13	15	Soil	4/5/2006	DP-7.13-15b	2,3,7,8-TCDD	ND uj	0.0923	
					1,2,3,7,8-PeCDD	ND uj	0.119	
					1,2,3,4,7,8-HxCDD	ND uj	0.117	
					1,2,3,6,7,8-HxCDD	ND uj	0.118	
					1,2,3,7,8,9-HxCDD	ND uj	0.113	
					1,2,3,4,6,7,8-HpCDD	ND uj	0.228	
					1,2,3,4,6,7,8,9-OCDD	ND uj	0.473	
					2,3,7,8-TCDF	ND uj	0.0673	
					1,2,3,7,8-PeCDF	ND uj	0.124	
					2,3,4,7,8-PeCDF	ND uj	0.125	
					1,2,3,4,7,8-HxCDF	ND uj	0.0447	
					1,2,3,6,7,8-HxCDF	ND uj	0.041	
					2,3,4,6,7,8-HxCDF	ND uj	0.0431	
					1,2,3,7,8,9-HxCDF	ND uj	0.0588	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0601	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0674	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.301	
					Total TCDD	ND uj	0.0923	
					Total PeCDD	ND uj	0.259	
					Total HxCDD	ND uj	0.116	
					Total HpCDD	ND uj	0.228	
					Total TCDF	ND uj	0.0673	
				Total PeCDF	ND uj	0.124		
				Total HxCDF	ND uj	0.0463		
				Total HpCDF	ND uj	0.0636		
				2,3,7,8-TCDD TEQ (ITEF)	0			

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.14	7	Soil	4/6/2006	DP-7.14-7	2,3,7,8-TCDD	13.3		
					1,2,3,7,8-PeCDD	14.9		
					1,2,3,4,7,8-HxCDD	6.61 J		
					1,2,3,6,7,8-HxCDD	66.2		
					1,2,3,7,8,9-HxCDD	24.8		
					1,2,3,4,6,7,8-HpCDD	358		
					1,2,3,4,6,7,8,9-OCDD	1830		
					2,3,7,8-TCDF	121		
					1,2,3,7,8-PeCDF	33.6		
					2,3,4,7,8-PeCDF	46.7		
					1,2,3,4,7,8-HxCDF	10.9		
					1,2,3,6,7,8-HxCDF	15.6		
					2,3,4,6,7,8-HxCDF	16.7		
					1,2,3,7,8,9-HxCDF	5.36 J		
					1,2,3,4,6,7,8-HpCDF	69.9		
					1,2,3,4,7,8,9-HpCDF	5.72 J		
					1,2,3,4,6,7,8,9-OCDF	100		
					Total TCDD	163		166
					Total PeCDD	132		
					Total HxCDD	500		
					Total HpCDD	761		
				Total TCDF	1680			
				Total PeCDF	556			
				Total HxCDF	280 B			
				Total HpCDF	183			
					2,3,7,8-TCDD TEQ (ITEF)	84.5		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.15	8	Soil	4/6/2006	DP-7.15-8	2,3,7,8-TCDD	21.1		
					1,2,3,7,8-PeCDD	43.9		
					1,2,3,4,7,8-HxCDD	30.1		
					1,2,3,6,7,8-HxCDD	45.9		
					1,2,3,7,8,9-HxCDD	42.1		
					1,2,3,4,6,7,8-HpCDD	420		
					1,2,3,4,6,7,8,9-OCDD	2160		
					2,3,7,8-TCDF	146		
					1,2,3,7,8-PeCDF	67.3		
					2,3,4,7,8-PeCDF	102		
					1,2,3,4,7,8-HxCDF	40		
					1,2,3,6,7,8-HxCDF	43.2		
					2,3,4,6,7,8-HxCDF	50.7		
					1,2,3,7,8,9-HxCDF	16.4		
					1,2,3,4,6,7,8-HpCDF	123		
					1,2,3,4,7,8,9-HpCDF	18.4		
					1,2,3,4,6,7,8,9-OCDF	190		
					Total TCDD	444		
					Total PeCDD	531		
					Total HxCDD	519		
					Total HpCDD	711		
					Total TCDF	2370		
			Total PeCDF	1050				
				Total HxCDF	480 B,D			
			Total HpCDF	287				
					2,3,7,8-TCDD TEQ (ITEF)	167		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.16	10	Soil	4/10/2006	DP-7.16-10	2,3,7,8-TCDD	ND	0.0968	
					1,2,3,7,8-PeCDD	ND	0.102	
					1,2,3,4,7,8-HxCDD	ND	0.194	
					1,2,3,6,7,8-HxCDD	ND	0.2	
					1,2,3,7,8,9-HxCDD	ND	0.191	
					1,2,3,4,6,7,8-HpCDD	ND	0.168	
					1,2,3,4,6,7,8,9-OCDD	ND	0.324	
					2,3,7,8-TCDF	ND	0.0696	
					1,2,3,7,8-PeCDF	ND	0.181	
					2,3,4,7,8-PeCDF	ND	0.17	
					1,2,3,4,7,8-HxCDF	ND	0.0473	
					1,2,3,6,7,8-HxCDF	ND	0.0418	
					2,3,4,6,7,8-HxCDF	ND	0.0519	
					1,2,3,7,8,9-HxCDF	ND	0.0838	
					1,2,3,4,6,7,8-HpCDF	ND	0.0741	
					1,2,3,4,7,8,9-HpCDF	ND	0.0855	
					1,2,3,4,6,7,8,9-OCDF	ND	0.237	
					Total TCDD	ND	0.0968	
					Total PeCDD	ND	0.102	
					Total HxCDD	ND	0.195	
					Total HpCDD	ND	0.168	
					Total TCDF	ND	0.0696	
			Total PeCDF	ND	0.175			
			Total HxCDF	ND	0.0534			
				Total HpCDF	ND	0.0791		
					2,3,7,8-TCDD TEQ (ITEF)	0		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.17	5	Soil	4/13/2006	DP-7.17-5	2,3,7,8-TCDD	ND	0.118	
					1,2,3,7,8-PeCDD	ND	0.147	
					1,2,3,4,7,8-HxCDD	ND	0.225	
					1,2,3,6,7,8-HxCDD	ND	0.244	
					1,2,3,7,8,9-HxCDD	ND	0.227	
					1,2,3,4,6,7,8-HpCDD	0.41 J		
					1,2,3,4,6,7,8,9-OCDD	1.66 J		
					2,3,7,8-TCDF	ND	0.206	
					1,2,3,7,8-PeCDF	ND	0.287	
					2,3,4,7,8-PeCDF	ND	0.292	
					1,2,3,4,7,8-HxCDF	ND	0.0725	
					1,2,3,6,7,8-HxCDF	ND	0.063	
					2,3,4,6,7,8-HxCDF	0.125 J		
					1,2,3,7,8,9-HxCDF	ND	0.0995	
					1,2,3,4,6,7,8-HpCDF	0.272 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.192	
					1,2,3,4,6,7,8,9-OCDF	0.61 J		
					Total TCDD	ND	0.118	
					Total PeCDD	ND	0.147	
					Total HxCDD	ND	0.232	
					Total HpCDD	0.773		
				Total TCDF	0.177			
				Total PeCDF	ND	0.29		
				Total HxCDF	0.284 B	1		
			Total HpCDF	0.272 j+	1			
					2,3,7,8-TCDD TEQ (ITEF)	0.0195		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.18	5	Soil	4/13/2006	DP-7.18-5	2,3,7,8-TCDD	0.22 J		
					1,2,3,7,8-PeCDD	0.462 J		
					1,2,3,4,7,8-HxCDD	0.338 J		
					1,2,3,6,7,8-HxCDD	0.479 J		
					1,2,3,7,8,9-HxCDD	ND		0.446
					1,2,3,4,6,7,8-HpCDD	1.95 J		
					1,2,3,4,6,7,8,9-OCDD	3.67 J		
					2,3,7,8-TCDF	1.65		
					1,2,3,7,8-PeCDF	0.841 J		
					2,3,4,7,8-PeCDF	1.18 J		
					1,2,3,4,7,8-HxCDF	0.45 J		
					1,2,3,6,7,8-HxCDF	0.424 J		
					2,3,4,6,7,8-HxCDF	0.494 J		
					1,2,3,7,8,9-HxCDF	0.281 J		
					1,2,3,4,6,7,8-HpCDF	0.599 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0838	
					1,2,3,4,6,7,8,9-OCDF	ND	0.272	
					Total TCDD	5.83		6.07
					Total PeCDD	4.97		6.34
					Total HxCDD	5.69		6.13
					Total HpCDD	3.52		
				Total TCDF	28.6			
				Total PeCDF	8.93	1	10.3	
				Total HxCDF	3.72 B	1	4.08	
					Total HpCDF	0.844	1	
			2,3,7,8-TCDD TEQ (ITEF)	1.75	1			

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.1	0.6	Soil	5/3/2006	SL-7.1-0.6	2,3,7,8-TCDD	3.53		
					1,2,3,7,8-PeCDD	7.86		
					1,2,3,4,7,8-HxCDD	4.99		
					1,2,3,6,7,8-HxCDD	9.51		
					1,2,3,7,8,9-HxCDD	6.82		
					1,2,3,4,6,7,8-HpCDD	78.4		
					1,2,3,4,6,7,8,9-OCDD	470		
					2,3,7,8-TCDF	25.1		
					1,2,3,7,8-PeCDF	12.3		
					2,3,4,7,8-PeCDF	18.4		
					1,2,3,4,7,8-HxCDF	6.27 B		
					1,2,3,6,7,8-HxCDF	7.23 B		
					2,3,4,6,7,8-HxCDF	8.29		
					1,2,3,7,8,9-HxCDF	2.62		
					1,2,3,4,6,7,8-HpCDF	16.9 B		
					1,2,3,4,7,8,9-HpCDF	2.48 J		
					1,2,3,4,6,7,8,9-OCDF	32.1 B		
					Total TCDD	111		
					Total PeCDD	122		
					Total HxCDD	143		
					Total HpCDD	166		
					Total TCDF	468		
			Total PeCDF	195 B				
			Total HxCDF	74.4 B	1			
					Total HpCDF	37.3 B		
					2,3,7,8-TCDD TEQ (ITEF)	29.3		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.2	0.6	Soil	5/3/2006	SL-7.2-0.6	2,3,7,8-TCDD	0.271 J		
					1,2,3,7,8-PeCDD	0.243 J		
					1,2,3,4,7,8-HxCDD	ND		0.176
					1,2,3,6,7,8-HxCDD	0.643 J		
					1,2,3,7,8,9-HxCDD	0.415 J		
					1,2,3,4,6,7,8-HpCDD	11		
					1,2,3,4,6,7,8,9-OCDD	99.9		
					2,3,7,8-TCDF	1.9		
					1,2,3,7,8-PeCDF	0.583 J		
					2,3,4,7,8-PeCDF	0.753 J		
					1,2,3,4,7,8-HxCDF	0.268 J,Bu		
					1,2,3,6,7,8-HxCDF	0.299 J,Bu		
					2,3,4,6,7,8-HxCDF 0.263 J			
					1,2,3,7,8,9-HxCDF	ND	0.0612	
					1,2,3,4,6,7,8-HpCDF	2.34 J,Bu		
					1,2,3,4,7,8,9-HpCDF	0.187 J		
					1,2,3,4,6,7,8,9-OCDF	5.94 B		
					Total TCDD	3.19		
					Total PeCDD	2.65		
					Total HxCDD	5.31		
					Total HpCDD	20.4		
					Total TCDF	27.2		
					Total PeCDF	8.22 B		
			Total HxCDF	4.19 Bj+				
					Total HpCDF	5.94 Bj+		
					2,3,7,8-TCDD TEQ (ITEF)	1.44		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.3	0.6	Soil	5/3/2006	SL-7.3-0.6	2,3,7,8-TCDD	0.41 J		
					1,2,3,7,8-PeCDD	0.719 J		
					1,2,3,4,7,8-HxCDD	0.648 J		
					1,2,3,6,7,8-HxCDD	1.54 J		
					1,2,3,7,8,9-HxCDD	1.19 J		
					1,2,3,4,6,7,8-HpCDD	25.8		
					1,2,3,4,6,7,8,9-OCDD	250		
					2,3,7,8-TCDF	2.99		
					1,2,3,7,8-PeCDF	1.12 J		
					2,3,4,7,8-PeCDF	1.66 J		
					1,2,3,4,7,8-HxCDF	0.67 J,B		
					1,2,3,6,7,8-HxCDF	0.736 J,B		
					2,3,4,6,7,8-HxCDF	ND		0.83
					1,2,3,7,8,9-HxCDF	0.285 J		
					1,2,3,4,6,7,8-HpCDF	6.06 B		
					1,2,3,4,7,8,9-HpCDF	0.435 J		
					1,2,3,4,6,7,8,9-OCDF	16.5 B		
					Total TCDD	9.66		
					Total PeCDD	9.48		
					Total HxCDD	16.1		
					Total HpCDD	50.2		
					Total TCDF	48		
					Total PeCDF	18.8 B		
			Total HxCDF	11.3 B				
					Total HpCDF	14.4 B		1
					2,3,7,8-TCDD TEQ (ITEF)	3.17		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-8.7	2	Soil	1/24/2006	DP-8.7-2b	2,3,7,8-TCDD	ND	0.131	
					1,2,3,7,8-PeCDD	ND	0.134	
					1,2,3,4,7,8-HxCDD	ND	0.103	
					1,2,3,6,7,8-HxCDD	0.238 J		
					1,2,3,7,8,9-HxCDD	ND	0.155	
					1,2,3,4,6,7,8-HpCDD	1.86 J		
					1,2,3,4,6,7,8,9-OCDD	8.54		
					2,3,7,8-TCDF	ND	0.143	
					1,2,3,7,8-PeCDF	ND	0.165	
					2,3,4,7,8-PeCDF	ND	0.148	
					1,2,3,4,7,8-HxCDF	ND	0.052	
					1,2,3,6,7,8-HxCDF	ND	0.0517	
					2,3,4,6,7,8-HxCDF	ND	0.0565	
					1,2,3,7,8,9-HxCDF	0.484 J		
					1,2,3,4,6,7,8-HpCDF	ND		0.214
					1,2,3,4,7,8,9-HpCDF	ND	0.0712	
					1,2,3,4,6,7,8,9-OCDF	ND	0.272	
					Total TCDD	ND	0.131	
					Total PeCDD	ND	0.134	
					Total HxCDD	0.724		1.24
					Total HpCDD	2.6		
					Total TCDF	1.61		
					Total PeCDF	ND	0.154	
			Total HxCDF	0.484				
					Total HpCDF	ND		0.214
					2,3,7,8-TCDD TEQ (ITEF)	0.0917		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-8.9	2.5	Soil	1/24/2006	DP-8.9-2.5b	2,3,7,8-TCDD	ND	0.153	
					1,2,3,7,8-PeCDD	0.318 J		
					1,2,3,4,7,8-HxCDD	0.323 J		
					1,2,3,6,7,8-HxCDD	3.45		
					1,2,3,7,8,9-HxCDD	1.42 J		
					1,2,3,4,6,7,8-HpCDD	54.6		
					1,2,3,4,6,7,8,9-OCDD	426		
					2,3,7,8-TCDF	0.476 J		
					1,2,3,7,8-PeCDF	0.235 J		
					2,3,4,7,8-PeCDF	0.489 J		
					1,2,3,4,7,8-HxCDF	0.782 J		
					1,2,3,6,7,8-HxCDF	0.46 J		
					2,3,4,6,7,8-HxCDF	0.608 J		
					1,2,3,7,8,9-HxCDF	ND	0.351	
					1,2,3,4,6,7,8-HpCDF	25.1		
					1,2,3,4,7,8,9-HpCDF	ND		1.01
					1,2,3,4,6,7,8,9-OCDF	66.5		
					Total TCDD	0.794		
					Total PeCDD	1.19		1.59
					Total HxCDD	15.9		
					Total HpCDD	101		
					Total TCDF	5		
					Total PeCDF	3.71		3.96
			Total HxCDF	8.83				
				Total HpCDF	82.9		83.9	
					2,3,7,8-TCDD TEQ (ITEF)	2.17		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-10.7	5	Soil	1/25/2006	DP-10.7-5b	2,3,7,8-TCDD	ND	0.148	
					1,2,3,7,8-PeCDD	ND	0.155	
					1,2,3,4,7,8-HxCDD	ND	0.137	
					1,2,3,6,7,8-HxCDD	ND	0.142	
					1,2,3,7,8,9-HxCDD	ND	0.135	
					1,2,3,4,6,7,8-HpCDD	0.301 J		
					1,2,3,4,6,7,8,9-OCDD	3.09 J		
					2,3,7,8-TCDF	ND	0.126	
					1,2,3,7,8-PeCDF	ND	0.125	
					2,3,4,7,8-PeCDF	ND	0.117	
					1,2,3,4,7,8-HxCDF	ND	0.0347	
					1,2,3,6,7,8-HxCDF	ND	0.0354	
					2,3,4,6,7,8-HxCDF	ND	0.0386	
					1,2,3,7,8,9-HxCDF	ND	0.0588	
					1,2,3,4,6,7,8-HpCDF	ND	0.0507	
					1,2,3,4,7,8,9-HpCDF	ND	0.0529	
					1,2,3,4,6,7,8,9-OCDF	ND	0.173	
					Total TCDD	ND	0.148	
					Total PeCDD	ND	0.155	
					Total HxCDD	ND	0.138	
					Total HpCDD	0.512		
					Total TCDF	ND	0.126	
				Total PeCDF	ND	0.121		
			Total HxCDF	ND	0.0408			
					Total HpCDF	ND	0.0517	
					2,3,7,8-TCDD TEQ (ITEF)	0.00332		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-10.9	9.5	Soil	1/26/2006	DP-10.9-9.5b	2,3,7,8-TCDD	ND	0.127	
					1,2,3,7,8-PeCDD	ND	0.167	
					1,2,3,4,7,8-HxCDD	ND	0.136	
					1,2,3,6,7,8-HxCDD	ND	0.152	
					1,2,3,7,8,9-HxCDD	ND	0.139	
					1,2,3,4,6,7,8-HpCDD	ND	0.0915	
					1,2,3,4,6,7,8,9-OCDD	1.33 J		
					2,3,7,8-TCDF	ND	0.106	
					1,2,3,7,8-PeCDF	ND	0.175	
					2,3,4,7,8-PeCDF	ND	0.161	
					1,2,3,4,7,8-HxCDF	ND	0.0392	
					1,2,3,6,7,8-HxCDF	ND	0.0396	
					2,3,4,6,7,8-HxCDF	ND	0.0415	
					1,2,3,7,8,9-HxCDF	ND	0.0574	
					1,2,3,4,6,7,8-HpCDF	ND	0.0519	
					1,2,3,4,7,8,9-HpCDF	ND	0.0575	
					1,2,3,4,6,7,8,9-OCDF	ND	0.236	
					Total TCDD	ND	0.127	
				Total PeCDD	ND	0.167		
					Total HxCDD	ND	0.142	
					Total HpCDD	ND	0.0915	
					Total TCDF	ND	0.106	
				Total PeCDF	ND	0.168		
			Total HxCDF	ND	0.0441			
					Total HpCDF	ND	0.0544	
					2,3,7,8-TCDD TEQ (ITEF)	0.000133		

SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Georgia-Pacific California Wood Products Manufacturing Facility 90 West Redwood Avenue, Fort Bragg, California

Sample TopSampleSampleSampleDepthSampleSampleLocation(feet)MatrixDateID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
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<u>Notes</u>

Samples analyzed by EPA Method 8290.

B = chemical also detected in the method blank

D = reported as *EMPC* due to possible chlorinated diphenylether interference

EMPC = *Estimated Maximum Possible Concentration*

EPA = *United States Environmental Protection Agency*

J or *j* = estimated value (the analyte was positively identified, but the associated numerical result is an estimate

[analytical laboratory estimate = upper-case "J," data validation qualifier = lower-case "j"])

j + = estimated value, high bias

MDL = Method Detection Limit

ND = concentration as reported by analytical laboratory is less than the MDL or EMPC

pg/g =picogram(s) per gram

u = not detected

uj = not detected; associated numerical value is an estimate of the MDL

2,3,7,8-TCDD TEQ (ITEF) = Toxicity Equivalency Quotient value as reported by the laboratory, using 1997 International Toxic Equivalent Factors (ITEF). Where data are qualified "u" (data validation qualifier, not detected), actual TEQ values will be less.

GROUND WATER AND SURFACE WATER ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
DP-3.59	5.5	Ground Water	10/10/2005	DP-3.59-DT5.5	2,3,7,8-TCDD	ND	1.82	
					1,2,3,7,8-PeCDD	ND	2.11	
					1,2,3,4,7,8-HxCDD	ND	3.11	
					1,2,3,6,7,8-HxCDD	10.5 J		
					1,2,3,7,8,9-HxCDD	ND	5.37	
					1,2,3,4,6,7,8-HpCDD	191		
					1,2,3,4,6,7,8,9-OCDD	1600		
					2,3,7,8-TCDF	ND	1.45	
					1,2,3,7,8-PeCDF	ND	3.04	
					2,3,4,7,8-PeCDF	ND	2.66	
					1,2,3,4,7,8-HxCDF	3.01 J		
					1,2,3,6,7,8-HxCDF	3.88 J		
					2,3,4,6,7,8-HxCDF	3.55 J		
					1,2,3,7,8,9-HxCDF	3.6 J		
					1,2,3,4,6,7,8-HpCDF	64.5		
					1,2,3,4,7,8,9-HpCDF	ND	4.85	
					1,2,3,4,6,7,8,9-OCDF	116		
					Total TCDD	ND	1.82	
					Total PeCDD	ND	2.11	
					Total HxCDD	48.8		
					Total HpCDD	355		
					Total TCDF	ND	2.65	
					Total PeCDF	15.7		
					Total HxCDF	78.7		
					Total HpCDF	148		
					2,3,7,8-TCDD TEQ (ITEF)	5.18		

GROUND WATER AND SURFACE WATER ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
DP-3.60	6	Ground Water	10/10/2005	DP-3.60-DT6.0	2,3,7,8-TCDD	ND	1.48	
					1,2,3,7,8-PeCDD	ND	1.78	
					1,2,3,4,7,8-HxCDD	20.1 J		
					1,2,3,6,7,8-HxCDD	17.2 J		
					1,2,3,7,8,9-HxCDD	4.14 J		
					1,2,3,4,6,7,8-HpCDD	522		
					1,2,3,4,6,7,8,9-OCDD	6460		
					2,3,7,8-TCDF	ND	1.48	
					1,2,3,7,8-PeCDF	ND	3.55	
					2,3,4,7,8-PeCDF	ND	3.3	
					1,2,3,4,7,8-HxCDF	ND		4.2
					1,2,3,6,7,8-HxCDF	4.87 J		
					2,3,4,6,7,8-HxCDF	6.87 J		
					1,2,3,7,8,9-HxCDF	ND	2.45	
					1,2,3,4,6,7,8-HpCDF	262	1	
					1,2,3,4,7,8,9-HpCDF	12.6 J	1	
					1,2,3,4,6,7,8,9-OCDF	861	1	
					Total TCDD	ND	1.48	
					Total PeCDD	ND	1.78	
					Total HxCDD	76.6		
					Total HpCDD	892	1	
					Total TCDF	ND	2.29	
					Total PeCDF	20.3		
					Total HxCDF	255		259
					Total HpCDF	866		
					2,3,7,8-TCDD TEQ (ITEF)	14		

GROUND WATER AND SURFACE WATER ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
Pond 8 Outfall South	0	Surface Water	5/24/2006	Log Pond 8 Outfall	2,3,7,8-TCDD	ND	0.765	
					1,2,3,7,8-PeCDD	ND	0.925	
					1,2,3,4,7,8-HxCDD	ND	0.738	
					1,2,3,6,7,8-HxCDD	ND	0.769	
					1,2,3,7,8,9-HxCDD	ND	0.762	
					1,2,3,4,6,7,8-HpCDD	ND	0.792	
					1,2,3,4,6,7,8,9-OCDD	ND	2.02	
					2,3,7,8-TCDF	ND	1.11	
					1,2,3,7,8-PeCDF	ND	0.704	
					2,3,4,7,8-PeCDF	ND	0.638	
					1,2,3,4,7,8-HxCDF	ND	0.584	
					1,2,3,6,7,8-HxCDF	ND	0.527	
					2,3,4,6,7,8-HxCDF	ND	0.649	
					1,2,3,7,8,9-HxCDF	ND	0.836	
					1,2,3,4,6,7,8-HpCDF	ND	0.971	
					1,2,3,4,7,8,9-HpCDF	ND	0.82	
					1,2,3,4,6,7,8,9-OCDF	ND	2.11	
					Total TCDD	ND	0.765	
					Total PeCDD	ND	0.925	
					Total HxCDD	ND	0.756	
					Total HpCDD	ND	0.792	
					Total TCDF	ND	1.11	
					Total PeCDF	ND	0.671	
					Total HxCDF	ND	0.649	
					Total HpCDF	ND	0.896	
					2,3,7,8-TCDD TEQ (ITEF)	0		

GROUND WATER AND SURFACE WATER ANALYTICAL DATA CHLOINATED DIOBENZODIOXINS AND DIBENZOFURANS

Georgia-Pacific California Wood Products Manufacturing Facility 90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
Location	(Ieee)	Muuna	Duit	ID ID	Chemicar	(Pg / L)	(PS/L)	(\mathbf{PS},\mathbf{L})

<u>Notes</u>

Samples analyzed by EPA Method 8290.

EMPC = *Estimated Maximum Possible Concentration*

EPA = *United States Environmental Protection Agency*

J or *j* = estimated value (the analyte was positively identified, but the associated numerical result is an estimate

[analytical laboratory estimate = upper-case "J," data validation qualifier = lower-case "j"])

MDL = Method Detection Limit

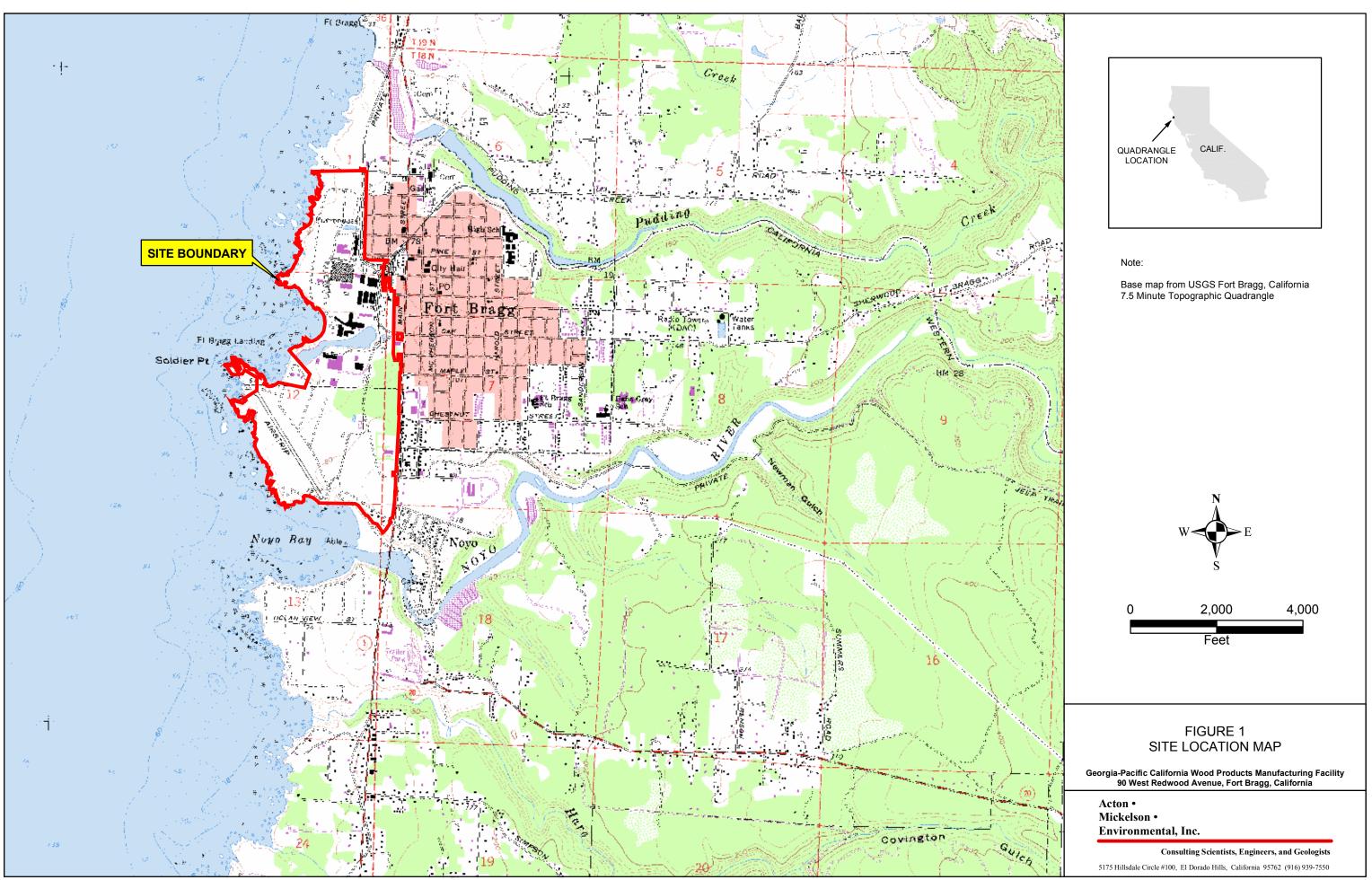
ND = concentration as reported by analytical laboratory is less than the MDL or EMPC

pg/L =picogram(s) per liter

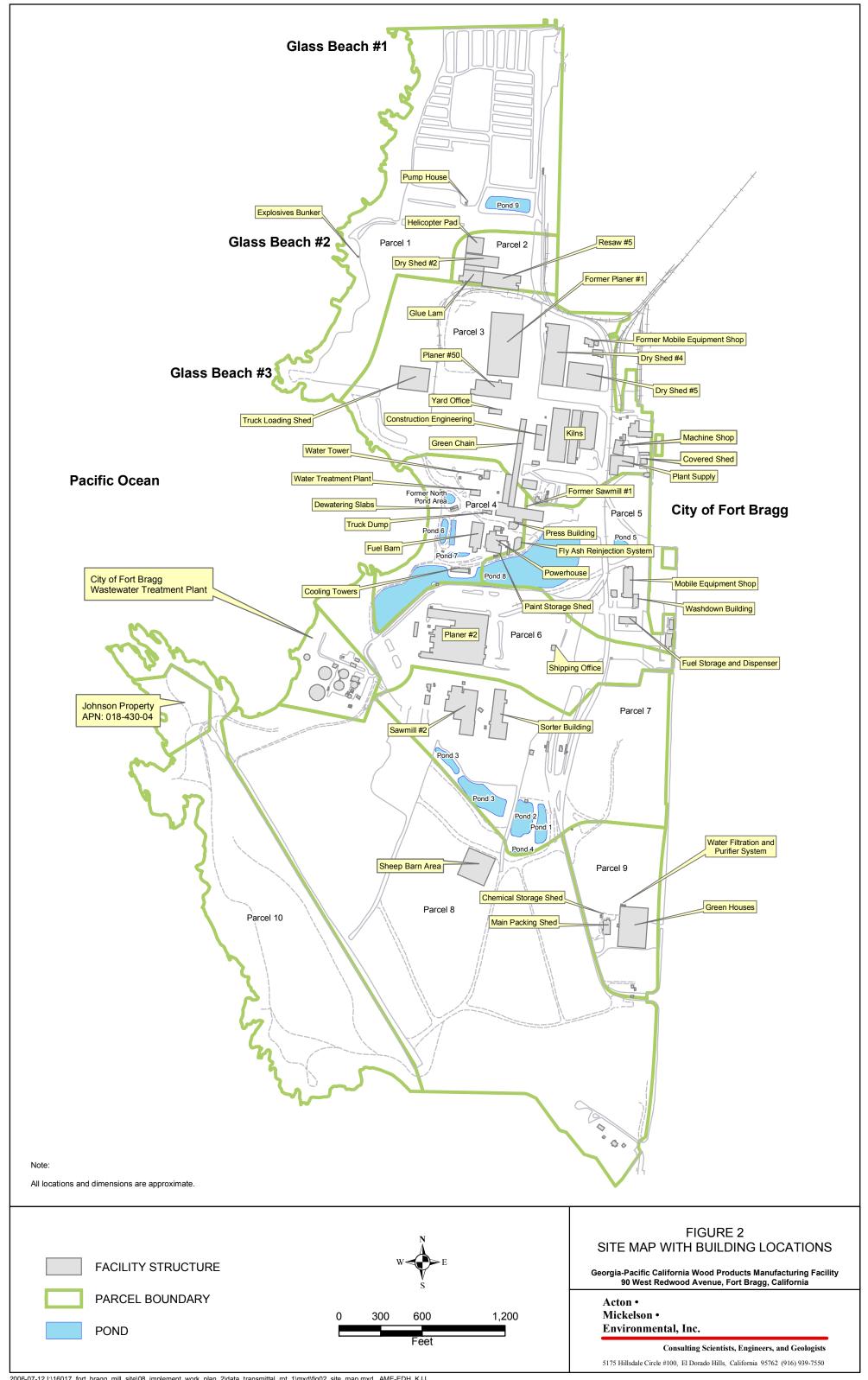
u = not detected

uj = not detected; associated numerical value is an estimate of the MDL

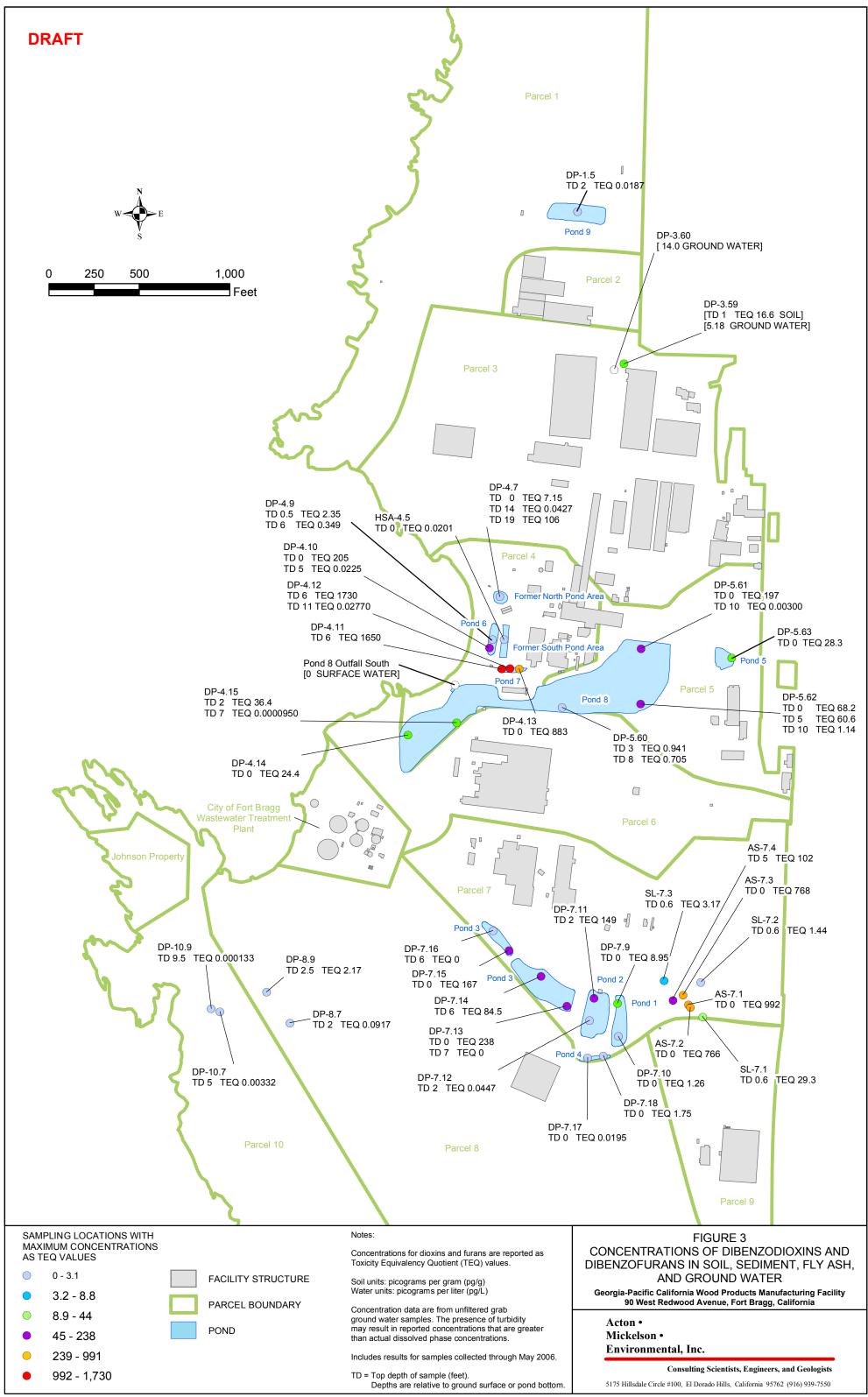
2,3,7,8-TCDD TEQ (ITEF) = Toxicity Equivalency Quotient value as reported by the laboratory, using 1997 International Toxic Equivalent Factors (ITEF)



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APPENDIX A

Agency Correspondence



California Regional Water Quality Control Board North Coast Region

William R. Massey, Chairman

Linda S. Adams Agency Secretary www.waterboards.ca.gov/northcoast 5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403 Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135



Arnold Schwarzenegger Governor

June 13, 2006

Ms. Julie B. Raming Georgia-Pacific Corporation P.O. Box 105605 Atlanta, GA 30348-5605

Dear Ms. Raming:

Subject: California Water Code Section 13267(b) ORDER

File: Georgia-Pacific Fort Bragg Sawmill, 90 West Redwood Avenue, Fort Bragg Case No. 1NMC462

On June 6, 2006, Craig Hunt and Cody Walker of my staff met with you and your representatives, as well as representatives of the City of Fort Bragg, to discuss the ongoing investigation work at the Georgia-Pacific Fort Bragg sawmill site. Preliminary data from chlorinated dibenzo-dioxin/furan analyses of samples from an ash stockpile and pond sediments were discussed. During that meeting, you had agreed to submit a report of that sampling and analysis, as well as to the submittal of a report of other ongoing investigation work. Accordingly, enclosed is a Water Code Section 13267(b) Order that requires the submittal of these reports. This Order also requires the submittal of a Public Participation Plan and a report and workplan regarding offsite ash disposal.

In the June 6 meeting, which included the City of Fort Bragg City Manager Ms. Linda Ruffing, it was agreed to hold a community workshop regarding the ongoing investigation after the report of chlorinated dibenzo-dioxin/furan investigation work is submitted. My staff will be working with you and Ms. Ruffing on preparing that meeting.

If you have any questions concerning the Order, please contact Craig Hunt of my staff at (707) 570-3767.

Sincerely,

/ORIGINAL SIGNED BY/

Catherine E. Kuhlman Executive Officer

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California Environmental Protection Agency

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Certified Return Receipt Requested

Enclosure: Water Code Section 13267(b) Order

- cc: Mr. Michael Acton, Acton Mickelson Environmental, Inc., 5175 Hillsdale Circle, Suite 100, El Dorado Hills, CA 95762
 - Ms. Kay M. Johnson, Tetra Tech, Inc., 3746 Mt. Diablo Boulevard, Suite 300, Lafayette, CA 94549
 - Mr. Doug Heitmeyer, Georgia-Pacific Corporation, 90 West Redwood Avenue, Fort Bragg, CA 95437
 - Ms. Linda Ruffing, City Manager, City of Fort Bragg, 416 N. Franklin Street, Fort Bragg, CA 95437
 - Mendocino County Environmental Health Department, 501 Low Gap Road, Room 1326, Ukiah, CA 95482
 - Mr. Dave Goble, Public Works Department, 416 N. Franklin Street, Fort Bragg, CA 95437
 - Ms. Loie Rosenkrantz, 17201 Franklin Road, Fort Bragg, CA 95437
 - Ms. Barbara Cook, Department of Toxic Substances Control, 700 Heinz Avenue, Suite 100, Berkeley, CA 94710
 - Mr. David L. Berry, Department of Toxic Substances Control, P.O. Box 806, Sacramento, CA 95812
 - Ms. Ashle Crocker, Remy, Thomas, Moose, and Manley, 455 Capitol Mall, Suite 210, Sacramento, CA 95814
 - Mr. Glenn S. Young, Fugro West, Inc., 1000 Broadway, Suite 200, Oakland, CA 94607
 - Mr. Mark Stelljes, SLR International Corp, 117 Burgundy Court, Martinez, CA 94553
 - Mr. James and Ms. Barbara McGuire, 22501 Bald Hill Road, Fort Bragg, CA 95437

E-mail cc list

California Environmental Protection Agency

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California Regional Water Quality Control Board North Coast Region

ORDER REQUIRING TECHNICAL INFORMATION PURSUANT TO WATER CODE SECTION 13267(b)

FOR

GEORGIA-PACIFIC CORPORATION FORT BRAGG SAWMILL

90 W. Redwood Avenue FORT BRAGG, CALIFORNIA

Mendocino County

The California Regional Water Quality Control Board, North Coast Region (hereinafter Regional Water Board) finds that:

- 1. The Georgia-Pacific Corporation (Discharger) owned and operated a lumber mill in Fort Bragg, California, west of California Highway 1, at 90 West Redwood Avenue, hereinafter the "Site" (Attachment A).
- 2. In 2006, samples were taken by representatives of the Discharger from an ash stockpile located at the Site and from pond sediments at the site.
- 3. Preliminary results provided to Regional Water Board staff of the analysis of these samples reveal concentrations of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans, hereinafter "dioxins". A final report of this sampling task and related analytical results has not been completed.
- 4. Soil and water investigations at the Site have been ongoing under the June 8, 2005 Acton Mickelson Environmental, Inc. *Work Plan for Additional Site Assessment* and the subsequent modifications to that plan, as concurred with by Regional Water Board staff in a letter dated September 19, 2005.
- 5. In a meeting on June 6, 2006, Regional Water Board staff met with representatives of the Discharger and of the City of Fort Bragg. During this meeting the preliminary results and the submittal of a report of the sampling and analyses for dioxins and for the other investigation work were discussed.
- 6. Groundwater at this site is shallow and surface water from this site discharges directly to the ocean.
- 7. Ash generated at the Site has previously been used as a soil amendment, under Waste Discharge Requirements Order No. 96-96 issued by the Regional Water Board. The soil amendment site was located on land owned by James I. and Barbara McGuire within Sections 4 & 5 of T18N, R17W, and Sections 32 &

33 of T19N, R17W (MDB&M) on 249 acres of pasture land, hereinafter the McGuire Ranch Site, drained by Virgin Creek. The record indicates that sampling of the soil amendment site for dioxins has not been routinely performed as part of a monitoring program.

- The following sections of the Porter-Cologne Water Quality Control Act authorize the Regional Water Board Executive Officer to make the following requirements for persons suspected of discharging waste that could affect the quality of waters within this region:
 - Section 13267(a) "A regional board, in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action relating to any plan or requirement or authorized by this division, may investigate the quality of any waters of the state within its region."
 - Section 13267(b) "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or proposes to discharge waste within its region...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."
 - Section 13267(c) "In conducting an investigation pursuant to subdivision (a), the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being met and waste discharge requirements are being complied with. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is withheld, with a warrant duly issued pursuant to the procedure set forth in Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure. However, in the event of an emergency affecting the public health or safety, an inspection may be performed without consent or the issuance of a warrant."
- 9. All of the technical reports required by this Order are necessary to ensure that any threat to water quality created by the discharges described above are properly abated and controlled.
- 10. In light of the preliminary data indicating a potential threat to water quality, the burden, including costs, of the reports required by this Order bear a reasonable relationship to the need for the reports and the benefits to obtained therefrom.
- 11. This enforcement action is being taken for the protection of the environment and, therefore, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations.
- 12. Failure to comply with the terms of this Order may result in enforcement under the California Water Code. Any person failing to provide technical reports

containing information required by this Order by the required date(s) or falsifying any information in the technical reports is, pursuant to Water Code Section 13268, guilty of a misdemeanor and may be subject to administrative civil liabilities of up to one thousand dollars (\$1,000.00) for each day in which the violation occurs. Any person failing to clean up or abate threatened or actual discharges as required by this Order is, pursuant to Water Code Section 13350(e), subject to administrative civil liabilities of up to five thousand dollars (\$5,000.00) per day or ten dollars (\$10) per gallon of waste discharged. Any person discharging waste into navigable waters of the United States without waste discharge requirements is, pursuant to Water Code Section 13385(c), subject to administrative civil liabilities of up to ten thousand dollars (\$10,000.00) per day in which the discharge occurs plus ten dollars (\$10.00) per gallon of waste discharged, and may also be subject to criminal prosecution pursuant to Water Code Section 13387.

13. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code Section 13320 and Title 23, California Code of Regulations, Section 2050. The petition must be received by the State Water Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request. In addition to filing a petition with the State Board, any person affected by this Order may request the Regional Water Board to reconsider this Order. To be timely, any such request must be made within 30 days of the date of this Order. Note that even if reconsideration by the Regional Water Board is sought, filing a petition with the State Water Board within the 30-day period is necessary to preserve the petitioner's legal rights. If you choose to request reconsideration of this Order or file a petition with the State Water Board, be advised that you must comply with the Order while your request for reconsideration and/or petition is being considered.

THEREFORE, IT IS HEREBY ORDERED that, pursuant to California Water Code Section 13267(b) the Discharger shall:

- 1. By July 17, 2006, the Discharger shall submit to the Executive Officer a complete report of the dioxin sampling and analyses. This report shall also include a summary of any and all information available concerning the locations of disposal or reuse of ash generated at the Site.
- 2. By August 14, 2006, the Discharger shall submit to the Executive Officer a report of all investigation work performed through the April 2006 sampling of pond sediments, under the June 8, 2005 Acton Mickelson Environmental, Inc. *Work Plan for Additional Site Assessment* and the subsequent modifications to that plan.

Order Requiring Technical Information Water Code Section 13267(b)

- 3. By August 14, 2006, the Discharger shall submit to the Executive Officer a Public Participation Plan for ongoing public participation for this site.
- 4. By August 14, 2006, the Discharger shall submit a workplan for investigation at the McGuire Ranch Site to evaluate potential dioxin impacts.
- 5. All of the above required information shall be submitted under penalty of perjury.

/ORIGINAL SIGNED BY/

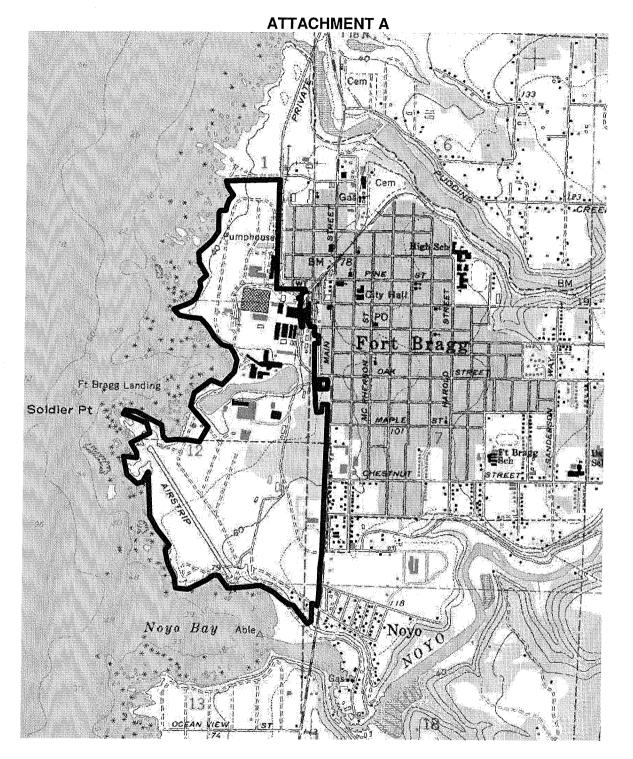
Ordered by_

Catherine E. Kuhlman Executive Officer

June 13, 2006

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Order Requiring Technical Information Water Code Section 13267(b)



Site Location Map (base map is from a USGS Fort Bragg, California, 7.5 Minute Topographic Quadrangle). The Site is roughly outlined in black.

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APPENDIX B

Soil Boring Permits

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Environmental Health, Hazardous Materials	ap Road, Rm 1326, Ukiah, CA, 95482 707-463 4466 3 2	.006
MONITORING WELL APPLICATION To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings	(For Official Use Only) Date Paid: 8/18/05 PERMIT	īR.
Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:	Date Paid: $\frac{8/18/05}{10,103.00}$ FES PAID UNDER Fee Paid \$ <u>10,103.00</u> Rec'd By: Payment # <u>UP105.99</u>	3
Business Name: FORMER G-A WOOD PREDULTS Phone: 707.961.3353 MANUFACTURIUG FALLETY Site Address: <u>90 WEST REDUCCO AVE</u> City: FORT BRALLT Property Owner Address: <u>13.3 PEACHTRE STREET</u> , NE	Permit Agreement: I hereby agree to construct, destroy, repair or after all wells or borings on this permit application in accordance with the "Permit Terms And Conditions" as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.	
City: ATCANTA State: 67A Zp: 30303	I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).	
Work Information: Indicate below the total <u>number</u> of wells already existing on the site: Domestic Water Wells	For Known Contaminated Sites: I understand that the North Coast Regional Water Quality Control Board requires an approved Work Plan prior to the start of any field work under this permit. [Please cail (707) 576-2220 for questions regarding work plan approval.] For Sites within the Coastal Zone: I understand that the Department of	
Type of Work Proposed: Construction Destruction Repair Attention/Conversion	Planning and Suliding requires a Coastal Zone Permit prior to the start of any field work under this permit, and that they may require additional permit fees. C-57 Contractor: Wet signatures required; Ruces will not be accepted.	
Indicate below the total <u>number</u> of proposed wells or borings for each type listed:	(Print Nama) (Signature)	
Monitoring Wells Cathodic Wells Borings/hydropunches 2/ Consultant and Contractor Information:	Dete: MARCH 3, 2006	
Consulting Firm: <u>ACTON·MICKELLON: ENVIRONMENTEL FUC</u> Address: <u>S17-5 MILLOALE CIP_STEIDS</u> IN: <u>EL DAROD</u> ID: <u>95762</u>	Coastal Zone Approval:	
Address: $S175$ H $ILLSOALE$ CIP FE $Dradoo$ TiP : $f5762$ MILLSHILLSHILLSHILLSContact Name: Tom $CARROLL$ Phone #: $g16$ $g39$ 7521	(Signature) Date:	
Driller/Contractor: <u>PAECISIDX</u> C-57 License #: <u>636387</u> Phone #: <u>510.227.4575</u>	a Mendoring County Health Officer's the space any ideal on the Teach Law	ະພ
Address: 1001 ESSEX AVE Give RILHMOND TO: 94 Bol	issued by: Jew Jewen 3-8-06 Dr	iller
Permit Terms and Conditions provide that the contractor will: Secure the authorization of the property owner. Submit written authorization(s) from the off-site property owner(s) for all off-site work. Complete the Ske Plot Sketch according to the instructions on the back of this application. Consult with the laspedration date prior to scheduling field activities. Schedule field work to commerce after a permit has been issued. Prace seties by "free fail" (without a tends pipe) only in dry intervals of less than 30 feet EGS.	ED Final Approval by: Restriction's Systems) Date: Date Boring and Well Logs were received:	
 Construct sofice seal/cover to prevent typical dantage, unautorized access & contamination. Subrit a State of California Weil Completion Reporting or an "As Censtructed" Weil Log, or a Destruction Log of the Sci Boring within 15 days of completion as a regularment for final approval (Mendodina County Code access). 14 na 440 (r)). (Final approval will not be given without the log(s) or sketch.) 	Copy to well dinker Copy to Water Outsty Control	

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Environmental	Health.	Hazardous	Matorialo	1
		· IOLUI UOUS	FIGUEITORS	

MONITORING WELL APPLICATIO

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Catho Remediation Wells or Borings

Application is hereby made to the Mendocino County Division of Environmental Health for to perform the work as indicated below at the following site location:

	Business Name:	Former (Georgia-Pacifi	c Sawmill	Phon	a #.707 061 2252
	Site Address: ¥				Cibra	Fort Proga
	Property Owner Name:	Gi	eordia- Pacific	5L		
	Property Owner Address:		90 West F	ledwood Avenue	с <i>т</i> . <u>_</u>	
·	City: Ft. Bra	gg	State:	CA		95437
	Work Information:				<u>-</u>	
	Indicate below	the total <u>ni</u>	umber of wells a	lready existing on	the site.	
	Domestic Water	Wells	5	Monitoring Wells		31
	Type of Work Proposed	t: Const	ruction <u>X</u>	Destructio	n	
		Repair	Ĩ <u></u>	Alteration/	Conversio	n
	Indicate below	the total <u>n</u> i	imber of propo	sed wells or boring	s for each	tvpe listed:
	Monitoring Well	s <u>4</u>	Cathodic Wells	Boring	s/hydropu	nches
	Rer	nediation V	Vells (includes ir	jection/extraction/s	sparge/etc	.)
	Consultant and Co	ntractor	Information:	:		· · · · · · · · · · · · · · · · · · ·
	Consulting Firm:	A	ton Mickelson	Environmental,	Inc.	
	Address: 5175 Hills	dale Circle	e, Suite 100	City: El Dora	ado Hilis 7	'ln: 95762
	Contact Name: J	eff Healie	~	d		
	Driller/Contractor:	$\overline{\mathbb{N}}$	10/1	<u> </u>		9200
		Hor.	- Childrey	lengt		
	C-57 License #:	2-5	<u>34 </u>	thone #: 530-	-668.	-2424
	Address: 220 N	J. East	54	City: []	Mand 2	lip: 95776
	Permit Terms and (Secure the authorization Submit written authoriza Complete the Site Plot SI Consult with the Inspecto Schedule field work to co	condition of the prope tion(s) from (etch accordi or for an avail	NS provide that rty owner. the off-site proper- ing to the instruction liable inspection de	the contractor will by owner(s) for all off- ons on the back of this	site work.	

- ٠
- Place seals by "free fail" (without a tremie pipe) only in dry intervals of less than 30 feet BGS. ٠
- Construct surface seal/cover to prevent physical damage, unauthorized access,& contamination Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a . of the Soil Boring within 15 days of completion as a requirement for anal approval [Mendocino Section 16.04.060 (c)]. (Final approval will not be given without the log(s) or sketch.)

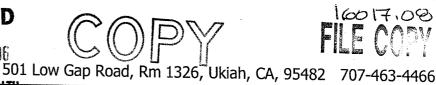
	\mathbb{N}				
\mathbb{P}		Road, Rm 1326, Ukiah, CA	95482 707-463-4	466, Fax: 463-4038]
ION hodic Wells,	(For Official Us	10105	Р	ERMIT	
h for a permit	Fee Pald \$ 1	420.00	Number	23-523	3
:707-961-3353	Payment #	10947	Received I	зу: <u>G</u> В	
rt Bragg	Permit Ag	reement:			
95437	with the Mendoc	a construct, destroy, repair or a th the "Permit Terms And C ino County Well Ordinance (Co in 74-81 & 74-90 as they are a	unty Code Charter 10 of	ove and in compliance	
	I understand tha Section 16.04.09	t this permit expires one year f 0).	from the date of issuance	: (Mendocino County Co	ode
		Itaminated Sites: I understa I Board requires an approved t. [Please call (707) 576-2220 f			
e listed:	C-57 Contractor:	(Wet Signature Require	d; Faxed Copies will n	ot be accepted.)	
es	(Print N	Wingewich	Don Wingher (Signeture)	_ict_Date: 11/4	25
95762	Permit Ap	proval:			
55	This application i County Health O	s deemed as approved and issu fficer in the space provided on	ued when signed and dat the lines below:	ed by a Mendocino	
-424	Issued by:	Job Lour	man	Date:_11 ~ LC	-05
95776	Work complet	(Health Officer's Sig	nature)		-
	Final Appr			E Date: UE	
	Date Boring an	(Health	Officer's Signature)	NOV 1 6 2005	, UI
on. a Destruction Log to County Code .)	Distribution:	Original to EH Copy to well driller	Copy to Consultant Copy to North Coast Rec	ional Water Control Board	

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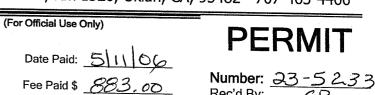
Environmental Health, Hazardous Materials

MONITORING WELL APPLICATION

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation

Wells or Borings

2006



Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Business Name: ERMER G-PW000 PRODUCT	TS MANUFACTURE Phone: (7	107)961-3353
Site Address: 40 WEST REDWOOD AVE	City: FORT	BRAGG
Property Owner Address: 133 PEALH TREE ST	REET, NE	_
City: ATLANTA	State:A	zip: <u>30303</u>
Work Information: Indicate below the total <u>number</u> of	wells already existing on the site:	
Domostia Metay Multi	· · · · · · · · · · · · · · · · · · ·	11-1

Domestic Water Wells Monitoring Wells Type of Work Proposed: Construction Destruction Repair Alteration/Conversion Indicate below the total <u>number</u> of **proposed** wells or borings for each type listed: Monitoring Wells Cathodic Wells Borings/hydropunches **Consultant and Contractor Information:** Consulting Firm: ALTON . MILKELSON . ENVIRON MENTAL, Address: SI75 HILLSDALE CIR. #100 City: ELDORADO HILLSZID: 93762 Contact Name: Tom CARROLL Phone #: (916) 939-7571 Precision Sampling Driller/Contractor: C-57 License #: 237-4575 (510) Phone #: Address: 1081 255Ex AVENJE City: Richmony 9480

Permit Terms and Conditions provide that the contractor will:

Secure the authorization of the property owner.

- Submit written authorization(s) from the off-site property owner(s) for all off-site work.
- Complete the Site Plot Sketch according to the instructions on the back of this application.
- Consult with the inspector for an available inspection date prior to scheduling field activities.
- Schedule field work to commence after a permit has been issued.
- Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet BGS.
- Construct surface seal/cover to prevent physical damage, unauthorized access,& contamination. Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Soil Boring within 15 days of completion as a requirement for final approval [Mendocino County Code Section 16.04.060 (c)]. (Final approval will not be given without the log(s) or sketch.)

		Nec u by.	GB
Payment #	1P12587		
stated above and in	onstruct, destroy, repair accordance with the "P compliance with the Me) and the California Well	ermit Terms And Indocing County W	d Conditions" as
I understand that th County Code Section	iis permit expires one ye n 16.04.090).	ar from the date o	f issuance (Mendocino
water Quality Col	minated Sites: I under itrol Board requires an der this permit. [Please approval.]	approved Work P	lan prior to the start
Planning and Buildin	ne Coastal Zone: I und Ig requires a Coastal Zor mit, and that they may r	e Permit prior to t	he start of any field
C-57 Contractor: W	et signatures require	d: faxes/will not	he accented
MIKE CA	62	MI L	
(Print	Name)	(Sign	sy
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	Date:	May 3, 7	006
Coastal Zone	Approval:		
		(Sign	nature)
	Date:	(3.	
Permit App	roval:		
This application is a Mendocino Count	deemed as approved a y Health Officer in the	nd issued when s space provided o	igned and dated by n the lines below:
Issued by :	Job for	unca	5-11-06 Date
Work completed	(Health Officer's	Signature)	Date
	•		· · ·
Final Approv	· · · · · · · · · · · · · · · · · · ·	fficer's Signature)	Date:
Date Boring and	Well Logs were rece		
Distribution:			
Distribution.	Original to EH Copy to well driller		Consultant Water Quality Control
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APPENDIX C

Sampling Procedures

APPENDIX C SAMPLING AND ANALYSIS PLAN

PREPARED FOR

Georgia-Pacific Corporation California Wood Products Manufacturing Facility 90 West Redwood Avenue Fort Bragg, California

PREPARED BY

Acton • Mickelson • Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762 (916) 939-7550

AME Project Number 16017.08

JULY 14, 2006

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A-2 Unified Soil Classification System Chart

This Sampling and Analysis Plan (SAP) describes procedures to be followed by Acton • Mickelson • Environmental, Inc. (AME), during collection of subsurface soil, sediment, concrete, surface water, and ground water samples, as well as the analytical methodology to be used by the analytical laboratory. It provides established guidelines that ensure samples represent actual field conditions and are labeled, preserved, and transported properly to retain sample integrity. Sampling will be conducted in general accordance with procedures outlined in guidance documents from the American Society of Testing and Materials (ASTM), United States Environmental Protection Agency (EPA), and California Environmental Protection Agency (Cal-EPA).

1. SUBSURFACE EXPLORATION SOIL SAMPLING PROCEDURES

Soil borings and sampling will be performed under the direction of an appropriately registered AME professional. Soil borings will be advanced using:

- Truck-mounted, hollow-stem auger drill rig
- Truck-mounted, track-mounted, or barge-mounted direct push rig
- Hand auger

Investigation of fill areas will be accomplished through backhoe excavation or use of large-diameter auger equipment.

1.1 Soil Sample Collection from Hollow-Stem Auger Borings

Soil samples will be collected at 5-foot vertical intervals and in general accordance with ASTM D1586-84 (reapproved 1992), modified to allow the use of a 2-inch-diameter split-barrel sampler. Using this procedure, three 2-inch-diameter, 6-inch-length, stainless-steel tubes are placed in a California-type split-barrel sampler, which is driven into the soil by a 140-pound weight falling 30 inches. After driving the sampler an initial distance of 6 inches (seating drive), the number of blows required to drive the sampler an additional 12 inches is known as standard penetration resistance, or the "N" value. The "N" value is used as an empirical measure of the relative density of cohesionless soil and the consistency of cohesive soil. Upon recovery of the split-barrel sampler, the stainless-steel tubes containing the soil will be removed.

Soil samples intended for volatile organic compound (VOC) testing will be obtained in accordance with <u>U.S.</u> EPA Method 5035. Soil samples will be obtained with a discrete soil-sampling device (EnCoreTM sampler or SoilCoreTM sampler or equivalent). The soil samples need to be received by the laboratory or frozen within 48 hours of sampling.

The soil samples for VOC testing will be taken from the bottom of the three stainless-steel tubes. The tube will then be sealed at the ends with Teflon[®] tape and plastic end-caps. The percent recovery of the sample will be recorded. The sample will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in a plastic bag and stored at approximately 4 degrees Celsius (°C) in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section 7 will be followed for each sample collection.

Soil in the second stainless-steel tube will be extracted upon recovery, placed in a plastic bag, sealed, and placed out of direct sunlight for later screening for organic vapors using a photoionization detector (PID) or flame ionization detector (FID).

Soil will be examined for composition, color, and moisture content, and a complete log of soil conditions will be recorded on a soil boring log (Appendix A-1) using the Unified Soil Classification System (USCS, Appendix A-2).

The split-barrel sampler will be cleaned to prevent cross-contamination for each sampling interval using procedures described in Section 4. Soil borings advanced with hollow-stem augers will generate drill cuttings. The soil generated from the soil borings will be stored in 55-gallon drums and labeled with the corresponding boring number, date, and address of the facility. Alternatively, the soil generated from the soil borings may be placed on and covered with plastic and stored onsite until characterized for disposal. After drilling, borings not intended for monitoring well construction will be backfilled with neat cement.

1.2 Sample Collection from Direct Push Borings

A continuous core will be collected by pushing a Macrocore sampler containing a 4-foot long acrylic or polyvinyl chloride (PVC) tube. Soil samples selected for laboratory analysis will be obtained by saw cutting a 6-inch length from the soil-filled acrylic tube and sealing the ends of the removed segment with Teflon[®] tape and plastic end-caps.

Soil samples intended for VOC testing will be obtained from the tube in accordance with EPA Method 5035 (see Section 1.1). Soil from a portion of the tube will be extracted, placed in a plastic bag, sealed, and placed out of direct sunlight for later screening for organic vapors using a PID or FID. The soil will be examined for composition, color, and moisture content, and a log of soil conditions recorded on a soil boring log (Appendix A-1) using the USCS (Appendix A-2).

The sample will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in a plastic bag and stored at approximately 4°C in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section 7 will be followed.

1.3 Fill Area Excavations

Investigation of fill areas will be accomplished using either large-diameter auger equipment or by backhoe excavation. Use of a large-diameter auger is preferred over standard 4-inch diameter solid-stem or 8-inch diameter hollow-stem auger equipment because the larger diameter augers typically provide a more representative sample of heterogeneous fill materials. Advantages of backhoe use are that setup time is reduced and a larger area can be explored by excavating a wider or longer trench. One disadvantage of the backhoe is the limited vertical reach of the bucket usually restricted to approximately 15 feet for a tire-mounted unit.

Soil samples will be collected from the large-diameter borings or excavations directly from the auger flights or the backhoe bucket. Samples will be handled as described in Section 1.1. Equipment will be decontaminated as described in Section 4. Large-diameter borings and test excavations will be backfilled with soil cuttings from the respective excavations.

1.4 Sample Collection from Remedial Excavations

Soil samples will be collected from Interim Remedial Measure (IRM) excavations to evaluate residual chemical-compound concentrations. The samples will be collected directly from the excavator bucket to prevent physical hazards from personnel entering the excavations. Soil removed from the IRM excavation bottom or sidewalls will be placed in a stainless-steel tube in such a way that no headspace exists. The ends of the tube will be covered with Teflon sheets followed by plastic end caps. The samples will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in individual plastic bags and stored at approximately 4°C in an ice chest for transport to the laboratory.

Soil generated during IRM excavations will be either loaded directly into trucks for transport to a disposal facility or placed on and covered with plastic sheeting pending disposal characterization.

1.5 Concrete Sample Collection

Concrete samples will be collected from building foundations during their excavation and removal. The foundations will be broken into small portions and stockpiled onsite pending waste disposal characterization. Samples of the concrete will be collected for laboratory analysis from the stockpiles. Fragments of the concrete will be collected and double-bagged in sealed plastic bags to prevent any spillage of material during transport.

Laboratory test samples will be sent to a materials testing (geotechnical) laboratory and crushed in preparation for chemical analysis. In accordance with analytical laboratory recommendations, the crushed samples will be stored at approximately 4°C in an ice chest during laboratory shipment. Each sample will be labeled with an identification number, time, date, location, and requested laboratory analysis. Sample chain-of-custody documentation will be maintained from collection to laboratory delivery.

Following disposal characterization, non-hazardous concrete waste will be crushed and used onsite or loaded (uncrushed) onto trucks for transport to Norcal Rock in Willits, California, an offsite recycling/disposal facility. Concrete containing chemical concentrations deemed hazardous will be transported to a Class I landfill for disposal.

1.6 Ground Monitoring Well Construction

The ground water monitoring wells will be installed using 8-inch diameter hollow-stem augers. The boring will be drilled 6 feet past first encountered ground water. After the boring has reached total depth, 2-inch diameter schedule 40 PVC casing will be installed. Ten feet of screen will be installed within the well, and 6 feet of screen will extend below first encountered ground water. The well screen slot size will be 0.020 inch. Before installation of the screen with attached end cap, a 6-inch layer of Number 2/12 sand pack or equivalent will be added to the boring to act as a cushion for the casing.

After the casing is placed within the boring, the sand pack will be added to approximately 2 feet above the uppermost casing slot. One foot of bentonite will be added to the top of the sand pack and hydrated with clean water. The remainder of the boring annulus will be filled with neat Portland cement. At the ground surface, the well will be protected with a flush mounted traffic rated Christie box or locking riser as appropriate. If placed within a Christie box, the top of the well casing will have a locking cap.

1.7 Sediment Sampling

1.7.1 Pond Areas

The RWQCB – North Coast Region requested that the full depth of sediments and fill beneath the ponds be assessed. The borings will be performed at approximately equally spaced intervals along the axes of the ponds.

The various ponds contain several inches to several feet of water. The condition of the ponds will be assessed to determine whether foot or boat access is required for sediment sample collection. If conditions allow, a hand corer sampler with liner tubes will be used to collect sediment samples. This sampler can be used while standing in a dry or shallow pond or while floating in a boat in a deeper pond. If possible, continuous core will be collected from the top of the sediments to native material, bedrock, or refusal. Samples will be retained for testing and handled in general accordance with Section 1.2.

Sample locations will be recorded using global positioning system (GPS) equipment. Depth of overlying water, if any, will be measured with a graduated, weighted tape. Depth of sediment will be initially measured using graduated metal or PVC probes pushed by hand.

1.7.2 Storm Drain

Sediment samples can be obtained by pressing a clean stainless steel sampling tube directly into the media to be sampled. If necessary, a slide hammer can be used to imbed the sample tube. Samples will be retained for laboratory testing in accordance with Section 1.2.

1.8 Geophysical Surveying

Site geophysical surveys will be conducted using several methods to identify anomalies that may represent buried objects and debris, fill areas, and areas of higher soil electrical conductivity (possibly indicative of impact from chemicals of potential concern). Land-survey area and geophysical-survey grid boundaries will be established, and land will be surveyed to sub-meter accuracy using GPS equipment, as well as referencing the state plane coordinate system and 1983 North American Datum. All geophysical survey data will be digitally field-recorded, and survey results will be interpolated into a regular grid and reported in a geo-referenced digital format.

The geophysical surveys will utilize ground conductivity and time domain electromagnetic metal (TDEM) detector surveys. The ground conductivity survey will use the Geonics EM-31 terrain conductivity meter, which uses electromagnetic induction to measure ground conductivity. The

Geonics EM-61 will be used for the TDEM survey to detect buried metallic objects. Both instruments will be operated in automatic data acquisition mode and will field-record data in a data logger. Data will be recorded along grid lines at approximately 10-foot spacing to cover the areas of concern. Survey data locations will be obtained simultaneously using a hand-held GPS unit.

2. MEASUREMENTS OF WATER LEVEL AND APPARENT THICKNESS OF PHASE-SEPARATED HYDROCARBONS, ALSO KNOWN AS LIQUID-PHASE HYDROCARBONS

Phase-separated hydrocarbons (PSH) have been reported in Parcel 5 monitoring well MW-5.1. Measurements of water levels and apparent thickness of PSH will be conducted in general accordance with ASTM D4750 (reapproved 1993). The static water level and apparent PSH thickness in each well will be measured with an electronic interface probe prior to purging or sampling.

The interface probe includes a wire that is marked at 0.01-foot intervals and will be lowered slowly into the well until PSH or water is encountered (the interface probe emits one of two tones depending on whether it encounters PSH or water). When either PSH or water is encountered, depth will be recorded by checking the 0.01-foot-interval markings on the interface probe wire against a predetermined reference point on the well casing (permanent reference points, surveyed to a common reference point, will be marked on the well casings, and all well casing riser elevations will be known to within 0.01 foot).

If the first substance encountered is PSH, the probe will continue to be lowered after depthrecordation until the tone corresponding to water is emitted, at which point depth will again be recorded as described above. The difference between the first and second recorded depths is apparent PSH thickness. The interface probe will be rinsed with a cleaning solution and deionized water between measurements in different wells.

Sampling of PSH for analysis will not be performed. Further, no attempt will be made to sample or analyze ground water from monitoring wells where the presence of a measurable PSH layer is indicated by interface probe readings.

For sites where PSH is not present, static water level will be measured using either a conductance probe level meter or an electronic interface probe. Like the interface probe, the conductance probe level meter emits a steady tone upon encountering any conductive fluid (e.g., water) and includes a wire marked at 0.01-foot intervals. The procedure for obtaining static water levels with the conductance probe level meter is basically the same (when PSH is not encountered) as for an interface probe.

3. GROUND WATER SAMPLING

Ground water sampling will be conducted in general accordance with ASTM D4448 (reapproved 2001). When ground water monitoring wells are accessed, the wellhead atmosphere will be monitored by FID or a lower explosive limit (LEL) meter. If monitoring indicates greater than 5,000 parts per million by volume (ppmv) with the FID or greater than 10 percent with the LEL meter, dry ice will be placed in the wellhead to displace the potentially explosive vapors, and sampling will not proceed until concentrations are reduced below the action levels.

3.1 Well Evacuation

If traditional well purging methods are used, prior to collection of a ground water sample, stagnant water will be removed from the well casing and surrounding gravel pack by bailing, pumping, or using a vacuum truck. At least three casing volumes of water will be removed from each well to be sampled (unless low-flow purging is performed for measurement of dissolved oxygen, as described in Section 3.2). The volume of water in the casing will be determined using the known elevation of the water surface, the well-bottom elevation (as measured at well installation), and the well diameter.

If the well is bailed or pumped during purging, samples will be collected and field analyzed for pH, temperature, turbidity, and specific conductance. The well will be considered stabilized when repeated readings of the following parameters are within the ranges indicated as follows:

•	Specific conductance	± 10 percent of the reading range
•	pH	±0.1 pH unit
•	Temperature	$\pm 0.5^{\circ} \mathrm{C}$
٠	Turbidity	less than 5 nephelometric turbidity units

After stabilization, and after at least three casing volumes are evacuated, a sample will be collected for analysis. The field container used for well-stabilization measurements, and the pH, temperature, and conductivity probes will be rinsed between wells with deionized water.

All purge water will be containerized and documented for disposal as described in Section 6. If the containers are stored onsite, a label specifying the date of purging, source, and the known or suspected nature of the contents will be affixed to each container.

3.2 Low-Flow Well Evacuation and Sampling

In general, ground water sampling will be accomplished using the low-flow purging method in general accordance with ASTM D6771 (2002). Dedicated polyethylene sample tubing will be used at each location, and samples will be obtained with a peristaltic pump. The pump intake (i.e. the end of the drop tubing) shall be set mid-way between the water table and the bottom of the screen for shallow wells. The initial purging rate will not exceed 0.1 gallons per minute (gpm) or 0.5 liters per minute (lpm). The depth to water in the well will be measured and recorded on the field form along with other field parameters. The flow rate will be adjusted to minimize drawdown, with a 0.33 feet maximum drawdown as is target. The ground water purge flow is directed into a flow-through cell

Purge Rate (gpm)	Purge Rate (lpm)	Measurement Interval (minutes)
0.06	0.25	4
0.12	0.5	2
0.25	1	1

for measurement of field parameters. Measurements of field parameters will be obtained at the following minimum intervals (assumes flow-through cell net volume of approximately 0.25 gal):

Purging will continue until three consecutive readings fall within the ranges specified below:

Parameter	Criterion						
pH	+/- 0.1 pH unit						
Specific Conductance	+/- 10 percent						
Turbidity	Minimize. Greater of +/- 10 percent or +/- 1 NTU						
Dissolved Oxygen	+/- 0.1 mg/L						
Temperature	+/- 0.5 degrees C.						

To obtain samples, the pumping rate will be first reduced to 0.06 gpm or 0.25 lpm. Samples will then be collected ahead of flow through cell by filling the containers directly from the dedicated tubing. Samples will be collected in the following order: 1) volatiles, 2) amber glass, 3) other, and 4) field filtration to polyethylene containers for metals.

3.3 In-Situ Measurement of Dissolved Oxygen

Measurement of dissolved oxygen in ground water may be performed in-situ with a dedicated field instrument. The instrument probe is lowered for placement within the screened interval of the monitoring well, and typically remains undisturbed throughout a test. Measurements are performed according to instrument-specific instructions.

3.4 Grab Ground Water Sampling

Grab ground water samples may be obtained with an exposed-screen sampling apparatus in general accordance with ASTM D6001 (reapproved 2002). At the target interval, an exposed-screen sampler will be opened to the formation from which a grab ground water sample will be collected with a peristaltic pump. The sample is then transferred to the laboratory-supplied containers. Dedicated polyethylene sample tubing will be used at each location.

3.5 Surface Water Sampling

3.5.1 Pond Areas

A short bailer will be used to collect surface water samples. The water samples should be taken from an area where bottom sediments have not been disturbed. The samples will be handled as described in Section 3.6.

3.5.2 Storm Drain

If there is adequate water volume, water samples will be obtained from the storm drain by immersing sampling containers directly into the water using caution to avoid disturbing bottom sediments. If there is inadequate water depth to immerse the containers, then water will be transferred into them from a clean sampling cup. The samples will be handled in accordance with Section 3.6.

3.6 Sample Collection, Preservation, and Handling

A new polyethylene disposable bailer will be used to collect ground water samples after standard well evacuation or for grab sampling. The bailer is attached to a new disposable rope and lowered slowly into the water to avoid agitation of the collected sample. In low-flow evacuation, samples are collected from a sampling port in the inlet line to the flow-through chamber with the well evacuation pump operating. Containers for VOC analysis will be filled so that no air space remains in the vial after sealing.

All sample containers will be prewashed and prepared in accordance with laboratory quality assurance/quality control protocols. Only sample containers appropriate for the intended analyses will be used.

After being collected, samples will be sealed in zip press bags, placed into coolers with ice packs that maintain a temperature of approximately 4°C, and therein transported to the analytical laboratory.

4. DECONTAMINATION PROCEDURES

All equipment that comes into contact with potentially contaminated soil, drilling fluid, air, or water will be decontaminated before each use in general accordance with ASTM D5088. Decontamination will consist of steam-cleaning, a high-pressure, hot-water rinse, or trisodium phosphate (TSP) or Alconox[®]/Liquinox[®] wash and fresh water rinse, as appropriate.

Drilling and sampling equipment will be decontaminated as follows:

- 1. Drill rig augers, drill rods, drill bits, and backhoe buckets will be steam-cleaned prior to use and between borings or excavations. Visible soil, grease, and other impurities will be removed.
- 2. Soil sampling equipment will be steam-cleaned prior to use and between each boring. Prior to individual sample collection, any sampling device will also be cleaned in a TSP or Alconox[®]/Liquinox[®] solution and rinsed twice in clean water. Any visible soil residue will be removed.
- 3. It is anticipated that disposable equipment will be used to collect water samples. If disposable equipment is not used, water sampling equipment will be decontaminated using methods described in Item 2 for soil sampling equipment.

- 4. Water sampling containers will be prepared in accordance with the respective analytical laboratory's quality assurance/quality control procedures.
- 5. Soil sampling tubes will be steam-cleaned or washed in TSP or Alconox[®]/Liquinox[®] solution and rinsed with clean water.
- 6. Field monitoring equipment (pH, conductivity, or temperature probes) will be rinsed with clean water prior to use and between samples.

5. FIELD MEASUREMENTS

Field data will be collected during various sampling and monitoring activities; this section describes routine procedures to be followed by personnel performing field measurements so that field measurements are consistent and reproducible when performed by various individuals.

5.1 Buried Utility Locations

All work associated with soil borings will follow the pre-drilling protocol specified in the Site Health and Safety Plan.

5.2 Lithologic Logging

A log of soil conditions encountered during drilling and sample collection (Appendix A-1) will be maintained using the USCS (Appendix A-2) by an AME geologist. All boring logs will be reviewed by a California registered geologist. The collected soil samples will be examined, and the following information will be recorded:

- Boring location
- Sample interval and depth
- Blow counts
- Color
- Soil type
- Moisture content (qualitative)
- Depth at which ground water (if present) is first encountered
- Field screening results obtained using a portable PID or FID

5.3 Conductivity, Temperature, pH, Turbidity, and Dissolved Oxygen

Specific conductance, temperature, pH, turbidity, and dissolved oxygen measurements will be made when a water sample is collected. For standard well evacuation, a representative water sample will be placed in a transfer container used solely for field-parameter determinations. For low-flow evacuation, measuring instruments will be placed in the flow-through sampling cell.

Combination instruments capable of measuring any or all of the parameters may be used. All instruments will be calibrated in accordance with manufacturer methods, and:

- Conductance: Values for conductivity standards used in calibration will be recorded daily in a field notebook
- Temperature: May be checked using standard thermometers
- pH: Values for pH buffers used in calibration will be recorded daily in a field notebook
- Turbidity: Values for turbidity standards used in calibration will be recorded daily in a field notebook
- Dissolved oxygen: Meter will be zeroed with a solution of 50 grams sodium sulfite in one liter of distilled water

All probes will be cleaned and rinsed with fresh water prior to any measurements, in accordance with Section 4.

5.4 In-Situ Dissolved Oxygen Meter

A dissolved oxygen meter with a probe designed for stagnant-water measurement will be used. The meter will be calibrated twice per day in accordance with manufacturer instructions: once before the first use and once after the last use.

5.5 PID, FID, and LEL Meter Calibration

Field personnel will calibrate the PID, FID, and LEL meters for vapor measurements at least twice per day: once each before the first and last use. The PID, FID and LEL meters are zeroed on ambient air. In addition:

- FID and LEL: Meters will be calibrated to a methane-in-air standard obtained from a calibration gas cylinder
 - The primary FID meter calibration point will be 200 ppmv methane (low range)
 - The FID may be alternately calibrated (on the high range setting) to 5,000 ppmv methane, using 10 percent LEL (0.5 percent by volume) calibration gas
 - The primary LEL meter calibration point will be 50 percent of LEL (2.5 percent by volume or 25,000 ppmv methane)
- The PID meter will be calibrated to an isobutylene-in-air standard of 100 ppmv obtained from a calibration cylinder

6. DISPOSAL PROCEDURES

During the above operations, soil and fluids produced or used during the installation and sampling of borings and wells known or suspected to contain potentially hazardous materials will be retained onsite in appropriate containers (i.e., drums, bins, tanks) until chemical testing has been completed

to determine the proper means of offsite disposal. Handling and disposal of substances known or suspected to contain potentially hazardous materials will comply with the applicable regulations of the Cal-EPA, the California Department of Water Resources, and any other applicable regulations.

Waste ground water will be containerized onsite (initially being pumped into drums or temporary holding tanks) pending chemical testing for disposal characterization, after which it will be handled for disposal as described above.

Residual substances generated during cleaning procedures that are known or suspected to contain potentially hazardous materials will be placed in appropriate containers until chemical testing has been completed to determine the appropriate means for offsite disposal.

Non-hazardous soil will be transported to either Waste Management, Inc., Redwood Landfill in Novato, California, or Potrero Hills Landfill in Suisun City, California. Hazardous soil will be transported to Waste Management, Inc., Kettleman Hills Landfill in Kettleman City, California. Both non-hazardous and hazardous liquids will be transported to Evergreen Environmental Services in Newark, California for recycling.

7. SAMPLE CUSTODY

This section describes standard operating procedures for sample custody (i.e., field custody [Section 7.1] and laboratory custody [Section 7.2]) and chain-of-custody documentation. Sample-custody procedures will be followed through sample collection, transfer, analysis, and disposal, so that:

- Sample integrity is maintained throughout collection, transportation, and pre-analysis storage
- Post-analysis sample-material disposal is appropriate

7.1 Field-Custody Procedures

Sample quantities, types, and locations will be determined before actual fieldwork commences. The field sampler is personally responsible for sample care and custody from collection until transfer. The number of people handling samples should be minimized.

7.1.1 Field Documentation

Each sample will be labeled and sealed immediately after collection. Sample-identification documents will be prepared so identification and chain-of-custody records can be maintained and sample disposition controlled. Forms will be completed with waterproof ink. Sample-identification documents include:

- Sample labels
- Field notebook
- Chain-of-custody forms

7.1.2 Sample Labels

Preprinted sample labels will be used to provide sample identification. Clean label-protection tape will be used to protect labels from water and solvents, where necessary. Each label includes:

- Name of collector
- Date and time of collection
- Place of collection
- AME project number
- Sample number
- Preservative (if any)

7.1.3 Field Notebook

Field-survey, measurement, and/or sampling information will be recorded in a bound notebook or on the daily field log. Notebook entries should include:

- Name and title of author
- Date and time of entry
- Physical/environmental conditions during field activity
- Location of sampling or measurement activity
- Name(s) and title(s) of field crew
- Type of sampled or measured media (e.g., soil, ground water, concrete)
- Sample collection or measurement method(s)
- Number and volume of sample(s) taken
- Sample containers and container batch numbers
- Description of sampling point(s)
- Description of measuring reference points
- Date and time of measurement collection
- Sample identification number(s)
- Sample preservative (if any)
- Sample distribution (e.g., laboratory)
- Field observations/comments
- Field measurements data (e.g., pH)

7.1.4 Chain-of-Custody Record

A chain-of-custody record will be completed and accompany every sample and sample shipment to analytical laboratories in order to establish necessary documentation to trace sample possession from the time of collection. Each chain-of-custody record will include:

- Sample or station number or sample I.D.
- Signature of collector, sampler, or recorder
- Date and time of collection
- Place of collection
- Sample type

- Signatures of persons involved in the chain of possession
- Inclusive dates of possession

The laboratory portion of the form should be completed by laboratory personnel and will include:

- Name of person receiving the sample
- Laboratory sample number
- Date and time of sample receipt
- Analyses requested
- Sample condition and temperature

7.1.5 Sample Transfer and Shipment

Samples will always be accompanied by a chain-of-custody record, including during shipment. When transferring samples, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody record. Samples will be packaged for shipment and dispatched to the identified laboratory for analysis, and the method of shipment, courier name(s), and other pertinent information will be entered into the chain-of-custody record.

7.2 Laboratory-Custody Procedures

Upon sample arrival at the laboratory, a designated sample custodian will accept custody of the shipped samples, compare sample labels with the chain-of-custody record to verify consistency, and review method-of-delivery and sample-condition information on the chain-of-custody record. The custodian will then enter the appropriate data into the laboratory sample-tracking system using the sample number on the sample label or assigning a unique laboratory number to each sample, and transfer the sample(s) to the proper analyst(s) or store them in the appropriate secure area. In the event of sample leakage or other evidence of sample damage, the laboratory will contact the project quality assurance officer for a decision regarding sample disposition.

Laboratory personnel are responsible for sample care and custody from sample receipt until sample exhaustion or disposal and, for the intended analyses, handle samples in accordance with *EPA SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Third Edition.* All data sheets, chromatographs, and laboratory records will be filed as part of the permanent documentation.

7.3 Corrections to Documentation

Original data recorded in field notebooks, chain-of-custody records, and other forms should be written in ink. These documents should not be altered, destroyed, or discarded, even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made or found on a document, the individual will make a correction by crossing a single line through the error, entering the correct information, and initialing and dating the change. The erroneous information will be obliterated. Any subsequent error(s) discovered on a document will also be corrected, initialed, and dated.

7.4 Sample Storage and Disposal

Samples and extracts should be retained by the analytical laboratory for 30 days after receipt. Unless notified by the program manager, excess or unused samples should be disposed by the laboratory in an appropriate manner consistent with applicable government regulations.

8. WELL DESTRUCTION

Prior to well destruction all necessary permits will be obtained from the Mendocino County Department of Public Health Division of Environmental Health (MCEH) by the well driller. Wells will be destroyed in accordance with applicable sections of the Department of Water Resources (DWR) Bulletins 74-81 and 74-90. The well driller will provide at least 24 hours notice to MCEH prior to performing the well destruction. The wells will be destroyed by overdrilling the annulus to the total depth of the well with hollow-stem auger drilling equipment. The width of the annulus will be exceeded by at least 1 inch. Cuttings and well construction materials will be stored onsite in labeled 55-gallon drums and disposed in accordance with jurisdictional requirements. After overdrilling the well, tremie pipe will be inserted to the bottom of the boring. As the augers are removed, neat Portland cement will be added to fill the borings will be topped off to the ground surface with neat cement. After well destruction, a Well Completion Report will be filled out and a copy sent to the DWR.

9. SAMPLE ANALYSES

Implementation of the Work Plan at the site will result in the collection of concrete, soil, sediment, and ground water samples, which will be analyzed according to methods discussed in the following sections. Analytical method reporting limits and holding times are described in the Quality Assurance Plan.

9.1 Soil, Sediment, and Concrete Samples

Soil and sediment samples may be collected in stainless-steel, acrylic, or PVC tubes during soil boring activities (Section 1). Soil, sediment, and concrete samples will be analyzed by one or more of the following test methods:

- Total petroleum hydrocarbons as gasoline (EPA Method 8015 Modified)
- Total petroleum hydrocarbons as diesel and motor oil with silica gel cleanup (EPA Method 8015 Modified)
- VOCs (EPA Method 8260)
- VOCs (EPA Method 8260 with sample collection by EPA Method 5035)
- Semi-VOCs (SVOCs) (EPA Method 8270)

- Polynuclear aromatic hydrocarbons (EPA Method 8270 or 8310)
- Polychlorinated biphenyls (EPA Method 8082)
- Dioxins and furans (EPA Method 8290)
- Site-specific pesticides/herbicides (various EPA and in-house methods)
- California Title 22 Metals (EPA 6010/7400)
- Hexavalent chromium (EPA Method 7196)
- Cyanide (EPA Method 9010B or 335.4)
- Didecyldimethylammonium chloride (North Coast Laboratories in-house method)
- Nitrate, as nitrogen (EPA Method 300.0)
- Nitroglycerine (EPA Method 8332)
- Phenol, tetrachlorophenol, and pentachlorophenol (EPA Method 8270)
- Pentachlorophenol (water only, EPA Method 515.1)
- Nitrilotriacetic acid (special method)

In addition to the chemical analyses, selected soil samples may by analyzed for physical parameters by the following ASTM methods or equivalent:

- Dry bulk density (ASTM D2937)
- Moisture content (ASTM D2937)
- Total porosity (ASTM D854 and D2937)
- Total organic carbon (ASTM D2974)

9.2 Surface and Ground Water Samples

Surface and ground water samples will be collected from ponds, storm-drains, monitoring wells, and soil borings and analyzed by one or more of the test methods listed in Section 9.1.

10. REMARKS

This plan represents our professional opinions, which are based on client-supplied and currently available information and have been arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended. Any reliance on the information contained herein by third parties is at such parties' sole risk.

APPENDIX C-1

Boring Log Key

BORING LOG KEY

	LOCATIO	ON INFORMA			BORING DESIGNATIC	DN -	FAC			ECT NUMBER		
	ACTO MICK ENVI	ON • ELSON RONME	• NTAL, I	NC.	LOG	OF BORING			Facility: Address			
		ert J. Mathew		200		\searrow						
DRILLING INFORMATION		Description:	62	4					AME Proje	ct No.: [Page 1	of 1
DATE AND TIME	Drilling Company: Drilling Method: Boring Diameter: Sampling Method:					Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:						
	Drilling Started: Drilling Finished:					Logged By:						
	Source:			Checked By: PID/FID:								
	COUNTS					SOIL DESCRIPTION			U	COMM	FID ppm)	
	DEPTH (feet) INTERVAL	SAMPLE ID (% FILLED)	BLOW S/6 IN. (N)	IN. RECVD	SOIL NAME, COLOR, OR CONSISTENCY, M SIZE RANG	IOISTURE, PARTICL	a A	SOIL CLASS	GRAPHIC	DRILLING F CONDITION DEPTH, B	S, WATER	FIELD PID/FID READING (ppm)
HAND AUGER							_					-
ROCK CORE							1 1					
STANDARD PENETRATION TEST (SPT)	5						-					
CALIFORNIA MODIFIED SPLIT SPOON SAMPLER							-					-
PUNCHLINE CORE							-					-
SAMPLE PORTION RETAINED FOR ANALYSIS	15						-					
INDICATES A CHANGEIN SOIL PROPERTIES				┼┽┰			∑					-
INDICATES AN INTERVAL WITHIN A SOIL CLASS	20			++]			1 1					
COMPLETE SAMPLE IDENTIFIER, AND PERCENT OF SAMPLE TUBE FILLED WITH SOIL (OPTIONAL)	25	-					1 1					
BLOW COUNT FROM SPT							-					
AND N-VALUE (SUM OF G LAST TWO 6" INTERVALS)	30											
INCHES	RECOVERE	D FROM SAM	MPLER									
	GROUND W	ATER ELEV	ATION									
GRAPHIC L	ITHOLOGY	PER USCS (CHART									
UNIFIED SOIL CLASSIFIC	ATION SYS	TEM (USCS)	CODE				<u> </u>					
GRAPHIC OF WELL CO	ISTRUCTIO	N (IF APPLIC	CABLE)									
PID/FID RE#		OM SOIL SAN PER MILLION										

APPENDIX C-2

Unified Soil Classification System Chart

UNIFIED SOIL CLASSIFICATION SYSTEM CHART

R			SYM	BOL	GROUP NAME ^A AND
IV	AJOR DIVIS	ION	GRAPH	LETTER	TYPICAL DESCRIPTION
	GRAVEL AND	CLEAN GRAVELS		G₩ [₿]	WELL-GRADED GRAVEL ^C : GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	GRAVELLY SOILS	(LESS THAN 5% FINES)		GP [₿]	POORLY-GRADED GRAVEL ^C : GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
COARSE GRAINED SOILS	MORE THAN 50% OF COARSE FRACTION	GRAVELS WITH FINES		GМ ^в	SILTY GRAVEL ^c : GRAVEL - SAND - SILT MIXTURES
	RETAINED ON NO. 4 SIEVE	(MORE THAN 15% FINES)		GC [₿]	CLAYEY GRAVEL ^C : GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50%	SAND AND	CLEAN SANDS		SW	WELL-GRADED SAND ^D : GRAVELLY SANDS, LITTLE OR NO FINES
OF MATERIAL RETAINED ON NO. 200 SIEVE	SANDY SOILS	(LESS THAN 5% FINES)		SP	POORLY-GRADED SAND ^D : GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION	SANDS WITH FINES		SM	SILTY SAND ^D : SAND - SILT MIXTURES
	PASSING ON NO. 4 SIEVE	(MORE THAN 15% FINES)		SC	CLAYEY SAND ^D : SAND - CLAY MIXTURES
				ML	SILT ^E : INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	LEAN CLAY ^E : INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
00120				OL	ORGANIC CLAY/ORGANIC SILT ^E : ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL PASSES THE NO. 200 SIEVE				МН	ELASTIC SILT ^E : INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
	SILTS AND CLAYS	LIQUID LIMIT 50 OR GREATER		СН	FAT CLAY ^E : INORGANIC CLAYS OF HIGH PLASTICITY
				ОН	ORGANIC CLAY/ORGANIC SILT ^E : ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HI	GHLY ORGANIC S	SOILS	70 70 70 70 70 7 70 70 70 70 7 70 70 70 70 7	PT	PEAT: HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTES: A) IF FIELD SAMPLE CONTAINS COBBLES OR BOULDERS, ADD "WITH COBBLES" AND/OR "WITH BOULDERS" TO GROUP NAME B) DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS WITH 5-15% FINES. ADD "WITH SILT" OR "WITH CLAY" TO GROUP NAME C) IF SOIL CONTAINS 15% OR MORE SAND, ADD "WITH SAND" TO GROUP NAME D) IF SOIL CONTAINS 15% OR MORE GRAVEL, ADD "WITH GRAVEL" TO GROUP NAME E) IF SOIL CONTAINS 30% OR MORE PLUS NO. 200, ADD "SANDY" OR "GRAVELLY" TO GROUP NAME. IF 15-25%, ADD "WITH SAND" OR "WITH GRAVEL", WHICHEVER IS PREDOMINANT.

APPENDIX D

Boring Logs

MIC	FON • CKELSO				OF BORING	Fac	cility	: G-P Fort Bragg		
5175 H		#100	., I		SA-4.5			s: 90 W. Redwood Ave. Fort Bragg, CA		
	ado Hills, CA 9				-	AM	ΕP	roject No.: 16017.08		
		RSI	wes	t of Fuel Barn (Filled Pond),					e 1 of 2	
Drilled Drilling Boring	Company: By: Method: Diameter: ng Method:	Don Jenkir Hollow Ste 7"	m	dified Split Spoon Sampler Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet):			6,050,023/2,292,039 (not surveyed) 4.00' BGS (1/23/06 1255) 31.5' BGS clear/warm			
	Started: Finished:	1/23/06 124 1/24/06 113			Logged By: Checked By:	J.D.	. Ma	ttey, R.G., C.E.G		
Source	:	Original fie	ld no	otes	PlD/FID:	PID	1			
-	SAMPLE	BLOW COUNT		sc	DIL DESCRIPTION	00	SS	COMMENTS		
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN (N)	IN. RECVD	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL		
0	HSA-4.5-2	4-15-37 (52)	14	 Moist, 70% fine to coars 	e gravel, >1 cm clast, 30% fine to		GМ	1250	0	
5	HSA-4.5-6	11-23-38 (61)	14	₩Wet. ↓ Trace Concrete Blocks.	Ţ - -			Slight Artesian Water Flow 1255	- 0	
10	HSA-4.5-11	5-6-7 (13)	12	₩Medium Dense, Wood F	ragments to 10%.			1310	0	
15-	HSA-4.5-16	8-12-20 (32)	16	FILL - SILTY SAND (SM Wet, Wood Fragments to), dark gray (2.5Y N4/), Dense, 5 10%. –	200	SM	1102	- - - - - -	
20	HSA-4.5-21	10-12-14 (26)	14	Wet, Wood Fragments at	gray (2.5Y 7/1), Medium Dense, 1%, Well Sorted, Very Fine to – Ir to Subrounded, Probable		SM	1110	- - - - -	
25-	HSA-4.5-26	13-16-21 (37)	14					1118	- 0	
								х 		

	IC.	ON • KELSON		т	LOG OF BORING			G-P Fort Brag	-	
517	5 Hil	IRONMI	¢100	, 1	HSA-4.5			: 90 W. Redwoo Fort Bragg, CA	Ą	
		to Hills, CA 95				AM	EPro	oject No.: 16	017.08	
Area	a No	./ Description:			of Fuel Barn (Filled Pond), Central Part				Page 2	of 2
Εφ		SAMPLE	BLOW COUNT	S	SOIL DESCRIPTION) LOG	ASS	COMME	ENTS	PID (ppm)
DEPTH (feet)	INTERVAL	SAMPLE ID	BLOWS/6 IN (N)	IN. RECVD	SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING R CONDITION DEPTH, B/	ATE AND S, WATER ACKFILL	FIELD PID READING (ppm)
30-		HSA-4.5-31	10-11-16		▼Organic Material at 1%.			1135 Boring Termin Total Depth =3	ated 31.5'	0

LOG_OF_BORING FT_BRAGG.GPJ ACTON.GDT 7/10/06

	MI	TON • CKELSOI				OF BORING	Fac	cility	: G-P Fort Bragg		
	5175	VIRONM Hillsdale Circle rado Hills, CA 9	#100	11		DP-1.5			s: 90 W. Redwood Av Fort Bragg, CA		
╞					0		AM	EPI	roject No.: 16017.		
		No./ Descriptior		na	9					age 1	of 1
	Drillec Drilling Boring	g Company: d By: g Method: g Diameter: ling Method:	Precision Rodrigo Can Sonic 2.625" Dual Tube	0		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	63.: 23'			veyed)	
		g Started: g Finished:	4/27/06 0810 4/27/06 1010			Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G		
	Source	e:	Original field	no	tes	PID/FID:	PID				
	- L	SAMPLE	BLOW COUNTS		SO	IL DESCRIPTION	LOG	SS	COMMENTS		(mqq
	DEPTH (feet)	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D	OR CONSIST	COLOR, RELATIVE DENSITY ENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE A CONDITIONS, WAT DEPTH, BACKFIL	ER	FIELD PID READING (ppm)
	0	_			Pond Water and Plant E		-				
	5	DP-1.5-3	2	25	CLAYEY SAND (SC), d Very loose, wet, pond s 60% fine to medium sar	ark grayish brown (2.5Y 4/2), ediment id, 40% fines.		sc	1140 0920	- 	0.2 0.3
		 DP-1.5-10 	5	53	wet, 80% fine to mediun	e yellow (2.5Y 6/8), Loose, n sand, 20% fines. grayish brown (2.5Y 5/2), % fine to medium sand, 10%		SM/ SP	0930	-	.01
	 15	DP-1.5-15	5		Ţoccasional graywacke p	ebbles.			0940		0.0
AUTON AUTON AUTON (16/06	20	DP-1.5-20 DP-1.5-22.5	. 8		CLAYEY SAND (SC), lig Dense, moist, MarineTer 70% fine to medium san	ht olive brown (2.5Y 5/6), race Deposits, d, 30% fines.		SC	0950 1010 Boring Terminated Total Depth = 23'	-	0.2 0.0
LOG_OF_PONING FI_PNAGG.GFJ AUTON.GUT //6/06											

	MIC	'ON • KELSOI				OF BORING	Fac	cility:	G-P Fort Bragg	
	5175 Hi	IRONM	#100	, Iî		P-3.59		Address: 90 W. Redwood Ave. Fort Bragg, CA AME Project No.: 16017.08		
					Corner of Dry Shed 4		AIVI	EPI		1 05 1
	Drilling Drilled E Drilling Boring [Company:	RSI Martin Mora Direct Push 2.25" Dual Tube	ales		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	5.5 12'	50,6 0' BC BGS ar/wa	87/2,293,571 (not surveyed	1 of 1 d)
	Drilling Drilling	Started: Finished:	10/10/05 11 10/10/05 11			Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G	
	Source:		Original field	d no	tes	PID/FID:				
		SAMPLE	BLOW	· [DIL DESCRIPTION	g	s	COMMENTS	Ê
	DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	ß	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	0	DP-3.59-1 DUPE 20		32	FILL - SILTY GRAVEL (Loose, Dry, 70% fine gra 10% fines.	GM), grayish brown (2.5Y 5/2), [—] avel, 0.5 cm clast, 20% fine sand -		GМ	1140	 1.2
	5	DP-3.59-5		36	FILL - SILTY SAND (SM Dense, Moist, 80% fine t	I), dark gray (2.5Y N4/), Medium o medium sand, 20% fines.	200	SM	1145	-
11	10			47	•••					-
									Boring Terminated Total Depth = 12'	
LOG_OF_BORING_FT_BRAGG.GPJ_ACTON.GDT_7/7/06										
LOG OF BUKI										

ACTON • MICKELSOI			OF BORING	Fac	ility:	G-P Fort Bragg	
5175 Hillsdale Circle	#100		P-3.60			s: 90 W. Redwood Ave. Fort Bragg, CA	
El Dorado Hills, CA S		Corpor of Dry Shod 4		AME	E Pr	oject No.: 16017.08	
Drilling Company:	RSI	Corner of Dry Shed 4					1 of 1
Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Martin Morales Direct Push 2.25" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:)' BC BGS		a)
Drilling Started: Drilling Finished:	10/10/05 1448 10/10/05 1505		Logged By: Checked By:	J.D.	Ma	ttey, R.G., C.E.G	
Source:	Original field no	otes	PID/FID:				
SAMPLE	BLOW COUNTS	SO	IL DESCRIPTION	06	SS	COMMENTS	(ind
DEPTH (feet) INTERVAL INTERVAL	BLOWS/6 IN. (N)	OR CONSIST	COLOR, RELATIVE DENSITY ENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
0 DP-3.60-1 5 DP-3.60-5 10 10 10 10 10 10 10 10 10 10	38	<u> medium sand.</u> FILL - SILTY SAND (SM SM SM	GM), grayish brown (2.5Y y, 70% fine gravel, 30% fine to 1), olive yellow (2.5Y 6/8), 70% fine to medium sand, 30%		GM SM	1450 1458 Boring Terminated Total Depth = 12'	

LOG_OF_BORING FT_BRAGG.GPJ ACTON.GDT 7/6/06

	CKELSOI VIRONM	ENTAL, I		OF BORING	Ado	dress	: 90 W. Redwood Ave.			
	Hillsdale Circle		E	DP-4.7			Fort Bragg, CA			
	ado Hills, CA 9				AM	EPr	oject No.: 16017.08			
		: Former North	Pond Area				Page	1 of		
Drilled Drilling Boring	g Company: By: g Method: Diameter: ing Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:			6,050,000/2,292,277 (not surveyed) 19.30' (not surveyed) 24' BGS Sunny/Warm			
	Started: Finished:	4/17/06 0955 4/17/06 1040		Logged By: Checked By:	J.D	. Mat	tey, R.G., C.E.G			
Source):):	Original field no	otes	PID/FID:	PID					
_	SAMPLE	BLOW COUNTS	sc	DIL DESCRIPTION	00	SS	COMMENTS			
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL			
0	DP-4.7-1	12	→ Pond Water and Plant E ORGANIC SOIL (OH), E water and pond sedimer 20% fines, 80% organic	black (2.5Y N2/), Very loose, we		он	1250 Too Soft to Sample			
10	DP-4.7-9	5	ORGANIC SOIL (OH), b pond sediment 40% fines, 60% organic	lack (2.5Y N2/), Very loose, we material.		ОН	1000			
	DP-4.7-15	27 47	₩60% fines, 40% organic	material.			1015			
20	DP-4.7-20						1025	- - c -		
	DP-4.7-23	6	CLAYSTONE, dark olive Complex, low hardness, hard, moderately weathe	gray (5Y 3/2), Franciscan deeply weathered,. red.		cs	1035 Boring Terminated Total Depth = 24'	1 1		

	M	CTON • CKELSO			OF BORING		: G-P Fort Bragg	
		5 Hillsdale Circle	ENTAL, I		DP-4.9	Addres	s: 90 W. Redwood A Fort Bragg, CA	ve.
		orado Hills, CA				AME PI	roject No.: 16017.	.08
	Area	No./ Descriptio	n: Pond 6 (Cente	er)				Page 1 of 2
	Drille Drillin Borir	ng Company: ed By: ng Method: ng Diameter: pling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:			veyed)
		ng Started: ng Finished:	4/25/06 1355 4/25/06 1535		Logged By: Checked By:	J.D. Ma	ttey, R.G., C.E.G	
	Sour	ce:	Original field ne	otes	PID/FID:	PID		
		SAMPLE	BLOW COUNTS	sc	DIL DESCRIPTION	90 %	COMMENTS	6 <u>ĝ</u>
	DEPTH (feet)	SAMPLE IC		SOIL NAM OR CONSIS S	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG SOIL CLASS	DRILLING RATE CONDITIONS, W/ DEPTH, BACKF	AND ANTER LIELD PID READING (ppm)
	0 -	DP-4.9-4.9 DP-4.9-10 DP-4.9-15	12 27 46 50	pond sediment 60% fines, 40% organic SILTY SAND (SM), dark Medium dense, wet, 709 fines. ↓ dark gray (2.5Y N4/). ↓ olive brown (2.5Y 4/3), 5	black (2.5Y N2/), Very loose, we material. grayish brown (2.5Y 4/2), % fine to medium sand, 30%	SS	1400 (hand sample Too Soft to Sample 1410	
ORING FT_BRAGG.GPJ ACTON.GDT 7/7/06	20 - - 25 -	DP-4.9-20	55	POORLY GRADED SAN dense, wet, 100% fine to beach or dune deposits faint horizontal banding. ↓1" thick vertical clay pipe	-	n SP	1445 1455	- 0.2
LOG OF BORING			33					

	[C]	ON • KELSON			LOG OF BORING	Fac	ility:	G-P Fort Brage	9	
517	5 Hill		¥100	, II	NC. DP-4.9			90 W. Redwoo Fort Bragg, CA	۱.	
		lo Hills, CA 95		nto)	AM	E Pro	bject No.: 16	017.08 Page 2	of 2
			BLOW			1				1
HL€		SAMPLE	COUNT	s	SOIL DESCRIPTION	CLOG	LASS	COMME	:NIS	DID 0 (ppm
DEPTH (feet)	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D	SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING R CONDITIONS DEPTH, BA	S, WATER	FIELD PID READING (ppm)
30 - -		DP-4.9-30		52	POORLY GRADED SAND (SP), gray (2.5Y 5/1), Medium dense, wet, 100% fine to medium sand. 100% fine sand.			1510	-	0.2
35— -		DP-4.9-35			CLAYEY GRAVEL (GC), very dark gray (2.5Y N3/), Dense, wet, older alluvium, subrounded graywacke clasts 70% gravel, 1 cm clast, 10% fine sand, 20% fines.		GC CL/	1525	- 	
-					LEAN TO FAT CLAY (CL/CH), very dark gray (2.5Y N3/), Stiff, moist, sharp horizontal contact, older alluvium 10% fine sand, 90% fines.		СН	Boring Termina Total Depth = 3	ated 38'	

ENVIRONME			OF BORING		•			
5175 Hillsdale Circle	#100		P-4.10			: 90 W. Redwood Fort Bragg, CA		
El Dorado Hills, CA 9	5762			AME	E Pr	oject No.: 160	17.08	
Area No./ Description	: Pond 6 (South	End)					Page 1	of 1
•	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	11.6 26.5	;9' ;9	43/2,291,993 (not (not surveyed) SS Varm	surveyed)	
Drilling Started: Drilling Finished:	4/18/06 1320 4/18/06 1435		Logged By: Checked By:	J.D.	Ма	ttey, R.G., C.E.G		
Source:	Original field no	tes	PID/FID:	PID				
SAMPLE	BLOW COUNTS	SO	IL DESCRIPTION	g	s	COMMEN	ITS	- Î
HTERVAL (feet) INTERVAL SYMDE ID	BLOWS/6 IN. (N)	OR CONSIST	, COLOR, RELATIVE DENSITY TENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RAT CONDITIONS, 1 DEPTH, BAC	WATER	FIELD PID READING (ppm)
0 5 10 10 10 DP-4.10-11 15 DP-4.10-16 20 DP-4.10-21 25 DP-4.10-25.5	24 45 46 30	 wet, pond sediment 70% fines, 30% organic SILTY SAND (SM), dark dense, wet, fill?, 5% wo 70% fine to medium sar POORLY GRADED SAN 	black (2.5Y N2/), Very loose, material. c gray (2.5Y 4/1), Medium od fragments id, 30% fines. ND (SP), gray (5Y 5/1), inly quartz w/ some lithic id, 10% fines. bangular to subrounded at 1%, shell fragments.	-	SM	1325 1350 1400, 3' heaving 1530 Boring Terminat	-	1.3

ENV	IRONM	ENTAL, I)P-4.11	Addres	ss: 90 W. Redwood Ave. Fort Bragg, CA	
	- do Hills, CA 9		L	75-4.11		Project No.: 16017.08	
		Pond 7 (West	End)	·			1 of 1
Drilled Drilling Boring	Company: By: Method: Diameter: ing Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		012/2,291,876 (not surveyed) (not surveyed) S	
	Started: Finished:	4/17/06 1445 4/17/06 1530		Logged By: Checked By:		attey, R.G., C.E.G	
Source):	Original field no	otes	PID/FID:	PID		
	SAMPLE	BLOW COUNTS	S	OIL DESCRIPTION	9 Q Q	COMMENTS	Ĩ
(feet)	SAMPLE ID	BLOWS/6 IN. (N)	SOIL NAM OR CONS	IE, COLOR, RELATIVE DENSITY ISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
5	DP-4.11-7	12 0	ORGANIC SOIL (OH), 1 pond sediments 80% fines, 20% organic	black (2.5Y N2/), Very loose, we		1120 (4/18/2006), no encores	
	DP-4.11-13 DP-4.11-18	36	moist, weathered clayst <u>100% fines.</u> CLAYSTONE, olive gray	y (5Y 5/2), Franciscan claystone;	2 P	1500	- - - - - - - - - - - - - - - - - - -
			moderately hard, moder	ately weathered.		Boring Terminated Total Depth = 23'	-

ACTON • MICKELSON ENVIRONM			OF BORING		-	G-P Fort Bragg				
5175 Hillsdale Circle	,		P-4.12	Add	lres	s: 90 W. Redwood Ave. Fort Bragg, CA				
El Dorado Hills, CA 9				AM	E Pr	oject No.: 16017.08				
Area No./ Description	: Pond 7 (Central	Part)				Page	1 of 1			
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:			6,050,057/2,291,879 (not surveyed) 12.65' (not surveyed) 20' BGS Clear/Cool				
Drilling Started: Drilling Finished:	4/18/06 0758 4/18/06 0825		Logged By: Checked By:	J.D.	Ма	ttey, R.G., C.E.G				
Source:	Original field note	es	PID/FID:	PID						
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	90	ss	COMMENTS	(înd			
DEPTH DEPTH INTERVAL INTERVAL	BLOWS/6 IN.	SOIL NAM OR CONSIS S	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)			
0	- 12 0	ORGANIC SOIL (OH), b pond sediment, microsco 80% fines, 20% organic	lack (2.5Y N2/), Very loose, we opic metallic flecks,		он	0850	 0.3			
DP-4.12-13	36	CLAYSTONE, dark olive Complex, moderately ha	gray (5Y 3/2), Franciscan rd, moderately weahtered.		CS	0800 0815	- - - - - - - - - - - - - - - - - - -			
20						Boring Terminated Total Depth = 20'				

ACTON • MICKELSO ENVIRONM			OF BORING	Faci	ility: G-P Fort Bragg	
5175 Hillsdale Circle El Dorado Hills, CA 9	#100		P-4.13		dress: 90 W. Redwood Ave. Fort Bragg, CA	
Area No./ Description		art)		AME	E Project No.: 16017.08	
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	12.6 12' E	50,107/2,291,878 (not survey 55' (not surveyed) BGS ar/Cool	ed)
Drilling Started: Drilling Finished:	4/18/06 0945 4/18/06 1100		Logged By: Checked By:	J.D.	Mattey, R.G., C.E.G	
Source:	Original field not	es	PID/FID:	PID		
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	ge	COMMENTS	
(Jee) (Jee) INTERVAL SAMPLE ID	BLOWS/6 IN. (N)	SOIL NAM OR CONSIS S	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	
5 DP-4.13-6 10 DP-4.13-11	12 12 36	pond sediment, microsco 70% fines, 30% organic LEAN CLAY (CL), dark of moist, 100% fines. CLAYSTONE, dark olive claystone w/ anhydrite ?	gray (2.5Y N4/), Medium dense, gray (5Y 3/2), Franciscan - / - veinlets, deeply weathered, blive green (5GY 3/2), /		OH CL 0950 CS 1050 Boring Terminated Total Depth = 12'	- 0.

ACTON • MICKELSON			OF BORING		ity: G-P Fort Bragg
5175 Hillsdale Circle	,		P-4.14	Addre	ess: 90 W. Redwood Ave. Fort Bragg, CA
El Dorado Hills, CA 9				AME	Project No.: 16017.08
Area No./ Description	: Pond 8 (West I	End)			Page 1 of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		
Drilling Started: Drilling Finished:	4/24/06 0825 4/24/06 0900		Logged By: Checked By:	J.D. N	Mattey, R.G., C.E.G
Source:	Original field no	tes	PID/FID:	PID	
SAMPLE	BLOW COUNTS	sc	DIL DESCRIPTION	ő	្ល COMMENTS ្ត ខ្ម៌
DEPTHL (feet) INTERVAL INTERVAL	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	COMMENTS COMMENTS COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL
0	0 30	pond sediment 70% fines, 30% organic SILTY SAND (SM), olive wet, 70% fine to medium	black (2.5Y N2/), Very loose, wet material. e gray (5Y 4/2), Medium dense, n sand, 30% fines.	-3333 S	OH 0900

MIC	'ON • 'KELSOI 'IRONM		, IP		OF BORING		-	G-P Fort Bragg	
5175 H	illsdale Circle	#100	,		P-4.15			Fort Bragg, CA	
						AM	EPr	oject No.: 16017.08	
Drilling Drilled I Drilling Boring I	Company:	Precision Rodrigo Ca Sonic 2.625" Dual Tube		Part (East End)	Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation:	38.0	60'	Page 1 61/2,291,579 (not surveyed) (not surveyed)	
	Started:	4/20/06 134	10		Total Depth (feet): Weather: Logged By:	Ove	BGS		
	Finished:	4/20/06 142			Checked By:	J.D	. wa	liey, R.G., C.E.G	
Source:		Original field	d not	es	PID/FID:	PID)		
	SAMPLE	BLOW COUNT		SC	DIL DESCRIPTION	00	ss	COMMENTS	
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN (N)	IN. RECVD	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
0	-			Pond Water and Plant D	ebris Depth = 3'.				_
5	DP-4.15-3		12	ORGANIC SOIL (OH), b pond sediment 80% fines, 20% organic	lack (2.5Y N2/), Very loose, we material.	- I,	он	1436 1345	- - - -
	Dupe 56		42	SILTY SAND (SM), olive wet, 80% fine to medium	gray (5Y 5/2), Medium dense, sand, 20% fines.		SM	Dupe 56	
10	DP-4.15-10		24		- -			1355	- - -
15	DP-4.15-14.5			SANDSTONE (SS), blac graywacke, hard, weakly	k (N 2.5/), Franciscan Complex weathered.		SS	1410 _	0.:
								Boring Terminated Total Depth = 16'	

ENV	IRONM	ENTAL, IN		D 5 60	Ad	dress	s: 90 W. Redwood Ave. Fort Bragg, CA	
	illsdale Circle do Hills, CA 9		D	P-5.60	AM	F Pr	oject No.: 16017.08	
		: Pond 8, East Er	id (West Part)				Page	1 of 1
Drilling Drilled E Drilling Boring I	Company:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	38. 22'	60' BGS	46/2,291,663 (not surveyed (not surveyed)	
Drilling Drilling	Started: Finished:	4/20/06 0830 4/20/06 1015		Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G	
Source:		Original field note	es	PID/FID:	PID)		
	SAMPLE	BLOW COUNTS		DIL DESCRIPTION	ő	s	COMMENTS	
DEPTH (feet) INTERVAL	SAMPLE ID		OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
	DP-5.60-8 DP-5.60-13	0	pond sediment 60% fines, 40% organic	lack (2.5Y N2/), Very loose, w material. gray (5Y 4/2), Medium dense, % fines, 5% organic material.		OH	0850 Dupe 55 0900	- - - - - - - 0.
	DP-5.60-17	12	10% fine to coarse grave SANDSTONE (SS), gray sandstone moderately v	el, 90% fines. / (5Y 6/1), Franciscan Comple: veathered, moderately hard.		SS	0910 12	
20	DP-5.60-21.5		Hard.				0950 Boring Terminated Total Depth = 22'	- 0.

MIC	CON • CKELSOI			G OF BORING		ility: G-P Fort		
5175 H	illsdale Circle			P-5.61	Add	lress: 90 W. Re Fort Brag		
El Dora	ido Hills, CA 9	5762			AME	E Project No.:	16017.08	
Area No	o./ Description	: Pond 8 (East I	End)				Page 1	of 2
Drilled I Drilling Boring I	Company: By: Method: Diameter: ng Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	38.6 38' E	50,783/2,291,99 50' (not survey 3GS ar/Sunny	1 (not surveyed) ed)	
	Started: Finished:	4/19/06 0839 4/19/06 1010		Logged By: Checked By:	J.D.	Mattey, R.G., C	C.E.G	
Source:	:	Original field no	otes	PID/FID:	PID			
	SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	ŋ	ω CC	MMENTS	Ê
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	OR CONSI	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	5 COND	ING RATE AND ITIONS, WATER TH, BACKFILL	FIELD PID READING (ppm)
	DP-5.61-10	. 24	pond sediment 50% fines, 50% organic	olack (2.5Y N2/), Very loose, we material.		wood ~ fa West OH 1005	c core through iiled, moved 10' - - - - - - - -	0.0
	DP-5.61-20 DP-5.61-25	26 46 51	90% fines, 10% organic SILTY SAND (SM), gray 70% fine to medium san WELL GRADED SAND (4/2), Medium dense, wel	(5Y 6/1), Medium dense, wet, d, 25% fines, 5% wood debris. SW), dark grayish brown (2.5Y , alluvium (?), multicolored, I subround pebbles, vertical		1030 5M 5W 1040	- - - - - - - - - - - - - - - - - - -	0.0

M	[C]	ON • KELSON		1	LOG OF BORING	Fac	ility:	G-P Fort Brag	g	
5175	5 Hil	IRONM	#100	, I ſ	DP-5.61			: 90 W. Redwoo Fort Bragg, C/		
		./ Description		ast E	ind)	Aivi		oject No.: 16	Page 2	of 2
		SAMPLE	BLOW	/ s	SOIL DESCRIPTION	g	s	COMME	-	
DEPTH (feet)	INTERVAL	SAMPLE ID	BLOWS/6 IN (N)	ę	SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING R CONDITION DEPTH, B/	S, WATER	EIELD PID
30— - -		DP-5.61-30		45	WELL GRADED SAND (SW), dark grayish brown (2.5Y 4/2), Medium dense, wet, alluvium (?), multicolored, subrounded grains, small subround pebbles, vertical oriented decayed rootlets 90% fine to medium sand, 10% fines. 4" layer of graywacke pebbles.			1115 4' Flowing Sar	- nds -	0.
35— -		DP-5.61-35			SILTY SAND AND SANDY CLAY (SM AND CL), very dark gray (2.5Y N3/), Medium dense, wet, alluvium, thinly interbedded sand and clay, micaceous 50% fine sand, 50% fines.		SM	1150	-	- - - - -
								Boring Termina Total Depth = 3	ated 38'	-

MI	CTON • [CKELSO] [VIDONM			OF BORING			: G-P Fort Bragg	
5175	VIRONM	#100		P-5.62	Ado	dres	s: 90 W. Redwood Ave. Fort Bragg, CA	
	orado Hills, CA 9				AM	ΕP	roject No.: 16017.08	
Area	No./ Description	1: Pond 8, Near	Storm Drain Outlet (East En	d)			Page 1	of 1
Drille Drillir Borin	ng Company: ed By: ng Method: ng Diameter: pling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		50' 5' B(
	ng Started: ng Finished:	4/24/06 1250 4/24/06 1350		Logged By: Checked By:	J.D.	. Ma	ttey, R.G., C.E.G	
Sourc	ce:	Original field no	otes	PID/FID:	PID			
	SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	g	6	COMMENTS	1
DEPTH (feet)	SAMPLE ID	BLOWS/6 IN.	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
0	DP-5.62-4	0	FAT CLAY (CH), black (sediment 70% fines, 30% organic	2.5Y N2/), Very loose, wet, pon		сн	1350 (hand sample)	0.9
- 10	 DP-5.62-9 	4	¥30% fines, 70% organic	material.			1300	
 15	Dupe 57 DP-5.62-14	46	Ţ70% fines, 30% organic	material.				0.3
 20	DP-5.62-19	16	LEAN CLAY (CL), light o dense, wet, 30% fine sar	live brown (2.5Y 5/6), Medium 1d, 70% fines.		CL	- 1315 - -	0.1
	 DP-5.62-24 	24	CLAYSTONE, dark gravi Complex, moderately har anhydrite ? veins.	sh brown (2.5Y 4/2), Franciscar rd, moderately weathered,		cs	- - 1320 - - -	0.3
							– Boring Terminated Total Depth = 27.5'	

ACTON • MICKELSOI			OF BORING	Fac	cility: G-P Fort Bragg	
ENVIRONM	#100		P-5.63		dress: 90 W. Redwood Ave. Fort Bragg, CA	
El Dorado Hills, CA 9				AME	1E Project No.: 16017.08	
Area No./ Description					Page 1 of	1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	51.5 24' E	51,286/2,291,938 (not surveyed) 50' (not surveyed) BGS pudy/Cool	
Drilling Started: Drilling Finished:	4/25/06 0855 4/25/06 1010		Logged By: Checked By:	C. C	O'Donnell	
Source:	Original field no	otes	PID/FID:	PID)	
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	go	رم COMMENTS	(ju)
DEPTH DEPTH (faet) INTERVAL SAMDIE ID	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
0 5 10 10 DP-5.63-12 15 DP-5.63-18 20 DP-5.63-22 DP-5.63-22	12 45 46	 roots, organic material, v 40% fine sand, 60% fine SILTY SAND (SM/SP), ii Medium dense, wet, hon 80% fine to medium sand SILTY SAND AND SANE gray (2.5Y 4/1), Dense, v SILTY SAND (SM), dark moist, homogeneous fine 75% fine to medium sand Large broken shells at bot CLAYEY GRAVEL (GC), large shell fragments, rou claystone clasts 35% fine to coarse grave medium sand, 10% fines. 	lack (2.5Y N2/), Loose, wet, vood fragments, saturated s/ ight olive brown (2.5Y 5/3), nogeneous fine grained sand d, 20% fines. DY CLAY (SM AND CL), dark wet, 40% fine sand, 60% fines. gray (5Y 4/1), Medium dense, a grained sand d, 25% fines. tom/ dark gray (5Y 4/1), Dense, wet, unded gravels w/ 3 cm angular/ i, 3 cm clast, 55% fine to n Complex, fractured, some		SM SP SM SM GC 0935	0.3

ACTON • MICKELSOI			OF BORING	Fac	ility:	G-P Fort Brag	9	
ENVIRONM 5175 Hillsdale Circle			DP-7.9	Add	iress	: 90 W. Redwoo Fort Bragg, CA		
El Dorado Hills, CA 9	5762			AM	E Pro	oject No.: 16	017.08	
Area No./ Description	-	d)					Page 1	of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	72.6	6' BGS		t surveyed)	
Drilling Started: Drilling Finished:	4/12/06 0855 4/12/06 0950		Logged By: Checked By:	C. C)'Doi	nell		
Source:	Original field notes	3	PID/FID:	PID				
SAMPLE	BLOW COUNTS	SO	DIL DESCRIPTION	ŋ	s	COMME	NTS	Ê
DEPTH DEPTH DEPTH SAMDIE ID	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING R CONDITION DEPTH, BA	6, WATER	FIELD PID READING (ppm)
0	12 \ 12 24	wood fragments, organic 30% fine sand, 70% fine FAT CLAY (CH), grayish dense, wet, wood fragme 40% fine sand, 60% fine CLAYEY GRAVEL (GC), 3/6), Dense, dry to moist light grayish brown colors subrounded	lack (2.5Y 2.5/1), Loose, wet, c matter s/ b brown (2.5Y 5/2), Medium ents		OH CH GC	0915 0920 Boring Termina Total Depth =		0.1

ACTON • MICKELSO			OF BORING	·	y: G-P Fort Bragg	
5175 Hillsdale Circle			P-7.10	Addre	ss: 90 W. Redwood Ave. Fort Bragg, CA	
El Dorado Hills, CA S				AME F	Project No.: 16017.08	
Area No./ Description		End)			Page 1	of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		657/2,289,837 (not surveyed) (not surveyed) 3GS	
Drilling Started: Drilling Finished:	4/12/06 1354 4/12/06 1520		Logged By: Checked By:	J.D. M	lattey, R.G., C.E.G	
Source:	Original field not	es	PID/FID:	PID		
SAMPLE	BLOW COUNTS	SO	IL DESCRIPTION	90.06	COMMENTS	(indo
DEPTVAL (feet) TRTEAVAL SAMbre ID	BLOWS/6 IN. (N) II.	OR CONSIST	COLOR, RELATIVE DENSITY ENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	L FIELD PID READING (ppm)
0	36	 wet, pond sediments 70% fines, 30% organic FILL - LEAN CLAY (CL) wet, fill 100% fines. SILTY GRAVEL (GM), c moist, Marine Terrace D 	Dlack (2.5Y N2/), Very loose, matter/ , olive gray (5Y 5/2), Loose, // Jlive (5Y 5/6), Medium dense,		C C	0.3

ACTON • MICKELSON			OF BORING			G-P Fort Bragg	
5175 Hillsdale Circle	-		P-7.11	Add	ires	s: 90 W. Redwood Ave. Fort Bragg, CA	
El Dorado Hills, CA 9				AM	E Pr	oject No.: 16017.08	
Area No./ Description	: Pond 2 (North Er	nd)				Page 1	of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		17' BGS	22/2,290,050 (not surveyed) (not surveyed)	
Drilling Started: Drilling Finished:	4/5/06 0830 4/5/06 0945		Logged By: Checked By:	J.D.	Ma	ttey, R.G., C.E.G	
Source:	Original field note	es	PID/FID:	PID			
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	ŋ	s	COMMENTS	Û
DEPTH DE DE DEPTH DE DEPTH DE DEPTH DE DEPTH DE DEPTH DE DEPTH DE DE DEPTH DE DEPTH DE DEPTH DE DE DEPTH DE DE DE DE DE DE DE DE DE DE DE DE DE		OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
0	35	Pond Water and Plant D ORGANIC SOIL (OH), b Sediment, 30% Organic CLAYSTONE, olive (5Y weathered.	lack (2.57 2.5/1), Pond			0920 0930 1030 Boring Terminated Total Depth = 18'	2.0

ACTON • MICKELSON ENVIRONME		LOG	OF BORING			G-P Fort Bragg s: 90 W. Redwood Ave.	
5175 Hillsdale Circle #1	100	D	P-7.12			Fort Bragg, CA	
El Dorado Hills, CA 957				AMI	E Pr	oject No.: 16017.08	
Area No./ Description:			I			Page 1	
Drilled By: F Drilling Method: S Boring Diameter: 2	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	70.4 15.2	17' 2' BC	97/2,289,927 (not surveyed) (not surveyed) GS lightly Windy	
	I/5/06 1520 I/5/06 1630		Logged By: Checked By:	С. С)'Do	nnell	
Source: C	Driginal field notes		PID/FID:	PID			
SAMPLE	BLOW COUNTS	so	IL DESCRIPTION	og	ss	COMMENTS	(mq
DEPTH DEPTH (feet) INTERVAL		OR CONSIST	, COLOR, RELATIVE DENSITY TENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
0 5 10 10 10 DP-7.12-10 15 DP-7.12-15	31 ORG Loos \ 70% TAT \ mois \ fragr \ 5% f \ fines CLA	se, wet, organic mat fine to medium sar CLAY (CH), dark g t, mottled with red t nents, gravels well ine gravels, >1 cm o	very dark brown (10YR 2/2), tter, saturated / ray (2.5Y 4/1), Medium dense, 7 prown coloration, wood / rounded / clast, 35% fine sand, 60% / vish brown (2.5Y 4/2), Dense,		OH CH CS	15:35 15:50 Boring Terminated Total Depth = 15.2'	0.4

ACTION						
ACTON • MICKELSO			OF BORING		ty: G-P Fort Bragg	
5175 Hillsdale Circle			P-7.13	Addre	ess: 90 W. Redwood / Fort Bragg, CA	Ave.
El Dorado Hills, CA 9				AME	Project No.: 16017	7.08
Area No./ Descriptior		ection (East End)			I	Page 1 of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:			urveyed)
Drilling Started: Drilling Finished:	4/6/06 0821 4/6/06 0900		Logged By: Checked By:	J.D. N	Aattey, R.G., C.E.G	
Source:	Original field no	otes	PID/FID:	PID		
SAMPLE	BLOW COUNTS				σ COMMENT	S É
Clear HI (teet)	BLOWS/6 IN. (N)	OR CONSIST	, COLOR, RELATIVE DENSITY IENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	DRILLING RATE CONDITIONS, W. DEPTH, BACKF	ATER # 🗑
0 		Pond Water and Plant E	Debris Depth = 8'.			
DP-7.13-8	37	wet, pond sediments 80% fines, 20% organic CLAYSTONE, dark gray	y (5YR 4/1), Franciscan derate hardness, moderatley		н 0850 S	- - - - - -
15-19 DP-7.13-15	38				0855 Boring Terminated Total Depth = 18'	- - - - - - - - - - - - - - - - - - -

	KELSON		T		OF BORING	Fac	cility	G-P Fort Bragg	
5175 Hills	sdale Circle		, 1 1		P-7.14	Ado	dres	s: 90 W. Redwood Ave. Fort Bragg, CA	
El Dorado	o Hills, CA 9	5762				AM	E Pi	roject No.: 16017.08	
Area No./	Description	: Pond 3 Eas	ster	n Portion (West End)				Page ⁻	l of 1
Drilling Co Drilled By Drilling M Boring Dia Sampling	r: ethod: ameter:	Precision Rodrigo Car Sonic 2.625" Dual Tube	no		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		D8' BGS	29/2,290,170 (not surveyed) (not surveyed)))
Drilling St Drilling Fi		4/6/06 1125 4/6/06 1215			Logged By: Checked By:	J.D.	. Ma	ttey, R.G., C.E.G	
Source:		Original field	d no	ites	PID/FID:	PID			
5	SAMPLE	BLOW COUNTS	3	SO	IL DESCRIPTION	g	s	COMMENTS	
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D	OR CONSIST	COLOR, RELATIVE DENSITY ENCY, MOISTURE, PARTICLE ZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	
	DP-7.14-2 DP-7.14-7 DP-7.14-14		26	wet, pond sediment 30% organic matter. 	olack (2.5Y N2/), Very loose, gray (5YR 3/1), Franciscan nhydrite ? veinlets, moderate		он	1135 1145 1156 Boring Terminated Total Depth = 16'	

MICKELSO ENVIRONN	DN • LO MENTAL, INC.	OG OF BORING		y: G-P Fort Bragg ss: 90 W. Redwood Ave.	
5175 Hillsdale Circ El Dorado Hills, CA	e #100	DP-7.15		Fort Bragg, CA	
	on: Pond 3 Western Portion (East Part)		AME	Project No.: 16017.08 Page 1	
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube	Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:		051/2,290,315 (not surveyed) (not surveyed)	
Drilling Started: Drilling Finished:	4/6/06 1414 4/6/06 1459	Logged By: Checked By:	J.D. M	attey, R.G., C.E.G	
Source:	Original field notes	PID/FID:	PID		
SAMPLE	BLOW COUNTS	SOIL DESCRIPTION	o o	COMMENTS	
LICERTAL (feel) INTERVIE		ME, COLOR, RELATIVE DENSITY SISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
DP-7.15-8	SILTY SAND (SM), gra 70% fine to medium sa CLAYSTONE, very da	rk gray (5YR 3/1), Franciscan anhydrite? veins, moderate		_	- 2 - 2 - 0.
15				– Boring Terminated Total Depth = 16'	

	orado Hills, CA 9 No./ Description		rn Portion Nearest to Wate	r Treatment Plant	AM	IE Pr	roject No.: 16	017.08 Page 1	of 1
Drille Drilliı Borir	ng Company: ed By: ng Method: ng Diameter: pling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	60. 16'	08' BGS	62/2,290,424 (no (not surveyed) S Cool/Chance of F		
	ng Started: ng Finished:	4/10/06 0935 4/10/06 1025		Logged By: Checked By:	C. (O'Do	onnell		
Sour	ce:	Original field no	ites	PID/FID:	PIC)			
	SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	90	ss	СОММЕ	ENTS	
DEPTH (feet)	SAMPLE ID	BLOWS/6 IN. (N)	OR CONSI	IE, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING R CONDITIONS DEPTH, BA	S, WATER	FIELD PID
- - - - - - - - - - - - - - - - - - -	DP-7.16-10	52	organic matter, wood fra grayish brown, 80% fine FAT CLAY (CH), dark g matter, wood fragments 60% fine sand, 40% fine	es < gray (5Y 4/1), Medium dense, some FeOH staining nd, 25% fines.		SM CH SM CS	1000 Boring Termina Total Depth = 1		0.

ACTON • MICKELSO			OF BORING	Fac	cility:	G-P Fort Bragg			
5175 Hillsdale Circle	#100		P-7.17			s: 90 W. Redwood Ave. Fort Bragg, CA			
El Dorado Hills, CA				AM	E Pr	roject No.: 16017.08	• •		
Area No./ Descriptio			1				01 1		
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	Precision Rodrigo Cano Sonic 2.625" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	68.6 13'	53' BGS	(not surveyed)			
Drilling Started: Drilling Finished:	4/13/06 0930 4/13/06 1005		Logged By: Checked By:	С. С	D'Do	nnell			
Source:	Original field no	tes	PID/FID:	PID	SOUTOTINATE COMMENTS Cudd gnugray DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL Image: Comparison of the second sec				
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	00	ss	COMMENTS	(mq		
LTH (feet) INTERVAL INTERVAL INTERVAL	BLOWS/6 IN.	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC L	SOIL CLA	CONDITIONS, WATER	FIELD PII READING (p		
0	14.5	FAT CLAY (CH), yellowi wet, organic material, ro	ish brown (10YR 5/6), Loose,	-	СН		1.4		
 10 	57	15% fine to coarse grave medium sand, 45% fines POORLY GRADED GR/ 3/3), Dense, wet, terrace	el, 1 cm clast, 40% fine to	Po l	GP	- - 1000	2.8		
						Boring Terminated Total Depth = 13'			

MIC	TON • CKELSOI				OF BORING	Fac	cility	G-P Fort Bragg	
5175 H	IRONM	#100	, IN		P-7.18			s: 90 W. Redwood Ave. Fort Bragg, CA roject No.: 16017.08	
	o./ Description		ast Ei	nd)					1 of 1
Drilling Drilled Drilling Boring	Company:	Precision Rodrigo Car Sonic 2.625" Dual Tube			Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	68.0	63' BGS	74/2,289,729 (not surveye (not surveyed)	
	Started: Finished:	4/13/06 083 4/13/06 085			Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G	
Source	:	Original field	d not	es	PID/FID:	PID			
	SAMPLE	BLOW		SC	DIL DESCRIPTION	g	s	COMMENTS	
DEPTH (feet) INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID
	DP-7.18-5		20	pond sediments 100% fines. LEAN CLAY (CL), olive of wet, 10% fine sand, 90% POORLY GRADED GR/ Dense, moist, Marine Te clasts	rown (2.5Y 4/4), Very loose, we gray (5Y 5/2), Medium dense,	00000	CH CL GP	0840 0850 Boring Terminated Total Depth = 13'	- - - - - - - - - - - - - - - - - - -

ACTON • MICKELSON			OF BORING	Fac	ility:	G-P Fort B	Bragg	
5175 Hillsdale Circle			DP-8.7	Add	lress	: 90 W. Red Fort Bragg		
El Dorado Hills, CA 9				AM	E Pro	oject No.:	16017.08	
Area No./ Description	: Parcel 8, Clink	er Area					Page 1	of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	RSI Jorge Morales Direct Push 2.25" Dual Tube		Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation:	6,048,837/2,289,913 (n 6' BGS			(not surveyed)	
Drilling Started: Drilling Finished:	1/24/06 1030 1/24/06 1045		Logged By: Checked By:	T.E.	Car	roll		
Source:	Original field no	otes	PID/FID:	PID				
SAMPLE	BLOW COUNTS	sc	DIL DESCRIPTION	gg	ŝ	CON	MENTS	û
(Jeel) (Terry All DEPTH SAMPLE ID	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	CONDIT	NG RATE AND IONS, WATER H, BACKFILL	FIELD PID READING (ppm)
0 DP-8.7-2 Dupe 45 DP-8.7-5		to moist, ash to 40-50% 40% fines.	- - - - - - - - - - - - - - - - - - -		ML	1034 1038 Boring Ter Total Depti No Ground Encounter	h = 6' I Water	

ACTON • MICKELSON	N•	LOG	OF BORING	Facili	ity: G-P Fort Bragg
ENVIRONM	ENTAL, IN)P-8.9	Addre	ess: 90 W. Redwood Ave. Fort Bragg, CA
5175 Hillsdale Circle El Dorado Hills, CA 9				AME	Project No.: 16017.08
Area No./ Description	: Parcel 8, Clinke	r Area			Page 1 of 1
Drilling Company: Drilled By: Drilling Method: Boring Diameter: Sampling Method:	RSI Jorge Morales Direct Push 2.25" Dual Tube		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	6,048 6' BG	3,708/2,290,083 (not surveyed) SS
Drilling Started: Drilling Finished:	1/24/06 1130 1/24/06 1140		Logged By: Checked By:	T.E. (Carroll
Source:	Original field not	es	PID/FID:	PID	
SAMPLE	BLOW COUNTS	SC	DIL DESCRIPTION	bo	رو COMMENTS وَ
(teet) INTERVAL SAMDIE ID	BLOWS/6 IN. (N)	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	COMMENTS COM
0 DP-8.9-2.5 DP-8.9-5		wet, wood at 30%, poss 40% fines.	t olive brown (2.5Y 5/6), medium		ML 1131 I 1137 Boring Terminated Total Depth = 6'

M	IC	ON • KELSOI IRONMI		T		OF BORING		-	G-P Fort Bragg
517	5 Hi	Ilsdale Circle	#100	, 11		P-10.9			s: 90 W. Redwood Ave. Fort Bragg, CA
		./ Description		Clink	(er Area		AIV	IE PI	roject No.: 16017.08 Page 1 of 1
Drill Drill Drill Bori	ing (ed E ing I ng E	Company:	RSI Jorge Mora Direct Push 2.25" Dual Tube	les		Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	10'	48,4 BGS ar/co	02/2,289,991 (not surveyed)
		Started: Finished:	1/26/06 091 1/26/06 093			Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G
Sou	rce:		Original fiel	d not	es	PID/FID:	PIC)	
		SAMPLE	BLOW COUNT	s	SC	DIL DESCRIPTION	DG	s	COMMENTS
DEPTH (feet)	INTERVAL	SAMPLE ID	BLOWS/6 IN (N)	ę	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL
0 - -		DP-10.9-1		38	FILL - SILTY SAND (SM Moist, 70% fine to mediu	l), black (2.5Y N2/), Loose, um sand, 30% fines.		SM	0915 0 -
5		DP-10.9-5		47	FILL - SILTY SAND (SM Medium Dense, Moist, 8 fines.	I), olive yellow (2.5Y 6/8), 0% fine ot medium sand, 20%		SM	0925 0 - 0
10-		DP-10.9-9.5		24	▼ very dark grayish brown Coarse Sand Grains 80% medium to coarse s	(2.5Y 3/2), Black Staining on sand, 20% fines.			0930 0 Boring Terminated Total Depth = 10' No Ground Water Encountered
						· · ·			

MI	IC	ON • KELSOI		T		OF BORING	Fa	cility	: G-P Fort Bragg
5175	5 Hi	IRONM	#100	, 1		P-10.7			s: 90 W. Redwood Ave. Fort Bragg, CA
		./ Description		Clin	kor Aroo		AN	IE P	roject No.: 16017.08
				Clin					Page 1 of
Drille Drillin Borir	ed E ng I ng E	Company: By: Method: Diameter: g Method:	RSI Jorge Moral Direct Push 2.25" Dual Tube			Location (East/North): Ground Surface Elevation: Water Depth (Date, Time): Casing Elevation: Total Depth (feet): Weather:	10'	BG	49/2,289,975 (not surveyed) S st/cool
	-	Started: Finished:	1/25/06 130 1/25/06 131	9 9		Logged By: Checked By:	J.D	. Ma	ttey, R.G., C.E.G
Sour	ce:		Original field	d no	tes	PID/FID:	PIC)	
_		SAMPLE	BLOW COUNT		SC	DIL DESCRIPTION	00	ss	COMMENTS
DEPTH (feet)	INTERVAL	Sample ID	BLOWS/6 IN. (N)	IN. RECVD	OR CONSIS	E, COLOR, RELATIVE DENSITY STENCY, MOISTURE, PARTICLE IZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL
0— - -		DP-10.7-1		32	FILL - SILTY SAND (SM Moist, 10% Wood Fragn ∩60% fine to medium san ▼ Medium Dense.	1), black (2.5Y N2/), Loose, nents d, 30% fines.		SM	1310 -
		DP-10.7-5 Dupe 49		38	fines.), olive yellow (2.5Y 6/8), 0% fine to medium sand, 20%		SM	
		DP-10.7-9.5		24	FILL - SILTY SAND (SM Medium Dense, Moist, M 70% fine to medium san), light olive brown (2.5Y 5/6), larine Terrace Deposits d, 30% fines.		SM	1319 Boring Terminated Total Depth = 10' No Ground Water Encountered

APPENDICES E AND F

Sample Analytical Reports Data Validation Summary Reports



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products

Manufacturing Facility Laboratory Project ID:

- Alta Analytical Laboratory, Inc. #27668
- Curtis & Tompkins, Ltd. #186469

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment, (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client	AAL	Laboratory	Collection	Parameters
	Sample ID	Sample ID	Project ID	Date	Analyzed
Soil	DP-1.5-5	27688-001	27668	04/27/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		~		
Laboratory Method Blank Results			~	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the sample upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2 °C. In addition, the sample was received in a clear glass jar as opposed to an amber jar as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the associated qualified analytical result forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
Total PeCDF	0.186 pg/g
1,2,3,4,7,8-HxCDF	0.124 pg/g
1,2,3,6,7,8-HxCDF	0.0834 pg/g
Total HxCDF	0.588 pg/g
1,2,3,4,6,7,8-HpCDF	0.545 pg/g
Total HpCDF	0.545 pg/g
OCDF	0.508 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the associated qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-1.5-5	27668	1,2,3,4,6,7,8-HpCDF Total HpCDF OCDF	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

	~ ~
Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins

Acronym	Definition
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy a young Tracy A. Young

Quality Assurance Chemist

Report Reviewed and Approved By:

Web D. MET

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

1111 Kennedy Place • Suite 2 • Davis, California • 95616-1266 • Voice 530.758.1903 • Fax 530.758.5633 • <u>www.veridianenv.com</u> Chemistry Consulting • Quality Assurance • Laboratory Auditing • Data Validation • Litigation Support • Environmental Data Management

290	[-06	y-06		T		k C														Ч U]
EPA Method 8290		6-May-06	15-May-06 NA	Oualifiers																									(OHM)	FC.41 2
EPA N		.ved:	Date Extracted: Date Analyzed DB-225:	LCL-UCL ^d	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135	40 - 135								valent Factors.(
		Date Received:	Date Extracted: Date Analyzed I	%R L	74.4	62.5	74.5	76.7	69.69	52.4	82.7	70.9	67.4	71.7	62.5	70.0	74.1	64.0	54.9	46.4	73.4	ata ^e							ion Toxic Equi	1
		27668-001	8024 17-May-06	ıdard	CDD	PeCDD	8-HxCDD	8-HxCDD	7,8-HpCDD		CDF	PeCDF	PeCDF	8-HxCDF	8-HxCDF	8-HxCDF	9-HxCDF	7,8-HpCDF	8,9-HpCDF		CDD	Quotient (TEQ) D	0.0187		ated detection limit.	ossible concentration.		apper control limit.	World Health Organizat	
	Laboratory Data	Lab Sample:	QC Batch No.: Date Analyzed DB-5:	Labeled Standard	<u>IS</u> 13C-2,3,7,8-TCDD	13C-1.2.3.7.8-PeCDD	13C-1,2,3,4,7,8-HxCDD	13C-1,2,3,6,7,8-HxCDD	13C-1,2,3,4,6,7,8-HpCDD	13C-OCDD	13C-2,3,7,8-TCDF	13C-1,2,3,7,8-PeCDF	13C-2,3,4,7,8-PeCDF	13C-1,2,3,4,7,8-HxCDF	13C-1,2,3,6,7,8-HxCDF	13C-2,3,4,6,7,8-HxCDF	13C-1,2,3,7,8,9-HxCDF	13C-1,2,3,4,6,7,8-HpCDF	13C-1,2,3,4,7,8,9-HpCDF	13C-OCDF	CRS 37CI-2,3,7,8-TCDD	Toxic Equivalent Quotient (TEQ) Data	TEQ (Min):		a. Sample specific estimated detection limit.	b. Estimated maximum possible concentration.	c. Method detection limit.	d. Lower control limit - upper control limit.	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	
		Soil	11.7 g 85.3	Qualifiers	Ī					ŗ	J							[J,B		J,B								<u>п</u> ц	
	Sample Data	Matrix:	Sample Size: %Solids:	EMPC ^b																										
		186469		DL ^a	0.0227	0.0369	0.0373	0.0378	0.0379			0.0308	0.0318	0.0320	0.0269	0.0279	0.0305			0.0797			0.0227	0.0369	0.0377		0.0308	0.0319		
		Силия & Tompkins, Ltd. Ft Brapp-Site Assessment 186469		(g/g)					1	\vdash	þ						1	Ь	כ		כ								С	
DP-1.5-5	f G	RIS & 101 Brapp-Site	27-Apr-06 0920	Conc. (Q	Q	Ð	QZ	QN	0.222	1.58	QN	QN	ŊŊ	Ð	QN	QN	0.148	0.144	QN	0.446		QN	QN	Q	0.430	QN	Q	0.148 0.144	
Sample ID: DP-	Data	Project: Ft J	llected: ilected:	Analyte	2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF	Totals	Total TCDD	Total PeCDD	Total HxCDD	Total HpCDD	Total TCDF	Total PeCDF	Total HxCDF Total HnCDF	Analyse: TMIT

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Project 27668

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/27/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By: wgK Approved By: Completion Date: 6/28/06 - 717106

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

27668 *Refer to Table in QA Report SDG: for Applicable Sample No's.

Support Documentation Criteria Examined Problems The following table indicates Identified Attachments criteria which were examined, the in Detail identified problems, and support Check if Yes or Footnote Check if Yes or Footnote Check if Yes or Identify documentation attachments Letter for Comments Below Number for Comments Below Attachment No. PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 Analytical Holding Times ~ √ Sample Condition Upon Receipt at ~ ~ 1 Subcontract Laboratory 1 Laboratory Method Blank Results ~ 2 ~ ~ Ongoing Precision and Recovery Sample Results 1 Internal Standard Recoveries ~ ~ ~ Cleanup Standard Recoveries Identification and Quantitation of ~ 1 3 Target Compounds Verification of the EDD in XLS Format ~ ~

0.5° upon receipt to subcontract laboratory Reperature at Comments in the method. The sample was (MANIO clear glass jan speci amber in the method PALLA the ud contre 4 mperatu 5 hm 55× Method 7 8-HOCDF Blank isomer 345.6 lagged I 5 55V Method Black women 55x Method Black -11" Rapped concentrations less chan the calibration flagged adjusted Vactors & sample sizes fer Dilution Curtis & Tompkins SDG: 186469

Veridian Environmental, Inc.

SDG 27668

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualificat	ion Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
DF	5	MB	O-MBOOI Batch 8034	1.2,3,47.8-H&CDF	0,124	0.62	
-			5/17/06	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8 HxCDF	0.0834	0,417	
			5777700	Total HxCDF	0.588	2.94	
				1234678-H2CDF	0.545	2.725	
				Total HSCOF	0.545	2.72S	
						01.0	
				OCDF	0.508	2.54	
				<u>CCI</u>			
				Total PECOF	0.186	0.93	
				TUTAL IE DI	C.10b	0.15	
	1						
				· · · · · · · · · · · · · · · · · · ·			
					··		
	-			• · · · · · · · · · · · · · · · · · · ·			
		1	1				

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DF Droxin Furan

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank				EPA Method 8290
Matrix: Soil	QC Batch No.:	8024	Lab Sample: 0-MB001	
Sample Size: 10.0 g	Date Extracted:	15-May-06	Date Analyzed DB-5: 17-May-06	Date Analyzed DB-225: NA
Analyte Conc. (pg/g)	DL ^a EM	EMPC ^b Qualifiers	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD ND	0.0269		<u>IS</u> 13C-2,3,7,8-TCDD	76.0 40 - 135
1,2,3,7,8-PeCDD ND	0.0385		13C-1,2,3,7,8-PeCDD	63.9 40 - 135
1,2,3,4,7,8-HxCDD ND	0.0387		13C-1,2,3,4,7,8-HxCDD	78.3 40 - 135
1,2,3,6,7,8-HxCDD ND	0.0422		13C-1,2,3,6,7,8-HxCDD	75.7 40 - 135
1,2,3,7,8,9-HxCDD ND	0.0408		13C-1,2,3,4,6,7,8-HpCDD	74.8 40 - 135
1,2,3,4,6,7,8-HpCDD ND	0.0331		13C-OCDD	53.4 40 - 135
	0	0.208	13C-2,3,7,8-TCDF	83.1 40 - 135
2,3,7,8-TCDF ND	0.0378		13C-1,2,3,7,8-PeCDF	70.0 40 - 135
1,2,3,7,8-PeCDF ND	0.0388		13C-2,3,4,7,8-PeCDF	68.4 40 - 135
2,3,4,7,8-PeCDF ND	0.0366		13C-1,2,3,4,7,8-HxCDF	71.5 40 - 135
1,2,3,4,7,8-HxCDF 0.124		J	13C-1,2,3,6,7,8-HxCDF	64.3 40 - 135
1,2,3,6,7,8-HxCDF 0.0834		ſ	13C-2,3,4,6,7,8-HxCDF	72.4 40 - 135
2,3,4,6,7,8-HxCDF ND	0.0305		13C-1,2,3,7,8,9-HxCDF	74.1 40 - 135
1,2,3,7,8,9-HxCDF ND	0.0436		13C-1,2,3,4,6,7,8-HpCDF	66.5 40 - 135
1,2,3,4,6,7,8-HpCDF 0.545		ſ	13C-1,2,3,4,7,8,9-HpCDF	60.6 40 - 135
1,2,3,4,7.8,9-HpCDF ND	0.0707		13C-OCDF	48.1 40 - 135
OCDF 0.508		ſ	CRS 37Cl-2,3,7,8-TCDD	75.5 40 - 135
Totals			Toxic Equivalent Quotient (TEQ) Data	ata c
Total TCDD ND	0.0269		TEQ (Min): 0.0262	
Total PeCDD ND	0.0385			
Total HxCDD ND	0.0406		a Sample specific estimated detection limit.	
Total HpCDD ND	0.0331		b. Estimated maximum possible concentration.	
Total TCDF ND	0.0378		c. Method detection limit.	
Total PeCDF 0.186			d. Lower control limit - upper control limit.	
			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	tion Toxic Equivalent Factors (WHO)
Total HpCDF 0.545				
Analyst: JMH			Approved By: William J. Luksemburg	uksemburg 18-May-2006 14:27

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Project 27668

QC Batc Date Ext 9.9 9.9 50.5 51.	802 15-	Lab Sample: 0-OPR001 Date Analyzed DB-5: 17-May-06 Labeled Standard IS 13C-2,3,7,8-TCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD	Date Analyzed DB-225: %R LCL-U 77.7 40 - 135 69.4 40 - 135 79.6 40 - 135	IDB-225: NA LCL-UCL 40 - 135 40 - 135 40 - 135
10.0 g DD CDD CDD CDD CDD		Date Analyzed DB-5: 17-May-06 Labeled Standard <u>IS</u> 13C-2,3,7,8-TCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD	Date Analyzed %R 77.7 69.4 79.6	
DD CDD CDD CDD CDD			%8 R 77.7 69.4 79.6	LCL-UCL 40 - 135 40 - 135 40 - 135 40 - 135
10.0 20 50.0 200 50.0 200 50.0 200 50.0 200 50.0	7 - 13 35 - 65 35 - 65		77.7 69.4 79.6	40 - 135 40 - 135 40 - 135 40 - 135
50.0 49. 50.0 50. 50.0 51. 50.0 51.	35 - 65 35 - 65	13C-1,2,3,7,8-PeCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD	69.4 79.6	40 - 135 40 - 135 40 - 135
50.0 50. 50.0 51. 50.0 50.	35 - 65	13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD	79.6	40 - 135 40 - 135
50.0 51. 50.0 50.		13C-1,2,3,6,7,8-HxCDD		40 - 13S
50.0 50.	CO - CL		80.2	
500	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	75.8	40 - 135
	35 - 65	13C-OCDD	52.3	40 - 135
OCDD 100 100	70 - 130	13C-2,3,7,8-TCDF	86.1	40 - 135
2,3,7,8-TCDF 10.0 10.3	7 - 13	13C-1,2,3,7,8-PeCDF	74.9	40 - 135
1,2,3,7,8-PeCDF 50.0 49.8	35 - 65	13C-2,3,4,7,8-PeCDF	74.4	40 - 135
2,3,4,7,8-PeCDF 50.0 49.4	35 - 65	13C-1,2,3,4,7,8-HxCDF	73.0	40 - 135
1,2,3,4,7,8-HxCDF 50.0 48.8	35 - 65	13C-1,2,3,6,7,8-HxCDF	65.0	40 - 135
1,2,3,6,7,8-HxCDF 50.0 48.3	35 - 65	13C-2,3,4,6,7,8-HxCDF	73.3	40 - 135
2,3,4,6,7,8-HxCDF 50.0 49.6	35 - 65	13C-1,2,3,7,8,9-HxCDF	72.9	40 - 135
1,2,3,7,8,9-HxCDF 50.0 49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	66.7	40 - 135
1,2,3,4,6,7,8-HpCDF 50.0 50.4	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	57.3	40 - 135
1,2,3,4,7,8,9-HpCDF 50.0 50.3	35 - 65	13C-OCDF	34.4	40 - 135
OCDF 100 96.4	70 - 130	CRS 37CI-2,3,7,8-TCDD	76.7	40 - 135

Analyst: JMH

Approved By: William J. Luksemburg 18-May-2006 13:46

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Project 27668

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 18, 2006

Alta Project I.D.: 27668

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one soil sample received at Alta Analytical Laboratory on May 06, 2006 under your Project Name "Ft Bragg-Site Assessment 186469". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

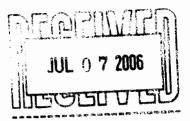
Sincerely,

Martha M. Maier Director of HRMS Services



Max should we have the second second based on the second second





Section I: Sample Inventory Report Date Received: 5/6/2006

Alta Lab. ID

Client Sample ID

27668-001

DP-1.5-5

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 186469 Site: Ft Bragg-Site Assessment

27668 0.5°C Saturday delivery

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matriz	Analysis	C&T Lab # Comments	
DP-1.5-5	04/27 09:20	Soil	8290	186469-001-	

Notes:	, Relinquished	By:	Receive	d By:
	// //		Markal To	No. A
	Date/Time:		Date/Time:	ay Mi
	5/5/6	1314	5/6/66	1115
	,)			

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27668

SAMPLE LOG-IN CHECKLIST

Alta Project #:	27668				-			
	Date/Time		Initials	:	Location	: WA	2.2	-
Samples Arrival:	5/6/06	1115	MO	T	Shelf/Ra			
Logged In:	Date/Time 5/8/04	0908	Initials	: BB	Location Shelf/Ra	ĩ	R-2)- 3	>
Delivered By:	FedEx	JPS	Cal	DHL	Ha Deliv		Ot	her
Preservation:	(lce)	Blue	lce	Dry lo	ce	N	one	
Temp °C Ør	5° Ti	me: //;	20		Thermor	neter IC): DT-	20
Adequate Sample Holding Time Acce Shipping Contained Shipping Custody	ptable? r(s) Intact?	d?				YES V	NO	NA
Shipping Documer Airbill		10129	0000	2666	60			-
Sample Container	Intact?					V		
Sample Custody S	eals Intact?							V
Chain of Custody / Sample Documentation Present?				1				
COC Anomaly/Sample Acceptance Form completed?				\vee				
If Chlorinated or D	rinking Water Sa	mples, Acc	eptable F	Preservatio	n?			
Na ₂ S ₂ O ₃ Preservat	tion Documented	1?		coc		nple ainer	No	ne
Shipping Containe	r	Alta	Client	Retain	Re	turn	Disp	ose
Comments:					<u> </u>			

Sample jar is clear glass. Sample I.D. is written on the cap of jar. 578/06 BB



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility*

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27619
- Curtis & Tompkins, Ltd. #186159

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.16-10	27619-001	27619	04/10/06	D
Soil	DP-7.9-5	27619-002	27619	04/12/06	D
Soil	DP-7.10-2	27619-003	27619	04/12/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical report forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		~		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.2^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>

Total HxCDF

Concentration 0.111 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

Data Qualifier Definitions

DV Qualifier	Definition
	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy U. Jourg CG

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

MI. SER

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

-In on adams	DI-01-01-10							
Client Data			Sample Data		Laboratory Data			
	Curtis & Tompkins, Ltd.	07150	Matrix:	Soil	Lab Sample: 27619-001		Date Received:	20-Apr-06
Project: F1 Br Date Collected: 10-A Time Collected: 1000	Ft Bragg-Site Assessment 180129 10-Apr-06 1000	60108	Sample Size: %Solids:	11.9 g 81.1	QC Batch No.: 7960 Date Analyzed DB-5: 26-Apr-06		Date Extracted: Date Analyzed DB-225:	22-Apr-06 NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Oualifiers
2,3,7,8-TCDD	ND	0.0968			<u>IS</u> 13C-2,3,7,8-TCDD	69.2	1	
1,2,3,7,8-PeCDD	ND	0.102			13C-1,2,3,7,8-PeCDD	58.6	6 40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.194			13C-1,2,3,4,7,8-HxCDD	74.4	4 40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.200			13C-1,2,3,6,7,8-HxCDD	81.5	5 40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.191			13C-1,2,3,4,6,7,8-HpCDD	76.9	9 40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.168			13C-OCDD	62.3	3 40 - 135	
OCDD	ND	0.324			13C-2,3,7,8-TCDF	69.0	0 40 - 135	
2,3,7,8-TCDF	ND	0.0696			13C-1,2,3,7,8-PeCDF	62.1	1 40 - 135	
1,2,3,7,8-PeCDF	ND	0.181			13C-2,3,4,7,8-PeCDF	62.1	1 40 - 135	
2,3,4,7,8-PeCDF	ND	0.170			13C-1,2,3,4,7,8-HxCDF	80.3	3 40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0473			13C-1,2,3,6,7,8-HxCDF	91.2	2 40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0418			13C-2,3,4,6,7,8-HxCDF	78.8	8 40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0519			13C-1,2,3,7,8,9-HxCDF	67.0	0 40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0838			13C-1,2,3,4,6,7,8-HpCDF	72.5	5 40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0741			13C-1,2,3,4,7,8,9-HpCDF	67.4	4 40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0855			13C-OCDF	61.6	6 40 - 135	
OCDF	ND	0.237			CRS 37CI-2,3,7,8-TCDD	67.5	5 40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data		е	
Total TCDD	ND	0.0968			TEQ (Min): 0			
Total PeCDD	ND	0.102						
Total HxCDD	ND	0.195			a. Sample specific estimated detection limit.	mit.		
Total HpCDD	ND	0.168			b. Estimated maximum possible concentration.	ration.		
Total TCDF	DN	0.0696			c. Method detection limit.			
Total PeCDF	ND	0.175			d. Lower control limit - upper control limit.	nit.		
Total HxCDF	QN	0.0534			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rganization Toxic	Equivalent Factors.(V	WHO}
Total HpCDF	DN	0.0791						

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Client Data							
			Sample Data		Laboratory Data		
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample: 27619-002	2 Date Received:	20-Apr-06
Project: Pt Bragg-S Date Collected: 12-Apr-06 Time Collected: 0915	rt Bragg-Site Assessment 180129 12-Apr-06 0915	601081	Sample Size: %Solids:	9.91 g 85.1	QC Batch No.: 7960 Date Analyzed DB-5: 26-Apr-06	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Apr-06
Analyte C	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R LCL-UCL ^d (Oualifiers
2,3,7,8-TCDD	1.75				<u>IS</u> 13C-2,3,7,8-TCDD	67.5 40 - 135	
1,2,3,7,8-PeCDD	1.43 J			ſ	13C-1,2,3,7,8-PeCDD	60.1 40 - 135	
1,2,3,4,7,8-HxCDD	0.600 J			ſ	13C-1,2,3,4,7,8-HxCDD	74.1 40 - 135	
1,2,3,6,7,8-HxCDD	0.871 J			ŗ	13C-1,2,3,6,7,8-HxCDD	79.0 40 - 135	
1,2,3,7,8,9-HxCDD	0.688			ſ	13C-1,2,3,4,6,7,8-HpCDD	77.1 40 - 135	
1,2,3,4,6,7,8-HpCDD	4.48				13C-OCDD	60.6 40 - 135	
OCDD	17.0				13C-2,3,7,8-TCDF	64.3 40 - 135	
2,3,7,8-TCDF	17.3				13C-1,2,3,7,8-PeCDF	61.9 40 - 135	
1,2,3,7,8-PeCDF	5.03				13C-2,3,4,7,8-PeCDF	60.7 40 - 135	
2,3,4,7,8-PeCDF	6.03				13C-1,2,3,4,7,8-HxCDF	81.4 40 - 135	
1,2,3,4,7,8-HxCDF	1.33 J			ſ	13C-1,2,3,6,7,8-HxCDF	87.9 40 - 135	
1,2,3,6,7,8-HxCDF	1.46 J			Ţ	13C-2,3,4,6,7,8-HxCDF	78.3 40 - 135	
2,3,4,6,7,8-HxCDF	1.53 J			ſ	13C-1,2,3,7,8,9-HxCDF	70.1 40 - 135	
1,2,3,7,8,9-HxCDF	0.565			ſ	13C-1,2,3,4,6,7,8-HpCDF	74.5 40 - 135	
1,2,3,4,6,7,8-HpCDF	1.43 J			ſ	13C-1,2,3,4,7,8,9-HpCDF	70.7 40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.295			13C-OCDF	61.2 40 - 135	
OCDF	1.81 J			J	CRS 37CI-2,3,7,8-TCDD	67.3 40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data) Data ^e	
Total TCDD	20.1		23.5		TEQ (Min): 8.95		
Total PeCDD	14.4		14.8				
Total HxCDD	9.33				a. Sample specific estimated detection limit.		
Total HpCDD	8.38				b. Estimated maximum possible concentration.	Jn.	
Total TCDF	242				c. Method detection limit.		
Total PeCDF	61.7		62.7		d. Lower control limit - upper control limit.		
Total HxCDF	14.4			В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	nization Toxic Equivalent Factors (W	VHO}
Total HpCDF	3.00						

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	7-01.1-10							EFA IV	ET A INTENNO 0720
Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd. Bt Broom Site Accomment 196150	d. 2004 106 160	Matrix:	Soil	Lab Sample:	27619-003	Date Received:	eived:	20-Apr-06
Turgett. Turgett. 12-A Date Collected: 12-A Time Collected: 1450	12-Apr-06 12-Apr-06	601001 110	Sample Size: %Solids:	11.6 g 86.3	QC Batch No.: Date Analyzed DB-5:	7960 26-Apr-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Apr-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ndard	%R	LCL-UCL ^d	Oualifiers
2,3,7,8-TCDD	0.324 J			ſ	<u>IS</u> 13C-2,3,7,8-TCDD	CDD	67.4	40 - 135	
1,2,3,7,8-PeCDD	ND		0.251		13C-1,2,3,7,8-PeCDD	-PeCDD	59.3	40 - 135	
1,2,3,4,7,8-HxCDD	DN	0.104			13C-1,2,3,4,7,8-HxCDD	8-HxCDD	74.0	40 - 135	
1,2,3,6,7,8-HxCDD	0.231 5			ſ	13C-1,2,3,6,7,8-HxCDD	8-HxCDD	79.8	40 - 135	
1,2,3,7,8,9-HxCDD	QN	0.100			13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	78.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.18			ſ	13C-OCDD		63.3	40 - 135	
OCDD	3.83 J			ſ	13C-2,3,7,8-TCDF	CDF	68.3	40 - 135	
2.3,7,8-TCDF	2.79				13C-1,2,3,7,8-PeCDF	-PeCDF	63.6	40 - 135	
1,2,3,7,8-PeCDF	0.952 J			ſ	13C-2,3,4,7,8-PeCDF	-PeCDF	62.0	40 - 135	
2,3,4,7,8-PeCDF	1.03			ſ	13C-1,2,3,4,7,8-HxCDF	8-HxCDF	82.6	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.243		13C-1,2,3,6,7,8-HxCDF	8-HxCDF	88.2	40 - 135	
1,2,3,6,7,8-HxCDF	0.300			ſ	13C-2,3,4,6,7,8-HxCDF	8-HxCDF	78.7	40 - 135	
2,3,4,6,7,8-HxCDF	0.289 J			ſ	13C-1,2,3,7,8,9-HxCDF	9-HxCDF	69.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.179			13C-1,2,3,4,6,7,8-HpCDF	7,8-HpCDF	75.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.296 5			ſ	13C-1,2,3,4,7,8,9-HpCDF	8,9-HpCDF	71.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0709			13C-OCDF		63.6	40 - 135	
OCDF	ND	0.251			CRS 37CI-2,3,7,8-TCDD	CDD	64.9	40 - 135	
Totals					Toxic Equivalent	Toxic Equivalent Quotient (TEQ) Data	ata ^e		
Total TCDD	3.77				TEQ (Min):	1.26			
Total PeCDD	1.77		2.82						
Total HxCDD	1.93				a. Sample specific estimated detection limit.	ated detection limit.			
Total HpCDD	1.98				b. Estimated maximum possible concentration.	ossible concentration.			
Total TCDF	39.1		40.9		c. Method detection limit.	t.			
Total PeCDF	10.6				d. Lower control limit - upper control limit.	upper control limit.			
Total HxCDF	1.59		1.99	В	e. TEQ based on (1997)	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	on Toxic Eq	uivalent Factors (V	(OHV)
Total HpCDF	0.296								

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/10/06 and 4/12/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By: ugk - 7/11/06 Approved By: Completion Date: 06/28/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

27619 *Refer to Table in QA Report SDG:

for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		✓
Sample Condition Upon Receipt at Subcontract Laboratory	1	۱.	✓
Laboratory Method Blank Results	4	3.	~
Ongoing Precision and Recovery Sample Results	1		~
Internal Standard Recoveries	1		✓
Cleanup Standard Recoveries	1		✓
Identification and Quantitation of Target Compounds	1	2.	4
Verification of the EDD in XLS Format	4		✓

comments: 1. Jemperature at 0.2°C upon receipt to contract laboratory
(versus 4 2°C in method) The samples were in clear jars versus amber Dar
Warsus 4 2°C in method) The samples where in clear jars versus ambergan 00 per method. The gualification wasanthed for either temperiture of anotained
2. all repuets reported at concentrations less than the lowest
ralibration level (adjusted to deliction factors and sample sizes) and flagred "I"

Curtis & Tompkins SDG: 186159

506, 27619

Blank Analysis Results for Target Analytes

Fraction (1)	Matrix (Aq., S)	Blank Type	Blank Sample	Contaminant	Concentration (units)		tion Limit
0	(Aq., 5)	(2)	Number			5x	10x
DF	5	MB	OMBOO	TOTAL HXCOF	0.111	0.555	
I.A							
			0MB001 4125/20 Batch7960				
			20tch79600				
			Lucion Coo				
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1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: ____

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: NQN

Matrix: Soil		QC Batch No .:	7960	Lab Sample: 0-MB001			
Sample Size: 10.0 g		Date Extracted:	22-Apr-06	Date Analyzed DB-5: 25-Apr-06	Date Ana	Date Analyzed DB-225: NA	A
Analyte Conc.	Conc. (pg/g)	DL ^a E	EMPC ^b Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qual	Oualifiers
2,3,7,8-TCDD	QN	0.0940		<u>IS</u> 13C-2,3,7,8-TCDD	54.4	40 - 135	
1,2,3,7,8-PeCDD	QN	0.153		_	49.6	40 - 135	
1,2,3,4,7,8-HxCDD	QN	0.167		13C-1,2,3,4,7,8-HxCDD	67.5	40 - 135	
1,2,3,6,7,8-HxCDD	QN	0.167		13C-1,2,3,6,7,8-HxCDD	71.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.162		13C-1,2,3,4,6,7,8-HpCDD	62.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.218		13C-OCDD	47.2	40 - 135	
OCDD	DN	0.716		13C-2,3,7,8-TCDF	53.8	40 - 135	
2,3,7,8-TCDF	ND	0.0997		13C-1,2,3,7,8-PeCDF	50.6	40 - 135	
1,2,3,7,8-PeCDF	ND	0.251		13C-2,3,4,7,8-PeCDF	52.7	40 - 135	
2,3,4,7,8-PeCDF	ΟN	0.237		13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	QN		0.0673	13C-1,2,3,6,7,8-HxCDF	78.8	40 - 135	
1,2,3,6,7,8-HxCDF	DN		0.0799	13C-2,3,4,6,7,8-HxCDF	70.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0477		13C-1,2,3,7,8,9-HxCDF	58.0	40 - 135	
1,2,3,7,8,9-HxCDF	DN	0.0846		13C-1,2,3,4,6,7,8-HpCDF	58.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	DN	0.217		13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ΟN	0.184		13C-OCDF	46.2	40 - 135	
OCDF	QN	0.393		CRS 37CI-2,3,7,8-TCDD	64.7	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data	Data ^e		
Total TCDD	QN	0.0940		TEQ (Min): 0			
Total PeCDD	ΟN	0.153					
Total HxCDD	QN	0.165		a. Sample specific estimated detection limit.			
Total HpCDD	ND	0.218		b. Estimated maximum possible concentration.			
Total TCDF	QN	0.0997		c. Method detection limit.			
Total PeCDF	QN	0.244		d. Lower control limit - upper control limit.			
Total HxCDF	0.111		0.259	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	tion Toxic Equiv	alent Factors.(WHO}	
Total HnCDF	ND	0.237					

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OPR Results							EPA	EPA Method 8290	
Matrix: Soil		QC Batch No .:	7960	Lab Sample:		0-OPR001			
Sample Size: 10.0 g		Date Extracted:	22-Apr-06	Date An	Date Analyzed DB-5: 25-Apr-06	pr-06	Date Analyzed DB-225:		NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	Labe	Labeled Standard		%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13C-	13C-2,3,7,8-TCDD		63.9	40 - 135	
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-	13C-1,2,3,7,8-PeCDD		53.5	40 - 135	C L
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-	I3C-1,2,3,4,7,8-HxCDD		77.5	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-	13C-1,2,3,6,7,8-HxCDD		81.4	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	-13C-	13C-1,2,3,4,6,7,8-HpCDD	D	74.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	-13C-	13C-OCDD		46.8	40 - 135	
OCDD	100	100	70 - 130	-13C-	13C-2,3,7,8-TCDF		64.3	40 - 135	
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-	13C-1,2,3,7,8-PeCDF		57.5	40 - 135	
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-	13C-2,3,4,7,8-PeCDF		57.7	40 - 135	
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-	13C-1,2,3,4,7,8-HxCDF		80.9	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-	13C-1,2,3,6,7,8-HxCDF		91.2	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-	13C-2,3,4,6,7,8-HxCDF		80.9	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-	13C-1,2,3,7,8,9-HxCDF		71.4	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-	13C-1,2,3,4,6,7,8-HpCDF	ĹŦ	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-	13C-1,2,3,4,7,8,9-HpCDF	ĹĿ	77.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-1	I3C-OCDF		52.6	40 - 135	
OCDF	100	94.5	70 - 130	CRS 37CI-	CRS 37CI-2,3,7,8-TCDD		64.0	40 - 135	0 r

Analyst: JMH

el ot

Approved By: William J. Luksemburg 01-May-2006 08:48

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Project 27619

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 02, 2006

Alta Project I.D.: 27619

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186159". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



dia dinapatén di kuhanaran sa minisahar ibu in nara bagan manisak adi dina ngunyanana, sa nandu by Sa Usus. Pandhusa guda ahlu nisu mulinaka Tina jugang disanda mulin agu mulinad wa agu majuli walihari dia wasina apparaala ay ASP



Section I:	Sample	Inventory	Report
Date Receiv	ed:	4/20/2	006

<u>Alta Lab. ID</u>	Client Sample ID
27619-001	DP-7.16-10
27619-002	DP-7.9-5
27619-003	DP-7.10-2

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

27619 0.2°C

Project Number: 186159 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments	
DP-7.16-10	04/10 10:00	Soil	8290	186159-001	
DP-7.9-5	04/12 09:15	Soil	8290	186159-002	
-7.10-2	04/12 14:50	Soil	8290	186159-005	
		\bigcirc			

Please provide an EDD 4/19/06/13

Notes:	Pelinguished By:	Btttine She diet
	Date/frime: 4/(9/06 14/1	6 04/10/06 0905
	·/ ·	·/ ·

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #: 🧹	+619				_		
	Date/Time		Initial	s:	Locat	ion: WR-	-2-
Samples Arrival:	4/20/0	6 0905	5 Ya	\$\$B	Shelf/		
	Date/Time		Initial	s:	Locat	ion: W	R-2-
Logged In:	4/21/0	6 0715	ĊĔ	310	Shelf/	Rack:	23
Delivered By:	FedEx	UPS	Cal	DHL	1	Hand elivered	Other
Preservation:	lce	Blu	e Ice	Dry lo	се	No	one
Temp °C (). 2		Time: (2915		Thern	nometer ID	: DT-20

			IIIIII	YES	NO	NA
Adequate Sample Volume Received?)			V		
Holding Time Acceptable?				/		
Shipping Container(s) Intact?				V		
Shipping Custody Seals Intact?						\checkmark
Shipping Documentation Present?				V	-	
Airbill Trk # C	01290002	6090		V		
Sample Container Intact?	•			\checkmark		
Sample Custody Seals Intact?						1
Chain of Custody / Sample Documer	ntation Present?					
COC Anomaly/Sample Acceptance F	Form completed?				V	1
If Chlorinated or Drinking Water Sam	ples, Acceptable P	reservation?				\checkmark
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sarr Conta		No	ine
Shipping Container	Alta Client	Retain	Ret	urn	Disp	oose
Comments:			<u> </u>			

Comments:

sample containers are clear jors



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility*

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27644
- Curtis & Tompkins, Ltd. #186298

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.61-10	27644-001	27644	04/19/06	D
Soil	DP-5.61-20	27644-002	27644	04/19/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results			\checkmark	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. A reported positive result has been qualified as qualitatively questionable (U) on the qualified analytical result forms. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	Analyte
DP-5.61-10	Total TCDF, Total PeCDF,
	1.2.3.6.7.8-HxCDF. and Total HxCDF

It should be noted that sample DP-5.61-10 displayed low percent solids (41%). The data were not qualified on this basis.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-5.61-20	27644	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination, and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin

Acronym	Definition
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy a Jourg CE Tracy A. Young

Quality Assurance Chemist

Report Reviewed and Approved By:

UHE DIGIT

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-5	DP-5.61-10					EPA	EPA Method 8290	
Client Data			Sample Data		Laboratory Data			
	Curtis & Tompkins, Ltd.	00000	Matrix:	Soil	Lab Sample: 27644-001	1 Date Received:	2-May-06	
	rt bragg-sue Assessment 180290 19-Apr-06	06700	Sample Size:	19.7 g	QC Batch No.: 7989 Date Analyzed DB-5: 5 Mov. 0	Date Extracted: Dates Analyzed DB-225:	4-May-06	
Time Collected: 1005			.shrinco/	41.0	0-May-00		0-May-00	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R LCL-UCL ^d	Oualifiers	
2,3,7,8-TCDD	3.09				<u>IS</u> 13C-2,3,7,8-TCDD	65.7 40 - 135		
1,2,3,7,8-PeCDD	8.46				13C-1,2,3,7,8-PeCDD	68.4 40 - 135		50
1,2,3,4,7,8-HxCDD	4.24				13C-1,2,3,4,7,8-HxCDD	75.9 40 - 135		
1,2,3,6,7,8-HxCDD	18.1				13C-1,2,3,6,7,8-HxCDD	77.2 40 - 135		
1,2,3,7,8,9-HxCDD	10.6				13C-1,2,3,4,6,7,8-HpCDD	71.1 40 - 135		
1,2,3,4,6,7,8-HpCDD	132				13C-OCDD	48.1 40 - 135		
OCDD	498			В	13C-2,3,7,8-TCDF	76.4 40 - 135		
2,3,7,8-TCDF	10.9				13C-1,2,3,7,8-PeCDF	74.2 40 - 135		
1,2,3,7,8-PeCDF	7.52				13C-2,3,4,7,8-PeCDF	75.4 40 - 135		
2,3,4,7,8-PeCDF	315				13C-1,2,3,4,7,8-HxCDF	69.5 40 - 135		
1,2,3,4,7,8-HxCDF	19.4				13C-1,2,3,6,7,8-HxCDF	63.4 40 - 135		
1,2,3,6,7,8-HxCDF	53.2			D	13C-2,3,4,6,7,8-HxCDF	71.2 40 - 135		
2,3,4,6,7,8-HxCDF	122				13C-1,2,3,7,8,9-HxCDF	77.0 40 - 135		
1,2,3,7,8,9-HxCDF	15.8				13C-1,2,3,4,6,7,8-HpCDF	72.3 40 - 135		
1,2,3,4,6,7,8-HpCDF	60.8				13C-1,2,3,4,7,8,9-HpCDF	72.9 40 - 135		
1,2,3,4,7,8,9-HpCDF	5.79				13C-OCDF	50.7 40 - 135		
OCDF	55.8				CRS 37CI-2,3,7,8-TCDD	72.4 40 - 135		40
Totals					Toxic Equivalent Quotient (TEQ) Data	2) Data ^e		
Total TCDD	56.6				TEQ (Min): 197			
Total PeCDD	119							
Total HxCDD	223				a. Sample specific estimated detection limit.			
Total HpCDD	265				b. Estimated maximum possible concentration.	ion.		
Total TCDF	1760			D	c. Method detection limit.			
Total PeCDF	4180			D	d. Lower control limit - upper control limit.			
Total HxCDF	1580			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic Equivalent Factors.	(OHA)	
Total HpCDF	157							
Analyst: JMH					Approved By: Martha M. Maier	. Maier 11-May-2006 10:53	53	

Project 27644

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lata Curtis & Tompkins, Ltd. Ft Bragg-Site Assessment 186; Hected: 19-Apr-06 Ilected: 1903 -TCDD ND -TCDD ND ,8-PeCDD ND ,7,8-HxCDD ND ,7,8-HxCDF ND <	298 <u>Sample Data</u> 298 Sample Size: %Solids: %Solids: %Solids: %Solids: %Solids: 0.0243 0.0243 0.0419 0.0419 0.0419 0.0419 0.0419	Data Soil Size: 11.5 g s: 87.4 C ^b Qualifiers	Laboratory Data Lab Sample: 27644-002	00.7 Date Received:	2-May-06
Curtis & Tompkins, Ltd. Ft Bragg-Site Assessment 186; lected: 19-Apr-06 lected: 19-Apr-06 lected: 19-Apr-06 lected: 19-Apr-06 lected: 19-Apr-06 lected: 19-Apr-06 lected: 1903 e Conc. (pg/g) A:PeCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 8,9-HxCDF ND 7,8-HxCDF ND 3,9-HxCDF ND 7,8-HxCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF	a a 376 419 419 419 419 339 207				2-May-06
rt Bragg-site Assessment 180. lected: 19-Apr-06 lected: 1003 -TCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 6,7,8-HpCDD 0.237 1.56 U 1.56 U 1.56 U 7,8-HxCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND 7,8-HpCDF ND 7,8-HpCDF ND 7,8-HpCDF ND 7,8-HpCDF ND 7,8,9-HpCDF ND 8,9-HxCDF ND 7,8,9-HpCDF ND 8,9-HxCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND	a a 376 243 419 419 419 339 339 207				A Maxim
в Conc. (pg/g) -TCDD ND -TCDD ND 3-PeCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 6,7,8-HpCDD ND 8,9-HxCDD ND 6,7,8-HpCDD 0.237 8,PeCDF ND 7,8-HxCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND	a a a 419 419 419 3376 419 413 339 339 339		QC Batch No.: 7989 Date Analyzed DB-5: 5-Mav-06	Date Extracted: _06 Date Analyzed DB-225:	4-May-00 225: NA
е Солс. (рg/g) -TCDD ND 8-PeCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD ND 8,9-HxCDD ND 8,9-HxCDD ND 7,8-HxCDD 0.237 1.56 (7,8-HxCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND ND ND	a 243 376 419 419 419 349 339 207				
-ТСDD ND 8-РеСDD ND 7,8-Н×СDD ND 8,9-Н×СDD ND 8,9-Н×СDD ND 6,7,8-НрСDD 0.237 J 1.56 Ц 1.56 Ц 1.56 Ц 7,8-НрСDF ND 7,8-Н×СDF ND 7,8-Н×СDF ND 7,8-НрСDF ND 7,8,9-НрСDF ND 8,9-Н×СDF ND 7,8,9-НрСDF ND 8,9-Н×СDF ND 7,8,9-НрСDF ND 8,9-Н×СDF ND 7,8,9-НрСDF ND 8,9-Н×СDF ND 7,8,9-НрСDF ND	0.0243 0.0376 0.0419 0.0419 0.0349 0.0349		Labeled Standard	%R LCL-UCL ^d	CL ^d Oualifiers
8-PeCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD 0.237 丁 1.56 1	0.0376 0.0419 0.0413 0.0419 0.0349		<u>IS</u> 13C-2,3,7,8-TCDD	78.6 40 - 135	35
7,8-HxCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 8,9-HxCDD 0.237 J 6,7,8-HpCDD 0.237 J 1.56 し 7,8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND 8,9-HxCDF ND 7,8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 8,9-HpCDF ND 7,8,9-HpCDF ND	0.0419 0.0413 0.0419 0.0349 0.0347		13C-1,2,3,7,8-PeCDD	83.6 40 - 135	35
 ス8-HxCDD ND 8,9-HxCDD ND 8,9-HxCDD 0.237 ゴ 6,7,8-HpCDD 0.237 ゴ 1.56 し オ・トレクロト ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND 5,7,8-HpCDF ND 6,7,8-HpCDF ND 7,8,9-HpCDF ND ND 7,8,9-HpCDF ND ND 	0.0413 0.0419 0.0349 0.0307		13C-1,2,3,4,7,8-HxCDD	72.8 40 - 135	35
8,9-HxCDD ND 6,7,8-HpCDD 0.237 J 1.56 J 8-PeCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND 8,9-HxCDF ND 8,9-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND ND	0.0419 0.0349 0.0307		13C-1,2,3,6,7,8-HxCDD	78.6 40 - 135	35
6,7,8-HpCDD 0.237 J 1.56 Ц 1.56 Ц 8-PeCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND 8,9-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND ND	0.0349		13C-1,2,3,4,6,7,8-HpCDD	83.7 40 - 135	35
1.56 Ц -TCDF ND 8-PeCDF ND 7.8-HxCDF ND 7.8-HxCDF ND 7.8-HxCDF ND 7.8-HxCDF ND 8.9-HxCDF ND 8.9-HpCDF 0.0476 J 7.8.9-HpCDF ND ND	0.0349	J	13C-OCDD	59.2 40 - 135	35
-TCDF ND 8-PeCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 T 7,8,9-HpCDF ND 7,8,9-HpCDF ND	0.0349 0.0307	J,B	13C-2,3,7,8-TCDF	83.4 40 - 135	35
8-PeCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 T 7,8,9-HpCDF ND ND	0.0307		13C-1,2,3,7,8-PeCDF	87.5 40 - 135	35
8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 J 7,8,9-HpCDF ND ND	10000		13C-2,3,4,7,8-PeCDF	88.2 40 - 135	35
7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 T 7,8,9-HpCDF ND ND	0.0283		13C-1,2,3,4,7,8-HxCDF	68.5 40 - 135	35
7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 J 7,8,9-HpCDF ND ND	0.0216		13C-1,2,3,6,7,8-HxCDF	64.2 40 - 135	35
7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.0476 J 7,8,9-HpCDF ND ND	0.0204		13C-2,3,4,6,7,8-HxCDF	73.8 40 - 135	35
8,9-HxCDF ND 6,7,8-HpCDF 0.0476 J 7,8,9-HpCDF ND ND	0.0217		13C-1,2,3,7,8,9-HxCDF	77.7 40 - 135	35
6,7,8-HpCDF 0.0476 J 7,8,9-HpCDF ND ND	0.0317		13C-1,2,3,4,6,7,8-HpCDF	73.6 40 - 135	35
7,8,9-HpCDF ND ND		J	13C-1,2,3,4,7,8,9-HpCDF	86.4 40 - 135	35
ŊŊ	0.0237		13C-OCDF	66.2 40 - 135	35
-	0.0459		CRS 37CI-2,3,7,8-TCDD	79.7 40 - 135	35
lotais			Toxic Equivalent Quotient (TEQ) Data	EQ) Data ^e	
Total TCDD ND 0	0.0243		TEQ (Min): 0.00300		
Total PeCDD ND 0	0.0376				
Total HxCDD 0.147			a. Sample specific estimated detection limit.	mit.	
Total HpCDD 0.410			b. Estimated maximum possible concentration.	ration.	
Total TCDF ND 0	0.0349		c. Method detection limit.		
Total PeCDF 0.159			d. Lower control limit - upper control limit.	nit.	
Total HxCDF 0.166			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rganization Toxic Equivalent Fa	actors.(WHO)
Total HpCDF 0.0923					

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/19/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By W6K-7-11.06 Approved By: Completion Date: 6/28/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27644 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		~
Sample Condition Upon Receipt at Subcontract Laboratory	1	١.	~
Laboratory Method Blank Results	4	2.	4
Ongoing Precision and Recovery Sample Results	1		1
Internal Standard Recoveries	1		1
Cleanup Standard Recoveries	1		~
Identification and Quantitation of Target Compounds	4	3.	~
Verification of the EDD in XLS Format	4		4

Comments: <u>I. The samples were in clear glass jar upon receipt to the subcontract</u> <u>laboratory versus aniver jar or stated in the method. No quelification warranted</u> <u>2. Osec glask analysis Results page</u>

3 a low Tosalid was noted for simple DP-5.61-10

all results reported at contentrations less than the invest calibration livel (adjusted for dilution factors & sample sizes) estimated & flagged "J". Possible Chlorinated dipterglether interference meted in the or more compounds of sample DP-5. (01-10:

Curtis & Tompkins SDG: 186298

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualific	ation Limit																				
(1)	(Aq., S)	(2)	Number		(units) P919	5x	10x																				
DF	6	MB	NB 0-MB001 515106 80401 7989	OCDD	(units) P919 1.93	-	19.3																				
			515106 7989																								
							ļ																				
													1														
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				······································																							
					++																						
				Novie Gue																							

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DF Diokin furan

Aq. = Aqueous; S = Solid 2) MB ≈ Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

DP-5.61-20 CCDO flagged "11" Notes:

Veridian Environmental, Inc.

206 27644

Method Blank					EPA Method 8290	063
Matrix: Soil		QC Batch No.: 7989	Lab Sample: 0-MB001			
Sample Size: 10.0 g		Date Extracted: 4-May-06	Date Analyzed DB-5: 5-May-06	Date An	Date Analyzed DB-225: NA	
Analyte Conc. (pg/g)	6	DL ^a EMPC ^b Qualifiers	rs Labeled Standard	%R	LCL-UCL ^d Qualifiers	rs
2,3,7,8-TCDD ND	D	0.0446	<u>IS</u> 13C-2,3,7,8-TCDD	93.3	40 - 135	
1,2,3,7,8-PeCDD ND	D	0.0451	13C-1,2,3,7,8-PeCDD	86.7	40 - 135	
1,2,3,4,7,8-HxCDD ND	D	0.0830	13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135	
1,2,3,6,7,8-HxCDD ND	D	0.0830	13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135	
1,2,3,7,8,9-HxCDD ND	D	0.0838	13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135	
1,2,3,4,6,7,8-HpCDD ND	D	0.129	13C-OCDD	67.8	40 - 135	JL U
OCDD 1.5	1.93	ſ	13C-2,3,7,8-TCDF	100	40 - 135	
2,3,7,8-TCDF ND	D	0.0408	13C-1,2,3,7,8-PeCDF	88.0	40 - 135	
1,2,3,7,8-PeCDF ND	D	0.0496	13C-2,3,4,7,8-PeCDF	87.6	40 - 135	
2,3,4,7,8-PeCDF ND	D	0.0475	13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135	
1,2,3,4,7,8-HxCDF ND	D	0.0590	13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135	
1,2,3,6,7,8-HxCDF ND	D	0.0535	13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135	
2,3,4,6,7,8-HxCDF ND	D	0.0608	13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135	
1,2,3,7,8,9-HxCDF ND	D	0.0970	13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135	
1,2,3,4,6,7,8-HpCDF ND	D	0.222	13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135	
1,2,3,4,7,8,9-HpCDF ND	D	0.233	13C-OCDF	68.9	40 - 135	
OCDF ND	D	0.196	CRS 37CI-2,3,7,8-TCDD	90.1	40 - 135	0 V
Totals			Toxic Equivalent Quotient (TEQ) Data	lata ^e		
Total TCDD ND	0	0.0446	TEQ (Min): 0.000193			
Total PeCDD ND	D	0.0451				
Total HxCDD ND	D	0.0833	a. Sample specific estimated detection limit.			
Total HpCDD ND	D	0.129	b. Estimated maximum possible concentration.			
Total TCDF ND	D	0.0408	c. Method detection limit.			
Total PeCDF ND	D	0.0486	d. Lower control limit - upper control limit.			
Total HxCDF ND	Ω	0.0676	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	tion Toxic Equiv	valent Factors.(WHO)	
Total HpCDF ND	0	0.228]
Analyst: JMH			Approved By: Martha M. Maier		11-May-2006 10:53	

Project 27644

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OPR Results					EPA	EPA Method 8290	
Matrix: Soil		QC Batch No.:	7989	Lab Sample: 0-OPR001			
Sample Size: 10.0 g		Date Extracted:	4-May-06	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225:	d DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS 13C-2,3,7,8-TCDD	75.2	40 - 135	1
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135	*
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135	י ג
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135	
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135	
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	6.77	40 - 135	
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	1.77	40 - 135	
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	<i>T.T.</i>	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	62.9	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135	
OCDF	100	104	70 - 130	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135	¥. *
Analyst: JMH				Approved By: Martha M. Ma	Martha M. Maier 11-May-2006 10:53	06 10:53	

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Project 27644

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 11, 2006

Alta Project I.D.: 27644

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186298". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



with a tool function of the latent over the second herein means with the negative scenes set for the Set Core these applicables is without. This is paired outled at the regardness descent in fail with a second set M(T)



Section I:	Sample	Inventory	Report
Date Receiv	ed:	5/2/20	06

<u>Alta Lab. ID</u>	Client Sample ID
27644-001	DP-5.61-10
27644-002	DP-5.61-20

27644 2.900

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 186298 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments	
DP-5.61-10	04/19 10:05	Soil	8290	186298-001	
DP-5.61-20	04/19 10:30	Soil	8290	186298-003	

Notes:	Relinquished By: Received By:
	2 My Minin Bettmi & Benedict
	Date/Time: 5-1-06/1790 Date/Time: 5-1-06/1790
l <u></u>	

signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27644

SAMPLE LOG-IN CHECKLIST

Alta Project #:	27644				• •				
	Date/Time			Initials	;:	Locati	on: W	R-7	F
Samples Arrival:	5/2/06	09	57	Ve	XB	Shelf/F	Rack:		
	Date/Time Initials: L			Locati	on: D	R-	Y		
Logged In:	5/2/06	134	14	FE	3	L	Rack:	4-3	
Delivered By:	FedEx	UPS	\$	Cal	DHL		livered	Ot	her
Preservation:	lce	Blue Ice Dry Ic			ce	N	one		
Temp °C 2.9°	<u> </u>	Time:	10	15		Therm	ometer ID): DT	-20
						,00000	YEŞ	NO	NA
Adequate Sample	Volume Rece	eived?							
Holding Time Acceptable?							-		
Shipping Container(s) Intact?									
Shipping Custody Seals Intact?							\checkmark		
Shipping Documentation Present?									
Airbill	Trk# C1012900026462								
Sample Container Intact?						7			
Sample Custody Seals Intact?						V			
Chain of Custody / Sample Documentation Present?									
COC Anomaly/Sample Acceptance Form completed?						1			
If Chlorinated or D	rinking Wate	r Samp	les, A	cceptable l	Preservatio	on?			V
Na ₂ S ₂ O ₃ Preserva	tion Docume	nted?			COC		ample ontainer	No	one
Shipping Containe	er		Alta	Client	Retair	ı Cf	Return	Disp	oose

Aemples received in clear gass jois



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT

Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27618
- *Curtis & Tompkins, Ltd.* #186191

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.18-5	27618-001	27618	04/13/06	D
Soil	DP-7.17-5	27618-002	27618	04/13/06	D

Note:

 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letters and Chain-of-Custody Records are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results			\checkmark	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	\checkmark			
Cleanup Standard Recoveries	✓			
Identification of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.2^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as biased high (J+) on the associated qualified analytical results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
Total HxCDF	0.111 pg/g

Identification of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

			DV	
Sample ID(s)	SDG	Compound(s)	Qualifier	Reason(s)
DP-7.17-5	27618	Total HxCDF	J+	Positive result for congener in
				laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

Data Quanner Dennit	
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.

Data Qualifier Definitions

DV Qualifier	Definition
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Eller E. Heley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

MILS LS R

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-'	DP-7.18-5							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.	101701	Matrix:	Soil	Lab Sample: 2	27618-001	Date Received:	ived:	20-Apr-06
Trubic Collected: 13-A	rt bragg-oue Assessment 100191 13-Apr-06 0840	161001	Sample Size: %Solids*	11.8 g 86 3	QC Batch No.: 7 Date Analyzed DB-5: 7	7960 26-Anr-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Anr-06
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	andard		%R I		Oualifiers
2378-TCDD	Ľ				IS 13C-2.3.7.8-TCDD		67.4	40 - 135	
1.2.3.7.8-PeCDD	0.462			. –	13C-1,2,3,7,8-PeCDD	0	58.3	40 - 135	
1,2,3,4,7,8-HxCDD				ſ	13C-1,2,3,4,7,8-HxCDD	DD	74.2	40 - 135	
1,2,3,6,7,8-HxCDD	0.479			ſ	13C-1,2,3,6,7,8-HxCDD	DD	77.2	40 - 135	
1,2,3,7,8,9-HxCDD	ND		0.446		13C-1,2,3,4,6,7,8-HpCDD	CDD	65.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.95 J			J	13C-OCDD		51.7	40 - 135	
OCDD	3.67			Ţ	13C-2,3,7,8-TCDF		66.6	40 - 135	
2,3,7,8-TCDF	1.65				13C-1,2,3,7,8-PeCDF	ſ×	61.3	40 - 135	
1,2,3,7,8-PeCDF	0.841 5			J	13C-2,3,4,7,8-PeCDF	ſ,	60.7	40 - 135	
2,3,4,7,8-PeCDF	1.18 J			J	13C-1,2,3,4,7,8-HxCDF	DF	77.1	40 - 135	
1,2,3,4,7,8-HxCDF	0.450 J			J	13C-1,2,3,6,7,8-HxCDF	DF	79.7	40 - 135	
1,2,3,6,7,8-HxCDF	0.424 J			J	13C-2,3,4,6,7,8-HxCDF	DF	78.1	40 - 135	
2,3,4,6,7,8-HxCDF	0.494			J	13C-1,2,3,7,8,9-HxCDF	DF	66.4	40 - 135	
1,2,3,7,8,9-HxCDF	0.281 J			J	13C-1,2,3,4,6,7,8-HpCDF	CDF	64.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.599 J			J	13C-1,2,3,4,7,8,9-HpCDF	CDF	54.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0838			13C-OCDF		50.1	40 - 135	
OCDF	ND	0.272			CRS 37CI-2,3,7,8-TCDD		67.0	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	nt (TEQ) Dat	ae		
Total TCDD	5.83		6.07		TEQ (Min): 1.75				
Total PeCDD	4.97		6.34						
Total HxCDD	5.69		6.13		a. Sample specific estimated detection limit.	ction limit.			
Total HpCDD	3.52				b. Estimated maximum possible concentration.	oncentration.			
Total TCDF	28.6				c. Method detection limit.				
Total PeCDF	8.93		10.3		d. Lower control limit - upper control limit.	ntrol limit.			
Total HxCDF	3.72		4.08	В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ealth Organizatio	n Toxic Equ	ivalent Factors.(W	HO}
Total HpCDF	0.844								
Analyst: DMS					Approved By: W	William J. Luksemburg	emburg	01-May-2006 08:23	08:23

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Project 27618

Client Data Name: Curtis & Tompkins, Ltd. Project: Ft Bragg-Site Assessment 186191 Data Cliested: 13 Ann. 06									EFA IVI	EPA Method 8290
ti station				Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	ins, Ltd.	101701	Matrix:	Soil	Lab Sample:	27618-002	Date Received:	eived:	20-Apr-06
	rt bragg-oue As 13-Apr-06 0025	sessment	161001	Sample Size: %Solide:	10.9 g 90 4	QC Batch No.: Date Analyzed DB-5:	7960 26-Anr-06	Date Extracted: Date Analvzed I	Date Extracted: Date Analvzed DB-225:	22-Apr-06 NA
					1.07		00-1411-07		-	
Analyte C	Conc. (pg/g)	g)	DL ^a	EMPC ^D	Qualifiers	Labeled Standard		%В	rcr-ncr _q	Oualifiers
2,3,7,8-TCDD	ND		0.118			<u>IS</u> 13C-2,3,7,8-TCDD		56.1	40 - 135	
1,2,3,7,8-PeCDD	ND		0.147			13C-1,2,3,7,8-PeCDD	DD	50.2	40 - 135	
1,2,3,4,7,8-HxCDD	ND		0.225			13C-1,2,3,4,7,8-HxCDD	CDD	65.4	40 - 135	
1,2,3,6,7,8-HxCDD	ND		0.244			13C-1,2,3,6,7,8-HxCDD	CDD	67.8	40 - 135	
1,2,3,7,8,9-HxCDD	ND		0.227			13C-1,2,3,4,6,7,8-HpCDD	H pCDD	61.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.410	ら			J	13C-OCDD		48.5	40 - 135	
OCDD	1.66	5			J	13C-2,3,7,8-TCDF		57.6	40 - 135	
2,3,7,8-TCDF	DN		0.206		-	13C-1,2,3,7,8-PeCDF	DF	54.0	40 - 135	
1,2,3,7,8-PeCDF	DN		0.287			13C-2,3,4,7,8-PeCDF	DF	53.5	40 - 135	
2,3,4,7,8-PeCDF	ND		0.292			13C-1,2,3,4,7,8-HxCDF	CDF	68.3	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0725			13C-1,2,3,6,7,8-HxCDF	CDF	72.1	40 - 135	
1,2,3,6,7,8-HxCDF	DN	(0.0630			13C-2,3,4,6,7,8-HxCDF	CDF	69.0	40 - 135	
2,3,4,6,7,8-HxCDF	0.125				J	13C-1,2,3,7,8,9-HxCDF	CDF	58.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	ļ	0.0995			13C-1,2,3,4,6,7,8-HpCDF	HpCDF	58.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.272	Ь			J	13C-1,2,3,4,7,8,9-HpCDF	IpCDF	49.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND		0.192			13C-OCDF		45.4	40 - 135	
OCDF	0.610	6			J	CRS 37CI-2,3,7,8-TCDD	0	67.8	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	ient (TEQ) Da	ata ^e		
Total TCDD	DN		0.118			TEQ (Min): 0.0195	95			
Total PeCDD	DN		0.147							
Total HxCDD	DN		0.232			a. Sample specific estimated detection limit.	stection limit.			
Total HpCDD	0.773					b. Estimated maximum possible concentration.	e concentration.			
Total TCDF	0.177					c. Method detection limit.				
Total PeCDF	ND	,	0.290			d. Lower control limit - upper control limit.	control limit.			
Total HxCDF Total HpCDF	0.284 0.272	6			В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	Health Organization	on Toxic Equ	uivalent Factors.(V	{онл
Analyst: DMS						Approved By: V	William J. Luksemburg	semburg	01-May-2006 08:23	08:23

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Project 27618

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/13/06

Client: Acton Mickelson Environmental, Inc.

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc.

Deliverables: Level II

mé Loola Reviewed By: Approved By: WGK 7110106 Completion Date:

27618 SDG: *Refer to Table in QA Report

for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	1		~
Sample Condition Upon Receipt at Subcontract Laboratory	4	(1)	~
Laboratory Method Blank Results	4	(8)	~
Ongoing Precision and Recovery Sample Results	4		~
Internal Standard Recoveries	4		~
Cleanup Standard Recoveries	4		~
Identification of Target Compounds	4	(3)	~
Verification of the EDD in XLS Format	1		~

Comments:

armolets were here the abornto 0 t 'n cropta Opt 11000 0 hn CXC1 tt0 70 nΔ nrt. concentration a ର trans 0 mon-8 MINPA 202 Kinh timb were dound interu below the mantha mont ramal. 18619 Curtis & Tompkins SDG:

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifica	tion Limit	
(1)	(Aq., S)	Type (2)	Number		(units)	5x	10x	
0	B	MB	Method Blamk (7960)	Jotal HXCDF	0.111 pa/a	0.55		
<u> </u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1.10						
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					_		<u> </u>	
							L	

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Matrix: Soil		QC Batch No.:		7960	Lab Sample:	0-MB001			
Sample Size: 10.0 g		Date Extracted:		22-Apr-06	Date Analyzed DB-5:	25-Apr-06	Date An	Date Analyzed DB-225: N	NA
Analyte Conc. ((bg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	rd	%R	LCL-UCL ^d Qui	Qualifiers
2,3,7,8-TCDD	DN	0.0940			<u>IS</u> 13C-2,3,7,8-TCDD	Q	54.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.153			_	CDD	49.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.167			13C-1,2,3,4,7,8-HxCDD	HxCDD	67.5	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.167			13C-1,2,3,6,7,8-HxCDD	HxCDD	71.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.162			13C-1,2,3,4,6,7,8-HpCDD	8-HpCDD	62.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.218			13C-OCDD		47.2	40 - 135	
OCDD	ND	0.716			13C-2,3,7,8-TCDF	ЭF	53.8	40 - 135	
2,3,7,8-TCDF	ND	0.0997			13C-1,2,3,7,8-PeCDF	CDF	50.6	40 - 135	
1,2,3,7,8-PeCDF	ND	0.251			13C-2,3,4,7,8-PeCDF	CDF	52.7	40 - 135	
2,3,4,7,8-PeCDF	ND	0.237			13C-1,2,3,4,7,8-HxCDF	HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0673		13C-1,2,3,6,7,8-HxCDF	HxCDF	78.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND		0.0799		13C-2,3,4,6,7,8-HxCDF	HxCDF	70.7	40 - 135	
2,3,4,6,7,8-HxCDF	ŊŊ	0.0477			13C-1,2,3,7,8,9-HxCDF	HxCDF	58.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0846			13C-1,2,3,4,6,7,8-HpCDF	8-HpCDF	58.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	ŊŊ	0.217			13C-1,2,3,4,7,8,9-HpCDF	9-HpCDF	52.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	DN	0.184			13C-OCDF		46.2	40 - 135	
OCDF	ŊŊ	0.393			CRS 37CI-2,3,7,8-TCDD	DD	64.7	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	tient (TEQ) Da	ita e		
Total TCDD	DN	0.0940			TEQ (Min): 0				
Total PeCDD	ŊŊ	0.153							
Total HxCDD	ND	0.165			a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	ŊŊ	0.218			b. Estimated maximum possible concentration.	ole concentration.			
Total TCDF	ŊŊ	0.0997			c. Method detection limit.				
Total PeCDF	ND	0.244			d. Lower control limit - upper control limit.	control limit.			
Total HxCDF	0.111		0.259		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	d Health Organizatio	on Toxic Equi	valent Factors.(WHO)	
Total HpCDF	ND	0.237							

Project 27618

OPR Results							
Matrix: Soil		QC Batch No.:	7960	Lab Sample:	mple: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	22-Apr-06	Date /	Date Analyzed DB-5: 25-Apr-06	Date Analyzed DB-225:	ed DB-225: NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13	13C-2,3,7,8-TCDD	63.9	40 - 135
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13	13C-1,2,3,7,8-PeCDD	53.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13	13C-1,2,3,4,7,8-HxCDD	77.5	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13	13C-1,2,3,4,6,7,8-HpCDD	74.6	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13	13C-0CDD	46.8	40 - 135
OCDD	100	100	70 - 130	13	13C-2,3,7,8-TCDF	64.3	40 - 135
2,3,7,8-TCDF	10.0	9.89	7 - 13	13	13C-1,2,3,7,8-PeCDF	57.5	40 - 135
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13	13C-2,3,4,7,8-PeCDF	57.7	40 - 135
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13	13C-1,2,3,4,7,8-HxCDF	80.9	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13	13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13	13C-2,3,4,6,7,8-HxCDF	80.9	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13	13C-1,2,3,7,8,9-HxCDF	71.4	40 - 135
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13	13C-1,2,3,4,7,8,9-HpCDF	77.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13	13C-OCDF	52.6	40 - 135
OCDF	100	94.5	70 - 130	CRS 37	CRS 37Cl-2,3,7,8-TCDD	64.0	40 - 135

Analyst: JMH

Approved By: William J. Luksemburg 01-May-2006 08:23

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 02, 2006

Alta Project I.D.: 27618

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186191". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALT.



Section I: Sample Inventory Report Date Received: 4/20/2006

Alta Lab. ID	Client Sample ID
27618-001	DP-7.18-5
27618-002	DP-7.17-5

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

27618

0.20

Project Number: 186191 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled Matrix	Analysis	C&T Lab # Comme	ents
DP-7.18-5 .	04/13 08:40 Soil	8290	186191-001	
DP-7.17-5	04/13 09:35 Soil	8290	186191-003	
	please provid	e an EDC	> y/19/060B	
	· · · · · · · · · · · · · · · · · · ·	• · · · · · · · · · · · · · · · · · · ·		
			s	
Notes:	Date/Time:	291 shed By: renes (2/06 14/6	Received By Date/Time: 0905	nedict

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

	Date/Time		Initials	:	Locat	^{ion:} WR-	-2-
Samples Arrival:	4/20/0	6 0905	YS	\$B	Shelf/	Rack:	
	Date/Time		Initials	:	Locat	ion: $\mathcal W$	R-2-
Logged In:	4/21/0	60704	CB	10	Shelf/	٦.	+3
Delivered By:	FedEx		Cal	DHL		Hand elivered	Other
Preservation:	Ice	Blue	ce	Dry lo	e	No	ne
Temp °C (). [Time: O ^C	115		Thern	nometer ID	: DT-20

			YES	NO	NA
Adequate Sample Volume Received?			\checkmark		
Holding Time Acceptable?			\checkmark		
Shipping Container(s) Intact?			\checkmark		
Shipping Custody Seals Intact?					\checkmark
Shipping Documentation Present?			V		
Airbill Trk # C 1012900	0026090		V		
Sample Container Intact?			\checkmark		
Sample Custody Seals Intact?					\checkmark
Chain of Custody / Sample Documentation Prese	nt?				
COC Anomaly/Sample Acceptance Form comple	ted?			\bigvee	
If Chlorinated or Drinking Water Samples, Accept	able Preservation	?			
$Na_2S_2O_3$ Preservation Documented?	сос	Sarr Conta	• •	No	ne
Shipping Container Alta	ient Retain	Ret	urn	Disp	ose
Comments:					

Damples containers are clear jars



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT

Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27643
- Curtis & Tompkins, Ltd. #186277

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.12-13	27643-001	27643	04/18/06	D
Soil	DP-4.13-6	27643-002	27643	04/18/06	D
Soil	DP-4.10-11	27643-003	27643	04/18/06	D

Note:

 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		\checkmark		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds		\checkmark		
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

Sample	Analyte
DP-4.12-13	Total TCDF, Total PeCDF,
	1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,7,8,9-
	HxCDF, Total HxCDF,
	1,2,3,4,6,7,8-HpCDF, and Total HpCDF
DP-4.13-6	Total TCDF, Total PeCDF,
	1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF,
	and Total HxCDF
DP-4.10-11	Total PeCDF,
	1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF,
	and Total HxCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported and did not warrant any qualification.

Data Quanner Den	muons
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the
	level of the associated value due to contamination or interference identified.

Data Qualifier Definitions

DV Qualifier	Definition
J	The analyte was positively identified. The associated numerical value is the
	approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low
	bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high
	bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive
	evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an
	estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be
	verified and data are not usable.

4.0 Overall Assessment

The data were acceptable as reported and warranted no qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran

Acronym	Definition
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

N. S.MA

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-4	DP-4.12-13							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27643-001	Date Received:	eived:	2-May-06
Project: FI Br. Date Collected: 18-A	rt bragg-sue Assessment 1802// 18-Apr-06 0800	07/709	Sample Size: %Solids:	17.3 g 29.9	QC Batch No.: Date Analyzed DB-5:	7989 5-May-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-May-06
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R	rcr-ncr _q c	Oualifiers
2,3,7,8-TCDD	192		-		<u>IS</u> 13C-2,3,7,8-TCDD	DD	69.7	40 - 135	
1,2,3,7,8-PeCDD	476				13C-1,2,3,7,8-PeCDD	eCDD	78.2	40 - 135	
1,2,3,4,7,8-HxCDD	342				13C-1,2,3,4,7,8-HxCDD	-HxCDD	73.3	40 - 135	
1,2,3,6,7,8-HxCDD	495				13C-1,2,3,6,7,8-HxCDD	-HxCDD	77.6	40 - 135	
1,2,3,7,8,9-HxCDD	430				13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	92.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	2000				13C-0CDD		71.4	40 - 135	
OCDD	2940			B	13C-2,3,7,8-TCDF	DF	76.3	40 - 135	
2,3,7,8-TCDF	1250				13C-1,2,3,7,8-PeCDF	eCDF	78.6	40 - 135	
1,2,3,7,8-PeCDF	676				13C-2,3,4,7,8-PeCDF	eCDF	78.8	40 - 135	_
2,3,4,7,8-PeCDF	0611				13C-1,2,3,4,7,8-HxCDF	-HxCDF	71.3	40 - 135	
1,2,3,4,7,8-HxCDF	402				13C-1,2,3,6,7,8-HxCDF	-HxCDF	65.4	40 - 135	
1,2,3,6,7,8-HxCDF	459			D	13C-2,3,4,6,7,8-HxCDF	-HxCDF	73.8	40 - 135	
2,3,4,6,7,8-HxCDF	549			D	13C-1,2,3,7,8,9-HxCDF	-HxCDF	78.1	40 - 135	
1,2,3,7,8,9-HxCDF	173			D	13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	75.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	579			D	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	87.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	143				13C-OCDF		72.8	40 - 135	
OCDF	227				CRS 37CI-2,3,7,8-TCDD	DD	77.8	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ata ^e		
Total TCDD	6270				TEQ (Min):	1730			
Total PeCDD	6920								
Total HxCDD	7300				a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	3450				b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	25600			D	c. Method detection limit.				
Total PeCDF	11400			D	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	4310			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	orld Health Organizati	ion Toxic Equ	ivalent Factors.(W	{он
Total HpCDF	1200			D					
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 12:36	

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Sample ID: DP-4	DP-4.13-6							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27643-002	Date Received:	cived:	2-May-06
Project: Date Collected: Time Collected: 0950	Ft bragg-sue Assessment 1802/// 18-Apr-06 1950	90711	Sample Size: %Solids:	11.8 g 38.8	QC Batch No.: Date Analyzed DB-5:	7989 5-Mav-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-Mav-06
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R	LCL-UCL ^d C	Oualifiers
2,3,7,8-TCDD	95.4				<u>IS</u> 13C-2,3,7,8-TCDD		76.3	40 - 135	
1,2,3,7,8-PeCDD	235				13C-1,2,3,7,8-PeCDD	D	78.1	40 - 135	
1,2,3,4,7,8-HxCDD	171				13C-1,2,3,4,7,8-HxCDD	CDD	78.6	40 - 135	
1,2,3,6,7,8-HxCDD	266				13C-1,2,3,6,7,8-HxCDD	CDD	79.3	40 - 135	
1,2,3,7,8,9-HxCDD	235				13C-1,2,3,4,6,7,8-HpCDD	IpCDD	93.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	1070				13C-0CDD		71.7	40 - 135	
OCDD	1500			В	13C-2,3,7,8-TCDF		82.6	40 - 135	
2,3,7,8-TCDF	631				13C-1,2,3,7,8-PeCDF	DF	78.9	40 - 135	
1,2,3,7,8-PeCDF	362				13C-2,3,4,7,8-PeCDF	ЭF	79.6	40 - 135	
2,3,4,7,8-PeCDF	615				13C-1,2,3,4,7,8-HxCDF	CDF	74.2	40 - 135	
1,2,3,4,7,8-HxCDF	209				13C-1,2,3,6,7,8-HxCDF	CDF	70.1	40 - 135	
1,2,3,6,7,8-HxCDF	232			D	13C-2,3,4,6,7,8-HxCDF	CDF	76.1	40 - 135	
2,3,4,6,7,8-HxCDF	289			D	13C-1,2,3,7,8,9-HxCDF	CDF	80.4	40 - 135	
1,2,3,7,8,9-HxCDF	88.4				13C-1,2,3,4,6,7,8-HpCDF	IpCDF	85.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	295				13C-1,2,3,4,7,8,9-HpCDF	IpCDF	95.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	71.0				13C-OCDF		74.0	40 - 135	
OCDF	118				CRS 37CI-2,3,7,8-TCDD		79.6	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	ient (TEQ) Da	lta e		
Total TCDD	3140				TEQ (Min): 883				
Total PeCDD	3590								
Total HxCDD	3840				a. Sample specific estimated detection limit.	tection limit.			
Total HpCDD	1840				b. Estimated maximum possible concentration.	e concentration.			
Total TCDF	13000			D	c. Method detection limit.				
Total PeCDF	5880			D	d. Lower control limit - upper control limit.	ontrol limit.			
Total HxCDF	2250			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Health Organizatio	on Toxic Equ	uivalent Factors.(W	(он
Total HpCDF	592								
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 12:36	

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Client Data Curris & Tompkins, Ltd. Name: Ft Bragg-Site Assessment Project: Ft Bragg-Site Assessment Date Collected: 18-Apr-06 Time Collected: 18-Apr-06 Time Collected: 1335 Analyte Conc. (pg/g) 2,3,7,8-PCDD 43.4 1,2,3,4,7,8-HxCDD 10.9 1,2,3,4,6,7,8-HpCDD 14.7 1,2,3,4,6,7,8-HpCDD 56.8 0CDD 56.8	Curtis & Tompkins, Ltd. Ft Bragg-Site Assessment 186277 18-Apr-06	Sample Data	5 7					
allected: ollected: ollected: 7,8-PeCDD 6,7,8-HxCDI 7,8,9-HxCDI 7,8,9-HxCDI	npkins, Ltd. e Assessment 186277			Laboratory Data				
	e Assessment 1802//	Matrix:	Soil	Lab Sample: 2'	27643-003	Date Received:	eived:	2-May-06
1335 Conc. DD 43.4 DD 34.0 CDD 10.9 CDD 14.7 CDD 12.8 IpCDD 56.8		Sample Size:	19.0 g	QC Batch No.: 7	7989 5 Mari 06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225	4-May-06
Conc. 43.4 34.0 34.0 34.0 CDD 10.9 CDD 14.7 CDD 12.8 IpCDD 56.8		%02011ds:	41.4		-iviay-uo			0-14149-00
DD CDD CDD CDD CDD	(pg/g) DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R	LCL-UCL ^d C	Oualifiers
,8-PeCDD ,7,8-HxCDD ,8,9-HxCDD ,8,9-HxCDD ,6,7,8-HpCDD				<u>IS</u> 13C-2,3,7,8-TCDD		73.7	40 - 135	
,7,8-HxCDD ,7,8-HxCDD ,8,9-HxCDD ,6,7,8-HpCDD				13C-1,2,3,7,8-PeCDD	0	77.4	40 - 135	
,7,8-HxCDD ,8,9-HxCDD ,6,7,8-HpCDD				13C-1,2,3,4,7,8-HxCDD	DD	77.4	40 - 135	
,8,9-HxCDD ,6,7,8-HpCDD				13C-1,2,3,6,7,8-HxCDD	DD	79.1	40 - 135	
,6,7,8-HpCDD				13C-1,2,3,4,6,7,8-HpCDD	CDD	91.6	40 - 135	
				13C-OCDD		6.69	40 - 135	
			В	13C-2,3,7,8-TCDF		83.1	40 - 135	
2,3,7,8-TCDF 398				13C-1,2,3,7,8-PeCDF	ſ,	78.3	40 - 135	
1,2,3,7,8-PeCDF 110				13C-2,3,4,7,8-PeCDF	[*	78.0	40 - 135	
2,3,4,7,8-PeCDF 136				13C-1,2,3,4,7,8-HxCDF	DF	71.6	40 - 135	
1,2,3,4,7,8-HxCDF 24.7				13C-1,2,3,6,7,8-HxCDF	DF	67.9	40 - 135	
1,2,3,6,7,8-HxCDF 29.6			D	13C-2,3,4,6,7,8-HxCDF	DF	77.1	40 - 135	
2,3,4,6,7,8-HxCDF 28.3			D	13C-1,2,3,7,8,9-HxCDF	DF	80.8	40 - 135	
1,2,3,7,8,9-HxCDF 10.1				13C-1,2,3,4,6,7,8-HpCDF	CDF	77.8	40 - 135	
1,2,3,4,6,7,8-HpCDF 18.5				13C-1,2,3,4,7,8,9-HpCDF	CDF	92.7	40 - 135	
1,2,3,4,7,8,9-HpCDF 4.71				13C-OCDF		74.7	40 - 135	
OCDF 11.8				CRS 37CI-2,3,7,8-TCDD		77.0	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data	nt (TEQ) Da	ata ^e		
Total TCDD 572				TEQ (Min): 205				
Total PeCDD 333								
Total HxCDD 196				a. Sample specific estimated detection limit.	ction limit.			
Total HpCDD 102				b. Estimated maximum possible concentration.	concentration.			
Total TCDF 5820				c. Method detection limit.				
Total PeCDF 1400			D	d. Lower control limit - upper control limit.	ntrol limit.			
Total HxCDF 266			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ealth Organizati	on Toxic Eq	uivalent Factors.(W	(HO)
Total HpCDF 41.5								
Analyst: JMH				Approved By: Ma	Martha M. Maier		10-May-2006 12:36	

Project 27643

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/18/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By ĊJ Approved By: 7/10/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 07643 Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	x 4		~
Sample Condition Upon Receipt at Subcontract Laboratory	1	(1)	1
Laboratory Method Blank Results	1	(၁)	1
Ongoing Precision and Recovery Sample Results	1		✓
Internal Standard Recoveries	1		√
Cleanup Standard Recoveries	4		✓
Identification and Quantitation of Target Compounds	~	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:	
	(1) Damples were til sund in clear afass jans instead of the method-specified omler jars.
	method-ppecified amberiars.
	(2) OCDD upp present in the Mathod Blank.
	(3) Diphenulether interference was observed in one or more
	tomplet.
Curtis & Tompl	cins SDG: 186077

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifi	cation Limit	
(1)	(Aq., S)	(2)	Number		(units)	5x	10x	
0	\$	MB	Mathad Clamk (7987)	OCAN	1.93,09/9		19.30	
					· "J		J	
							_	
				·····				
							<u> </u>	

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank					EPA Method 8290
Matrix: Soil	QC Batch No.:	7989	Lab Sample: 0-MB001		
Sample Size: 10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5: 5-May-06	Date Ana	Date Analyzed DB-225: NA
Analyte Conc. (pg/g)	DL ^a EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD ND	0.0446		<u>IS</u> 13C-2,3,7,8-TCDD	93.3	40 - 135
1,2,3,7,8-PeCDD ND	0.0451			86.7	40 - 135
1,2,3,4,7,8-HxCDD ND	0.0830		13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135
1,2,3,6,7,8-HxCDD ND	0.0830		13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135
1,2,3,7,8,9-HxCDD ND	0.0838		13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135
1,2,3,4,6,7,8-HpCDD ND	0.129		13C-OCDD	67.8	40 - 135
OCDD 1.93		J	13C-2,3,7,8-TCDF	100	40 - 135
2,3,7,8-TCDF ND	0.0408		13C-1,2,3,7,8-PeCDF	88.0	40 - 135
1,2,3,7,8-PeCDF ND	0.0496		13C-2,3,4,7,8-PeCDF	87.6	40 - 135
2.3,4,7,8-PeCDF ND	0.0475		13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135
1,2,3,4,7,8-HxCDF ND	0.0590		13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135
1,2,3,6,7,8-HxCDF ND	0.0535		13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135
2,3,4,6,7,8-HxCDF ND	0.0608		13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135
1,2,3,7,8,9-HxCDF ND	0.0970		13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135
1,2,3,4,6,7,8-HpCDF ND	0.222		13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135
1,2,3,4,7,8,9-HpCDF ND	0.233		13C-OCDF	68.9	40 - 135
OCDF ND	0.196		CRS 37CI-2,3,7,8-TCDD	90.1	40 - 135
Totals			Toxic Equivalent Quotient (TEQ) Data	ata ^e	
Total TCDD ND	0.0446		TEQ (Min): 0.000193		
Total PeCDD ND	0.0451				
Total HxCDD ND	0.0833		a. Sample specific estimated detection limit.		
Total HpCDD ND	0.129		b. Estimated maximum possible concentration.		
Total TCDF ND	0.0408		c. Method detection limit.		
Total PeCDF ND	0.0486		d. Lower control limit - upper control limit.		
Total HxCDF ND	0.0676		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ion Toxic Equiv	alent Factors.(WHO}
Total HpCDF ND	0.228				
Analyst: JMH			Approved By: Martha M. Maier		10-May-2006 12:36

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OPR Results						EPA	EPA Method 8290
Matrix: Soil Sample Size: 10.0 g		QC Batch No.: Date Extracted:	7989 4-May-06	Lab Sc Date	Lab Sample: 0-OPR001 Date Analyzed DB-5; 5-May-06	Date Analyzed DB-225:	ed DB-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	II II II	13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	_	13C-1,2,3,7,8-PcCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	1	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	-	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	1	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65		13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130		13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13		13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7 ,8- PeCDF	50.0	52.6	35 - 65		13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65		13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65		13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65		13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	1	13C-1,2,3,7,8,9-HxCDF	62.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	2	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65		13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS 37	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27643

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186277". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



alta asatricent babardore contres d<mark>ar die report heren meets alt d</mark>ie rogravine<mark>ms var fo</mark>rdt hy AFE al zwerhave opplaalte wet incluide Chivereport of mild dar die repordineid event im Dilt valhant die verden oppraval of AFE



Section I: Sample Inventory Report Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27643-001	DP-4.12-13
27643-002	DP-4.13-6
27643-003	DP-4.10-11

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 186277 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments	3
DP-4.12-13	04/18 08:00	Soil	8290	186277-001	
DP-4.13-6	04/18 09:50	Soil	8290	186277-004	· ·
P-4.10-11	04/18 13:35	Soil	8290	186277-007	

Notes:	Relinquished By:	Received By:
•	FING EAN MARY	Bettma Benedict
	Date/Time: 5-1-16/1709	Date/Time: 0957

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #:	7643		<u></u>		_			
	Date/Time		Initials	:	Locati	on: \mathcal{W}	R- 2	F
Samples Arrival:	5/2/06	0957	P	\$B	Shelf/			
	Date/Time		Initials	:	Locati	ion: C	R-	2
Logged In:	5/2/06	1332	B	40		Rack:	-3	
Delivered By:	FedEx l	JPS	Cal	DHL		Hand elivered	Ot	her
Preservation:	ice .	Blue	lce	Dry lo	e	<u> </u>	one	
Temp °C 2.9°	C Ti	me: 1015			Thern	nometer II	D: DT-	-20
					mmm	WW WEG		
		-10			11111111	YES	NO	NA
Adequate Sample Volume Received?								
Holding Time Acceptable?								
Shipping Containe								
Shipping Custody	Seals Intact?	·····			· · ·			
Shipping Documer		1 -						
Airbill	Trk # 🤇	101290	00002	-6462			<u> </u>	<u> </u>
Sample Container	Intact?				•	~		
Sample Custody S	Seals Intact?							\checkmark
Chain of Custody	Sample Docum	entation Pre	esent?					
COC Anomaly/Sar	mple Acceptance	e Form com	oleted?		······		V	
If Chlorinated or D	rinking Water Sa	mples, Acc	eptable F	Preservatio	n?			V
Na ₂ S ₂ O ₃ Preserva	tion Documented	1?		COC		Sample ontainer	No	one
Shipping Containe	er	Alta	Client	Retair	1. (Return	Disp	oose

Comments:

samples received in clear glass jars.



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27265
- Curtis & Tompkins, Ltd. #184776

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP8.7-2	27265-001	27265	01/24/06	D
Soil	DP8.9-2.5	27265-002	27265	01/24/06	D
Soil	HSA4.5-16	27265-003	27265	01/24/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

Data Qualifier Dell	muons
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy C. young

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

SUL

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

	Curtis & Tompkins, Ltd. t Brage-Site Assessment 4-Jan-06Sample Size: Natrix: Sample Size: Sample				
Junts: Solid Lab Sample: 27265-001 Date Received: E-Fb-06 4Jan-06 Agametic: 2.15.8 Conc. (pp) Dut E-Fb-06 Date Received: E-Fb-06 4Jan-06 ND 0.131 Labbield Standard %R LCL-UCL ⁴ Outlifters 4Jan-06 ND 0.131 E-MPC ^b Qualifters Labbield Standard %R LCL-UCL ⁴ Outlifters 0 0.134 0.131 Labbield Standard %R LCL-UCL ⁴ Outlifters 0 0.138 J 0.131 Labbield Standard %R Lob LUCL ⁴ Outlifters 0 0.138 J 0.131 Labbield Standard %R Lob LUCL ⁴ Outlifters 0 0.038 J 0.135 J <th>Intris & Tompkins, Ltd.Matrix: sample Size: $4-Jan-06$Matrix: sample Size: $9,Solids:$$4-Jan-06ND0.131$Matrix: $9,Solids:$$-14-Jan-06ND0.131$Matrix: $9,Solids:$$-14-50ND0.131$Matrix: $9,Solids:$$-150ND0.131$Matrix: $9,Solids:$$-150ND0.131$Matrix: $9,Solids:$$-150ND0.131$$0.131$$ND$$0.134$$0.134$$ND$$0.148$$0.143$$ND$$0.143$$0.143$$ND$$0.148$$0.143$$ND$$0.0565$$ND$$0.0565$$ND$$0.0565$$0.484$$7$$0.724$$0.121$$ND$$0.0712$$ND$$0.0712$$ND$$0.0712$$ND$$0.0712$$ND$$0.134$$ND$$0.134$$ND$$0.134$$ND$$0.134$$ND$$0.134$$ND$$0.134$$ND$$0.134$$ND$$0.154$$ND$$0.154$$0.724$$0.154$$0.484$$0.154$</th> <th>Sample Data</th> <th>Laboratory Data</th> <th></th> <th></th>	Intris & Tompkins, Ltd.Matrix: sample Size: $4-Jan-06$ Matrix: sample Size: $9,Solids:$ $4-Jan-06$ ND 0.131 Matrix: $9,Solids:$ $-14-Jan-06$ ND 0.131 Matrix: $9,Solids:$ $-14-50$ ND 0.131 Matrix: $9,Solids:$ -150 ND 0.131 Matrix: $9,Solids:$ -150 ND 0.131 Matrix: $9,Solids:$ -150 ND 0.131 0.131 ND 0.134 0.134 ND 0.148 0.143 ND 0.143 0.143 ND 0.148 0.143 ND 0.0565 ND 0.0565 ND 0.0565 0.484 7 0.724 0.121 ND 0.0712 ND 0.0712 ND 0.0712 ND 0.0712 ND 0.134 ND 0.154 ND 0.154 0.724 0.154 0.484 0.154	Sample Data	Laboratory Data		
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	D 1.86 √ 8.54 ND 0.143 ND 0.165 ND 0.165 ND 0.165 ND 0.0520 ND 0.0557 ND 0.0565 ND 0.0134 ND 0.134 0.724 0.134 0.134 0.134 0.134 0.134		13C-1,2,3,4,6,7,8-HpCDD		
8.54 13C-2,3,7,8-TCDF 86.7 40-135 ND 0.143 13C-1,2,3,7,8-FeCDF 106 40-135 ND 0.0550 13C-1,2,3,4,7,8-FeCDF 110 40-135 ND 0.0517 13C-1,2,3,4,7,8-FeCDF 113 40-135 ND 0.0517 13C-1,2,3,4,7,8-FeCDF 113 40-135 ND 0.0517 13C-1,2,3,4,7,8-FeCDF 106 40-135 ND 0.0565 13C-1,2,3,4,7,8-FeCDF 106 40-135 ND 0.0517 13C-1,2,3,4,7,8-FeCDF 106 40-135 ND 0.0565 13C-1,2,3,4,7,8-FeCDF 93.1 40-135 ND 0.0712 13C-1,2,3,4,7,8-FECDF 93.2 40-135 ND 0.0712 13C-1,2,3,4,7,8-FECDF 93.1 40-135 ND 0.0712 13C-1,2,3,4,7,8-FECDF 94.1 40-135 ND 0.0712 13C-1,2,3,4,7,8-FECDF 94.1 40-135 ND 0.0712 272 272 40-135 ND 0.013 13C-1,2,3,4,7,8-FECDF 94.1 40-135 ND 0.134 7 13C-1,2,3,4,7,8-FECDF 94.1 40-135 ND 0.134 7 13C-1,2,3,4,7,8-FECDF <t< td=""><td>8.54 ND 0.143 ND 0.165 ND 0.165 ND 0.0520 ND 0.0517 ND 0.0517 ND 0.0517 ND 0.0517 0.484 J 0.0565 0.484 J 0.0724 ND 0.131 ND 0.134 0.134 0.134 0.154 0.154</td><td>ſ</td><td>13C-OCDD</td><td></td><td></td></t<>	8.54 ND 0.143 ND 0.165 ND 0.165 ND 0.0520 ND 0.0517 ND 0.0517 ND 0.0517 ND 0.0517 0.484 J 0.0565 0.484 J 0.0724 ND 0.131 ND 0.134 0.134 0.134 0.154 0.154	ſ	13C-OCDD		
$ \begin{array}{lcccccccccccccccccccccccccccccccccccc$	ND 0.143 ND 0.165 ND 0.165 ND 0.0520 ND 0.0517 ND 0.0565 0.484 J 0.484 J 0.0565 0.148 0.0565 0.131 ND 0.0712 ND 0.0712 ND 0.134 0.134 0.134 0.134 0.134 0.134 0.134 0.134 0.154		13C-2,3,7,8-TCDF		
$ \begin{array}{lclcrcl} ND & 0.165 & 13C-2,3,4,7,8-PCDF & 110 & 40-135 \\ ND & 0.048 & ND & 0.0520 & 13C-1,2,3,6,7,8-HxCDF & 114 & 40-135 \\ ND & 0.0565 & 13C-1,2,3,6,7,8-HxCDF & 113 & 40-135 \\ ND & 0.0565 & 13C-1,2,3,6,7,8-HxCDF & 93.2 & 40-135 \\ ND & 0.055 & 13C-1,2,3,4,7,8,9-HyCDF & 93.2 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 93.2 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.0712 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 13C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 12C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 12C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 12C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 12C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.131 & 12C-1,2,3,4,7,8,9-HyCDF & 94.1 & 40-135 \\ ND & 0.134 & 3 sample specific estimated detection limit. \\ 0.0917 & 0.0917 & 0.0917 \\ ND & 0.154 & 1.24 & a sample specific estimated detection limit. \\ 0.161 & 0.0917 & 0.0917 & 0.0917 \\ ND & 0.154 & 0.724 & 1.24 & 0.0917 & 0.0917 \\ ND & 0.154 & 0.0214 & 0.097) World Health Organization Toxic Equivalent Factors (WHO) \\ ND & 0.154 & 0.714 & 0.797) World Health Organization Toxic Equivalent Factors (WHO) \\ ND & 0.154 & 0.714 & 0.797) World Health Organization Toxic Equivalent Factors (WHO) \\ ND & 0.214 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.797 & 0.714 & 0.778 & 0.7$	ND 0.165 ND 0.148 ND 0.0520 ND 0.0517 ND 0.0565 0.484 T 0.0565 0.484 T 0.0565 0.484 T 0.0565 0.484 T 0.0565 0.484 T 0.0565 0.134 0.0712 ND 0.131 ND 0.131 ND 0.134 0.134 0.154 0.154		13C-1,2,3,7,8-PeCDF		
ND 0.148 13C-1,2,3,4,7,8-HxCDF 114 40-135 ND 0.0517 13C-1,2,3,4,7,8-HxCDF 113 40-135 ND 0.0565 13C-1,2,3,4,6,7,8-HxCDF 113 40-135 ND 0.0565 13C-1,2,3,4,6,7,8-HxCDF 106 40-135 F ND 0.0712 13C-1,2,3,7,8,9-HxCDF 93.2 40-135 F ND 0.0712 13C-1,2,3,7,8,9-HxCDF 94.1 40-135 F ND 0.0712 13C-1,2,3,7,8,9-HpCDF 94.1 40-135 ND 0.131 TEQ (Min): 0.131 40-135 ND 0.131 TEQ (Min): 0.017 40-135 ND 0.134 1.24 a Sample specific estimated detection limit. 40-135 ND 0.134	ND 0.148 ND 0.0517 ND 0.0517 ND 0.0565 0.484 7 0.484 7 0.0712 ND 0.0712 ND 0.0712 ND 0.131 ND 0.131 ND 0.134 0.724 0.724 0.134 0.134 0.134 0.134 0.134		13C-2,3,4,7,8-PeCDF		
$ \begin{array}{lclcrcl} ND & 0.0520 & 13C-1,2,3,6,7,8+HxCDF & 113 & 40-135 \\ ND & 0.0517 & 13C-2,3,4,6,7,8+HxCDF & 106 & 40-135 \\ 13C-1,2,3,4,6,7,8+HyCDF & 93,2 & 40-135 \\ 13C-1,2,3,4,6,7,8+HyCDF & 87,3 & 40-135 \\ 13C-1,2,3,4,7,8,9-HyCDF & 94,1 & 40-135 \\ ND & 0.0712 & 13C-0CDF & 94,1 & 40-135 \\ 13C-0CDF & 13C-1,2,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 13C-1,2,3,7,8,9-HyCDF & 94,1 & 40-135 \\ ND & 0.0712 & CRS & 37C-2,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 12,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 12,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 13C-1,2,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 12,3,7,8,9-HyCDF & 94,1 & 40-135 \\ 13C-0CDF & 0.724 & 1.24 & 580 & 40-135 \\ 13C-0CDF & 0.0917 & 40-135 \\ 13C-0CDF & 0.0917 & 40-135 \\ 1.61 & 0.724 & 1.24 & a Sample specific estimated detection limit. \\ 1.61 & 0.724 & 1.24 & a Sample specific estimated detection limit. \\ 1.61 & 0.724 & 1.24 & a Sample specific estimated detection limit. \\ 1.61 & 0.724 & 1.24 & a Sample specific estimated detection limit. \\ 0.724 & 0.134 & 0.0917 & 0.0917 & 0.0917 & 0.0917 & 0.0917 & 0.0011 & 0.0017 & 0.$	ND 0.0520 ND 0.0517 ND 0.0565 0.484 J 0.0365 0.484 J 0.0712 ND 0.0712 ND 0.0712 ND 0.131 0.134 0.134 0.134 0.134 0.134 0.134 0.134 0.134 0.134		13C-1,2,3,4,7,8-HxCDF	-	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ND 0.0517 ND 0.0565 0.484 T 0.0565 0.484 T 0.0565 0.484 T 0.0712 ND 0.0712 ND 0.0712 ND 0.131 0.134 0.134 0.134 0.134 0.134 0.154 0.154		13C-1,2,3,6,7,8-HxCDF		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ND 0.0565 0.484 J IF ND 0.0712 ND 0.0712 ND 0.131 ND 0.131 ND 0.134 0.724 0.724 0.134 0.134 0.134 0.154 0.154		13C-2,3,4,6,7,8-HxCDF		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	CDF 0.484 T HpCDF ND 0.0712 ND 0.0712 ND 0.131 ND 0.134 ND 0.134 0.134 ND 0.134 0.154 0.484		13C-1,2,3,7,8,9-HxCDF	-	
	HpCDF ND 0.0712 HpCDF ND 0.0712 ND 0.272 ND 0.131 ND 0.134 0.724 0.134 0.134 0.134 0.154	J	13C-1,2,3,4,6,7,8-HpCDF		
HpCDF ND 0.0712 13C-OCDF 68.0 40 - 135 ND 0.272 CRS 37CI-2,3,7,8-TCDD 97.7 40 - 135 ND 0.131 Toxic Equivalent Quotient (TEQ) Data 6 6 6 6 6 6 6 7 40 - 135 ND 0.131 Toxic Equivalent Quotient (TEQ) Data 6 7 40 - 135 7 <td>HpCDF ND 0.0712 ND 0.272 ND 0.131 ND 0.134 0.724 0.724 1.61 1.61 0.154 0.484</td> <td>0.214</td> <td>13C-1,2,3,4,7,8,9-HpCDF</td> <td></td> <td></td>	HpCDF ND 0.0712 ND 0.272 ND 0.131 ND 0.134 0.724 0.724 1.61 1.61 0.154 0.484	0.214	13C-1,2,3,4,7,8,9-HpCDF		
ND 0.272 CRS 37Cl-2,3,7,8-TCDD 97.7 40 - 135 ND 0.131 Toxic Equivalent Quotient (TEQ) Data 6 ND 0.134 TeQ (Min): 0.0917 40 - 135 ND 0.134 TeQ (Min): 0.0917 6 ND 0.134 a. Sample specific estimated detection limit. 6 0.724 1.24 a. Sample specific estimated detection limit. 1.61 0.724 1.24 a. Sample specific estimated detection limit. 1.61 1.61 0.724 1.24 a. Sample specific estimated detection limit. 1.61 0.734 a. Sample specific estimated detection limit. 1.61 0.154 a. Mond detection limit. 0.484 0.154 d. Lower control limit. upper control limit. 0.484 0.214 0.214 d. Lower control limit.	ND 0.272 ND 0.131 ND 0.134 0.724 0.134 0.134 0.134 0.134 0.134 0.154		13C-OCDF		
ND 0.131 ND 0.134 0.724 0.134 2.60 1.61 ND 0.154 0.484 ND 0.154 0.214	ND 0.131 ND 0.134 0.724 2.60 1.61 ND 0.154 0.484		CRS 37CI-2,3,7,8-TCDD		
ND 0.131 ND 0.134 0.724 0.134 2.60 1.61 ND 0.154 0.484 0.484 ND 0.214	ND 0.131 ND 0.134 0.724 2.60 1.61 ND 0.154 0.484		Toxic Equivalent Quotient (TEQ) Ds		
ND 0.134 0.724 0.134 2.60 1.61 ND 0.154 0.484 ND 0.214	ND 0.134 0.724 2.60 1.61 ND 0.154 0.484				
0.724 1.24 2.60 1.61 ND 0.154 0.484 ND 0.214	0.724 2.60 1.61 ND 0.154 0.484				
2.60 1.61 ND 0.154 0.484 ND 0.214	2.60 1.61 ND 0.484	1.24	a. Sample specific estimated detection limit.		
1.61 ND 0.154 0.484 ND 0.214	1.61 ND 0.484		b. Estimated maximum possible concentration.		
ND 0.154 0.484 ND 0.214	ND 0.484		c. Method detection limit.		
0.484 ND 0.214			d. Lower control limit - upper control limit.		
ND			e. TEQ based on (1997) World Health Organizati	on Toxic Equivalent Factors.(WHC	(o
	ND	0.214			

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Sample ID: DP8	DP8.9-2.5							EPA N	EPA Method 8290	
Client Data			Sample Data		Laboratory Data					
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample: 27265-002		Date Received:	ed:	8-Feb-06	
Trugect: Collected: 24-Ja Date Collected: 24-Ja Time Collected: 1131	rt Diagg-one Assessinen 24-Jan-06 1131		Sample Size: %Solids:	13.4 g 74.8	QC Batch No.: 7750 ~ Date Analyzed DB-5: 15-Feb-06	-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	13-Feb-06 NA	
	Conc. (ng/g)	DL ^a	EMPC ^b	Oualifiers	Labeled Standard		%R L(rcr-ncr _q	Oualifiers	
		0.152							,	
2,3,1,8-1CDD		cc1.0			_ `		•			
1,2,3,7,8-PeCDD	0.318 7			ſ	13C-1,2,3,7,8-PeCDD			40 - 135		
1,2,3,4,7,8-HxCDD	0.323 J			Ľ	13C-1,2,3,4,7,8-HxCDD			40 - 135		
1,2,3,6,7,8-HxCDD	3.45				13C-1,2,3,6,7,8-HxCDD		102 4	40 - 135		
1,2,3,7,8,9-HxCDD	1.42 J			ſ	13C-1,2,3,4,6,7,8-HpCDD		87.5 4	40 - 135		
1,2,3,4,6,7,8-HpCDD	54.6				13C-OCDD		57.0 4	40 - 135		
OCDD	426				13C-2,3,7,8-TCDF		95.9 4	40 - 135		2
2,3,7,8-TCDF	0.476 3			J	13C-1,2,3,7,8-PeCDF		113 4	40 - 135		
1,2,3,7,8-PeCDF	0.235 J			J	13C-2,3,4,7,8-PeCDF		116 4	40 - 135		
2,3,4,7,8-PeCDF	0.489 J			J	13C-1,2,3,4,7,8-HxCDF		102 4	40 - 135		
1,2,3,4,7,8-HxCDF	0.782 J			ſ	13C-1,2,3,6,7,8-HxCDF		96.9	40 - 135		
1,2,3,6,7,8-HxCDF	0.460 5			ſ	13C-2,3,4,6,7,8-HxCDF		96.8 4	40 - 135		
2,3,4,6,7,8-HxCDF	0.608 5			J	13C-1,2,3,7,8,9-HxCDF		96.8 4	40 - 135		
1,2,3,7,8,9-HxCDF	QN	0.351			13C-1,2,3,4,6,7,8-HpCDF		82.8	40 - 135		
1,2,3,4,6,7,8-HpCDF	25.1				13C-1,2,3,4,7,8,9-HpCDF		92.9	40 - 135		
1,2,3,4,7,8,9-HpCDF	QN		1.01		13C-OCDF		65.9	40 - 135		
OCDF	66.5				CRS 37CI-2,3,7,8-TCDD		97.9	40 - 135		20
Totals					Toxic Equivalent Quotient (TEQ) Data	FEQ) Data	e			
Total TCDD	0.794				TEQ (Min): 2.17					
Total PeCDD	1.19		1.59							
Total HxCDD	15.9				a. Sample specific estimated detection limit.	limit.				
Total HpCDD	101				b. Estimated maximum possible concentration.	ntration.				
Total TCDF	5.00				c. Method detection limit.					
Total PeCDF	3.71		3.96		d. Lower control limit - upper control limit.	limit.				
Total HxCDF	8.83				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Organization To	oxic Equiv	alent Factors.((OHW)	
Total HpCDF	82.9		83.9							
Analyst: DMS					Approved By: Martha	Martha M. Maier	03-Apr	03-Apr-2006 15:50	0	

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Sample ID: F	HSA4.5-16							EPA M	EPA Method 8290	
Client Data			Sample Data		Laboratory Data					
Nanie:	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27265-003	Date Received:	eived:	8-Feb-06	
Project: Date Collected: Time Collected:	rt Bragg-sue Assessment 24-Jan-06 1102		Sample Size: %Solids:	11.6 g 85.6	QC Batch No.: Date Analyzed DB-5:	7750~ 15-Feb-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	13-Feb-06 NA	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	dard	%R	rcr-ucr ^d	Oualifiers	
2,3,7,8-TCDD	Ð	0.120			<u>IS</u> 13C-2,3,7,8-TCDD	DD	96.9	40 - 135		
1,2,3,7,8-PeCDD	ND	0.143			13C-1,2,3,7,8-PeCDD	eCDD	115	40 - 135		
1,2,3,4,7,8-HxCDD	QN Q	0.126			13C-1,2,3,4,7,8-HxCDD	-HxCDD	101	40 - 135		
1,2,3,6,7,8-HxCDD	QN QN	0.133			13C-1,2,3,6,7,8-HxCDD	-HxCDD	106	40 - 135		
1,2,3,7,8,9-HxCDD	DN D	0.125			13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	92.7	40 - 135		
1,2,3,4,6,7,8-HpCDD	DD 1.88 J			J	13C-OCDD		65.1	40 - 135		
OCDD	13.2				13C-2,3,7,8-TCDF	DF	96.9	40 - 135		10
2,3,7,8-TCDF	QN	0.106			13C-1,2,3,7,8-PeCDF	eCDF	119	40 - 135	-	
1,2,3,7,8-PeCDF	QN	0.124			13C-2,3,4,7,8-PeCDF	eCDF	119	40 - 135	,	
2,3,4,7,8-PeCDF	QN	0.109			13C-1,2,3,4,7,8-HxCDF	-HxCDF	107	40 - 135		
1,2,3,4,7,8-HxCDF	F ND	0.0292			13C-1,2,3,6,7,8-HxCDF	-HxCDF	105	40 - 135		
1,2,3,6,7,8-HxCDF	F ND	0.0278			13C-2,3,4,6,7,8-HxCDF	-HxCDF	106	40 - 135		
2,3,4,6,7,8-HxCDF	F ND	0.0311			13C-1,2,3,7,8,9-HxCDF	-HxCDF	102	40 - 135		
1,2,3,7,8,9-HxCDF	F ND	0.0482			13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	89.8	40 - 135		
1,2,3,4,6,7,8-HpCDF	DF ND		0,195		13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	97.3	40 - 135	-	
1,2,3,4,7,8,9-HpCDF	QN	0.0502			13C-OCDF		75.4	40 - 135		
OCDF	0.289 J			ſ	CRS 37CI-2,3,7,8-TCDD	CDD	95.7	40 - 135		5
Totals					Toxic Equivalent Quotient (TEQ) Data	juotient (TEQ) Da	ata ^e			
Total TCDD	QN	0.120			TEQ (Min):	0.0201				
Total PeCDD	QN	0.143								
Total HxCDD	0.200				a. Sample specific estimated detection limit.	ted detection limit.				
Total HpCDD	3.33				b. Estimated maximum possible concentration.	ssible concentration.			_	
Total TCDF	DN	0.106			c. Method detection limit.					
Total PeCDF	DN	0.117			d. Lower control limit - upper control limit.	pper control limit.				
Total HxCDF	QN	0.0334			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Vorld Health Organizati	ion Toxic Eq	uivalent Factors.(V	(оно	
Total HpCDF	0.235		0.430							
Analyst: DMS					Approved By:	Martha M. Maier		03-Apr-2006 15:50		

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses S	Support Documentation
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Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 01/24/06

Reviewed By: Approved By: ω 7/11/06 Completion Date:

Client: Acton Mickelson Environmental, Inc.

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
identified problems, and support documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		4
Sample Condition Upon Receipt at Subcontract Laboratory	~		4
Laboratory Method Blank Results	. 1		4
Ongoing Precision and Recovery Sample Results	1		4
Internal Standard Recoveries	1		1
Cleanup Standard Recoveries	~		1
Identification and Quantitation of Target Compounds	~	١.	4
Verification of the EDD in XLS Format	✓		1

Comments: Ω sorteo r. + 10 (m 1ha 22 th pures Ma e 0 dilution Lactor mo ad and sample H . a estino nes

Curtis & Tompkins SDG: 184776

Veridian Environmental, Inc.

SDG 27265

Blank Analysis Results for Target Analytes

Fraction	Metrix	Blank Type	Biank Sample	Contaminant	Concentration	Qualific	ation Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
DF	6	MB	0-mB001 2/15/06 Batch 7750	<u> </u>			
V	5	PU	aliston Batch				<u> </u>
			215/06 1750				
							L
						<u> </u>	
	1						
				Novio Ella			

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DF. Dioxin FUNAN

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: <u>all ND</u>

Method Blank					EPA Method 8290
Matrix: Soil	QC Batch No.:	: 7750 2	Lab Sample: 0-MB001		
Sample Size: 10.0 g	Date Extracted:	d: 13-Feb-06	Date Analyzed DB-5: 15-Feb-06	Date Analy	Date Analyzed DB-225: NA
Analyte Conc. (pg/g)	DL ^a	EMPC ^b Qualifiers	Labeled Standard	%R 1	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD ND	0.0919		<u>IS</u> 13C-2,3,7,8-TCDD	89.3	40 - 135
1,2,3,7,8-PeCDD ND	0.126			99.1	40 - 135
1,2,3,4,7,8-HxCDD ND	0.103		13C-1,2,3,4,7,8-HxCDD	86.4	40 - 135
1,2,3,6,7,8-HxCDD ND	0.105		13C-1,2,3,6,7,8-HxCDD	94.3	40 - 135
1,2,3,7,8,9-HxCDD ND	0.100		13C-1,2,3,4,6,7,8-HpCDD	9.77	40 - 135
1,2,3,4,6,7,8-HpCDD ND	0.0686		13C-OCDD	52.5	40 - 135
OCDD ND	0.159		13C-2,3,7,8-TCDF	85.6	40 - 135
2,3,7,8-TCDF ND	0.102		13C-1,2,3,7,8-PeCDF	104	40 - 135
1,2,3,7,8-PeCDF ND	0.166		13C-2,3,4,7,8-PeCDF	102	40 - 135
2,3,4,7,8-PeCDF ND	0.161		13C-1,2,3,4,7,8-HxCDF	96.6	40 - 135
1,2,3,4,7,8-HxCDF ND	0.0334		13C-1,2,3,6,7,8-HxCDF	95.8	40 - 135
1,2,3,6,7,8-HxCDF ND	0.0324		13C-2,3,4,6,7,8-HxCDF	92.3	40 - 135
2,3,4,6,7,8-HxCDF ND	0.0372		13C-1,2,3,7,8,9-HxCDF	92.9	40 - 135
1,2,3,7,8,9-HxCDF ND	0.0540		13C-1,2,3,4,6,7,8-HpCDF	80.5	40 - 135
1,2,3,4,6,7,8-HpCDF ND		0.147	13C-1,2,3,4,7,8,9-HpCDF	79.8	40 - 135
1,2,3,4,7,8,9-HpCDF ND	0.0810		13C-OCDF	59.5	40 - 135
OCDF ND	0.268		CRS 37CI-2,3,7,8-TCDD	98.2	40 - 135
Totals			Toxic Equivalent Quotient (TEQ) Data	ata ^e	
Total TCDD ND	0.0919		TEQ (Min): 0		
Total PeCDD ND	0.126				
Total HxCDD ND	0.102		a. Sample specific estimated detection limit.		
Total HpCDD ND	0.0686		b. Estimated maximum possible concentration.		
Total TCDF ND	0.102		c. Method detection limit.		
Total PeCDF ND	0.163		d. Lower control limit - upper control limit.		
Total HxCDF ND	0.0386		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ion Toxic Equival	ent Factors.(WHO)
Total HpCDF ND		0.147			
Analyst: DMS			Approved By: Martha M. Maier		03-Apr-2006 15:50

Project 4 of 13

OPR Results					T	EPA Method 8290	8290	
Matrix: Soil		QC Batch No .:	7750 ~	Lab Sample: 0-OPR001	1001			
Sample Size: 10.0 g		Date Extracted:	13-Feb-06	Date Analyzed DB-5: 14-Feb-06		Date Analyzed DB-225:	NA :	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%	%R LCL-UCL	UCL	
2,3,7,8-TCDD	10.0	9.83	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	90.2	.2 40 - 135	35	
1,2,3,7,8-PeCDD	50.0	52.1	35 - 65	13C-1,2,3,7,8-PeCDD	103	3 40 - 135	35	
1,2,3,4,7,8-HxCDD	50.0	49.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	89.1	.1 40 - 135	35	
1,2,3,6,7,8-HxCDD	50.0	50.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	96.4	4 40 - 135	35	
1,2,3,7,8,9-HxCDD	50.0	49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD		.7 40 - 135	35	
1,2,3,4,6,7,8-HpCDD	50.0	50.2	35 - 65	13C-OCDD		.1 40 - 135	35	
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	89.8	.8 40 - 135	35	5
2,3,7,8-TCDF	10.0	9.82	7 - 13	13C-1,2,3,7,8-PeCDF	109	9 40 - 135	35	
1,2,3,7,8-PeCDF	50.0	49.5	35 - 65	13C-2,3,4,7,8-PeCDF	108	8 40 - 135	35	
2,3,4,7,8-PeCDF	50.0	49.7	35 - 65	13C-1,2,3,4,7,8-HxCDF	101	1 40 - 135	35	
1,2,3,4,7,8-HxCDF	50.0	49.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	97.2	.2 40 - 135	35	
1,2,3,6,7,8-HxCDF	50.0	50.4	35 - 65	13C-2,3,4,6,7,8-HxCDF	94.0	.0 40 - 135	35	
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	94.8	.8 40 - 135	35	
1,2,3,7,8,9-HxCDF	50.0	49.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	87.2	.2 40 - 135	35	
1,2,3,4,6,7,8-HpCDF	50.0	49.1	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	84.8	.8 40 - 135	35	
1,2,3,4,7,8,9-HpCDF	50.0	49.1	35 - 65	13C-OCDF	63.1	.1 40 - 135	35	
OCDF	100	94.3	70 - 130	CRS 37CI-2,3,7,8-TCDD	9.06	.9 40 - 135	35	0 K
Analyst: DMS		on ok		Approved By: Martha	Martha M. Maier 18-Feb-2006 12:45	eb-2006 12:45		

Project 5 of 13

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 27265

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the three soil samples received at Alta Analytical Laboratory on February 08, 2006 under your Project Name "Ft Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivilancy (TEQ) as calculated using the WHO-1997 Toxic Equivilancy Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 2/8/2006

<u>Alta Lab. ID</u>	Client Sample ID
27265-001	DP8.7-2
27265-002	DP8.9-2.5
27265-003	HSA4.5-16

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532 Project Number: 184776 Site: Ft Bragg-Site Assessment Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino Results due: Report Level: II Please send report to: Lisa Brooker

Sample ID Sampled Matrix Analysis C&T Lab # Comments P8.7-2 01/24 10:34 Soil 8290 184557-012 8290 DP8.9-2.5 01/24 11:31 Soil 184557-016 01/24 11:02 Soil 8290 HSA4.5-16 184557-019

*** Please report using Sample ID rather than C&T Lab #.

Notes:	, Relinquish	ed By: Received By:
	An hero	Bettima . Lene diet
	Date/Time: 277	1530 Date/Time: 0930

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #: 27265

Samples Arrival:	Date/Time 2806	0915	Initials:	1B	Locatio	on: NR-D					
Logged In:	Date/Time $2 9 06$	0730	Initials:	1B	Locatio	on: WR-	Э				
Delivered By:	FedEx	UPS	Cal	DHL	1	land livered	Other				
Preservation:	Ice	Blue		Ice Dry Ice None		ne					
Temp °C 2.4	2.0	Time:	925		Thermo	Temp °C 2.9°C Time: 0925 Thermometer ID: DT-20					

					YES	NO	NA
Adequate Sample Volume Received	?	•			V		
Holding Time Acceptable?					\vee		
Shipping Container(s) Intact?					\checkmark		
Shipping Custody Seals Intact?			,				\checkmark
Shipping Documentation Present?							
Airbill Trk # C 10	1290	1000a	4383				
Sample Container Intact?					\checkmark		
Sample Custody Seals Intact?							\checkmark
Chain of Custody / Sample Documer	ntation Pr	esent?				1	
COC Anomaly/Sample Acceptance F	orm com	pleted?	•			\checkmark	
If Chlorinated or Drinking Water Sam	nples, Acc	eptable P	reservation?		Ī		\checkmark
Na ₂ S ₂ O ₃ Preservation Documented?).		COC		nple ainer	No	ne
Shipping Container	Alta	Client	Retain	Ret	turn	Disp	ose
Comments:		0					

....

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July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc.. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27297
- Curtis & Tompkins, Ltd. #184951

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client	AAL	Laboratory	Collection	Parameters
	Sample ID	Sample ID	Project ID	Date	Analyzed
Soil	COMPOSITE	27297-001	27297	02/14/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	\checkmark			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	\checkmark			
Cleanup Standard Recoveries	\checkmark			
Identification and Quantitation of Target Compounds	\checkmark			
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.7°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}$ C. This exception does not warrant qualification of the data.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Data is acceptable as reported, no qualification warranted.

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

The data was accepted as reported, no qualifications were warranted. To confidently use any of the analytical data within this sample set, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery

Acronym	Definition
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Trang a. our

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

Will. Sift

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID:	COMPOSITE							EPA M	EPA Method 8290	
Client Data			Sample Data		Laboratory Data					
Name	Curtis & Tompkins, Ltd.	1 10101	Matrix:	Soil	Lab Sample:	27297-001	Date Received:	ived:	16-Feb-06	
Date Collected:	For Dragg-Site Assessingli-104921 [4-Feb-06	106401-1	Sample Size:	17.1 g	QC Batch No.:	7774 ~	Date Extracted:	Date Extracted:	21-Feb-06	
I ime Collected:	0900		%oSOIIUS:	د.هد	Part milary zura	23-FED-UD		yeeu 1011-220.	20-red-ud	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	idard	%R I	rcr-ncr _q	Oualifiers	
2,3,7,8-TCDD	83.6				<u>IS</u> 13C-2,3,7,8-TCDD	CDD	95.3	40 - 135		
1,2,3,7,8-PeCDD	225				13C-1,2,3,7,8-PeCDD	PeCDD	92.5	40 - 135		
1,2,3,4,7,8-HxCDD	DD 151				13C-1,2,3,4,7,8-HxCDD	8-HxCDD	93.3	40 - 135		
1,2,3,6,7,8-HxCDD	DD 243				13C-1,2,3,6,7,8-HxCDD	8-HxCDD	97.4	40 - 135		
1,2,3,7,8,9-HxCDD	DD 197				13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	90.8	40 - 135	·	
1,2,3,4,6,7,8-HpCDD	CDD 981				13C-OCDD		68.2	40 - 135		
OCDD	1190				13C-2,3,7,8-TCDF	CDF	94.6	40 - 135		
2,3,7,8-TCDF	494				13C-1,2,3,7,8-PeCDF	PeCDF	97.9	40 - 135		
1,2,3,7,8-PeCDF	290				13C-2,3,4,7,8-PeCDF	PeCDF	95.9	40 - 135		
2,3,4,7,8-PeCDF	495				13C-1,2,3,4,7,8-HxCDF	8-HxCDF	99.1	40 - 135		
1,2,3,4,7,8-HxCDF	DF 191				13C-1,2,3,6,7,8-HxCDF	8-HxCDF	93.8	40 - 135		
1,2,3,6,7,8-HxCDF	DF 210				13C-2,3,4,6,7,8-HxCDF	8-HxCDF	94.1	40 - 135		
2,3,4,6,7,8-HxCDF	DF 273				13C-1,2,3,7,8,9-HxCDF	9-HxCDF	96.5	40 - 135		
1,2,3,7,8,9-HxCDF	DF 80.2				13C-1,2,3,4,6,7,8-HpCDF	7,8-HpCDF	86.2	40 - 135		
1,2,3,4,6,7,8-HpCDF	CDF 271				13C-1,2,3,4,7,8,9-HpCDF	8,9-HpCDF	86.4	40 - 135		
1,2,3,4,7,8,9-HpCDF	CDF 75.4				13C-OCDF		76.0	40 - 135		
OCDF	108				CRS 37CI-2,3,7,8-TCDD	CDD	102	40 - 135		どう
Totals					Toxic Equivalent Quotient (TEQ) Data	Quotient (TEQ) D	ata ^e			
Total TCDD	2760				TEQ (Min):	768				
Total PeCDD	3580									
Total HxCDD	3180				a. Sample specific estimated detection limit.	ated detection limit.				
Total HpCDD	1830				b. Estimated maximum possible concentration.	ossible concentration.				
Total TCDF	0866				c. Method detection limit.					
Total PeCDF	4700				d. Lower control limit - upper control limit.	pper control limit.				
Total HxCDF	2060				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	World Health Organizat	ion Toxic Equi	valent Factors.(V	VHO}	
Total HpCDF	617									
Analyst: DMS					Approved By:	William J. Luksemburg		03-Apr-2006 15:52	15:52	

Project 6 of 11

Project 27297

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 02/14/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By: Approved By: LU 7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: *Refer to Table in QA Report

for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		~
Sample Condition Upon Receipt at Subcontract Laboratory	~	١.	~
Laboratory Method Blank Results	4		~
Ongoing Precision and Recovery Sample Results	1		~
Internal Standard Recoveries	1		~
Cleanup Standard Recoveries	~		1
Identification and Quantitation of Target Compounds	1		~
Verification of the EDD in XLS Format	1		~

Comments:

1. Jemperature upon receipt to subcontract latoratory was and Consus

184951 Curtis & Tompkins SDG:

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

506 27297

Fraction	Matrix	Blank Type	Blank Sample	Contaminant		Qualifica	tion Limit							
(1)	(Aq., S)	(2)	Number		(units)	5x	10x							
DF	Ś	MB	0 MBCO1 2123/04 Batch 7774	none										
			2/23/04 621421											
													-	

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DOXIN FUNAN

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Veridian Environmental, Inc.

Soil QC Batch No.: 7774 Lab Sample: 0-MB001 10.0 Date Extracted: 21-Feb-06 Date Analyzed DB-5: 23-Feb-06 Date Analyzed 0.0 D DL EXtracted: 21-Feb-06 Date Analyzed DB-5: 23-Feb-06 Date Analyzed 0.0 ND 0.150 DL EMPC ^b Qualifiers Labled Standard %R LCI 0.0 ND 0.152 DL EMPC ^b Qualifiers Labled Standard %R LCI 0.0 0.152 D1.4 EMPC ^b Qualifiers Labled Standard %R LCI 0.0 0.152 D1.4 D1.52 D1.54.7.8.HpCDD 85.9 D1 0.140 0.150 D1.4 D1.52.3.7.8.HpCDD 87.2 D1	Method Blank							EPA Method 8290	d 8290
Size: 10.0 g Date Extracted: 21-Feb-06 Ric Conc. (pg/g) DL A EMPC b Qualifiers TCDD ND 0.150 DL A EMPC b Qualifiers 7;3-HxCDD ND 0.150 DL A EMPC b Qualifiers 7;3-HxCDD ND 0.151 Qualifiers Qualifiers Qualifiers 7;3-HxCDD ND 0.151 Qualifiers Qualifiers Qualifiers 7;3-HxCDD ND 0.151 A EMPC b Qualifiers 8;9-HxCDD ND 0.146 A A A 8;9-HxCDF ND 0.179 A A 8;9-HxCDF ND 0.0361 A A 7;8-HxCDF ND 0.0361 A		QCB	3atch No.:	7774 ~		1B001			
e Conc. (pg/g) DL a EMPC b Qualifiers TCDD ND 0.150 DL a EMPC b Qualifiers 7,8-HxCDD ND 0.150 ND 0.150 Qualifiers 7,8-HxCDD ND 0.151 0.144 Qualifiers Qualifiers 7,8-HxCDD ND 0.151 0.146 Qualifiers Qualifiers 8,9-HxCDD ND 0.151 0.140 0.140 Qualifiers 8,9-HxCDF ND 0.140 0.179 Qualifiers Qualifiers 7,8-HxCDF ND 0.179 0.133 Qualifiers Qualifiers 7,8-HxCDF ND 0.0561 ND 0.0561 Qualifiers 7,8-HxCDF ND <td< th=""><th></th><th>Date</th><th>Extracted:</th><th>21-Feb-06</th><th></th><th></th><th>ate Anal</th><th></th><th>NA</th></td<>		Date	Extracted:	21-Feb-06			ate Anal		NA
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8-PeCDD ND 0.14 7,8-HxCDD ND 0.152 7,8-HxCDD ND 0.151 8,9-HxCDD ND 0.151 6,7,8-HpCDD ND 0.146 5,7,8-HpCDP ND 0.140 8-PeCDF ND 0.140 7,8-HxCDF ND 0.179 7,8-HxCDF ND 0.0561 7,8-HxCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 8,9-HxCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 8,9-HxCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 7,8-HpCDF ND 0.0561 8,9-HxCDF ND 0.0561 8,9-HxCDF ND 0.0561 7,8-HpCDF ND 0.0590 7,8-HpCDF ND 0.0681 7,8-HpCDF ND 0.0590 7,8-HpCDF ND 0.0681 7,8-HpCDF ND 0.0601 7,8-HpCDF ND 0.060			(40 - 135	
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CDF ND 0.183 CDF ND 0.179 HxCDF ND 0.0499 HxCDF ND 0.0501 HxCDF ND 0.0561 HxCDF ND 0.0840 HxCDF ND 0.0647 HpCDF ND 0.0719 0.0719 ND 0.0719 ND 0.144 D ND 0.154 D ND 0.154 D ND 0.154 ND 0.154 ND 0.154 ND 0.154 ND 0.154 ND 0.154 ND 0.154 ND 0.1681 F ND 0.0590					13C-1,2,3,7,8-PeCDF		87.1	40 - 135	
CDF ND 0.179 4xCDF ND 0.0501 4xCDF ND 0.0561 4xCDF ND 0.0647 4xCDF ND 0.0647 -HpCDF ND 0.0719 ND 0.0719 ND 0.174 ND 0.154 D ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.1681 F ND 0.0681			~		13C-2,3,4,7,8-PeCDF		86.8	40 - 135	
HACDF ND 0.0499 HACDF ND 0.0561 HACDF ND 0.0561 HACDF ND 0.0840 HPCDF ND 0.0647 HPCDF ND 0.0647 HPCDF ND 0.047 ND 0.0519 0.0440 ND 0.0199 0.0141 ND 0.150 0 ND 0.154 0 ND 0.144 0 ND 0.146 0 ND 0.161 0 ND 0.164 0 ND 0.164 0 ND 0.164 0 ND 0.0590 0			•		13C-1,2,3,4,7,8-HxCI		86.2	40 - 135	
HxCDF ND 0.0501 HxCDF ND 0.0561 HxCDF ND 0.0840 HpCDF ND 0.0647 HpCDF ND 0.0719 HpCDF ND 0.0719 ND 0.0719 0.0719 ND 0.0714 0.0374 ND 0.150 0.144 D ND 0.154 D ND 0.146 D ND 0.146 P ND 0.168 ND 0.0590			6(13C-1,2,3,6,7,8-HxCI		87.2	40 - 135	
HxCDF ND 0.0561 HxCDF ND 0.0840 -HpCDF ND 0.0647 O 0.0719 0.0719 HpCDF ND 0.0719 ND 0.0714 0.374 ND 0.374 0.374 ND 0.150 0.144 D ND 0.146 D ND 0.146 P ND 0.146 P ND 0.161 F ND 0.0590			11		13C-2,3,4,6,7,8-HxCI		83.6	40 - 135	
HxCDF ND 0.0840 -HpCDF ND 0.0647 -HpCDF ND 0.0719 O 0.0719 0.374 ND 0.374 0.374 D ND 0.150 D ND 0.154 D ND 0.144 D ND 0.146 D ND 0.146 D ND 0.146 D ND 0.146 F ND 0.1681			11		13C-1,2,3,7,8,9-HxCI		85.0	40 - 135	
-HpCDF ND 0.0647 -HpCDF ND 0.0719 ND 0.374 D ND 0.150 D ND 0.144 D ND 0.146 D ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.1681 F ND 0.0590			01		13C-1,2,3,4,6,7,8-HpC		75.5	40 - 135	
-HpCDF ND 0.0719 ND 0.374 ND 0.150 D ND 0.144 D ND 0.146 ND 0.146 ND 0.146 ND 0.146 ND 0.181 F ND 0.0590 F ND 0.0681			11		13C-1,2,3,4,7,8,9-HpC		78.3	40 - 135	
ND 0.374 ND 0.150 ND 0.150 ND 0.144 D ND 0.146 ND 0.146 ND 0.140 F ND 0.140 F ND 0.0590 F ND 0.0681			6		13C-OCDF	C	65.4	40 - 135	
D ND 0.150 D ND 0.144 D ND 0.144 D ND 0.146 ND 0.146 ND 0.140 F ND 0.181 F ND 0.0590 F ND 0.0681						0	92.2	40 - 135	
D ND 0.150 D ND 0.144 D ND 0.154 D ND 0.146 ND 0.146 F ND 0.181 F ND 0.0590 F ND 0.0681	Totals				Toxic Equivalent Quotient	(TEQ) Data	e		
D ND 0.144 D ND 0.154 D ND 0.146 ND 0.140 F ND 0.181 F ND 0.0590 F ND 0.0681									
D ND 0.154 D ND 0.146 ND 0.140 F ND 0.181 F ND 0.0590 F ND 0.0681			_						
D ND 0.146 ND 0.140 F ND 0.181 F ND 0.0590 F ND 0.0681			_		a. Sample specific estimated detection	n limit.			
F ND 0.140 F ND 0.181 F ND 0.0590 F ND 0.0681					b. Estimated maximum possible con	centration.			
ND 0.181 ND 0.0590 ND 0.0681					c. Method detection limit.				
ND 0.0590 ND 0.0681					d. Lower control limit - upper contro	l limit.			
ND			0		e. TEQ based on (1997) World Healt	h Organization Toxi	ic Equival	ent Factors.(WHO)	
	Total HpCDF N		-						
V () Approved By: William J. Luksemburg			ou no			liam J. Lukseml		03-Apr-2006 15:52	\sim

Project 27297

Project 4 of 11

OPR Results						EPA	EPA Method 8290	
Matrix: Soil		QC Batch No.	7774 ~	Lal	Lab Sample: 0-OPR001			
Sample Size: 10.0 g		Date Extracted:	21-Feb-06	Da	Date Analyzed DB-5: 23-Feb-06	Date Analyzed DB-225:	d DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	TCT-NCT	
2,3,7,8-TCDD	10.0	10.1	7 - 13	IS	13C-2,3,7,8-TCDD	86.8	40 - 135	
1,2,3,7,8-PeCDD	50.0	55.4	35 - 65		13C-1,2,3,7,8-PeCDD	84.3	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	51.5	35 - 65		13C-1,2,3,4,7,8-HxCDD	83.9	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	53.8	35 - 65		13C-1,2,3,6,7,8-HxCDD	9.19	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	53.2	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	87.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65		13C-OCDD	63.9	40 - 135	DK
OCDD	100	106	70 - 130		13C-2,3,7,8-TCDF	89.8	40 - 135	
2,3,7,8-TCDF	10.0	9.94	7 - 13		13C-1,2,3,7,8-PeCDF	95.0	40 - 135	
1,2,3,7,8-PeCDF	50.0	50.1	35 - 65		13C-2,3,4,7,8-PeCDF	92.7	40 - 135	
2,3,4,7,8-PeCDF	50.0	50.5	35 - 65		13C-1,2,3,4,7,8-HxCDF	91.3	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	51.7	35 - 65		13C-1,2,3,6,7,8-HxCDF	91.7	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	51.3	35 - 65		13C-2,3,4,6,7,8-HxCDF	85.8	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	51.6	35 - 65		13C-1,2,3,7,8,9-HxCDF	85.1	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	49.2	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	76.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	50.3	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	85.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	52.7	35 - 65		13C-OCDF	70.6	40 - 135	
OCDF	100	99.4	70 - 130	CRS	CRS 37CI-2,3,7,8-TCDD	87.1	40 - 135	J.S.
Analyst: DMS					Approved By: William J. Lul	ksemburg 01-	William J. Luksemburg 01-Mar-2006 13:07	

au ck

Project 5 of 11

Project 27297

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 27297

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the one soil sample received at Alta Analytical Laboratory on February 16, 2006 under your Project Name "Fort Bragg-Site Assessment-184951". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivilancy (TEQ) as calculated using the WHO-1997 Toxic Equivilancy Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier HRMS Services Director



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval or AUTA.



Section I: Sample Inventory Report Date Received: 2/16/2006

<u>Alta Lab. ID</u>

Client Sample ID

27297-001

COMPOSITE

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 184951 / Site: Ft Bragg-Site Assessment 27 297 0.7°C

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matria	c Analysis	C&T Lab # Comments	
COMPOSITE	v02/14 09:00	Soil	8290	184951-007	

 Notes:	. Relinquished	l By:	Rece	ived By:
 lu	RAD		Dettina & L	Serve dict
Dat Z	e/15/06	16:36	Date/Time:	0900
			- <u>// ///~</u>	

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27297

SAMPLE LOG-IN CHECKLIST

Alta Project #:	7297			······································			
Samples Arrival:	Date/Time	0960	Initials	SB	Locat	ion: WR-	б
Logged In:	Date/Time	, 1116	Initials	BSB	Locat	$^{ion:} WK$	-9-
Delivered By:	FedEx	UPS	Cal		1	Hand elivered	Other
Preservation:	lce	Biue	lce	· Dry I	се	No	ne
Temp °C 0.7	J°C	Time: 09	15		Thern	nometer ID	: DT-20

					YEŞ	NO	NA
Adequate Sample Volume Received	?	•			V		
Holding Time Acceptable?					V		
Shipping Container(s) Intact?					V		
Shipping Custody Seals Intact?							
Shipping Documentation Present?					\checkmark		
Airbill Trk # C/O	129 00	10024	1614				
Sample Container Intact?							
Sample Custody Seals Intact?							\checkmark
Chain of Custody / Sample Documentation Present?							
COC Anomaly/Sample Acceptance F	Form com	pleted?		-		V	
If Chlorinated or Drinking Water Sam	iples, Acc	ceptable P	reservation?				\checkmark
$Na_2S_2O_3$ Preservation Documented?	•.		COC	San Cont		(No	ne
Shipping Container	Alta	Client	Retain	Ret	turn	Disp	oose
Comments:							



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762 DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #26846
- Curtis & Tompkins, Ltd. #182802

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client	AAL	Laboratory	Collection	Parameters
	Sample ID	Sample ID	Project ID	Date	Analyzed
Soil	DP3.59-1	26846-001	26846	10/10/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	~			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	~			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	~			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the sample upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}$ C. In addition, upon receipt at the subcontract laboratory, it was noted that the chain-of-custody record and the label did not match the sample date. Alta Analytical received authorization to use the chain-of-custody record sample date and proceeded with analysis. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration

range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy U.

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

E I I

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP3.59-1	-1							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
-	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	26846-001	Date Received:	eived:	28-Oct-05
Truject: 102002 Date Collected: 10-Oct-05 Time Collected: 1140	05		Sample Size: %Solids:	10.9 g 94.9 ~	QC Batch No.: Date Analyzed DB-5:	7397 ⁷ 10-Nov-05	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	8-Nov-05 NA
	nc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	dard	%R	rcr-ncr _q	Oualifiers
2.3.7.8-TCDD	QN	0.178			<u>IS</u> 13C-2,3,7,8-TCDD	DD	63.9	40 - 135	
1,2,3,7,8-PeCDD	0.737 J			ſ	13C-1,2,3,7,8-PeCDD	eCDD	70.5	40 - 135	
1,2,3,4,7,8-HxCDD	3.07				13C-1,2,3,4,7,8-HxCDD	-HxCDD	68.3	40 - 135	
1,2,3,6,7,8-HxCDD	22.8				13C-1,2,3,6,7,8-HxCDD	-HxCDD	67.5	40 - 135	
1,2,3,7,8,9-HxCDD	9.19				13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	81.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	559				13C-OCDD		93.9	40 - 135	
OCDD	3560				13C-2,3,7,8-TCDF	DF	58.3	40 - 135	
2,3,7,8-TCDF	0.653				13C-1,2,3,7,8-PeCDF	PeCDF	65.2	40 - 135	
1,2,3,7,8-PeCDF	1.55 J			ſ	13C-2,3,4,7,8-PeCDF	PeCDF	65.2	40 - 135	
2,3,4,7,8-PeCDF	2.35 J			ſ	13C-1,2,3,4,7,8-HxCDF	h +HxCDF	61.5	40 - 135	
1,2,3,4,7,8-HxCDF	8.06				13C-1,2,3,6,7,8-HxCDF	h-HxCDF	67.7	40 - 135	
1,2,3,6,7,8-HxCDF	10.2				13C-2,3,4,6,7,8-HxCDF	1-HxCDF	68.6	40 - 135	
2,3,4,6,7,8-HxCDF	9.11				13C-1,2,3,7,8,9-HxCDF	-HxCDF	75.9	40 - 135	
1,2,3,7,8,9-HxCDF	1.46 5			ſ	13C-1,2,3,4,6,7,8-HpCDF	',8-HpCDF	73.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	208				13C-1,2,3,4,7,8,9-HpCDF	t,9-HpCDF	73.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	10.0				13C-OCDF		77.5	40 - 135	
OCDF	336				CRS 37CI-2,3,7,8-TCDD	CDD	63.4	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Di	ata ^c		
Total TCDD	ND	0.178			TEQ (Min):	16.6			
Total PeCDD	4.29								
Total HxCDD	109				a. Sample specific estimated detection limit.	ted detection limit.			
Total HpCDD	879				b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	8.14				c. Method detection limit.				
Total PeCDF	40.9				d. Lower control limit - upper control limit.	oper control limit.			_
Total HxCDF	213				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Vorld Health Organizati	on Toxic Equ	uivalent Factors.(V	(OH)
Total HpCDF	506								
Analyst: MAS					Approved By:	Martha M. Maier		03-Apr-2006 15:50	

Project 26846

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: <u>Georgia Pacific -</u>	Ft. Bragg Site Assessment	Reviewed By:	Jay
Sample Collection Dates: 10 10 0	5	Approved By:	with
Client: Acton Mickelson	Environmental, Inc.	Completion Date:	7/11/06
Project Manager: Jeff Heglie			
Laboratory: Alta Analytical L	aboratory, Inc. subcontracted by C	urtis & Tompkins, Ltd.	
Deliverables: Level II		SDG:	26846 *Refer to Table in QA Report for Applicable Sample No's.
The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		√
Sample Condition Upon Receipt at Subcontract Laboratory	1	١.	4
Laboratory Method Blank Results	~		4
Ongoing Precision and Recovery Sample Results	1		4
Internal Standard Recoveries	~		4
Cleanup Standard Recoveries	1		4
Identification and Quantitation of Target Compounds	~	2.	~
Verification of the EDD in XLS Format	V		1

Comments: 1. Temperature upon receipt to subcontrast Caloratory was 0.7
My sus 4=2° in method - NOW
for "Date Sampled" subcontract lab received authorization to use
In "Date Sanpled" subcontract lab received authorization to use
Yoc date Now
2. (Ill results reported at concentrations desstran the
lowest calibration level (adjusted for dilution ractors & sample
Sizes) estimated and flagged g:

Curtis & Tompkins SDG: 182802

Blank Analysis Results for Target Analytes SDG 26846

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifica	ition Limit				
(1)	(Aq., S)	(2)	Number		(units)	5x	10x				
DF	5	110	C-MBCOI	none							
Ur	5	MB	LANDLON								
			11-10:05 Batch 7397								
					+						
					+						
			 								
(- <u> </u> -						
					<u> </u>						
					++						
				· · · · · · · · · · · · · · · · · · ·							
				······································	++						
					+						
					+						
									1 1		
							1				
			[

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DF Dioxin FUGA

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

QUE ND

Veridian Environmental, Inc.

Method Blank					EPA Method 8290	
Matrix: Soil		QC Batch No.: 7397	Lab Sample: 0-MB001			
Sample Size: 10.0 g		Date Extracted: 8-Nov-05	Date Analyzed DB-5: 10-Nov-05	Date Analy	Date Analyzed DB-225: NA	
Analyte Conc. (pg/g)	(g/)	DL ^a EMPC ^b Qualifiers	Labeled Standard	%R 1	LCL-UCL ^d Qualifiers	
2,3,7,8-TCDD N	DN	0.0727	<u>IS</u> 13C-2,3,7,8-TCDD	78.6	40 - 135	
D	ŊŊ	0.0944		83.0	40 - 135	
1,2,3,4,7,8-HxCDD N	ND	0.127	13C-1,2,3,4,7,8-HxCDD	80.2	40 - 135	
1,2,3,6,7,8-HxCDD N	QN	0.130	13C-1,2,3,6,7,8-HxCDD	<i>9.17</i>	40 - 135	
1,2,3,7,8,9-HxCDD	ŊŊ	0.129	13C-1,2,3,4,6,7,8-HpCDD	85.5	40 - 135	
1,2,3,4,6,7,8-HpCDD N	ND	0.258	13C-OCDD	75.2	40 - 135	
OCDD N	ND	0.776	13C-2,3,7,8-TCDF	75.5	40 - 135	ور ب
2,3,7,8-TCDF N	DN	0.0780	13C-1,2,3,7,8-PeCDF	82.0	40 - 135	9 7
1,2,3,7,8-PeCDF	DN	0.164	13C-2,3,4,7,8-PeCDF	80.5	40 - 135	
	ND	0.144	13C-1,2,3,4,7,8-HxCDF	76.5	40 - 135	
	DN	0.0474	13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135	
1,2,3,6,7,8-HxCDF N	DN	0.0432	13C-2,3,4,6,7,8-HxCDF	82.6	40 - 135	
2,3,4,6,7,8-HxCDF N	ND	0.0503	13C-1,2,3,7,8,9-HxCDF	92.4	40 - 135	
1,2,3,7,8,9-HxCDF N	ND	0.0378	13C-1,2,3,4,6,7,8-HpCDF	86.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.108	13C-1,2,3,4,7,8,9-HpCDF	85.1	40 - 135	
1,2,3,4,7,8,9-HpCDF N	ND	0.0755	13C-OCDF	77.0	40 - 135	
OCDF N	QN	0.208	CRS 37CI-2,3,7,8-TCDD	79.6	40 - 135	よい
Totals			Toxic Equivalent Quotient (TEQ) Data	ita ^e		
Total TCDD N	DN	0.0727	TEQ (Min): 0			
Total PeCDD N	ND	0.0944				
Total HxCDD N	ŊŊ	0.129	a. Sample specific estimated detection limit.			
Total HpCDD N	ND	0.258	b. Estimated maximum possible concentration.			
Total TCDF N	ND	0.0780	c. Method detection limit.			
	ND	0.153	d. Lower control limit - upper control limit.			
Total HxCDF N	DN	0.0510	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	on Toxic Equival	lent Factors.(WHO)	
Total HpCDF N	QN	0.129				
Analyst MAS		chi mo	Approved By: Martha M. Maier	aier 03-Apr	03-Apr-2006 15:50	
		>				

Project 26846

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OPR Results						EPA	EPA Method 8290	
Matrix: Soil		QC Batch No .:	7397 ~	Lab Sample:	0-OPR001			
Sample Size: 10.0 g		Date Extracted:	8-Nov-05	Date Analyzed DB-5: 10-Nov-05	3-5: 10-Nov-05	Date Analyzed DB-225:	d DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	lard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.6	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	CDD	72.8	40 - 135	-
1,2,3,7,8-PeCDD	50.0	53.8	35 - 65	13C-1,2,3,7,8-PeCDD	PeCDD	80.8	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	54.5	35 - 65	13C-1,2,3,4,7,8-HxCDD	8-HxCDD	80.3	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	53.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	8-HxCDD	81.2	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	56.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	82.3	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	54.9	35 - 65	13C-OCDD		73.1	40 - 135	
OCDD	100	111	70 - 130	13C-2,3,7,8-TCDF	CDF	68.6	40 - 135	3
2,3,7,8-TCDF	10.0	10.7	7 - 13	13C-1,2,3,7,8-PeCDF	PeCDF	76.1	40 - 135	
1,2,3,7,8-PeCDF	50.0	56.1	35 - 65	13C-2,3,4,7,8-PeCDF	PeCDF	74.0	40 - 135	
2,3,4,7,8-PeCDF	50.0	56.5	35 - 65	13C-1,2,3,4,7,8-HxCDF	8-HxCDF	79.0	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	8-HxCDF	84.3	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	52.5	35 - 65	13C-2,3,4,6,7,8-HxCDF	8-HxCDF	85.2	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	53.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	9-HxCDF	82.1	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	7,8-HpCDF	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	53.7	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	8,9-HpCDF	75.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	54.7	35 - 65	13C-OCDF		70.9	40 - 135	
OCDF	100	105	70 - 130	CRS 37CI-2,3,7,8-TCDD	CDD	72.6	40 - 135	S
Analyst. MAS				Approved By:	Martha M Maier	ier 11-Nov-2005 15-02	005 15:02	-
		H.		•			10.01	

w ck

Project 26846

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 26846

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the one soil sample received at Alta Analytical Laboratory on October 28, 2005 under your Project Name "182802". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivilancy (TEQ) as calculated using the WHO-1997 Toxic Equivilancy Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein incets all the requirements set forth by NEL1C for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 10/28/2005

<u>Alta Lab, ID</u>

<u>Client Sample ID</u>

26846-001

DP3.59-1

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 182802 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	c Analysis	C&T Lab # Comments	
DP3.59-1	10/10 11:40	Soil	8290	182390-004	

Notes:	/ Relinquished By:	Received By:
	tar hans	Cotting & Benedict
Date/	Time: (0/27/05	1515 Date/Time: 0910

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

26846 0.2°C

SAMPLE LOG-IN CHECKLIST

Alta Project #: ______26846

Samples Arrival:	Date/Time 10/28/05 09/0			Initials	: Se	1B WR-2-			
Logged In:	Date/Time 10/28/0	5 1	900	Initials	B		Locat	ion: WK	2-2
Delivered By:	FedEx	U	PS	Cal)	DHL	1	Hand elivered	Other
Preservation:	lce	Blue lo		e Ice	Dry Ice Nor		one		
Temp °C	う.よ	Time	: <i>0</i> 9	15			Thern	nometer ID	: DT-20

	YEŞ	NO	NA
Adequate Sample Volume Received?	\checkmark		
Holding Time Acceptable?	\checkmark		
Shipping Container(s) Intact?	\checkmark		
Shipping Custody Seals Intact?			\checkmark
Shipping Documentation Present?	\checkmark		
Airbill Trk # (10129000022527	\checkmark		
Sample Container Intact?	V		
Sample Custody Seals Intact?			V
Chain of Custody / Sample Documentation Present?			
COC Anomaly/Sample Acceptance Form completed?			
Drinking Water Sample?		V	
Acceptable Preservation?	V		

Preservation Info	· · · · · · · · · · · · · · · · · · ·		COC	Sample Container	None
Shipping Container	Alta	Client	Retain	Return	Dispose
Commenter					

Comments:

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Chain of Custody Anomaly/Sample Acceptance Form

Client:Curtis & Tompkins, Ltd.Contact:Lisa BrookerFax Number:510-4860532	Project Number 26846 Date Received: Oct 28 2005 Documented by/date: Documented by/date:
Please review the following information and c NELAC regulations, we must receive authoriz Thank You. (Fax #916-673-0106)	omplete the Client Authorization section. To comply with ation before proceeding with sample analysis.
The following information or item is needed to	proceed with analysis:
Complete Chain-of-Custody	Preservative Collector's Name
Test Method Requested	Sample Identification Sample Type
Analyte List Requested	Sample Collection <u>Date</u> / Time Sample Location
The following anomalies were noted. Authoriz	zation is needed to proceed with the analysis.
Temperature outside ±2°C range Samples Aff	
Temperature outside°C	Ice present? Yes No
Sample ID Discrepancy Samples Affecte	od
Sample holding time missed Samples Affecte	ed
Custody seals broken Samples Affecte	
Insufficient Sample Size Samples Affecte	.d

ncorrec	t Container Type Samples Affec	ted	
Other	t Container Type Samples Affec <u>COC sample date</u> <u>Label Sample date</u>	10/10/05	
	Label sample date	10/10/05-	
	/		

Samples Affected

Client Authorization			
Proceed With Analysis: (YES)	NO	Signature and Date	WE WILLOS
Client Comments/Instructions: 11x	<u>coc -</u>	me per Calo	1 Wortham by email

ALTA Analytical Laboratory	
El Dorado Hills, CA 96762	

Sample Container(s) Broken

•



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project ID:

- Alta Analytical Laboratory, Inc. #27617
- Curtis & Tompkins, Ltd. #186053

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.13-8	27617-001	27617	04/06/06	D
Soil	DP-7.14-7	27617-002	27617	04/06/06	D
Soil	DP-7.15-8	27617-003	27617	04/06/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		~		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	~			
Cleanup Standard Recoveries	~			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	~			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.2^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

Concentration

0.111 pg/g

<u>Analyte</u>

Total HxCDF

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

Sample	Analyte
DP-7.13-8	Total PeCDF
DP-7.15-8	Total HxCDF

Low percent solids were noted in the samples listed below. The data were not qualified on this basis.

<u>Sample</u>	<u>% Solids</u>
DP-7.13-8	27.9%
DP-7.14-7	20.1%
DP-7.15-8	29.4%

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

Data Qualifier De	
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin

Acronym	Definition
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tray U. Jourge

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

NHIJU

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample (D: DP-7	DP-7.13-8						EPA M	EPA Method 8290	
Client Data		Sample Data		Laboratory Data					
Name: Curti Protect: Ft Br	Curtis & Tompkins, Ltd. Et Brang-Site Accessment 186053	Matrix:	Soil	Lab Sample:	27617-001	Date Received:	'ed:	20-Apr-06	
illected: blicted:	CLUMPT HIGHINGCASCA CHICK 200	Sample Size: %Solids:	14.2 g	QC Batch No.: Date Analyzed DB-5:	7960 25-Apr-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Apr-06	
Analyte	Conc. (pg/g) DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ırd	%R L	rcr-ncrq c	Qualifiers	
2,3,7,8-TCDD	37.7			<u>IS</u> 13C-2,3,7,8-TCDD	D	67.7	40 - 135		
1,2,3,7,8-PcCDD	48.8			13C-1,2,3,7,8-PeCDD	CDD	61.7	40 - 135		
1,2,3,4,7,8-HxCDD	21.8			13C-1,2,3,4,7,8-HxCDD	A xCDD	74.3	40 - 135		
1,2,3,6,7,8-HxCDD	82.4			13C-1,2,3,6,7,8-HxCDD	H xCDD	77.5	40 - 135		
1,2,3,7,8,9-HxCDD	46.3			13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	76.5	40 - 135		
1,2,3,4,6,7,8-HpCDD	286			13C-OCDD		57.2	40 - 135		
OCDD	833			13C-2,3,7,8-TCDF)F	71.0	40 - 135		į
2,3,7,8-TCDF	350			13C-1,2,3,7,8-PeCDF	CDF	66.5	40 - 135		0
1,2,3,7,8-PeCDF	111			13C-2,3,4,7,8-PeCDF	CDF	6.99	40 - 135		
2,3,4,7,8-PeCDF	155			13C-1,2,3,4,7,8-HxCDF	H xCDF	73.2	40 - 135		
1,2,3,4,7,8-HxCDF	37.8			13C-1,2,3,6,7,8-HxCDF	H xCDF	72.4	40 - 135		
1,2,3,6,7,8-HxCDF	47.0			13C-2,3,4,6,7,8-HxCDF	H xCDF	73.8	40 - 135		
2,3,4,6,7,8-HxCDF	51.5			13C-1,2,3,7,8,9-HxCDF	HXCDF	68.1	40 - 135		
1,2,3,7,8,9-HxCDF	16.7			13C-1,2,3,4,6,7,8-HpCDF	I-HpCDF	67.7	40 - 135		
1.2,3,4,6,7,8-HpCDF	43.9			13C-1,2,3,4,7,8,9-HpCDF	LHpCDF	67.0	40 - 135		
1,2,3,4,7,8,9-HpCDF	11.3			13C-OCDF		54.4	40 - 135		
OCDF	26.4			CRS 37CI-2,3,7,8-TCDD	DD	70.5	40 - 135		10
Totals				Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ata e			
Total TCDD	632			TEQ (Min): 2	238				
Total PeCDD	527								
Total HxCDD	852			a. Sample specific estimated detection limit.	l detection limit.				
Total HpCDD	532			b. Estimated maximum possible concentration.	ible concentration.				
Total TCDF	5240			c. Method detection limit.					
Total PeCDF	1610		D	d. Lower control limit - upper control limit.	er control limit.				
Total HxCDF	471		В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rld Health Organizati	on Toxic Equiv	alent Factors.(W	(ОН)	
Total HpCDF	0.66								
Analyst: JMH				Approved By:	William J. Luksemburg		29-Apr-2006 09:37	09:37	

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Sample ID: DP-7	DP-7.14-7								EPA M	EPA Method 8290	
Client Data				Sample Data		Laboratory Data					
	Curtis & Tompkins, Ltd. Et Drave Site Accessment 196052	ins, Ltd.	2020	Matrix:	Soil	Lab Sample:	27617-002	Date Received:	cived:	20-Apr-06	
Time Collected: 6-Ap Time Collected: 1145	6-Apr-06 1145		CC000	Sample Size: %Solids:	14.1 g	QC Batch No.: Date Analyzed DB-5:	7960 25-Apr-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Apr-06	
Analyte	Conc. (pg/g)	(5	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	rd	%R I	rcr-ncr _q	Oualifiers	
2 3 7 8-TCDD	13.3					IS 13C-2378-TCDD	Q	787	40 - 135		
1 2 3 7 8-PeCDD	14 9							0.09	40 - 135		
1.2.3.4.7.8-HxCDD		þ			-	13C-1,2,3,4,7,8-HxCDD	4xCDD	79.6	40 - 135		
1,2,3,6,7,8-HxCDD	66.2					13C-1,2,3,6,7,8-HxCDD	I xCDD	84.6	40 - 135		
1,2,3,7,8,9-HxCDD	24.8					13C-1,2,3,4,6,7,8-HpCDD	-НрСDD	79.0	40 - 135		
1,2,3,4,6,7,8-HpCDD	358					13C-0CDD		58.4	40 - 135		
OCDD	1830					13C-2,3,7,8-TCDF	F	82.8	40 - 135		
2,3,7,8-TCDF	121					13C-1,2,3,7,8-PeCDF	CDF	75.4	40 - 135		
1,2,3,7,8-PeCDF	33.6					13C-2,3,4,7,8-PeCDF	CDF	74.8	40 - 135		Ð
2,3,4,7,8-PeCDF	46.7					13C-1,2,3,4,7,8-HxCDF	f xCDF	9.77	40 - 135		
1,2,3,4,7,8-HxCDF	10.9					13C-1,2,3,6,7,8-HxCDF	H xCDF	74.2	40 - 135	,	
1,2,3,6,7,8-HxCDF	15.6					13C-2,3,4,6,7,8-HxCDF	H xCDF	78.9	40 - 135		
2,3,4,6,7,8-HxCDF	16.7	I				13C-1,2,3,7,8,9-HxCDF	H xCDF	71.8	40 - 135		
1,2,3,7,8,9-HxCDF	5.36	2			ſ	13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	74.5	40 - 135		
1,2,3,4,6,7,8-HpCDF	6.69	,				13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	64.5	40 - 135		
1,2,3,4,7,8,9-HpCDF	5.72 3	L			ſ	13C-OCDF		54.4	40 - 135		
OCDF	100					CRS 37CI-2,3,7,8-TCDD	D	79.1	40 - 135		7
Totals						Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ıta ^e			
Total TCDD	163			166		TEQ (Min): 84	84.5				
Total PeCDD	132										
Total HxCDD	500					a. Sample specific estimated detection limit.	detection limit.				
Total HpCDD	761					b. Estimated maximum possible concentration.	ible concentration.				
Total TCDF	1680					c. Method detection limit.				- 1	
Total PeCDF	556					d. Lower control limit - upper control limit.	er control limit.				
Total HxCDF	280				В	c. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rld Health Organizatic	on Toxic Equ	uivalent Factors.(V	{онл	
Total HpCDF	183										
Analyst: JMH						Approved By:	William J. Luksemburg	semburg	29-Apr-2006 09:37	09:37	

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1

Sample ID: DP-7	DP-7.15-8						EPA M	EPA Method 8290	
Client Data		Sample Data		Laboratory Data					
Name: Curt	Curtis & Tompkins, Ltd. Et Brann-Site Accessment 186053	Matrix:	Soil	Lab Sample:	27617-003	Date Received:	ed:	20-Apr-06	
ollected: ollected:	1. Diago Jiv Assessincia 100000 6-Apr-06 1429	Sample Size: %Solids	14.3 g	QC Batch No.: Date Analyzed DB-5:	7960 26-Anr-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26. Apr-06	
	Conc (na/a) DL ^a	EMPCP	Onalifiare	I ahalad Standard	rd	01 d.70		Oualifiour	
	11.6.6/		Zuanners				- 1		
2,3,7,8-TCDD	21.1			13C-2,3,7,8-TCDD	Q		40 - 135		
1,2,3,7,8-PeCDD	43.9			13C-1,2,3,7,8-PeCDD	CDD	62.4	40 - 135		
1,2,3,4,7,8-HxCDD	30.1			13C-1,2,3,4,7,8-HxCDD	H xCDD	73.4 4	40 - 135		
1,2,3,6,7,8-HxCDD	45.9			13C-1,2,3,6,7,8-HxCDD	I xCDD	77.9 4	40 - 135		
1,2,3,7,8,9-HxCDD	42.1			13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	76.7	40 - 135		
1,2,3,4,6,7,8-HpCDD	420			13C-OCDD		59.3 4	40 - 135	<u> </u>	0 L
OCDD	2160			13C-2,3,7,8-TCDF	ιF	70.6	40 - 135		
2,3,7,8-TCDF	146			13C-1,2,3,7,8-PeCDF	CDF	63.0 4	40 - 135		
1,2,3,7,8-PcCDF	67.3			13C-2,3,4,7,8-PeCDF	CDF	6.99	40 - 135		
2,3,4,7,8-PeCDF	102			13C-1,2,3,4,7,8-HxCDF	f xCDF	72.2	40 - 135		
1,2,3,4,7,8-HxCDF	40.0			13C-1,2,3,6,7,8-HxCDF	AxCDF	70.3	40 - 135		
1,2,3.6,7,8-HxCDF	43.2			13C-2,3,4,6,7,8-HxCDF	H xCDF	74.9	40 - 135		
2,3,4,6,7,8-HxCDF	50.7			13C-1,2,3,7,8,9-HxCDF	I xCDF	67.4 4	40 - 135		
1,2,3,7,8,9-HxCDF	16.4			13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	70.6	40 - 135		
1,2,3,4,6,7,8-HpCDF	123			13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	67.4 4	40 - 135		
1,2,3,4,7,8,9-HpCDF	18.4			13C-OCDF		55.4 4	40 - 135		,
OCDF	190			CRS 37CI-2,3,7,8-TCDD	D	71.5 4	40 - 135		k V
Totals				Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ita ^e			
Total TCDD	444			TEQ (Min): 10	167				
Total PeCDD	531								
Total HxCDD	519			a. Sample specific estimated detection limit.	detection limit.				
Total HpCDD	711			b. Estimated maximum possible concentration.	ible concentration.				
Total TCDF	2370			c. Method detection limit.					
Total PeCDF	1050			d. Lower control limit - upper control limit.	er control limit.				
Total HxCDF	480		B,D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	rld Health Organizatic	on Toxic Equiv	alent Factors.(V	(OHW	
Total HpCDF	287								
Analyst: JMH				Approved By:	William J. Luksemburg		29-Apr-2006 09:37	09:37	

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 4/6/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By: Jay Approved By: 4 717106 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27617 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote	Problems Identified Check if Yes or Footnote	Support Documentation Attachments
documentation attachments.	Letter for Comments Below	Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	1		✓
Sample Condition Upon Receipt at Subcontract Laboratory	1	1	4
Laboratory Method Blank Results	4	2	*
Ongoing Precision and Recovery Sample Results	4		4
Internal Standard Recoveries	1		1
Cleanup Standard Recoveries	1		4
Identification and Quantitation of Target Compounds	1	3	4
Verification of the EDD in XLS Format	1		4

Comments:	1. Kmperature upon religer at subcontract lateratory @ 92°C, less then
4±2°C	as stated in method.
	Samples received in clean jury versus ander jury as prescribed in method
nos	malification of data wandated for wither exception.
V	2° Der Blank anglipis Dequets Dave MOM
	3. All results reported a concentration less than lourst calibration leve flaged y' chlorinated apphenylethus interpreness for two different analytes want solids moted a all three samples - NGW.
Fassible	chloringted dippendethere interferences for store deficient angletter
Lew 2	read solids moted a are three samely - NGW.
U	

Curtis & Tompkins SDG: 186053

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

SDG 27617

Fraction (1)	Matrix (Aq., S)	Blank Type	Biank Sample	Contaminant	Concentration		tion Limit				
	(, (4,, 0)	(2)	Number		(units) Pg/g	5x	10x				
DF	5	MB	0-MBCO1 4/25/06 Batch 7960	Jotal HXCDF	0.111	0.555					
	Э		HISSIOL Batch								
			1121100 7400								
				······································							
				· · · · · · · · · · · · · · · · · · ·							
					-						
ļ											
				1= P							
					+						

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: DF ADVin Julan

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes: jotal HxCDF - NOW

Veridian Environmental, Inc.

Method Blank				EP/	EPA Method 8290
Matrix: Soil	QC Batch No.:	7960	Lab Sample: 0-MB001		
Sample Size: 10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-5: 25-Apr-06	Date Analyzed DB-225:	B-225: NA
Analyte Conc. (pg/g)	DL ^a EMF	EMPC ^b Qualifiers	Labeled Standard	%R LCL-UCL ^d	CL ^d Qualifiers
2,3,7,8-TCDD ND	0.0940		<u>IS</u> 13C-2,3,7,8-TCDD	54.4 40	40 - 135
1,2,3,7,8-PeCDD ND	0.153			49.6 40	40 - 135
1,2,3,4,7,8-HxCDD ND	0.167		13C-1,2,3,4,7,8-HxCDD	67.5 40	40 - 135
1,2,3,6,7,8-HxCDD ND	0.167		13C-1,2,3,6,7,8-HxCDD	71.3 40	40 - 135
1,2,3,7,8,9-HxCDD ND	0.162		13C-1,2,3,4,6,7,8-HpCDD	62.9 40 -	- 135
1,2,3,4,6,7,8-HpCDD ND	0.218		13C-OCDD	47.2 40	40 - 135
OCDD ND	0.716		13C-2,3,7,8-TCDF	53.8 40	40 - 135
2,3,7,8-TCDF ND	0.0997		13C-1,2,3,7,8-PeCDF	50.6 40	40 - 135
1,2,3,7,8-PeCDF ND	0.251		13C-2,3,4,7,8-PeCDF	52.7 40	40 - 135
2,3,4,7,8-PeCDF ND	0.237		13C-1,2,3,4,7,8-HxCDF	70.5 40	40 - 135
1.2,3,4,7,8-HxCDF ND	0.0	0.0673	13C-1,2,3,6,7,8-HxCDF	78.8 40	40 - 135
1,2,3,6,7,8-HxCDF ND		0.0799	13C-2,3,4,6,7,8-HxCDF	70.7 40	40 - 135
2,3,4,6,7,8-HxCDF ND	0.0477		13C-1,2,3,7,8,9-HxCDF	58.0 40	40 - 135
1,2,3,7,8,9-HxCDF ND	0.0846		13C-1,2,3,4,6,7,8-HpCDF	58.8 40	40 - 135
1.2,3,4,6,7,8-HpCDF ND	0.217		13C-1,2,3,4,7,8,9-HpCDF	52.8 40	40 - 135
7,8,9-HpCDF	0.184		13C-OCDF		40 - 135
OCDF ND	0.393		CRS 37CI-2,3,7,8-TCDD	64.7 40 -	- 135
Totals			Toxic Equivalent Quotient (TEQ) Data	ata e	
Total TCDD ND	0.0940		TEQ (Min): 0		
Total PeCDD ND	0.153				
Total HxCDD ND	0.165		a. Sample specific estimated detection limit.		
Total HpCDD ND	0.218		b. Estimated maximum possible concentration.		
Total TCDF ND	0.0997		c. Method detection limit.		
Total PeCDF ND	0.244		d. Lower control limit - upper control limit.		
Total HxCDF 0.111	0.0	0.259	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	on Toxic Equivalent Facto	rs.(WHO)
Total HpCDF ND	0.237				
Analyst: JMH			Approved By: William J. Luksemburg		29-Apr-2006 09:37

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OPR Results						EPA	EPA Method 8290	0
Matrix: Soil		QC Batch No.:	7960	Lab Sample: 0	0-OPR001			
Sample Size: 10.0 g		Date Extincted:	22-Apr-06	Date Analyzed DB-5: 25-Apr-06	5-Apr-06	Date Analyzed DB-225:		NA
Analyte	Spike Conc. Conc. (ng/m	Conc. (ng/mL)	OPR Limits	Labeled Standard		%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD		63.9	40 - 135	
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65		0	53.5	40 - 135	0 T
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	DD	77.5	40 - 135)
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	DD	81.4	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	CDD	74.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13C-0CDD		46.8	40 - 135	
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF		64.3	40 - 135	
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-1,2,3,7,8-PeCDF	[1.	57.5	40 - 135	
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-2,3,4,7,8-PeCDF	ц.	57.7	40 - 135	
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	DF	80.9	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	DF	91.2	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-2,3,4,6,7,8-HxCDF	DF	80.9	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	DF	71.4	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	CDF	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	CDF	77.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-OCDF		52.6	40 - 135	
OCDF	100	94.5	70 - 130	CRS 37CI-2,3,7,8-TCDD		64.0	40 - 135	لہ ن
Analysis TAALI				Amound Ru-				

Analyst: JMH

Approved By: William J. Luksemburg 29-Apr-2006 09:37

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Project 27617

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 29, 2006

Alta Project I.D.: 27617

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186053". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



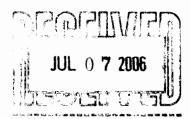
Mar Andranal ladienness scendres den die report dessau mers eild die requestionens verfacht be NPLAC vir dan e 1976 which sit in die 1877 wer geschsteend aus is septimalite in erer in helt schluon die senien approval of 41 M





Section I:	Sample	Inventory	Report
Date Receiv	ed:	4/20/2	006

<u>Alta Lab. ID</u>	Client Sample ID
27617-001	DP-7.13-8
27617-002	DP-7.14-7
27617-003	DP-7.15-8



Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

27617

0.20

Project Number: 186053 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comment	s
DP-7.13-8	04/06 08:50	Soil	8290	186053-001	
DP-7.14-7	04/06 11:45	Soil	8290	186053-004	
DP-7.15-8	04/06 14:29	Soil	8290	186053-007	
	P	lease	provide a	nEDO 4 10 06	

Notes:	Ref	inquished By	: _ //	Rece	eived By:
	A	- hend	A.	ettina .	Binedict
	Date/Time:	4/19/06	1416	Date/Time:	. 0905
		11-11	,	04holac	KB
		L		1/	

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27617

SAMPLE LOG-IN CHECKLIST

Alta Project #: <u>27617</u>									
	Date/Time			Initials	5:	Locat	ion: Wr	l-2	-
Samples Arrival:	4/20/0	60	0905	4	3LB	Shelf/			
	Date/Time			Initials	5:	Locat	ion: \mathcal{W}	R-a	7
Logged In:	4/21/	56	065/	B	15		Rack:	D-3	3
Delivered By:	FedEx	UF	ps	Cal) DHL	1	Hand elivered	Ot	her
Preservation:	lce	>	Blue	lce	Dry i	ce	Ν	lone	
Temp °C D.Z		Time	a: 091	15		Thern	nometer I	D: DT	-20
							YES	NO	NA
Adequate Sample	Volume Rece	eived?)						
Holding Time Acce	ptable?							<u> </u>	
Shipping Container	r(s) Intact?						V		
Shipping Custody Seals Intact?							V		
Shipping Documentation Present?					V				
Airbill Trk # C1012900026098					V				
Sample Container Intact?									
Sample Custody Seals Intact?							$\overline{\mathbf{V}}$		
Chain of Custody / Sample Documentation Present?					V	1			
COC Anomaly/Sample Acceptance Form completed?						\checkmark			
If Chlorinated or Drinking Water Samples, Acceptable Preservation?					K				
Na ₂ S ₂ O ₃ Preservat	ion Docume	nted?			coc	1	Sample ontainer	(No	ne
Shipping Containe	r		Alta	Plient	Retair		Return	Disp	ose
Comments: pample	. vcont	ain	ers	pare	- cle	an j	jars		



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility*

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27620
- Curtis & Tompkins, Ltd. #186026

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.11-10	27620-001	27620	04/05/06	D
Soil	DP-7.12-10	27620-002	27620	04/05/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	\checkmark			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2 °C. In addition, one sample, DP-7.11-10 was received in a clear, glass jar and the other sample, DP-7.12-10, was received in a clear, plastic tube as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
Total HxCDF	0.111 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u> DP-7.11-10 <u>Analyte</u> Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF

It should be noted that sample DP-7.11-10 displayed low percent solids (32.5%). The data were not qualified on this basis.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Definition
Percent Difference
Percent Recovery
Cleanup Recovery Standard
Data Validation
Heptachlorodibenzodioxin
Heptachlorodibenzofuran
High Resolution Gas Chromatography
High Resolution Mass Spectrometry
Hexachlorodibenzodioxin
Hexachlorodibenzofuran
Internal Standard
Octachlorodibenzodioxin
Octachlorodibenzofuran
Ongoing Precision and Recovery
Polychlorinated Dibenzodioxins

Acronym	Definition
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Tracy U.

Tracy A. Young Quality Assurance Chemist

Report Reviewed and Approved By:

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-3	DP-7.11-10					EPA M	EPA Method 8290	
Client Data			Sample Data		Laboratory Data			
Name: Curt Droisort Et R	Curtis & Tompkins, Ltd. Et Brang-Site Assessment 186076	186076	Matrix:	Soil	Lab Sample: 27620-001	01 Date Received:	20-Apr-06	
llected: ollected:	5-Apr-06 0930		Sample Size: %Solids:	26.2 g 32.5	QC Batch No.: 7960 Date Analyzed DB-5: 26-Apr-06	Date Extracted: Dates Analyzed DB-225:	22-Apr-06 26-Apr-06	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R LCL-UCL ^d	Oualifiers	
2,3,7,8-TCDD	26.7				<u>IS</u> 13C-2,3,7,8-TCDD	70.8 40 - 135		
1,2,3,7,8-PeCDD	24.7				13C-1,2,3,7,8-PeCDD	63.7 40 - 135		
1,2,3,4,7,8-HxCDD	14.0				13C-1,2,3,4,7,8-HxCDD	79.1 40 - 135		
1,2,3,6,7,8-HxCDD	26.9				13C-1,2,3,6,7,8-HxCDD	80.8 40 - 135		
1,2,3,7,8,9-HxCDD	26.3				13C-1,2,3,4,6,7,8-HpCDD	87.2 40 - 135		
1,2,3,4,6,7,8-HpCDD	728				13C-0CDD	74.2 40 - 135		č
OCDD	0609				13C-2,3,7,8-TCDF	70.6 40 - 135	-	13
2,3,7,8-TCDF	244				13C-1,2,3,7,8-PeCDF	66.7 40 - 135		
1,2,3,7,8-PeCDF	69.8				13C-2,3,4,7,8-PeCDF	65.3 40 - 135		
2,3,4,7,8-PeCDF	90.2				13C-1,2,3,4,7,8-HxCDF	80.5 40 - 135		
1,2,3,4,7,8-HxCDF	23.7				13C-1,2,3,6,7,8-HxCDF	86.9 40 - 135		
1,2,3,6,7,8-HxCDF	25.8			D	13C-2,3,4,6,7,8-HxCDF	78.1 40 - 135		
2,3,4,6,7,8-HxCDF	28.5				13C-1,2,3,7,8,9-HxCDF	74.3 40 - 135		
1,2,3,7,8,9-HxCDF	8.01				13C-1,2,3,4,6,7,8-HpCDF	82.1 40 - 135		
1,2,3,4,6,7,8-HpCDF	162				13C-1,2,3,4,7,8,9-HpCDF	81.8 40 - 135		
1,2,3,4,7,8,9-HpCDF	19.9				13C-OCDF	70.5 40 - 135		
OCDF	605				CRS 37CI-2,3,7,8-TCDD	68.6 40 - 135	¥	01
Totals				· ·	Toxic Equivalent Quotient (TEQ) Data	Q) Data ^e		
Total TCDD	389				TEQ (Min): 149			
Total PeCDD	265							
Total HxCDD	222				a. Sample specific estimated detection limit.	, t		
Total HpCDD	1080				b. Estimated maximum possible concentration.	tion.		
Total TCDF	3550			•	c. Method detection limit.			
Total PeCDF	902			D	d. Lower control limit - upper control limit.			
Total HxCDF	327			B,D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic Equivalent Factors (V	(OH)	
Total HpCDF	509							
Analyst: DMS					Approved By: William J	William J. Luksemburg 29-Apr-2006 10:20	10:20	

Project 27620

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Sample ID: DP-7	DP-7.12-10					EP	EPA Method 8290	
Client Data			Sample Data		Laboratory Data			
Name: Curt Decision: De De	Curtis & Tompkins, Ltd. Bt Broom Site Accessment 186076	96076	Matrix:	Soil	Lab Sample: 27620-002	2 Date Received:	20-Apr-06	
ollected: ollected:	5-Apr-06 1535	07000	Sample Size: %Solids:	12.3 g 80.1	QC Batch No.: 7960 V Date Analyzed DB-5: 26-Apr-06	Date Extracted: Date Analyzed DB-225:	22-Apr-06	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R LCL-UCL ^d	L ^d Qualifiers	
2.3.7.8-TCDD	QN	0.154			<u>IS</u> 13C-2.3.7.8-TCDD	65.1 40 - 135		
1.2.3.7.8-PeCDD	ND	0.148			13C-1.2.3.7.8-PeCDD			
1,2,3,4,7,8-HxCDD	ND	0.212			13C-1,2,3,4,7,8-HxCDD			
1,2,3,6,7,8-HxCDD	ND	0.211			13C-1,2,3,6,7,8-HxCDD	74.6 40 - 135		
1,2,3,7,8,9-HxCDD	ND	0.205			13C-1,2,3,4,6,7,8-HpCDD	68.3 40 - 135	10	
1,2,3,4,6,7,8-HpCDD	1.17 4			Ţ	13C-OCDD	56.8 40 - 135	2	
OCDD	10.6				13C-2,3,7,8-TCDF	67.1 40 - 135	1	S
2,3,7,8-TCDF	D.299 J			Ţ	13C-1,2,3,7, 8-PeCDF	63.4 40 - 135	10	
1,2,3,7,8-PeCDF	ND	0.233			13C-2,3,4,7,8-PeCDF	62.0 40 - 135		
2,3,4,7,8-PeCDF	ND	0.239			13C-1,2,3,4,7,8-HxCDF	76.3 40 - 135	1	
1,2,3,4,7,8-HxCDF	ND	0.0815			13C-1,2,3,6,7,8-HxCDF	76.9 40 - 135		
1,2,3,6,7,8-HxCDF	ND	0.0789			13C-2,3,4,6,7,8-HxCDF	75.9 40 - 135		
2,3,4,6,7,8-HxCDF	ND	0.0888			13C-1,2,3,7,8,9-HxCDF	64.7 40 - 135		
1,2,3,7,8,9-HxCDF	ND	0.146			13C-1,2,3,4,6,7,8-HpCDF	69.2 40 - 135		
1,2,3,4,6,7,8-HpCDF	0.195 J			ſ	13C-1,2,3,4,7,8,9-HpCDF	60.6 40 - 135		
1,2,3,4,7,8,9-HpCDF	ND	0.239			13C-OCDF	54.4 40 - 135		
OCDF	1.04 J			ſ	CRS 37CI-2,3,7,8-TCDD	68.0 40 - 135		<u>1</u> 0
Totals					Toxic Equivalent Quotient (TEQ) Data) Data ^e		
Total TCDD	ND	0.154			TEQ (Min): 0.0447			
Total PeCDD	ND	0.148						
Total HxCDD	ND	0.209			a. Sample specific estimated detection limit.			
Total HpCDD	1.17				b. Estimated maximum possible concentration.	JN.		
Total TCDF	1.25				c. Method detection limit.			
Total PeCDF	ND	0.236			d. Lower control limit - upper control limit.			
Total HxCDF	ND	0.0952			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	nization Toxic Equivalent Fac	ors.(WHO)	
Total HpCDF	0.195							
Analyst: DMS					Approved By: William J. I	William J. Luksemburg 29-Apr-?	29-Apr-2006 10:20	

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Project 27620

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: H/OBIDLE

Client: Acton Mickelson Environmental, Inc.

Jacp ug t Reviewed By: Approved By: (7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27020 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	4		~
Sample Condition Upon Receipt at Subcontract Laboratory	~	١.	~
Laboratory Method Blank Results	1	2.	4
Ongoing Precision and Recovery Sample Results	1		✓
Internal Standard Recoveries	~		✓
Cleanup Standard Recoveries	~		✓
Identification and Quantitation of Target Compounds	1	3.	✓
Verification of the EDD in XLS Format	~		√

Comments: 1. Demperature upon receipt to subcontract laboratory below range 422.
One sample received in clean glass for and one sample received in clear plastic
tibe versus ander jars prescribed in the method
2. See Blank anaplie's Results form, acceptable with Discussion -NOW
3. all results reported at concentrations less than lowest calibration level
shauld be considered estimated & flagged "g."
Possible informated aighen it their moted in one or more compared
for sumple DP-7.11.10
Low percent solids (325%) noted for DP 7.11-10, NOW
Curtis & Tompkins SDG: 186026

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualificat	ion Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
DF	5	MB	0-11BCO1 Baten 4/25/020 7960	Total Hx CDF	0.111	0.555	
			9/25/00 1960				
							<u> </u>

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: <u>DF PLOVIN</u> Julan

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

NOW for Total HyCIDE Notes:

Veridian Environmental, Inc.

Matrix: Soil Sample Size: 10.0 g									
		QC Batch No.:	19	7960 /	Lab Sample:	0-MB001			
		Date Extracted:	22	22-Apr-06	Date Analyzed DB-5:	25-Apr-06	Date An	Date Analyzed DB-225:	NA
Analyte Conc. (pg	(bg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ard	%R	LCL-UCL ^d Qu	Oualifiers
2,3,7,8-TCDD	QN	0.0940			<u>IS</u> 13C-2,3,7,8-TCDD	DD	54.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.153			13C-1,2,3,7,8-PeCDD	eCDD	49.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.167			13C-1,2,3,4,7,8-HxCDD	-HxCDD	67.5	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.167			13C-1,2,3,6,7,8-HxCDD	-HxCDD	71.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.162			13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	62.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.218			13C-OCDD		47.2	40 - 135	
OCDD	ND	0.716			13C-2,3,7,8-TCDF	DF	53.8	40 - 135	
2,3,7,8-TCDF	ND	0.0997			13C-1,2,3,7,8-PeCDF	eCDF	50.6	40 - 135	
1,2,3,7,8-PeCDF	ND	0.251			13C-2,3,4,7,8-PeCDF	eCDF	52.7	40 - 135	·
2,3,4,7,8-PeCDF	ND	0.237			13C-1,2,3,4,7,8-HxCDF	-HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0673		13C-1,2,3,6,7,8-HxCDF	-HxCDF	78.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND		0.0799		13C-2,3,4,6,7,8-HxCDF	-HxCDF	70.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0477			13C-1,2,3,7,8,9-HxCDF	-HxCDF	58.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0846			13C-1,2,3,4,6,7,8-HpCDF	',8-HpCDF	58.8	40 - 135	
F	ND	0.217			13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	52.8	40 - 135	
	DN	0.184			13C-OCDF		46.2	40 - 135	
OCDF	DN	0.393			CRS 37CI-2,3,7,8-TCDD	CDD	64.7	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ta e		
Total TCDD	DN	0.0940			TEQ (Min): 0				
Total PeCDD	QN	0.153							
Total HxCDD	QN	0.165			a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	DN	0.218			b. Estimated maximum possible concentration.	sible concentration.			
Total TCDF	ND	0.0997			c. Method detection limit.				
Total PeCDF	QN	0.244			d. Lower control limit - upper control limit.	er control limit.			
Total HxCDF	0.111		0.259		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	orld Health Organizatio	n Toxic Equi	valent Factors.(WHO)	
Total HpCDF	ND	0.237							

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Project 27620

OPR Results	-					EPA	EPA Method 8290	
Matrix: Soil		QC Batch No.:	✓ 096L	Lab Sample: 0.	0-OPR001			
Sample Size: 10.0 g		Date Extracted:	22-Apr-06	Date Analyzed DB-5: 25-Apr-06	5-Apr-06	Date Analyzed DB-225:	d DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard		%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	-	63.9	40 - 135	
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-1,2,3,7,8-PeCDD	0	53.5	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	DD	77.5	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	DD	81.4	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	CDD	74.6	40 - 135	0
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13C-OCDD		46.8	40 - 135	ž
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF		64.3	40 - 135	
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-1,2,3,7,8-PeCDF	l.	57.5	40 - 135	
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-2,3,4,7,8-PeCDF	l r	57.7	40 - 135	
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	DF	80.9	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	DF	91.2	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-2,3,4,6,7,8-HxCDF	DF	80.9	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	DF	71.4	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	CDF	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	CDF	77.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-OCDF		52.6	40 - 135	
OCDF	100	94.5	70 - 130	CRS 37Cl-2,3,7,8-TCDD		64.0	40 - 135	び
Analyst: JMH		210 010		Approved By: Wi	William J. Luksemburg		29-Apr-2006 10:20	_

0/1 0/0

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Project 27620

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 29, 2006

Alta Project I.D.: 27620

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186026". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 4/20/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27620-001	DP-7.11-10
27620-002	DP-7.12-10

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532 A7600 0.2°C

Project Number: 186026 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

[Samp]	le ID	Sample	ed	Matrix	Analysis	C&T Lab #	Comments
DP-7.	.11-10	04/05	09:30	Soil	8290	186026-006	
DP-7.	12-10	04/05	15:35	Soil	8290	 186026-008	

Please provide an EDD 4/19/06/18

Notes:	Reginquished	1 By: Received By:	
	Ahers	Bittima & Benedict	
	Date/Time:	1416 Date/Time: 0905	
	·/··/	04/20/20	
		1/2/06	

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #: 7	7620	·····		<u></u>	_		
Samples Arrival:	Date/Time 4/20/C	6 0905	Initial	s: 31B		^{ion:} WK- Rack:	-2
Logged In:	Date/Time 4/21/06	0732	Initial	s: SIB	Locat Shelf/	ion: W Rack:	R-7 1-3
Delivered By:	FedEx		Cal	DHL		Hand elivered	Other
Preservation:	lce	Blue	lce	Dry lo	e	No	one
Temp °C ()- [Time: 0	115		Thern	nometer ID	: DT-20



			<u>IIIIII</u>	YES	NO	NA
Adequate Sample Volume Received?	?			V_{\prime}		
Holding Time Acceptable?				\checkmark		
Shipping Container(s) Intact?				V		
Shipping Custody Seals Intact?						V
Shipping Documentation Present?				V		
Airbill Trk # C	0/290002	6090		V		
Sample Container Intact?				\checkmark		
Sample Custody Seals Intact?						\bigvee
Chain of Custody / Sample Documentation Present?						
COC Anomaly/Sample Acceptance Form completed?					\checkmark	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?						V
Na ₂ S ₂ O ₃ Preservation Documented?		сос	San Cont	· ·	(No	ne
Shipping Container	Alta Client	Retain	Ret	urn	Disp	ose
Comments:						

Comments:

Sample DP-7.11-10 is in a clear plastic tube Sample DP-7.12-10 is in a clear glass jar



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility*

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27739
- Curtis & Tompkins, Ltd. #187066

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one aqueous sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client	AAL	Laboratory	Collection	Parameters
	Sample ID	Sample ID	Project ID	Date	Analyzed
Aqueous	LOG POND 8 OUTFALL S	27739-001	27739	5/24/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds	\checkmark			
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.5^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported. No qualification was warranted.

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has not identified any aspect of the analytical data that required qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery

<u>Acronym</u>	Definition
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley CE

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

W.J.L. U.J.

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: LOG	LOG POND 8 OUTFALL	S TT						EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Aqueous	Lab Sample: 2'	27739-001	Date Received:	cived:	26-May-06
Troject: FL Dr. Date Collected: 24-M Time Collected: 1555	rt Dragg-oue Assessment 24-May-06 1555		Sample Size:	1.02 L	QC Batch No.: 8(Date Analyzed DB-5: 2)	8052 28-May-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	26-May-06 NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R	LCL-UCL ^d	Oualifiers
2,3,7,8-TCDD	QN	0.765			<u>IS</u> 13C-2,3,7,8-TCDD		67.9	40 - 135	
1,2,3,7,8-PeCDD	ND	0.925			13C-1,2,3,7,8-PeCDD	0	72.3	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.738			13C-1,2,3,4,7,8-HxCDD	DD	64.3	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.769			13C-1,2,3,6,7,8-HxCDD	DD	61.1	40 - 135	
1,2,3,7,8,9-HxCDD	DN	0.762			13C-1,2,3,4,6,7,8-HpCDD	CDD	67.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.792			13C-OCDD		41.1	40 - 135	
OCDD	ND	2.02			13C-2,3,7,8-TCDF		72.6	40 - 135	
2,3,7,8-TCDF	ND	1.11			13C-1,2,3,7,8-PeCDF	(7.	70.8	40 - 135	
1,2,3,7,8-PeCDF	ND	0.704			13C-2,3,4,7,8-PeCDF	(T.	74.5	40 - 135	
2,3,4,7,8-PeCDF	ND	0.638			13C-1,2,3,4,7,8-HxCDF	DF	63.8	40 - 135	
1,2,3,4,7,8-HxCDF	QN	0.584			13C-1,2,3,6,7,8-HxCDF	DF	58.7	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.527			13C-2,3,4,6,7,8-HxCDF	DF	63.0	40 - 135	
2,3,4,6,7,8-HxCDF	DN	0.649			13C-1,2,3,7,8,9-HxCDF	DF	68.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.836			13C-1,2,3,4,6,7,8-HpCDF	CDF	56.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.971			13C-1,2,3,4,7,8,9-HpCDF	CDF	71.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.820			13C-OCDF		51.1	40 - 135	
OCDF	DN	2.11			CRS 37CI-2,3,7,8-TCDD		91.8	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	nt (TEQ) Da	ata ^e		
Total TCDD	ND	0.765			TEQ (Min): 0				
Total PeCDD	DN	0.925							
Total HxCDD	ND	0.756			a. Sample specific estimated detection limit.	ction limit.			
Total HpCDD	DN	0.792			b. Estimated maximum possible concentration.	concentration.			
Total TCDF	QN	1.11			c. Method detection limit.				
Total PeCDF	QN	0.671			d. Lower control limit - upper control limit.	ntrol limit.			
Total HxCDF	DN	0.649			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ealth Organizatio	on Toxic Equ	uivalent Factors.(V	(OH)
Total HpCDF	QN	0.896							
Analyst: JMH					Approved By: Ma	Martha M. Maier		30-May-2006 11:42	

Project 27739

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates:	5/	124	106	
_	- 1		/	

	•	
Client: Acton	Mickelson Enviro	nmental, Inc.

Reviewed By: IC. wi Approved By: 7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates Criteria Examined Problems Support Documentation criteria which were examined, the in Detail Identified Attachments identified problems, and support Check if Yes or Footnote Check if Yes or Footnote Check if Yes or Identify documentation attachments. Letter for Comments Below Number for Comments Below Attachment No. PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 √ ~ Analytical Holding Times Sample Condition Upon Receipt at √ 1 Subcontract Laboratory ~ 1 Laboratory Method Blank Results ~ 1 Ongoing Precision and Recovery Sample Results √ ~ Internal Standard Recoveries √ Cleanup Standard Recoveries 1 Identification and Quantitation of √ 1 Target Compounds √ Verification of the EDD in XLS Format ~

Comments:

Curtis & Tompkins SDG: 1870CoCo

Blank Analysis Results for Target Analytes

Fraction (1)	Matrix (Aq., S)	Blank Type	Blank Sample	Contaminant	Concentration (units)		ation Limit
		(2)	Number		(4.1.1.5)	5x	10x
0	В	911B	Method Blank (8052)	OUND			
	8 / A To						
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							+
							<u> </u>
							<u> </u>

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank						EPA Method 8290	8290
Matrix: Aqueous		QC Batch No.: 8052	Ľ	Lab Sample: 0-MB001	-		
Sample Size: 1.00 L		Date Extracted: 26-May-06		Date Analyzed DB-5: 27-May-06		Date Analyzed DB-225: NA	
Analyte Conc. (pg/L)	g/L)	DL ^a EMPC ^b Qual	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Oual	Oualifiers
2,3,7,8-TCDD	Ð	0.615	IS	13C-2,3,7,8-TCDD	75.1		
DD	DN	0.710			87.0	0 40 - 135	
Q	QN	0.579		13C-1,2,3,4,7,8-HxCDD	67.4	4 40 - 135	
-	DN	0.641		13C-1,2,3,6,7,8-HxCDD	61.9	9 40 - 135	
	DN	0.616		13C-1,2,3,4,6,7,8-HpCDD	73.5	5 40 - 135	
1,2,3,4,6,7,8-HpCDD	DN	0.671		13C-OCDD	41.5	5 40 - 135	_
OCDD	DN	1.67		13C-2,3,7,8-TCDF	82.7	7 40 - 135	
2,3,7,8-TCDF	DN	0.522		13C-1,2,3,7,8-PeCDF	84.6	6 40 - 135	
1,2,3,7,8-PeCDF	ND	0.651		13C-2,3,4,7,8-PeCDF	86.9	9 40 - 135	
2,3,4,7,8-PeCDF	DN	0.622		13C-1,2,3,4,7,8-HxCDF	62.9	9 40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.438		13C-1,2,3,6,7,8-HxCDF	54.1	1 40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.458		13C-2,3,4,6,7,8-HxCDF	67.5	5 40 - 135	
2,3,4,6,7,8-HxCDF	QN	0.445		13C-1,2,3,7,8,9-HxCDF	70.3	3 40 - 135	
1,2,3,7,8,9-HxCDF	DN	0.620		13C-1,2,3,4,6,7,8-HpCDF	59.8	8 40 - 135	
1,2,3,4,6,7,8-HpCDF	DN	2.69		13C-1,2,3,4,7,8,9-HpCDF	81.6	6 40 - 135	
1,2,3,4,7,8,9-HpCDF	DN	2.00		13C-OCDF	53.8	8 40 - 135	
OCDF	QZ	1.16		CRS 37CI-2,3,7,8-TCDD	88.7	7 40 - 135	
Totals			Ĩ	Toxic Equivalent Quotient (TEQ) Data	2) Data	Э	
Total TCDD	QN	0.615	T	TEQ (Min): 0			
Total PeCDD	QN	0.710					
Total HxCDD	DN	0.612	Ġ.	a. Sample specific estimated detection limit.			
Total HpCDD	QN	0.671	P.	b. Estimated maximum possible concentration.	ion.		
Total TCDF	QN	0.522	Ċ	c. Method detection limit.			
Total PeCDF	QZ	0.636	Ţ	d. Lower control limit - upper control limit.			
Total HxCDF	DN	0.490	<u>ن</u>	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic I	3quivalent Factors.(WHO)	
Total HpCDF	QZ	2.34	-				
Analyst: JMH				Approved By: Martha N	Martha M. Maier 30	30-May-2006 11:42	

Project 27739

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OPR Results						EPA	EPA Method 8290	0
Matrix: Aqueous		QC Batch No.:	8052	Lab	Lab Sample: 0-OPR001			
Sample Size: 1.00 L		Date Extracted:	26-May-06	Dat	Date Analyzed DB-5: 27-May-06	Date Analyzed DB-225:		NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	TCT-ACL	
2,3,7,8-TCDD	10.0	12.8	7 - 13	SI	13C-2,3,7,8-TCDD	74.0	40 - 135	
1,2,3,7,8-PeCDD	50.0	64.2	35 - 65		13C-1,2,3,7,8-PeCDD	82.1	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	63.6	35 - 65		13C-1,2,3,4,7,8-HxCDD	68.6	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	63.0	35 - 65		13C-1,2,3,6,7,8-HxCDD	65.1	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	64.8	35 - 65	-	13C-1,2,3,4,6,7,8-HpCDD	85.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	63.7	35 - 65		13C-OCDD	58.2	40 - 135	
OCDD	100	128	70 - 130		13C-2,3,7,8-TCDF	79.3	40 - 135	
2,3,7,8-TCDF	10.0	12.3	7 - 13		13C-1,2,3,7,8-PeCDF	78.3	40 - 135	
1,2,3,7,8-PeCDF	50.0	62.4	35 - 65		13C-2,3,4,7,8-PeCDF	83.5	40 - 135	
2,3,4,7,8-PeCDF	50.0	60.1	35 - 65		13C-1,2,3,4,7,8-HxCDF	61.8	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	62.8	35 - 65		13C-1,2,3,6,7,8-HxCDF	56.8	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	61.4	35 - 65		13C-2,3,4,6,7,8-HxCDF	67.1	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	62.1	35 - 65		13C-1,2,3,7,8,9-HxCDF	79.2	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	62.2	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	72.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	64.4	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	94.7	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	63.9	35 - 65		13C-OCDF	68.5	40 - 135	
OCDF	100	126	70 - 130	CRS	CRS 37CI-2,3,7,8-TCDD	86.9	40 - 135	
Analyst: JMH					Approved By: Martha M. Maier	ier 30-May-2006 10:03	006 10:03	

Martha M. Maier 30-May-2006 10:03

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Project 27739

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 30, 2006

Alta Project I.D.: 27739

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on May 26, 2006 under your Project Name "Ft Bragg-Site Assessment". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Altis Analytical Laborators certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 5/26/2006

<u>Alta Lab. ID</u>

<u>Client Sample ID</u>

27739-001

LOG POND 8 OUTFALL S

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 187066 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Martha

Results due: 05/30/06

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID Sampled	Matrix	Analysis	C&T Lab # Comments
LOG POND 8 OUTFALL S 05/24 15:55	Water	8290	187066-001 Dioxins & Furans

Notes:	Religquished	By:	Rec	eived By:
	. A hent		Betting S-	Benedict
	Date/Time: 3/25/06	1628	Date/Time:	0935

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27739

RUSH 27739 0.5°C

SAMPLE LOG-IN CHECKLIST

Alta Project #:	2773	9				-		
Samples Arrival:	Date/Time 5/2/6/06	, 0	935	Initials	: 31B	Locat Shelf/	ion: WK Rack:	6-2
Logged In:	Date/Time 5/24/04	6.1	015	Initials	B		ion: W/(Rack:	2-2 3-5
Delivered By:	FedEx	UF	ps C	Cal	DHL	1	Hand elivered	Other
Preservation:	lce)	Blue	lce	Dry lo	ce	No	one
Temp °C (), C	5	Tim	e: 09	45	~	Thern	nometer ID	: DT-20

				YEŞ	NO	NA
Adequate Sample Volume Received	?			\checkmark		
Holding Time Acceptable?				V	•	
Shipping Container(s) Intact?				\checkmark		•
Shipping Custody Seals Intact?						~
Shipping Documentation Present?				V		
Airbill Trk # C	01290000	27444	-			
Sample Container Intact?				\vee		
Sample Custody Seals Intact?						\checkmark
Chain of Custody / Sample Documer	ntation Present?			V		
COC Anomaly/Sample Acceptance I	Form completed?					
If Chlorinated or Drinking Water Sam	nples, Acceptable P	reservation?				\square
Na ₂ S ₂ O ₃ Preservation Documented?)	-COC	Sarr Conta	•	No	ne
Shipping Container	Alta Client	Retain	Ret	um)	Disp	ose
Comments:						,

(



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #26833
- Curtis & Tompkins, Ltd. #182694

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two aqueous samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Aqueous	DP3.59DT5.5	26833-001	26833	10/10/05	D
Aqueous	DP3.60DT6.0	26833-002	26833	10/10/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	\checkmark			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	\checkmark			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (1.7°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}$ C. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

Data Qualifier Defi	initions
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDD OCDF	Octachlorodibenzodioxin Octachlorodibenzofuran
OCDF	Octachlorodibenzofuran
OCDF OPR	Octachlorodibenzofuran Ongoing Precision and Recovery
OCDF OPR PCDDs	Octachlorodibenzofuran Ongoing Precision and Recovery Polychlorinated Dibenzodioxins
OCDF OPR PCDDs PCDFs	Octachlorodibenzofuran Ongoing Precision and Recovery Polychlorinated Dibenzodioxins Polychlorinated Dibenzofurans
OCDF OPR PCDDs PCDFs PeCDD	Octachlorodibenzofuran Ongoing Precision and Recovery Polychlorinated Dibenzodioxins Polychlorinated Dibenzofurans Pentachlorodibenzodioxin
OCDF OPR PCDDs PCDFs PeCDD PeCDF	Octachlorodibenzofuran Ongoing Precision and Recovery Polychlorinated Dibenzodioxins Polychlorinated Dibenzofurans Pentachlorodibenzodioxin Pentachlorodibenzofuran

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

N.M. Z. GI

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID:	DP3.59DT5.5							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd. Et Brace Site Accomment No. 192504	107604	Matrix:	Aqueous	Lab Sample: 2683	26833-001	Date Received:	ived:	25-Oct-05
Time Collected: Time Collected:	10-Oct-05 1420	0. 102074	Sample Size:	1.06 L	QC Batch No.: 7403 Date Analyzed DB-5: 12-N	7403 12-Nov-05	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	9-Nov-05 NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R I	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	QN	1.82			<u>IS</u> 13C-2,3,7,8-TCDD		70.6	40 - 135	
1,2,3,7,8-PeCDD	QN (2.11			13C-1,2,3,7,8-PeCDD		74.5	40 - 135	
1,2,3,4,7,8-HxCDD	DN DD	3.11			13C-1,2,3,4,7,8-HxCDD	~	69.0	40 - 135	
1,2,3,6,7,8-HxCDD	DD 10.5 J			ŗ	13C-1,2,3,6,7,8-HxCDD	~	<i>T.T.</i>	40 - 135	
1,2,3,7,8,9-HxCDD	DN DD	5.37			13C-1,2,3,4,6,7,8-HpCDD	Q	78.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	CDD 191				13C-OCDD		57.1	40 - 135	
OCDD	1600				13C-2,3,7,8-TCDF		68.0	40 - 135	
2,3,7,8-TCDF	ND	1.45			13C-1,2,3,7,8-PeCDF		67.8	40 - 135	
1,2,3,7,8-PeCDF	QN	3.04			13C-2,3,4,7,8-PeCDF		67.1	40 - 135	
2,3,4,7,8-PeCDF	QN	2.66		_	13C-1,2,3,4,7,8-HxCDF		60.1	40 - 135	
1,2,3,4,7,8-HxCDF	3.01			J	13C-1,2,3,6,7,8-HxCDF		65.3	40 - 135	
1,2,3,6,7,8-HxCDF	3.88			J	13C-2,3,4,6,7,8-HxCDF		69.3	40 - 135	
2,3,4,6,7,8-HxCDF	DF 3.55 J			J	13C-1,2,3,7,8,9-HxCDF		71.5	40 - 135	
1,2,3,7,8,9-HxCDF	3.60			J	13C-1,2,3,4,6,7,8-HpCDF	DF	71.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	CDF 64.5				13C-1,2,3,4,7,8,9-HpCDF)F	73.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	CDF ND	4.85			13C-OCDF		60.1	40 - 135	
OCDF	116				CRS 37CI-2,3,7,8-TCDD		68.4	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	(TEQ) Data	د		
Total TCDD	QN	1.82			TEQ (Min): 5.18				
Total PeCDD	QN	2.11							
Total HxCDD	48.8				a. Sample specific estimated detection limit.	n limit.			
Total HpCDD	355				b. Estimated maximum possible concentration.	entration.			
Total TCDF	QN	2.65			c. Method detection limit.				
Total PeCDF	15.7				d. Lower control limit - upper control limit.	limit.			
Total HxCDF	78.7				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	h Organization	Toxic Equ	ivalent Factors.(W	HO}
Total HpCDF	148								
Analyst: MAS					Approved By: Mart	Martha M. Maier		03-Apr-2006 15:31	

Project 26833

Sample ID: D	DP3.60DT6.0						EPA N	EPA Method 8290
Client Data			Sample Data		Laboratory Data			
	Curtis & Tompkins, Ltd.	107001	Matrix:	Aqueous	Lab Sample: 26833-002	02 Date Received:	ceived:	25-Oct-05
Troject: Date Collected: 1 Time Collected: 1	rt Dragg-oue Assessment N 10-Oct-05 1510	0. 102094	Sample Size:	1.04 L	QC Batch No.: 7403 Date Analyzed DB-5: 12-Nov-05		Date Extracted: Date Analyzed DB-225:	9-Nov-05 NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Oualifiers
2,3,7,8-TCDD	QN	1.48			<u>IS</u> 13C-2,3,7,8-TCDD	72.4	40 - 135	
1,2,3,7,8-PeCDD	QN	1.78			13C-1,2,3,7,8-PeCDD	72.5	40 - 135	
1,2,3,4,7,8-HxCDD	D 20.1 J			ſ	13C-1,2,3,4,7,8-HxCDD	68.0	40 - 135	
1,2,3,6,7,8-HxCDD	17.2			ſ	13C-1,2,3,6,7,8-HxCDD	72.8	40 - 135	
1,2,3,7,8,9-HxCDD	4.14			J	13C-1,2,3,4,6,7,8-HpCDD	72.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	DD 522				13C-OCDD	56.6	40 - 135	
OCDD	6460				13C-2,3,7,8-TCDF	73.0	40 - 135	
2,3,7,8-TCDF	QN	1.48			13C-1,2,3,7,8-PeCDF	68.2	40 - 135	
1,2,3,7,8-PeCDF	ND	3.55			13C-2,3,4,7,8-PeCDF	68.6	40 - 135	
2,3,4,7,8-PeCDF	DN	3.30			13C-1,2,3,4,7,8-HxCDF	57.3	40 - 135	
1,2,3,4,7,8-HxCDF	CN ND		4.20		13C-1,2,3,6,7,8-HxCDF	61.5	40 - 135	
1,2,3,6,7,8-HxCDF	4.87			J	13C-2,3,4,6,7,8-HxCDF	64.5	40 - 135	
2,3,4,6,7,8-HxCDF	ن 6.87]			J	13C-1,2,3,7,8,9-HxCDF	68.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	2.45			13C-1,2,3,4,6,7,8-HpCDF	64.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	DF 262				13C-1,2,3,4,7,8,9-HpCDF	59.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	DF 12.6 J			J	13C-OCDF	54.7	40 - 135	
OCDF	861				CRS 37CI-2,3,7,8-TCDD	73.9	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	Q) Data ^e		
Total TCDD	QN	1.48			TEQ (Min): 14.0			
Total PeCDD	QN	1.78						
Total HxCDD	76.6				a. Sample specific estimated detection limit.	it.		
Total HpCDD	892				b. Estimated maximum possible concentration.	tion.		
Total TCDF	DN	2.29			c. Method detection limit.			
Total PeCDF	20.3				d. Lower control limit - upper control limit.			
Total HxCDF	255		259		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic E	quivalent Factors.((OHW
Total HpCDF	866							
Analyst: MAS					Approved By: Martha M. Maier		03-Apr-2006 15:31	

Project 26833

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

þ Reviewed By Approved By: م 7/11/06 Completion Date:

Client: Acton Mickelson Environmental, Inc.

05

Project Manager: Jeff Heglie

Sample Collection Dates:

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 068 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	s 🖌		√
Sample Condition Upon Receipt at Subcontract Laboratory	4	(1)	~
Laboratory Method Blank Results	4		*
Ongoing Precision and Recovery Sample Results	1		~
Internal Standard Recoveries	1		~
Cleanup Standard Recoveries	1		4
Identification and Quantitation of Target Compounds	· •	(බ)	~
Verification of the EDD in XLS Format	~		√

Comments:		
	(1) remperature upon receipt	at subcontract laboratory blow
	namae of 4±2°C.	J
	(2) Domale concentrations o	& reported were below the colibration
	Name of the instrument.	
	y l	

Curtis & Tompkins SDG: 182388

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifica	ation Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
0	Aq.	MB	Mothed Blankt 7403	ANNO	1		
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				······································	·		
			÷				
					1		
					1		1

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: Signal Funan

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank			EPA Method 8290
Matrix: Aqueous	QC Batch No.: 7403	Lab Sample: 0-MB001	
Sample Size: 1.00 L	Date Extracted: 9-Nov-05	Date Analyzed DB-5: 12-Nov-05	Date Analyzed DB-225: NA
Analyte Conc. (pg/L)	DL ^a EMPC ^b Qualifiers	ers Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD ND	2.45	<u>IS</u> 13C-2,3,7,8-TCDD	57.2 40 - 135
1,2,3,7,8-PeCDD ND	1.98	13C-1,2,3,7,8-PeCDD	60.9 40 - 135
1,2,3,4,7,8-HxCDD ND	3.51	13C-1,2,3,4,7,8-HxCDD	55.6 40 - 135
1,2,3,6,7,8-HxCDD ND	3.42	13C-1,2,3,6,7,8-HxCDD	63.8 40 - 135
1,2,3,7,8,9-HxCDD ND	3.47	13C-1,2,3,4,6,7,8-HpCDD	63.1 40 - 135
1,2,3,4,6,7,8-HpCDD ND	2.40	13C-OCDD	46.9 40 - 135
OCDD ND	9.40	13C-2,3,7,8-TCDF	60.4 40 - 135
2,3,7,8-TCDF ND	1.67	13C-1,2,3,7,8-PeCDF	54.7 40 - 135
1,2,3,7,8-PeCDF ND	2.56	13C-2,3,4,7,8-PeCDF	58.0 40 - 135
2,3,4,7,8-PeCDF ND	2.16	13C-1,2,3,4,7,8-HxCDF	49.5 40 - 135
1,2,3,4,7,8-HxCDF ND		13C-1,2,3,6,7,8-HxCDF	54.7 40 - 135
1,2,3,6,7,8-HxCDF ND	0.934	13C-2,3,4,6,7,8-HxCDF	56.6 40 - 135
2,3,4,6,7,8-HxCDF ND		13C-1,2,3,7,8,9-HxCDF	57.2 40 - 135
1,2,3,7,8,9-HxCDF ND	1.68	13C-1,2,3,4,6,7,8-HpCDF	55.3 40 - 135
1,2,3,4,6,7,8-HpCDF ND	1.77	13C-1,2,3,4,7,8,9-HpCDF	59.6 40 - 135
1,2,3,4,7,8,9-HpCDF ND		13C-OCDF	51.7 40 - 135
OCDF ND	6.94	CRS 37CI-2,3,7,8-TCDD	68.2 40 - 135
Totals		Toxic Equivalent Quotient (TEQ) Data	9
Total TCDD ND	2.45	TEQ (Min): 0	
Total PeCDD ND			
Total HxCDD ND	3.46	a. Sample specific estimated detection limit.	
Total HpCDD ND	2.40	b. Estimated maximum possible concentration.	
Total TCDF ND	1.67	c. Method detection limit.	
Total PeCDF ND	2.35	d. Lower control limit - upper control limit.	
Total HxCDF ND	1.11	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Toxic Equivalent Factors.(WHO)
Total HpCDF ND	1.96		
Analyst: MAS		Approved By: Martha M. Maier	er 03-Apr-2006 15:31

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OPR Results						EPA	EPA Method 8290	
Matrix: Aqueous		QC Batch No.:	7403	Lab	Lab Sample: 0-OPR001			
Sample Size: 1.00 L		Date Extracted:	9-Nov-05	Dat	Date Analyzed DB-5: 12-Nov-05	Date Analyzed DB-225:	d DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS	13C-2,3,7,8-TCDD	48.1	40 - 135	
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65		13C-1,2,3,7,8-PeCDD	50.8	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	52.5	35 - 65		13C-1,2,3,4,7,8-HxCDD	54.2	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	51.1	35 - 65		13C-1,2,3,6,7,8-HxCDD	62.0	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	53.5	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	57.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	51.0	35 - 65		13C-0CDD	47.5	40 - 135	
OCDD	100	104	70 - 130		13C-2,3,7,8-TCDF	52.7	40 - 135	
2,3,7,8-TCDF	10.0	10.2	7 - 13		13C-1,2,3,7,8-PeCDF	47.6	40 - 135	
1,2,3,7,8-PeCDF	50.0	53.3	35 - 65		13C-2,3,4,7,8-PeCDF	51.0	40 - 135	
2,3,4,7,8-PeCDF	50.0	53.6	35 - 65		13C-1,2,3,4,7,8-HxCDF	48.7	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.7	35 - 65		13C-1,2,3,6,7,8-HxCDF	54.0	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	51.6	35 - 65		13C-2,3,4,6,7,8-HxCDF	59.9	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	52.1	35 - 65		13C-1,2,3,7,8,9-HxCDF	57.0	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	51.6	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	52.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	51.4	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	52.7	35 - 65		13C-OCDF	48.2	40 - 135	
OCDF	100	100	70 - 130	CRS	CRS 37C1-2,3,7,8-TCDD	68.1	40 - 135	
Amoluce: 3440								

Analyst: MAS

Approved By: Martha M. Maier 14-Nov-2005 08:11

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Project 26833

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 03, 2006

Alta Project I.D.: 26833

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the two aqueous samples received at Alta Analytical Laboratory on October 25, 2005 under your Project Name "Ft Bragg-Site Assessment", Project No. 182694. These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivilancy (TEQ) as calculated using the WHO-1997 Toxic Equivilancy Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 10/25/2005

<u>Alta Lab. ID</u>	Client Sample ID
26833-001	DP3.59DT5.5
26833-002	DP3.60DT6.0

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

1.70

Project Number: 182694 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments	
DP3.59DT5.5	10/10 14:20	Water	8290	182388-006	
DP3.60DT6.0	10/10 15:10	Water	8290	182388-007	

Notes: Relinquished By: Received By an 2 Date/Time: 60 Og p

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project No.: _	2683	55			····-					
Samples Arrival:	Date/Time 10/25/05	5	092	5	Initials:	B		WR-	- 2-	
Logged In:	Date/Time 10/25/05		233	· · · · · · · · ·	Initials:	\$\$B	Locat	ion: W	R-Ə	-
Delivered By:	FedEx	UF	°S		Cal	DH	L		and /ered	Other
Preservation:		2		Blue I	ce		Dry Ice			None
Temp °C	1.7°C)			Time:	09	50		· · · · · · ·	
						У	ES		NO	NA
Adequate Sample	Volume Rece	ived?								
Holding Time Acce						.V	/			
Shipping Containe		<u> </u>	· · · · · · · · · · · · · · · · · · ·							
Shipping Custody										V
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	10129 0000	1223	95							
Sample Container						V				1
Sample Custody S								_		V ·
Chain of Custody /		umenta				V				
Shipping Containe			Alta	· · · · · · · · · · · · · · · · · · ·	Client) <u>R</u> e	etain	<u> </u>	Return) Dispose
COC Anomaly/Sar	and the second se	nce Fo	rm com	pletec	17	· ·		1	1	· · · · · · · · · · · · · · · · · · ·
Drinking Water Sa						/		_	/	
Acceptable Preser	vation?							_	•	
Preservation Info						С	oc		ample Intainer	None

Comments:



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762 **DATA VALIDATION REPORT** *Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs*

- Alta Analytical Laboratory, Inc. #26839
- Curtis & Tompkins, Ltd. #182724

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	AS7.1	26839-001	26839	10/24/05	D
Soil	AS7.2	26839-002	26839	10/24/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	\checkmark			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	\checkmark			
Identification and Quantitation of Target Compounds		\checkmark		
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.8°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}$ C. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	Analyte
AS7.1	1,2,3,6,7,8-HxCDF, Total HxCDF, Total TCDF, and Total PeCDF
AS7.2	1,2,3,6,7,8-HxCDF, Total HxCDF, Total TCDF, and Total PeCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported and warranted no qualification.

Data Qualifier De	
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

The data were acceptable as reported and warranted no qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: A	AS7.1							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	26839-001	Date Received:	eived:	26-Oct-05
Troject: Date Collected: Time Collected:	r'i. Diagg-Jile Assessingin INU. 102/24 24-Oct-05 1010	NU. 107/24	Sample Size: %Solids:	14.2 g 68.6	QC Batch No.: Date Analyzed DB-5:	7397 10-Nov-05	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	8-Nov-05 11-Nov-05
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R		Oualifiers
2.3.7.8-TCDD					<u>IS</u> 13C-2.3.7.8-TCDD	DD	6		
1,2,3,7,8-PeCDD	230				13C-1,2,3,7,8-PeCDD	eCDD	67.7	40 - 135	
1,2,3,4,7,8-HxCDD					13C-1,2,3,4,7,8-HxCDD	HxCDD	70.7	40 - 135	
1,2,3,6,7,8-HxCDD	D 237				13C-1,2,3,6,7,8-HxCDD	HxCDD	68.8	40 - 135	
1,2,3,7,8,9-HxCDD	D 222				13C-1,2,3,4,6,7,8-HpCDD	8-HpCDD	90.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	DD 1020				13C-OCDD		93.4	40 - 135	
OCDD	1060				13C-2,3,7,8-TCDF	DF	59.5	40 - 135	
2,3,7,8-TCDF	982				13C-1,2,3,7,8-PeCDF	eCDF	64.0	40 - 135	
1,2,3,7,8-PeCDF	494				13C-2,3,4,7,8-PeCDF	eCDF	60.7	40 - 135	
2,3,4,7,8-PeCDF	695				13C-1,2,3,4,7,8-HxCDF	-HxCDF	65.7	40 - 135	
1,2,3,4,7,8-HxCDF	F 230				13C-1,2,3,6,7,8-HxCDF	-HxCDF	71.6	40 - 135	
1,2,3,6,7,8-HxCDF	F 260			D	13C-2,3,4,6,7,8-HxCDF	-HxCDF	71.3	40 - 135	
2,3,4,6,7,8-HxCDF	F 309				13C-1,2,3,7,8,9-HxCDF	HxCDF	73.2	40 - 135	
1,2,3,7,8,9-HxCDF	F 108				13C-1,2,3,4,6,7,8-HpCDF	8-HpCDF	68.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	DF 290				13C-1,2,3,4,7,8,9-HpCDF	9-HpCDF	90.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	DF 92.0				13C-OCDF		84.4	40 - 135	
OCDF	109				CRS 37CI-2,3,7,8-TCDD	DD	63.7	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ata ^e		
Total TCDD	3650				TEQ (Min): 9	992			
Total PeCDD	3760								
Total HxCDD	3540				a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	1680				b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	16300			D	c. Method detection limit.				
Total PeCDF	629			D	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	2420			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	orld Health Organizati	on Toxic Equ	uivalent Factors.(W	(OH)
Total HpCDF	653								
Analyst: MAS					Approved By:	Martha M. Maier		03-Apr-2006 15:35	

Project 26839

Sample ID:	AS7.2							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd.	10101	Matrix:	Soil	Lab Sample:	26839-002	Date Received:	eived:	26-Oct-05
Troject: Date Collected: Time Collected:	Ft. Dragg-Site Assessment No. 162/24 24-Oct-05 1020	NO. 107/24	Sample Size: %Solids:	15.7 g 63.0	QC Batch No.: Date Analyzed DB-5:	7397 10-Nov-05	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	8-Nov-05 11-Nov-05
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ırd	%R I	rcr-ncrq (Oualifiers
2,3,7,8-TCDD	146				<u>IS</u> 13C-2,3,7,8-TCDD	D	69.7	40 - 135	
1,2,3,7,8-PeCDD	154				13C-1,2,3,7,8-PeCDD	CDD	77.6	40 - 135	
1,2,3,4,7,8-HxCDD)D 66.4				13C-1,2,3,4,7,8-HxCDD	HxCDD	72.1	40 - 135	
1,2,3,6,7,8-HxCDD	D 68.7				13C-1,2,3,6,7,8-HxCDD	HxCDD	74.1	40 - 135	
1,2,3,7,8,9-HxCDD	D 69.5				13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	84.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	CDD 195				13C-0CDD		80.2	40 - 135	
OCDD	233				13C-2,3,7,8-TCDF	DF	68.1	40 - 135	
2,3,7,8-TCDF	1110				13C-1,2,3,7,8-PeCDF	CDF	72.6	40 - 135	
1,2,3,7,8-PeCDF	420				13C-2,3,4,7,8-PeCDF	CDF	68.5	40 - 135	
2,3,4,7,8-PeCDF	533				13C-1,2,3,4,7,8-HxCDF	HxCDF	71.8	40 - 135	
1,2,3,4,7,8-HxCDF	JF 120				13C-1,2,3,6,7,8-HxCDF	HxCDF	72.2	40 - 135	
1,2,3,6,7,8-HxCDF	DF 138			D	13C-2,3,4,6,7,8-HxCDF	HXCDF	73.4	40 - 135	
2,3,4,6,7,8-HxCDF)F 145				13C-1,2,3,7,8,9-HxCDF	HxCDF	78.2	40 - 135	
1,2,3,7,8,9-HxCDF)F 46.2				13C-1,2,3,4,6,7,8-HpCDF	t-HpCDF	79.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	CDF 88.7				13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	78.5	40 - 135	
1,2,3,4,7,8,9-HpCDF					13C-OCDF		74.0	40 - 135	
OCDF	24.1				CRS 37CI-2,3,7,8-TCDD	DD	69.8	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ata e		
Total TCDD	2170				TEQ (Min): 76	766			
Total PeCDD	1540								
Total HxCDD	938				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	343				b. Estimated maximum possible concentration.	ible concentration.			
Total TCDF	16300			D	c. Method detection limit.				
Total PeCDF	5200			D	d. Lower control limit - upper control limit.	er control limit.			
Total HxCDF	1220			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rld Health Organizatic	on Toxic Equ	iivalent Factors.(W	(OH)
Total HpCDF	188								
Analyst: MAS					Approved By:	Martha M. Maier		03-Apr-2006 15:35	

Project 26839

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 10/24/05

Client: Acton Mickelson Environmental, Inc.

Reviewed By Approved By: 7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: Table in QA Report

for Applicable Sample No's.

The following table indicates criteria which were examined, the	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
identified problems, and support documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	1		1
Sample Condition Upon Receipt at Subcontract Laboratory	4	(1)	1
Laboratory Method Blank Results	4		1
Ongoing Precision and Recovery Sample Results	1		1
Internal Standard Recoveries	1		1
Cleanup Standard Recoveries	1		1
Identification and Quantitation of Target Compounds	`✓	(ව)	✓
Verification of the EDD in XLS Format	4		4

Comments: on heceipt to subcon Ann T Velous tonionomco UDD OBSUIDED IM UNE OI MOTE

Curtis & Tompkins SDG: 180704

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction (1)	Matrix (Aq., S)	Blank Type	Blank Sample	Contaminant	Concentration (units)		tion Limit
		(2)	Number			5x	10x
0	З	INB	Method Blank (1397		—		
<u> </u>	<u> </u>		piller and so that a set				
					_		
					_		
				·			
							L
							L
		1				_	

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: Sintum/ Fluran

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank								EPA Method 8290	od 8290
Matrix: Soil		QC Batch No.:	L	7397	Lab Sample:	0-MB001			
Sample Size: 10.0 g		Date Extracted:	8	8-Nov-05	Date Analyzed DB-5:	10-Nov-05	Date Ana	Date Analyzed DB-225:	NA
Analyte Conc. (pg/g)	(g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	p	%R	rcr-ucl ^d 0	Oualifiers
2,3,7,8-TCDD N	QN	0.0727			<u>IS</u> 13C-2,3,7,8-TCDD	D	78.6	40 - 135	
DD	QN	0.0944				CDD	83.0	40 - 135	
Q	QN	0.127			13C-1,2,3,4,7,8-HxCDD	IxCDD	80.2	40 - 135	
_	DN	0.130			13C-1,2,3,6,7,8-HxCDD	IxCDD	<i>77.9</i>	40 - 135	
1,2,3,7,8,9-HxCDD	QN	0.129			13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	85.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	QN	0.258			13C-0CDD		75.2	40 - 135	
OCDD	DN		0.776		13C-2,3,7,8-TCDF	F	75.5	40 - 135	
2,3,7,8-TCDF	DN	0.0780			13C-1,2,3,7,8-PeCDF	CDF	82.0	40 - 135	
1,2,3,7,8-PeCDF	QN	0.164			13C-2,3,4,7,8-PeCDF	CDF	80.5	40 - 135	
2,3,4,7,8-PeCDF	QN	0.144			13C-1,2,3,4,7,8-HxCDF	IxCDF	76.5	40 - 135	
ЭF	QN	0.0474			13C-1,2,3,6,7,8-HxCDF	IxCDF	84.3	40 - 135	
1,2,3,6,7,8-HxCDF N	QN	0.0432			13C-2,3,4,6,7,8-HxCDF	IxCDF	82.6	40 - 135	
2,3,4,6,7,8-HxCDF	QN	0.0503			13C-1,2,3,7,8,9-HxCDF	IxCDF	92.4	40 - 135	
1,2,3,7,8,9-HxCDF N	QN	0.0378			13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	86.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	QN	0.108			13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	85.1	40 - 135	
1,2,3,4,7,8,9-HpCDF N	QN	0.0755			13C-OCDF		77.0	40 - 135	
0CDF N	QN	0.208			CRS 37CI-2,3,7,8-TCDD	D	79.6	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	ient (TEQ) Da	ta e		
Total TCDD N	DN	0.0727			TEQ (Min): 0				
Total PeCDD	QX	0.0944							
Total HxCDD N	QN	0.129			a. Sample specific estimated detection limit.	stection limit.			
Total HpCDD	QN	0.258			b. Estimated maximum possible concentration.	e concentration.			
Total TCDF N	QN	0.0780			c. Method detection limit.				
Total PeCDF N	QN	0.153			d. Lower control limit - upper control limit.	control limit.			
Total HxCDF N	QN	0.0510			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Health Organizatio	n Toxic Equi	valent Factors.(WHO)	
Total HpCDF N	DN	0.129							
Analyst: MAS					Approved By:	Martha M. Maier		03-Apr-2006 15:35	

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Project 26839

OPR Results			-			EPA	EPA Method 8290	-
Matrix: Soil		QC Batch No.:	7397	Lat	Lab Sample: 0-OPR001			
Sample Size: 10.0 g		Date Extracted:	8-Nov-05	Da	Date Analyzed DB-5: 10-Nov-05	Date Analyzed DB-225:		NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.6	7 - 13	S	13C-2,3,7,8-TCDD	72.8	40 - 135	
1,2,3,7,8-PeCDD	50.0	53.8	35 - 65		13C-1,2,3,7,8-PeCDD	80.8	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	54.5	35 - 65		13C-1,2,3,4,7,8-HxCDD	80.3	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	53.8	35 - 65		13C-1,2,3,6,7,8-HxCDD	81.2	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	56.4	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	82.3	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	54.9	35 - 65		13C-OCDD	73.1	40 - 135	
OCDD	100	111	70 - 130		13C-2,3,7,8-TCDF	68.6	40 - 135	
2,3,7,8-TCDF	10.0	10.7	7 - 13		13C-1,2,3,7,8-PeCDF	76.1	40 - 135	
1,2,3,7,8-PeCDF	50.0	56.1	35 - 65		13C-2,3,4,7,8-PeCDF	74.0	40 - 135	
2,3,4,7,8-PeCDF	50.0	56.5	35 - 65		13C-1,2,3,4,7,8-HxCDF	79.0	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65		13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	52.5	35 - 65		13C-2,3,4,6,7,8-HxCDF	85.2	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	53.3	35 - 65	_	13C-1,2,3,7,8,9-HxCDF	82.1	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	53.7	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	75.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	54.7	35 - 65		13C-OCDF	70.9	40 - 135	
OCDF	100	105	70 - 130	CRS	CRS 37Cl-2,3,7,8-TCDD	72.6	40 - 135	

Analyst: MAS

Approved By: Martha M. Maier 14-Nov-2005 07:05

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Project 26839

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 05, 2006

Alta Project I.D.: 26839

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the two soil samples received at Alta Analytical Laboratory on October 26, 2005 under your Project Name "Ft Bragg-Site Assessment", Project No. 182724. These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivilancy (TEQ) as calculated using the WHO-1997 Toxic Equivilancy Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 10/26/2005

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
26839-001	AS7.1
26839-002	AS7.2

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

26839 0.8°C

Project Number: 182724 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled .	Matrix	Analysis	C&T Lab # Comments
AS7.1	10/24 10:10	Soil	8290	182724-003 Dioxins & Furans
AS7.2	10/24 10:20	Soil	8290	182724-004 Dioxins & Furans

Notes:	Ralinguished By:	Received By:
	Rely a	Betting & Beredict
CALIFORNIA OVERNIGHT	Date/Fime: 10/25/05 15:02	Date/Time: 1005
C1012308000		. ,

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1 SAMPLE LOG-IN CHECKLIST

Alta Project No.:	26839						
Samples Arrival:	Date/Time		Initials:		Locatio	n:	
	10/24/05	1005	B	B		WR-2	
Logged In:	Date/Time	118	Initials:	B	Locatio	WR-J n: WR-	7
Delivered By:	FedEx U	PS (Cal	DH	L	Hand Delivered	Other
Preservation:	lce	Blue	Ce	D)ry Ice		None
Temp °C	.8°C		Time:	1020			
				Y	ĘS	NO	NA
	Adequate Sample Volume Received?						
Holding Time Acce							
Shipping Containe				<u> </u>			
Shipping Custody							V
Shipping Documer							
Airbill Trk # C101290027410				V			
Sample Container							
Sample Custody Seals Intact?							
Chain of Custody / Sample Documentation Present?			<u> </u>				
Shipping Container Alta Client			Re Re	tain	Return	Dispose	
COC Anomaly/Sample Acceptance Form completed?							
Acceptable Preser		· · · · · · · · · · · · · · · · · · ·			/	V	
Acceptable Flesel				V		Sample	-
Preservation Info				C	0C ·	Sample Container	(None)

Comments:

Lab ID: 182724-004 Client ID: AS 7.2 Lab ID: 182724-003 Client ID: AS 7.1 4848 AS 7.1

Project 26839

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Chain of Custody Anomaly/Sample Acceptance Form

Client: (Curtis & Tompkins, Ltd.	Project Number	26839
Contact: I	Lisa Brooker	Date Received:	Oct 26 2005
Fax Numbe	er: <u>510-4860532</u>	Documented by/date:	10/26/05 600
			/ -/

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis. Thank You. (Fax # 916-673-0106)

The following information or	item is needed to p	roceed with analysi	s:		
Complete Chain-of-Custod	y 🗌	Preservative			Collector's Name
Test Method Requested		Sample Identification	5 n		Sample Type
Analyte List Requested		Sample Collection	Date / Time		Sample Location
The following anomalies were	e noted. Authorizati	on is needed to pro	ceed with th	he ana	alysis.
Temperature outside ±2°C rang					
Temperature outside	•C	Ice present?	Yes		No
Sample ID Discrepancy	Samples Affected				
Sample holding time missed	Samples Affected	<u></u>		_	
Custody seals broken	Samples Affected				
Insufficient Sample Size	Samples Affected				
Sample Container(s) Broken	Samples Affected				
Incorrect Container Type	Samples Affected				
Other			<u> </u>		
			.		
	<u>, u, </u> , , , , , , , , , , , , , , , , ,				
Client Authorization					
Proceed With Analysis:	YES NO	Signature and Da	ite <u>W</u>	11	14/25
Client Comments/Instruction	ns: COC fax	ed 10/20/0	<u>کر</u>		

ALTA Analytical Laboratory	
El Dorado Hills, CA 96762	



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility*

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27272
- Curtis & Tompkins, Ltd. #184796

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP10.7-5	27272-001	27272	01/25/06	D
Soil	DP10.9-9.5	27272-002	27272	01/25/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next

to the results on the laboratory analytical report forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical results forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.6^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical results forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

	intions
DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Aceley Cz

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

4 al

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

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Sample ID: DP	DP10.7-5							EPA M	EPA Method 8290
Data			Sample Data		Laboratory Data				
Name: CL Deviced: Fo	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27272-001	Date Received:	sived:	9-Fcb-06
llected: llected:	1 ou Diagg-Sile Assessingin 25-Jan-06 1313		Sample Size: %Solids:	11.7 g 84.1	QC Batch No.: Date Analyzed DB-5:	7750 15-Feh-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	13-Feb-06 NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	rd	%R]	rcr-ncr _q	Oualifiers
2.3.7.8-TCDD	QN	0.148			<u>IS</u> 13C-2.3.7.8-TCDD	D	97.1	40 - 135	
1,2,3,7,8-PcCDD	DN	0.155				CDD	121	40 - 135	
1,2,3,4,7,8-HxCDD	QN	0.137			13C-1,2,3,4,7,8-HxCDD	I xCDD	101	40 - 135	
1,2,3,6,7,8-HxCDD	DN	0.142			13C-1,2,3,6,7,8-HxCDD	IxCDD	106	40 - 135	
1,2,3,7,8,9-HxCDD	DN	0.135			13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	94.6	40 - 135	
1,2,3,4,6,7,8-HpCDD				ŗ	13C-0CDD		67.5	40 - 135	
OCDD	-			-	13C-2,3,7,8-TCDF	ц	91.2	40 - 135	
2,3,7,8-TCDF	ND	0.126			13C-1,2,3,7,8-PeCDF	CDF	115	40 - 135	
1,2,3,7,8-PeCDF	QN	0.125			13C-2,3,4,7,8-PeCDF	CDF	119	40 - 135	
2,3,4,7,8-PcCDF	DN	0.117			13C-1,2,3,4,7,8-HxCDF	IxCDF	114	40 - 135	
1,2,3,4,7,8-HxCDF	DN	0.0347			13C-1,2,3,6,7,8-HxCDF	I xCDF	108	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0354			13C-2,3,4,6,7,8-HxCDF	IxCDF	107	40 - 135	
2,3,4,6,7,8-HxCDF	QN	0.0386			13C-1,2,3,7,8,9-HxCDF	IxCDF	97.1	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0588			13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	91.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	F ND	0.0507			13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	96.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	F ND	0.0529			13C-OCDF		78.8	40 - 135	
OCDF	QN	0.173			CRS 37CI-2,3,7,8-TCDD	D	102	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ta ^e		
Total TCDD	ND	0.148			TEQ (Min): 0.0	0.00610			
Total PeCDD	QN	0.155							
Total HxCDD	QN	0.138			a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	0.512				b. Estimated maximum possible concentration.	ble concentration.			
Total TCDF	QN	0.126			c. Method detection limit.				
Total PeCDF	DN	0.121			d. Lower control limit - upper control limit.	r control limit.			
Total HxCDF	ND	0.0408			e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).	(TEQ) based on Inter	mational To	xic Equivalent Fac	tors (ITEF).
Total HpCDF	QN	0.0517							
Analyst: DMS					Approved By:	Martha M. Maier		16-Feb-2006 15:10	

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Client Data Name: Fourtis & Tompkins, Ltd. Project: Fort Bragg-Sitc Assessment Date Collected: 26-Jan-06 Time Collected: 26-Jan-06 Date Collected: 26-Jan-06 Date Collected: 0930 DL Date Collected: 0930 DD Date Collected: 0930 ND 0.12 1,2,3,4,7,8-HxCDD ND 0.13 1,2,3,4,7,8-HxCDD ND 0.13 1,2,3,4,7,8-HxCDD ND ND 0.13 0.13 0.13 1,2,3,4,7,8-HxCDD ND ND 0.13 0.13 0.10 1,2,3,4,7,8-HxCDF ND ND 0.10 0.13 1,2,3,4,7,8-HxCDF ND 0.10 0.10 1,2,3,4,7,8-HxCDF ND 0.03 0.10 1,2,3,4,6,7,8-HxCDF ND 0.03 0.16 1,2,3,4,6,7,8-HxCDF ND 0.03 0.16 1,2,3,4,6,7,8-HxCDF ND 0.03 0.16 1,2,3,4,6,7,8-HpCDF ND 0.03 0.03 1,2,3,4,6,7,8-HpCDF	Sample Data Matrix: Matrix: Sample Size: Sample Size: 0.127 %Solids: 0.127 0.127 0.136 0.136 0.152 0.139 0.139 0.0915 0.106 0.106 0.105 0.105	Soil 11.5 g 84.9 Qualifiers	Laboratory Data Lab Sample: 27272-002 QC Batch No.: 7750	Date Received:	9-Fcb-06
Cont Bragg-Site Assessment 6-Jan-06 930 Conc. (pg/g) ND ND ND ND ND ND ND ND ND ND ND ND ND		iers		Date Received:	9-Feb-06
6-Jan-06 930 Conc. (pg/g) D ND ND ND ND ND ND ND ND ND ND ND ND ND N		lers			
930 Conc. (pg/g) ND ND ND ND ND ND ND ND ND ND ND ND ND		lifiers		Date Extracted:	13-Feb-06
Conc. (pg/g) ND ND ND ND ND ND ND ND ND ND ND ND ND			Date Analyzed DB-5: 15-Feb-06	Date Analyzed DB-225:	NA
			Labeled Standard	%R LCL-UCL ^d	Oualifiers
	.167 .136 .152 .139 .0915 .106 .175		<u>IS</u> 13C-2,3,7,8-TCDD	87.5 40 - 135	
	.136 .152 .139 .0915 .106 .175		13C-1,2,3,7,8-PeCDD	101 40 - 135	
	.152 .139 .0915 .106 .175		13C-1,2,3,4,7,8-HxCDD	81.4 40 - 135	
	.139 .0915 .106 .175		13C-1,2,3,6,7,8-HxCDD	83.4 40 - 135	
	.0915 .106 .175		13C-1,2,3,4,6,7,8-HpCDD	73.9 40 - 135	
** ² 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.106 .175		13C-OCDD	42.9 40 - 135	
	.106 .175		13C-2,3,7,8-TCDF	98.7 40 - 135	
	.175		13C-1,2,3,7,8-PeCDF	116 40 - 135	
			13C-2,3,4,7,8-PeCDF	118 40 - 135	
	0.161		13C-1,2,3,4,7,8-HxCDF	81.8 40 - 135	
F ND ND ND ND ND ND ND ND ND ND ND ND ND	0.0392		13C-1,2,3,6,7,8-HxCDF	85.5 40 - 135	
JE ND ND ND ND ND ND ND ND ND	0.0396		13C-2,3,4,6,7,8-HxCDF	84.6 40 - 135	
,8,9-HxCDF ND ,6,7,8-HpCDF ND ,7,8,9-HpCDF ND	0.0415		13C-1,2,3,7,8,9-HxCDF	89.4 40 - 135	
,6,7,8-HpCDF ND ,7,8,9-HpCDF ND	0.0574		13C-1,2,3,4,6,7,8-HpCDF	73.0 40 - 135	
,7,8,9-HpCDF ND	0.0519		13C-1,2,3,4,7,8,9-HpCDF	72.5 40 - 135	
	0.0575		13C-OCDF	50.3 40 - 135	
UN	0.236		CRS 37Cl-2,3,7,8-TCDD	91.6 40 - 135	
Totals			Toxic Equivalent Quotient (TEQ) Data	ata ^c	
Total TCDD ND 0.1	0.127		TEQ (Min): 0.00133		
Total PeCDD ND 0.10	0.167				
Total HxCDD ND 0.14	0.142		a. Sample specific estimated detection limit.		
Total HpCDD ND 0.00	0.0915		b. Estimated maximum possible concentration.		
Total TCDF ND 0.10	0.106		c. Method detection limit.		
	0.168		d. Lower control limit - upper control limit.		
Total HxCDF ND 0.04	0.0441		e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).	emational Toxic Equivalent Fac	tctors (ITEF).
Total HpCDF ND 0.0:	0.0544				

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Project 27272

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

251 \mathcal{A} Sample Collection Dates: ł 0G (s α,

Client: Acton Mickelson Environmental, Inc.

. Deoloi Reviewed By: Lugk Approved By: 7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 37372 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	x - ✔		4
Sample Condition Upon Receipt at Subcontract Laboratory	4	(i)	~
Laboratory Method Blank Results	4		~
Ongoing Precision and Recovery Sample Results	4		4
Internal Standard Recoveries	1		4
Cleanup Standard Recoveries	1		4
Identification and Quantitation of Target Compounds	·* ✓	(a)	4
Verification of the EDD in XLS Format	4		4

Comments:	
	() Damples were received at subcontract laboratory at temperature Islow the accepted ramae of 4 = 2°C.
	relative accepted namae of 4=2°C.
	\mathbf{v}
	(2) Lample concentrations as reported were below the calibration nonge of the instrument.
	homoe of the instrument.

Curtis & Tompkins SDG: 184796

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction (1)	Matrix (Aq., S)	Blank Type	Blank Sample	Contaminant	Concentration (units)		ation Limit
		(2)	Number		(unito)	5x	10x
0	ð	911B	Method Blank (775)	DALLAS			
							+
				· · · · · · · · · · · · · · · · · · ·			
		1					
							+
							+
							+
						-	
							1

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

ALTA

	Method Blank						EPA Method 8290
Cont. (pg/g) DL ^a EMPC ^b Qualifiers Labeled Standard S/R LCL-UCL DD ND 0.0919 S3 40 135 DD ND 0.126 S3 40 135 CDD ND 0.103 S15 135 135 135 135 40 135 CDD ND 0.103 S15 135 135 40 135 40 135 CDD ND 0.103 S15 135 135 135 40 135 135 40 135 135 135<				:b-06		Date Ani	alyzed DB-225: NA
D ND 0.0919 DD ND 0.126 CDD ND 0.126 XCDD ND 0.103 XCDF ND 0.102 DF ND 0.102 ND 0.161 0.0334 XCDF ND 0.0334 XCDF ND 0.0334 XCDF ND 0.0334 ND 0.0334 0.147 ND 0.102 0.147 ND 0.103 0.147 ND 0.0336 0.147	Conc.	g/g)	^a EMPC ^b	Jualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
DD ND 0.126 xCDD ND 0.103 xCDD ND 0.103 xCDD ND 0.103 xCDD ND 0.105 xCDD ND 0.103 xCDD ND 0.105 xCDD ND 0.165 ND 0.102 0.125 ND 0.102 0.102 DF ND 0.102 ND 0.0334 0.147 WCDF ND 0.0334 WCDF ND 0.0334 WD 0.0314 0.147 HpCDF ND 0.0334 ND 0.0334 0.147 ND 0.0336 0.147 ND 0.0366 0.147 ND 0.0366 0.147 ND 0.0366 0.147 ND 0.0268 0.147 ND 0.0236 0.147 ND 0.0236 0.147 <td></td> <td>QN</td> <td>0.0919</td> <td></td> <td></td> <td>89.3</td> <td>40 - 135</td>		QN	0.0919			89.3	40 - 135
CDD ND 0.103 xCDD ND 0.105 xCDD ND 0.105 xCDD ND 0.100 HpCDD ND 0.103 ND 0.100 0.159 ND 0.0334 0.147 ND 0.0334 0.147 VCDF ND 0.0334 ND 0.0334 0.147 VCDF ND 0.0314 ND 0.0312 0.147 HpCDF ND 0.0334 ND 0.0334 0.147 ND 0.0316 0.147 ND 0.0326 0.147 ND 0.0386 0.147 ND 0.0386 0.147		QN	0.126			99.1	40 - 135
CDD ND 0.105 KCDD ND 0.100 HpCDD ND 0.0686 ND 0.102 ND ND 0.102 ND ND 0.102 0.102 ND 0.102 ND ND 0.102 0.125 ND 0.161 0.161 KCDF ND 0.0334 KCDF ND 0.03324 KCDF ND 0.03324 KCDF ND 0.03324 ND 0.03324 0.147 HpCDF ND 0.03324 ND 0.03324 0.147 ND 0.03324 0.147 ND 0.0336 0.147 ND 0.0310 0.147 ND 0.0336 0.147 ND 0.102 ND ND 0.0163 0.147 ND 0.0386 0.147		QN	0.103		13C-1,2,3,4,7,8-HxCDD	86.4	40 - 135
CDD ND 0.100 HpCDD ND 0.0686 ND 0.159 ND 0.159 NP ND 0.161 0.102 DF ND 0.161 0.102 DF ND 0.161 0.102 CDF ND 0.0334 0.147 KCDF ND 0.0372 0.147 KCDF ND 0.0314 0.147 KCDF ND 0.0316 0.147 ND 0.0316 0.147 0.147 ND 0.0380 0.147 0.147 ND 0.0380 0.147 0.147 ND 0.0380 0.147 0.147 ND 0.0380 0.147 0.147 ND 0.0919 0.102 0.147 ND 0.00386 0.163 0.147	• -	QN	0.105		13C-1,2,3,6,7,8-HxCDD	94.3	40 - 135
HpCDD ND 0.0686 ND 0.159 ND 0.159 DF ND 0.166 DF ND 0.166 ACDF ND 0.0334 ACDF ND 0.0334 ACDF ND 0.0372 ACDF ND 0.0372 ACDF ND 0.0372 ACDF ND 0.0372 ACDF ND 0.0376 ND 0.0686 ND 0.126 ND 0.0386 ND 0.102 ND 0.163 ND 0.0386 ND 0.163		ND	0.100		13C-1,2,3,4,6,7,8-HpCDD	77.9	40 - 135
ND 0.159 ND 0.159 DF ND 0.102 DF ND 0.166 ND 0.161 CDF ND 0.0334 CDF ND 0.0324 CDF ND 0.0372 CDF ND 0.0372 CDF ND 0.0372 CDF ND 0.0372 CDF ND 0.0376 ND 0.0810 ND 0.0810 ND 0.102 ND 0.102 ND 0.102 ND 0.102 ND 0.102 ND 0.102 ND 0.0386 0.147		DN	0.0686		13C-OCDD	52.5	40 - 135
The second secon		Ŋ	0.159		13C-2,3,7,8-TCDF	85.6	40 - 135
DF ND 0.166 DF ND 0.161 CCDF ND 0.0334 CCDF ND 0.0324 CCDF ND 0.0372 CCDF ND 0.0372 CCDF ND 0.0310 HpCDF ND 0.0540 0.047 ND 0.0810 ND 0.0810 ND 0.0019 ND 0.102 ND		ŊD	0.102		13C-1,2,3,7,8-PeCDF	104	40 - 135
DF ND 0.161 CDF ND 0.0334 CDF ND 0.0324 CDF ND 0.0324 CDF ND 0.0372 CDF ND 0.0310 HpCDF ND 0.0540 0.147 ND 0.268 ND 0.268 ND 0.102 ND 0		Ŋ	0.166		13C-2,3,4,7,8-PeCDF	102	40 - 135
KCDF ND 0.0334 KCDF ND 0.0324 KCDF ND 0.0372 KCDF ND 0.0372 KCDF ND 0.0374 KCDF ND 0.0372 KCDF ND 0.0370 HpCDF ND 0.0540 ND 0.0810 0.147 ND 0.0810 0.147 ND 0.0810 0.147 ND 0.0810 0.147 ND 0.0368 0.147 ND 0.0316 0.147 ND 0.102 0.102 ND 0.102 0.102 ND 0.102 0.163 ND 0.03366 0.147		QN	0.161		13C-1,2,3,4,7,8-HxCDF	9.96	40 - 135
KCDF ND 0.0324 KCDF ND 0.0372 KCDF ND 0.0540 HpCDF ND 0.0810 hpCDF ND 0.0810 0.147 ND 0.268 ND 0.268 ND 0.126 ND 0.1386 ND 0.163 ND 0.165 ND 0.165		ND	0.0334		13C-1,2,3,6,7,8-HxCDF	95.8	40 - 135
 KCDF KCDF ND 0.0372 KCDF ND 0.0540 0.0540 0.0540 0.0540 0.0310 0.0810 0.0810 0.0810 0.0919 ND 0.0919 ND 0.0919 ND 0.0919 ND 0.0919 ND 0.0919 0.147 ND 0.0386 0.147 		ŊŊ	0.0324		13C-2,3,4,6,7,8-HxCDF	92.3	40 - 135
CDF ND 0.0540 HpCDF ND 0.0810 hpCDF ND 0.0810 ND 0.268 ND 0.268 ND 0.126 ND 0.126 ND 0.126 ND 0.102 ND 0.102 ND 0.102 ND 0.163 ND 0.0386 ND 0.0386 ND 0.0386 0.147		ŊD	0.0372		13C-1,2,3,7,8,9-HxCDF	92.9	40 - 135
HPCDF ND 0.147 HPCDF ND 0.0810 ND 0.268 ND 0.268 ND 0.0919 ND 0.126 ND 0.126 ND 0.126 ND 0.126 ND 0.126 ND 0.102 ND 0.163 ND 0.0386 0.147 ND 0.147		QN	0.0540		13C-1,2,3,4,6,7,8-HpCDF	80.5	40 - 135
HpCDF ND 0.0810 ND 0.268 ND 0.268 ND 0.0919 ND 0.126 ND 0.126 ND 0.102 ND 0.0686 ND 0.102 ND 0.0386 0.147 ND 0.147		ND	0.147		13C-1,2,3,4,7,8,9-HpCDF	79.8	40 - 135
ND 0.268 ND 0.0919 ND 0.0919 ND 0.126 ND 0.102 ND 0.102 ND 0.102 ND 0.163 ND 0.0386 0.147		ND	0.0810		13C-OCDF	59.5	40 - 135
ND 0.0919 ND 0.126 ND 0.126 ND 0.102 ND 0.102 ND 0.102 ND 0.163 ND 0.0386 0.147		ND	0.268		CRS 37CI-2,3,7,8-TCDD	98.2	40 - 135
ND 0.0919 ND 0.126 ND 0.102 ND 0.0686 ND 0.0686 ND 0.102 ND 0.163 ND 0.0386 0.147	Totals				Toxic Equivalent Quotient (TEQ) Da		
ND 0.126 ND 0.102 ND 0.0686 ND 0.102 ND 0.163 ND 0.0386 0.147		DN	0.0919				
ND 0.102 ND 0.0686 ND 0.0686 ND 0.102 ND 0.163 ND 0.0386 0.147		ND	0.126				
ND 0.0686 ND 0.102 ND 0.163 ND 0.0386 0.147 0.147		ND	0.102		a. Sample specific estimated detection limit.		
ND 0.102 ND 0.163 ND 0.0386 ND 0.147		DN	0.0686		b. Estimated maximum possible concentration.		
ND 0.163 ND 0.0386 ND 0.147		ND	0.102		c. Mcuhod detection limit.		
ND 0.0386 ND 0.147		DN	0.163		d. Lower control limit - upper control limit.		
DN		DN	0.0386		e. Toxic Equivalent Quotient (TEQ) based on Inter	mational Toxi	ic Equivalent Factors (ITEF).
		ND	0.147				

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OPR Results					EPA	EPA Method 8290
Matrix: Soil		QC Batch No.:	7750	Lab Sample: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	13-Feb-06	Date Analyzed DB-5: 14-Feb-06	Date Analyzed DB-225:	d DB-225: NA
Analyte	Spike Conc. Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.83	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	90.2	40 - 135
1,2,3,7,8-PeCDD	50.0	52.1	35 - 65	13C-1,2,3,7,8-PeCDD	103	40 - 135
1,2,3,4,7,8-HxCDD	50.0	49.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	89.1	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	96.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	81.7	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	50.2	35 - 65	13C-OCDD	55.1	40 - 135
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	89.8	40 - 135
2,3,7,8-TCDF	10.0	9.82	7 - 13	13C-1,2,3,7,8-PeCDF	109	40 - 135
1,2,3,7,8-PcCDF	50.0	49.5	35 - 65	13C-2,3,4,7,8-PcCDF	108	40 - 135
2,3,4,7,8-PeCDF	50.0	49.7	35 - 65	13C-1,2,3,4,7,8-HxCDF	101	40 - 135
1,2,3,4,7,8-HxCDF	50.0	49.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	97.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.4	35 - 65	13C-2,3,4,6,7,8-HxCDF	94.0	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	94.8	40 - 135
1,2,3,7,8,9-HxCDF	50.0	49.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	87.2	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.1	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	84.8	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.1	35 - 65	13C-OCDF	63.1	40 - 135
OCDF	100	94.3	70 - 130	CRS 37CI-2,3,7,8-TCDD	90.9	40 - 135
Analysi: DMS				Approved By: Martha M. Mai	Martha M. Maier 16-Feb-2006 15:10	06 15:10

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Project 27272

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD



February 16, 2006

Alta Project I.D.: 27272

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on February 09, 2006 under your Project Name "Fort Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Hiakho

Martha M. Maier Director of HRMS Services



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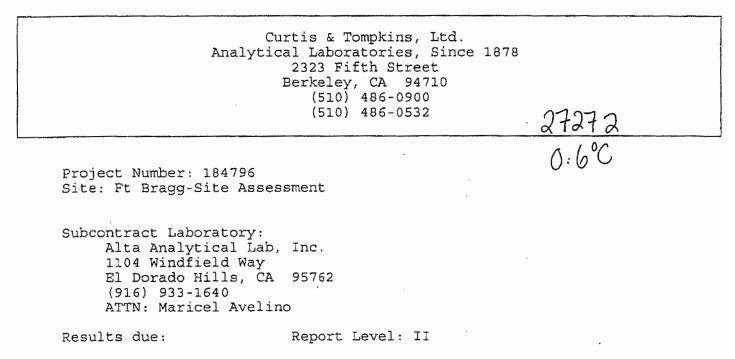
Alta Analytical Laboratory Inc. 1104 Windfield Way El Dorado Hills, CA 95762 FAX (916) 673-0106 (916) 933-1640

Page 1 of 12



Section I: Sample Inventory Report Date Received: 2/9/2006

Alta Lab. ID	Client Sample ID
27272-001	DP10.7-5
27272-002	DP10.9-9.5



Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matri	x Analysis	C&T Lab # Comments	<u>象 後之</u> 一と曰
DP10.7-5	01/25.13:13	Soil	8290	184564-014	
DP10.9-9.5	01/26 09:30	Soil	8290	184623-008	

Notes:	/ Relinquished B	By: Received By:
	Am hero	. Betteric J. Benedict
	Date/Time: Z806	(446 29/06 0740

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27272

SAMPLE LOG-IN CHECKLIST

^

Alta Project #:	27272				-		
Samples Arrival:	Date/Time	0740	Initials:	3SB	Locat	ion: WR-	- 9-
Logged in:	Date/Time	1239	Initials:	BLB	Locat	ion: WR	2-2
Delivered By:	FedEx	UPS (Cal	DHL		Hand elivered	Other
Preservation:	lce	Blue	се	Dry I	ce	No	ne
Temp °C 0.(лос т	ime: 07	50		Thern	nometer ID	: DT-20

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				V		/
Sample Custody Seals Intact?					M	
Chain of Custody / Sample Documentation Present?						
n comp	leted?				V	
s, Acce	eptable P	reservation?				V
		COC		• •	No	ne
lta	Client)	Retain	Ret	urn	Disp	ose
	on Pre	on Present? completed?	Acceptable Preservation?	on Present? completed? Acceptable Preservation? COC Sam Cont	on Present?	on Present?

Comments:



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT

Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27640
- Curtis & Tompkins, Ltd. #186230

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.7-15	27640-001	27640	04/17/06	D
Soil	DP-4.11-13	27640-002	27640	04/17/06	D

Note:

 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results			\checkmark	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the associated qualified analytical results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

Analyte

Concentration 1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the sample listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>

DP-4.11-13

<u>Analyte</u> Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, Total HxCDF, 1,2,3,4,6,7,8-HpCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-4.7-15	27640	OCDD	U	Positive result for analyte in laboratory method blank

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the
	level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the
	approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low
	bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high
	bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive
	evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an
	estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be
	verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

1462142

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-4	DP-4.7-15								EPA M	EPA Method 8290
Client Data				Sample Data		Laboratory Data				
•	Curtis & Tompkins, Ltd.	ns, Ltd.		Matrix:	Soil	Lab Sample:	27640-001	Date Received:	eived:	2-May-06
Project: Pt Bi Date Collected: 17-A	Ft Bragg-Site Assessment 180230 17-Anr-06	essment I	80230	Sample Size:	12.0 g	QC Batch No.:	7989	Date Extracted:	acted:	4-May-06
	1015			%Solids:	81.7	Date Analyzed DB-5:	5-May-06	Date Anal	Date Analyzed DB-225:	NA
Analyte	Conc. (pg/g)	(DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	ND		0.0235			<u>IS</u> 13C-2,3,7,8-TCDD	DD	0'16	40 - 135	
1,2,3,7,8-PeCDD	ND		0.0373			13C-1,2,3,7,8-PeCDD	eCDD	91.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND		0.0417			13C-1,2,3,4,7,8-HxCDD	-HxCDD	84.8	40 - 135	
1,2,3,6,7,8-HxCDD	ND		0.0431			13C-1,2,3,6,7,8-HxCDD	-HxCDD	87.0	40 - 135	
1,2,3,7,8,9-HxCDD	ND	1	0.0428			13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	88.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.46				J	13C-OCDD		65.5	40 - 135	
OCDD) 11.2	~			В	13C-2,3,7,8-TCDF	DF	98.4	40 - 135	
2,3,7,8-TCDF	ND		0.0255			13C-1,2,3,7,8-PeCDF	eCDF	94.2	40 - 135	
1,2,3,7,8-PeCDF	DN		0.0290			13C-2,3,4,7,8-PeCDF	eCDF	91.4	40 - 135	
2,3,4,7,8-PeCDF	DN		0.0277			13C-1,2,3,4,7,8-HxCDF	-HxCDF	84.6	40 - 135	
1,2,3,4,7,8-HxCDF	0.125	5			J	13C-1,2,3,6,7,8-HxCDF	-HxCDF	83.0	40 - 135	
1,2,3,6,7,8-HxCDF	0.0862	i -			ſ	13C-2,3,4,6,7,8-HxCDF	-HxCDF	87.0	40 - 135	
2,3,4,6,7,8-HxCDF	DN		0.0312			13C-1,2,3,7,8,9-HxCDF	-HxCDF	83.6	40 - 135	
1,2,3,7,8,9-HxCDF	ND		0.0491			13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	84.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.570				ſ	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	87.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND		0690.0			13C-OCDF		67.3	40 - 135	
OCDF	1.25 J				J	CRS 37CI-2,3,7,8-TCDD	CDD	93.3	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ata ^e		
Total TCDD	0.177					TEQ (Min):	0.0427			
Total PeCDD	0.122									
Total HxCDD	1.00					a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	2.86					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	0.147					c. Method detection limit.				
Total PeCDF	0.370					d. Lower control limit - upper control limit.	oper control limit.			
Total HxCDF	0.911					e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	/orld Health Organizati	on Toxic Equ	uivalent Factors.(V	(OH)
Total HpCDF	1.47									
Analyst: JMH						Approved By:	Martha M. Maier		09-May-2006 15:58	

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Sample ID: DP-	DP-4.11-13						EPA M	EPA Method 8290
Client Data		Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.	Matrix	Soil	Lab Sample:	27640-002	Date Received:	eived:	2-May-06
Project: F1 BT Date Collected: 17-A Time Collected: 15.00	Ft Bragg-Site Assessment 180230 17-Apr-06	Sample Size: %Solide:	18.7 g 33.7	QC Batch No.: Date Analyzed DB-5:	7989 5-Mav-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-Mav-06
	Conc. (pg/g) DL ^a	EMPC ^b	Oualifiers	Labeled Standard	T	%R	rcr-ucr ^d	Oualifiers
7.2.7.6 TCDD				IS 13C-2378-TCDD		77.9	40 - 135	
0001-0'/,C'7	0.41		-		ł			
1,2,3,7,8-PeCDD	466			13C-1,2,3,7,8-PeCDD	Q	81.5	40 - 135	
1,2,3,4,7,8-HxCDD	313			13C-1,2,3,4,7,8-HxCDD	CDD	73.6	40 - 135	
1,2,3,6,7,8-HxCDD	465			13C-1,2,3,6,7,8-HxCDD	CDD	75.0	40 - 135	
1,2,3,7,8,9-HxCDD	400			13C-1,2,3,4,6,7,8-HpCDD	I pCDD	87.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	1960			13C-OCDD		66.1	40 - 135	
OCDD	3260		В	13C-2,3,7,8-TCDF		78.9	40 - 135	
2,3,7,8-TCDF	1190			13C-1,2,3,7,8-PeCDF	DF	80.4	40 - 135	
1,2,3,7,8-PeCDF	623			13C-2,3,4,7,8-PeCDF	ЭF	81.3	40 - 135	
2,3,4,7,8-PeCDF	1090			13C-1,2,3,4,7,8-HxCDF	CDF	67.9	40 - 135	
1,2,3,4,7,8-HxCDF	381			13C-1,2,3,6,7,8-HxCDF	CDF	62.2	40 - 135	
1,2,3,6,7,8-HxCDF	419		D	13C-2,3,4,6,7,8-HxCDF	CDF	74.5	40 - 135	
2,3,4,6,7,8-HxCDF	494		D	13C-1,2,3,7,8,9-HxCDF	CDF	75.6	40 - 135	
1,2,3,7,8,9-HxCDF	150		D	13C-1,2,3,4,6,7,8-HpCDF	I pCDF	75.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	528		D	13C-1,2,3,4,7,8,9-HpCDF	I pCDF	77.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	126			13C-OCDF		60.1	40 - 135	
OCDF	213			CRS 37CI-2,3,7,8-TCDD	0	78.1	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data	ient (TEQ) Da	ata e		
Total TCDD	5570			TEQ (Min): 1650	0			
Total PeCDD	6270							
Total HxCDD	6360			a. Sample specific estimated detection limit.	tection limit.			
Total HpCDD	3420			b. Estimated maximum possible concentration.	e concentration.			
Total TCDF	22900		D	c. Method detection limit.				
Total PeCDF	10300		D	d. Lower control limit - upper control limit.	control limit.			
Total HxCDF	3890		D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Health Organizatic	on Toxic Eq	uivalent Factors.(V	(HO}
Total HpCDF	1050		D					
Analyst: JMH				Approved By: N	Martha M. Maier		09-May-2006 15:58	

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

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Xellor X Ŀ Reviewed By: Approved By 7/10/16 Completion Date:

Client: Acton Mickelson Environmental, Inc.

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Project Manager: Jeff Heglie

Sample Collection Dates:

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: d *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		4
Sample Condition Upon Receipt at Subcontract Laboratory	~	(1)	~
Laboratory Method Blank Results	1	(බ)	4
Ongoing Precision and Recovery Sample Results	1		4
Internal Standard Recoveries	~		4
Cleanup Standard Recoveries	4		√
Identification and Quantitation of Target Compounds	~	(3)	~
Verification of the EDD in XLS Format	~		4

Comments:	
	(i) Samples were received in clear glass jars instead of the method - specified amber fors.
	method - ppecifie d'amter larb.
	(2) OCAS was present in the Method Blank.
	(3) Sample concentrations as reported were fxlow the calibration
	NONDO & the instrument, also, diphunul other interloringe, up
	present in one or more samples.
Curtis & Tomp	
	Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualific	ation Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
Ø	Э	MB	Method Blank (7989		1.93 pg/g	-	n.3pg
			V		/30		1.
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1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank							EPA Method 8290	nod 8290
Matrix: Soil	QC Batch No.:	. 7989	6	Lab Sample:	0-MB001			
Sample Size: 10.0 g	Date Extracted:		4-May-06	Date Analyzed DB-5:	5-May-06	Date An	Date Analyzed DB-225:	NA
Analyte Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	p	%R	rcr-ucr ^d c	Oualifiers
2,3,7,8-TCDD ND	0.0446			<u>IS</u> 13C-2,3,7,8-TCDD	D	93.3	40 - 135	
1,2,3,7,8-PeCDD ND	0.0451			13C-1,2,3,7,8-PeCDD	CDD	86.7	40 - 135	
1,2,3,4,7,8-HxCDD ND	0.0830			13C-1,2,3,4,7,8-HxCDD	H xCDD	86.1	40 - 135	
1,2,3,6,7,8-HxCDD ND	0.0830			13C-1,2,3,6,7,8-HxCDD	H xCDD	90.5	40 - 135	
1,2,3,7,8,9-HxCDD ND	0.0838			13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	90.8	40 - 135	
1,2,3,4,6,7,8-HpCDD ND	0.129			13C-OCDD		67.8	40 - 135	
OCDD 1.93			ſ	13C-2,3,7,8-TCDF	F	100	40 - 135	
2.3,7,8-TCDF ND	0.0408			13C-1,2,3,7,8-PeCDF	CDF	88.0	40 - 135	
1,2,3,7,8-PeCDF ND	0.0496			13C-2,3,4,7,8-PeCDF	CDF	87.6	40 - 135	
2,3,4,7,8-PeCDF ND	0.0475			13C-1,2,3,4,7,8-HxCDF	H xCDF	84.7	40 - 135	
1,2,3,4,7,8-HxCDF ND	0.0590			13C-1,2,3,6,7,8-HxCDF	H xCDF	83.5	40 - 135	
1,2,3,6,7,8-HxCDF ND	0.0535			13C-2,3,4,6,7,8-HxCDF	H xCDF	88.2	40 - 135	
2,3,4,6,7,8-HxCDF ND	0.0608			13C-1,2,3,7,8,9-HxCDF	H xCDF	84.7	40 - 135	
1,2,3,7,8,9-HxCDF ND	0.0970			13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	85.3	40 - 135	
1,2,3,4,6,7,8-HpCDF ND	0.222			13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	88.9	40 - 135	
1,2,3,4,7,8,9-HpCDF ND	0.233			13C-OCDF		68.9	40 - 135	
OCDF ND	0.196			CRS 37CI-2,3,7,8-TCDD	D	1.06	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data	tient (TEQ) Da	ta e		
Total TCDD ND	0.0446			TEQ (Min): 0.00	0.000193			
Total PeCDD ND	0.0451							
Total HxCDD ND	0.0833			a. Sample specific estimated detection limit.	etection limit.			
Total HpCDD ND	0.129			b. Estimated maximum possible concentration.	le concentration.			
Total TCDF ND	0.0408			c. Method detection limit.				
Total PeCDF ND	0.0486			d. Lower control limit - upper control limit.	control limit.			
Total HxCDF ND	0.0676			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	J Health Organizatio	n Toxic Equi	valent Factors.(WHO	~~~
Total HpCDF ND	0.228		-					
Analyst: JMH				Approved By:	Martha M. Maier		09-May-2006 15:58	

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OPR Results					EP	EPA Method 8290
		QC Batch No.:	7989	Lab Sample: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	4-May-06	Date Analyzed DB-5: 5-May-06		Date Analyzed DB-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	TCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	9.77	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	T.T	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	62.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135
Analyst: JMH				Approved By: Martha M. Maier		09-May-2006 15:58

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Project 27640

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27640

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186230". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



the characterist leithermone a camples that the require nearing was all the requirements we north by 5.64 of The thas, wherebis are inclined, This report of suld net be contraine decrement in full without the writtent approval of MTV



Section I: Sample Inventory Report Date Received: 5/2/2006

<u>Alta Lab. ID</u>	Client Sample ID
27640-001	DP-4.7-15
27640-002	DP-4.11-13

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 186230 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample	ID	Sampl	ed	Matrix	Analysis	C&T Lab # Comment	S
DP-4.7-	15	04/17	10:15	Soil	8290	186230-002	
DP-4.11	-13	04/17	15:00	Soil	8290	186230-005	

Notes:	Relinquished By	y: Re	ceived By:
Õ	Rudy Elhwan	bettmi 9.	Binedict
Dat	effime: 5-1-96/	1700 Date/Time:	0957
			· · · · ·

signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

Project 27640

27640

SAMPLE LOG-IN CHECKLIST

Alta Project #:	27640		-			
	Date/Time	Initials:	Location	: W	R-2	}
Samples Arrival:	5/2/06 0957	BLB	Shelf/Rad			
	Date/Time	Initials:	Location	کر :	R-	\mathcal{F}
Logged In:	5/2/06 1255	BAB	Shelf/Rad	ck:	4-3)
Delivered By:	FedEx UPS Cal DHL Har Delive				Ot	her
Preservation:	ice Blue Ice Dry Ice				one	
Temp °C 2.9%	C Time: 1015		Thermon	neter ID): DT-	-20
				VEO	NO	
	YES	NO	NA			
Adequate Sample	V					
Holding Time Acceptable?					<u> </u>	
Shipping Container(s) Intact?						
Shipping Custody Seals Intact?						
Shipping Documer	~					
Airbill Trk # C10129 000026462						
Sample Container				V		
Sample Custody S						V
	Sample Documentation Pre	sent?				

 Chain of Custody / Sample Documentation Present?

 COC Anomaly/Sample Acceptance Form completed?

 If Chlorinated or Drinking Water Samples, Acceptable Preservation?

 Na2S2O3 Preservation Documented?

 Shipping Container

 Alta
 Client

 Dispose

Comments:

somples received in clear glass jars



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT

Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project ID

- Alta Analytical Laboratory, Inc. #27645
- Curtis & Tompkins, Ltd. #186320

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.60-8	27645-001	27645	04/20/06	D
Soil	DP-5.60-13	27645-002	27645	04/20/06	D
Soil	DP-4.15-5	27645-003	27645	04/20/06	D

Note:

 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		~		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical results forms.

According to the laboratory, the concentrations of the following analytes in the sample listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>

DP-4.15-5

<u>Analyte</u> Total TCDF, Total HxCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the
	level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the
	approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low
	bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high
	bias and is the approximate concentration of the analyte in the sample.

Data Qualifier Definitions

DV Qualifier	Definition
Ν	The analysis indicates the presence of an analyte for which there is presumptive
	evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an
	estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be
	verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley Os

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Client Data	-			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	Ltd.		Matrix	Soil	Lab Sample:	27645-001	Date Received:	eived:	2-May-06
	rt Bragg-Site Assessment 100220 20-Apr-06			Sample Size:	11.6 g	QC Batch No.:	7989	Date Extracted:	acted:	4-May-06
Time Collected: 0850				%Solids:	86.0	Date Analyzed UB-5:	6-May-06	LJale Ana	Date Analyzed DB-223.	AN
Analyte	Conc. (pg/g)	DL	а	EMPC ^b	Qualifiers	Labeled Standard	dard	%R	rcr-ncr _q (Oualifiers
2,3,7,8-TCDD	ND			0.145		<u>IS</u> 13C-2,3,7,8-TCDD	DD	72.7	40 - 135	
1,2,3,7,8-PeCDD	0.374 J	4			J	13C-1,2,3,7,8-PeCDD	PeCDD	7.77	40 - 135	
1,2,3,4,7,8-HxCDD	0.223				J	13C-1,2,3,4,7,8-HxCDD	3-HxCDD	74.4	40 - 135	
1,2,3,6,7,8-HxCDD	0.889				J	13C-1,2,3,6,7,8-HxCDD	-HxCDD	74.3	40 - 135	
1,2,3,7,8,9-HxCDD	0.577 3				J	13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	85.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	10.5					13C-0CDD		61.1	40 - 135	
OCDD	49.3				В	13C-2,3,7,8-TCDF	CDF	79.9	40 - 135	
2,3,7,8-TCDF	0.274				J	13C-1,2,3,7,8-PeCDF	PeCDF	78.2	40 - 135	
1,2,3,7,8-PeCDF	ND			0.122		13C-2,3,4,7,8-PeCDF	PeCDF	78.8	40 - 135	
2,3,4,7,8-PeCDF	0.379 J				J	13C-1,2,3,4,7,8-HxCDF	3-HxCDF	72.0	40 - 135	
1,2,3,4,7,8-HxCDF	0.136				J	13C-1,2,3,6,7,8-HxCDF	3-HxCDF	68.2	40 - 135	
1,2,3,6,7,8-HxCDF	0.209				J	13C-2,3,4,6,7,8-HxCDF	3-HxCDF	76.1	40 - 135	
2,3,4,6,7,8-HxCDF	0.219 J				ſ	13C-1,2,3,7,8,9-HxCDF	-HxCDF	77.4	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0435	135			13C-1,2,3,4,6,7,8-HpCDF	7,8-HpCDF	76.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	1.31				ſ	13C-1,2,3,4,7,8,9-HpCDF	3,9-HpCDF	83.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.114 0				J	13C-OCDF		65.9	40 - 135	
OCDF	3.06 J				J	CRS 37CI-2,3,7,8-TCDD	CDD	76.8	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	Juotient (TEQ) Di	ata ^e		
Total TCDD	0.589					TEQ (Min):	0.941			
Total PeCDD	1.79									
Total HxCDD	8.55					a. Sample specific estimated detection limit.	ted detection limit.			
Total HpCDD	20.9					b. Estimated maximum possible concentration.	ossible concentration.			
Total TCDF	4.68					c. Method detection limit.				
Total PeCDF	4.49					d. Lower control limit - upper control limit.	pper control limit.			
Total HxCDF	3.93					e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	Vorld Health Organizati	ion Toxic Equ	uivalent Factors.(W	(OH)
Total HpCDF	4.19									

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Sample ID: DP-5	DP-5.60-13							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27645-002	Date Received:	ived:	2-May-06
	Ft Bragg-Site Assessment 180320 20-Apr-06	180320	Sample Size: 0/ Coll do:	9.99 g 70 c	QC Batch No.: Date Analyzed DB-5:	7989 6 Mari 06	Date Extracted: Date Analyzed I	Date Extracted: Date Analvzed DB-225	4-May-06
Time Collected: 0900			-volues.	(.0/		0-May-00			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	rd	%R I	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	ND	0.0302			<u>IS</u> 13C-2,3,7,8-TCDD	D	75.2	40 - 135	
1,2,3,7,8-PeCDD	0.276 5			J	13C-1,2,3,7,8-PeCDD	CDD	75.2	40 - 135	-
1,2,3,4,7,8-HxCDD	0.191			J	13C-1,2,3,4,7,8-HxCDD	x CDD	73.3	40 - 135	
1,2,3,6,7,8-HxCDD	0.739			ſ	13C-1,2,3,6,7,8-HxCDD	I XCDD	76.7	40 - 135	
1,2,3,7,8,9-HxCDD	0.627			J	13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	77.3	40 - 135	
1,2,3,4,6,7,8-HpCDD	9.31				13C-OCDD		54.1	40 - 135	
OCDD	44.5			В	13C-2,3,7,8-TCDF	н	80.5	40 - 135	
2,3,7,8-TCDF	0.192			J	13C-1,2,3,7,8-PeCDF	CDF	76.7	40 - 135	
1,2,3,7,8-PeCDF	0.103 T			ŗ	13C-2,3,4,7,8-PeCDF	CDF	76.7	40 - 135	
2,3,4,7,8-PeCDF	0.252			ſ	13C-1,2,3,4,7,8-HxCDF	IXCDF	71.4	40 - 135	
1,2,3,4,7,8-HxCDF	, dn		0.105		13C-1,2,3,6,7,8-HxCDF	I XCDF	68.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.134 7			J	13C-2,3,4,6,7,8-HxCDF	x CDF	74.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND (N		0.143		13C-1,2,3,7,8,9-HxCDF	KCDF	71.2	40 - 135	
1,2,3,7,8,9-HxCDF	DN	0.0522			13C-1,2,3,4,6,7,8-HpCDF	HpCDF	70.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	1.04			J	13C-1,2,3,4,7,8,9-HpCDF	HpCDF	74.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.136			ſ	13C-OCDF		57.1	40 - 135	
OCDF	2.88 J			J	CRS 37CI-2,3,7,8-TCDD	D	78.2	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ata ^e		
Total TCDD	ND	0.0302			TEQ (Min): 0.7	0.705			
Total PeCDD	0.913								
Total HxCDD	7.09				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	17.5				b. Estimated maximum possible concentration.	ble concentration.			
Total TCDF	2.67				c. Method detection limit.				
Total PeCDF	2.67				d. Lower control limit - upper control limit.	r control limit.			
Total HxCDF	2.59				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ld Health Organizatio	on Toxic Equ	ivalent Factors.(W	HO)
Total HpCDF	3.17								
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 13:26	

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Sample ID: DP-4	DP-4.15-5							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27645-003	Date Received:	ived:	2-May-06
Project: Ft B	Ft Bragg-Site Assessment 186320 20-Anr-06	86320	Sample Size:	20.1 g	QC Batch No.:	7989	Date Extracted:	acted:	4-May-06
			%Solids:	28.9	Date Analyzed DB-5:	6-May-06	Dates Ana	Dates Analyzed DB-225:	8-May-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	p.	%R]	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	2.41				<u>IS</u> 13C-2,3,7,8-TCDD	0	67.8	40 - 135	
1.2.3.7.8-PeCDD	9.15				13C-1,2,3,7,8-PeCDD	DD	70.3	40 - 135	
1.2.3.4.7.8-HxCDD	9.73				13C-1,2,3,4,7,8-HxCDD	xCDD	69.7	40 - 135	
1,2,3,6,7,8-HxCDD	41.3				13C-1,2,3,6,7,8-HxCDD	xCDD	76.5	40 - 135	
1,2,3,7,8,9-HxCDD	28.5				13C-1,2,3,4,6,7,8-HpCDD	HpCDD	88.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	861				13C-OCDD		71.3	40 - 135	-
OCDD	4090			В	13C-2,3,7,8-TCDF	ſŦ	75.0	40 - 135	
2.3.7.8-TCDF	3.78				13C-1,2,3,7,8-PeCDF	DF	72.1	40 - 135	
1,2,3,7,8-PeCDF	J.38			7	13C-2,3,4,7,8-PeCDF	DF	71.6	40 - 135	
2.3.4.7.8-PeCDF	7.81				13C-1,2,3,4,7,8-HxCDF	xCDF	64.0	40 - 135	
1,2,3,4,7,8-HxCDF	T 1014			ſ	13C-1,2,3,6,7,8-HxCDF	xCDF	59.9	40 - 135	-
1,2,3,6,7,8-HxCDF	12.2				13C-2,3,4,6,7,8-HxCDF	xCDF	68.2	40 - 135	-
2,3,4,6,7,8-HxCDF	6.92				13C-1,2,3,7,8,9-HxCDF	xCDF	73.1	40 - 135	
1,2,3,7,8,9-HxCDF	F 1.94			ſ	13C-1,2,3,4,6,7,8-HpCDF	HpCDF	73.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	83.5				13C-1,2,3,4,7,8,9-HpCDF	HpCDF	82.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	6.14				13C-OCDF		73.1	40 - 135	
OCDF	218				CRS 37CI-2,3,7,8-TCDD	D	68.5	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	tient (TEQ) Da	ata ^c		
Total TCDD	18.6				TEQ (Min): 36.4	4			
Total PeCDD	45.2								
Total HxCDD	353				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	1490				b. Estimated maximum possible concentration.	ole concentration.			
Total TCDF	81.1			D	c. Method detection limit.				
Total PeCDF	116			D	d. Lower control limit - upper control limit.	control limit.			
Total HxCDF	146			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	d Health Organizati	ion Toxic Equ	uivalent Factors.(V	(OH/
Total HpCDF	244								
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 13:26	

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

No $\mathcal{Q}(\mathbf{0})$ H Sample Collection Dates:

Client: Acton Mickelson Environmental, Inc.

Ę Danla Reviewed By: w Approved By: 10/06 71 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27645 *Refer to Table in QA Report

for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote	Problems Identified Check if Yes or Footnote	Support Documentation Attachments Check if Yes or Identify
	Letter for Comments Below	Number for Comments Below	Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	1 🗸		1
Sample Condition Upon Receipt at Subcontract Laboratory	4	(i)	 Image: A second s
Laboratory Method Blank Results	¥	$(\widehat{\circ})$	4
Ongoing Precision and Recovery Sample Results	1		1
Internal Standard Recoveries	1		¥
Cleanup Standard Recoveries	1		✓
Identification and Quantitation of Target Compounds	· •	(3)	~
Verification of the EDD in XLS Format	1		✓

Comments:	
	(i) tamples were received in clear glass ians instead of the
	method-specified amberians.
	(3) OCDS was present in the Method Blank.
	(3) Lample concentrations were below the columption romoe of the instrument. also, appendenter interforence was costance
	instrument, also, dipherulesther interfurence upp of sonry o
	in one or more bamples.
Curtis & Tompl	186000

Blank Analysis Results for Target Analytes

Fraction (1)	Matrix (Aq., S)	Blank Type	Blank Sample	Contaminant	Concentration (units)		ation Limit
		(2) MA	Number	OCDD	102 1	5x	10x
Ø	B	MB	Metho Blank 7981		<u> </u>		19.3 pg
					+		
					++		
					+		
							ļ
					-++		<u> </u>
					_ + +		<u> </u>
					_		
							ļ
							
							<u> </u>
				una Kluba n			

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: AUNT SULM

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Matrix: Soil QC Sample Size: 10.0 g Dat Analyte Conc. (pg/g) Dat 2,3,7,8-TCDD ND 0.0 1,2,3,7,8-PeCDD ND 0.0 1,2,3,7,8-HxCDD ND 0.1 2,3,7,8-TCDF ND 0.0 1,2,3,7,8-TCDF ND 0.0 1,2,3,7,8-TCDF ND 0.0	QC Batch No.: Date Extracted: 2 Date Extracted: 2 DL ^a EMPC ^b 0.0446 0.0451 0.0830 0.0830 0.0838	7989 1-Ma	Lab Sample: 0-MB001 Date Analyzed DR.5. 5-Mav-06			
10.0 g Conc. (pg/g) DD ND DD ND CDD ND CDD ND IpCDD ND 1.93 ND	L ^a EMPC ^b	t-M				
Conc. (pg/g) DD ND DD ND CDD ND CDD ND CDD ND IpCDD ND 1.93 ND	59				Date Analyzed DB-225:	NA
DD ND CDD ND CDD ND CDD ND LpCDD ND 1-93 ND ND ND ND)446)451)830)830)838	Quanners	Labeled Standard	%R	rcr-ucr ^d o	Oualifiers
DD ND CDD ND CDD ND CDD ND CDD ND ND CDD ND N)451)830)838		IS 13C-2,3,7,8-TCDD	93.3	40 - 135	
CDD ND CDD ND CDD ND IpCDD ND 1.93 ND ND)830)830)838			86.7	40 - 135	
CDD ND CDD ND HpCDD ND 1.93 ND ND)830)838		13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135	
CDD ND IpCDD ND 1.93 ND ND	3838		13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135	
HpCDD ND 1.93 ND DF ND			13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135	
L.93 ND ND	0.129		13C-0CDD	67.8	40 - 135	
DF ND		.	13C-2,3,7,8-TCDF	100	40 - 135	
UN AD	0.0408		13C-1,2,3,7,8-PeCDF	88.0	40 - 135	
	0.0496		13C-2,3,4,7,8-PeCDF	87.6	40 - 135	
2,3,4,7,8-PeCDF ND 0.0	0.0475		13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135	
1,2,3,4,7,8-HxCDF ND 0.0	0.0590		13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135	
1,2,3,6,7,8-HxCDF ND 0.0	0.0535		13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135	
2,3,4,6,7,8-HxCDF ND 0.0	0.0608		13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135	
1,2,3,7,8,9-HxCDF ND 0.0	0.0970		13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135	
JF ND	0.222		13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135	
1,2,3,4,7,8,9-HpCDF ND 0.233	233		13C-OCDF	68.9	40 - 135	
OCDF ND 0.1	0.196		CRS 37CI-2,3,7,8-TCDD	90.1	40 - 135	
Totals			Toxic Equivalent Quotient (TEQ) Data) Data ^e		
Total TCDD ND 0.0	0.0446		TEQ (Min): 0.000193			
Total PeCDD ND 0.0	0.0451					
Total HxCDD ND 0.0	0.0833		a. Sample specific estimated detection limit.			
Total HpCDD ND 0.1	0.129		b. Estimated maximum possible concentration.	ü		
Total TCDF ND 0.0	0.0408		c. Method detection limit.			
Total PeCDF ND 0.0	0.0486		d. Lower control limit - upper control limit.			
Total HxCDF ND 0.0	0.0676		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ization Toxic Equ	ivalent Factors.(WHO)	
Total HpCDF ND 0.2	0.228					

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OPR Results					EPA	EPA Method 8290
Matrix: Soil		QC Batch No.:	7989	Lab Sample: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	4-May-06	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225:	d DB-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	62.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135
Analyst: JMH				Approved By: Martha M. Maier	aier 10-May-2006 13:26	006 13:26

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Project 27645

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27645

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186320". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



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Section I: Sample Inventory Report Date Received: 5/2/2006

<u>Alta Lab. ID</u>	Client Sample ID
27645-001	DP-5.60-8
27645-002	DP-5.60-13
27645-003	DP-4.15-5

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

27645 2.9°C

Project Number: 186320 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matri	x Analysis	C&T Lab # Comments	
DP-5.60-8	04/20 08:50	Soil	8290	186320-001	
DP-5.60-13	04/20 09:00	Soil	8290	186320-002.	
DP-4.15-5	04/20 13:45	Soil	8290	186320-006	

Notes:	Relinquished By:	Received By:
	ZMAS EAN INT	Bettini & Bone duit
	Date/Time: 5-1-06/1700	Date/Time: 0157
		-779

Signature on this form constitutes a firm Purchase Order for the services requested above. Project 276451 Page 12 of 13

SAMPLE LOG-IN CHECKLIST

Alta Project #:	7645)		· .	-		
	Date/Time		Initials	s:	Locat	ion: $\mathcal{W}I$	2-2
Samples Arrival:	5/2/06	095	7 1/2	3LB	Shelf/	Rack:	
	Date/Time		Initials	s:	Locat	ion: (၂၃)	R-2
Logged In:	5/2/04	0 1402	FE	В	Shelf/	Rack:	-2
Delivered By:	FedEx	UPS	Cal	DHL	1	Hand elivered	Other
Preservation:	lce		Blue Ice	Dry Ic	e	No	one
Temp °C 2.9%	C	Time: /	015		Thern	nometer ID	: DT-20

						YES	NO	NA
Adequate Sample Volume Received?						\checkmark		
Holding Time Acceptable?						V	-	
Shipping Container(s) Intact?						V		
Shipping Custody Seals Intac	t?							\checkmark
Shipping Documentation Pres						1		
Airbill Trk# C1012900026462								
Sample Container Intact?						\vee		
Sample Custody Seals Intact?							V	
Chain of Custody / Sample Documentation Present?						~		
COC Anomaly/Sample Acceptance Form completed?						\bigvee		
If Chlorinated or Drinking Water Samples, Acceptable Preservation?						V		
Na ₂ S ₂ O ₃ Preservation Documented? COC Sam					No	ne		
Shipping Container		Alta	Client	Retain	Ret	urn	Disp	ose
Comments:								

samples received in clear glass fair



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT

Georgia-Pacific California Wood Products Manufacturing Facility

Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27646
- Curtis & Tompkins, Ltd. #186378

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on four soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.14-6	27646-001	27646	04/24/06	D
Soil	DP-5.62-9	27646-002	27646	04/24/06	D
Soil	DP-5.62-14	27646-003	27646	04/24/06	D
Soil	DP-5.62-4	27646-004	27646	04/24/06	D

Note:

 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next

to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results			~	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			~	

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Verification of the EDD in XLS Format	~			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the qualified analytical result forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

Sample	Analyte
DP-4.14-6	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF
DP-5.62-9	1,2,3,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, Total TCDF, Total PeCDF, Total HxCDF, and Total HpCDF
DP-5.62-4	1,2,3,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, Total TCDF, Total PeCDF, Total HxCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-5.62-14	27646	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery

<u>Acronym</u>	Definition
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Y: Seeley CE llen E.

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

9 Ut h

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULTS FORMS

Sample ID: DP-	DP-4.14-6								EPA N	EPA Method 8290
Client Data				Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	pkins, Ltd.		Matrix:	Soil	Lab Sample:	27646-001	Date Received:	eived:	2-May-06
Project: Ft Br Date Collected: 24-A Time Collected: 2000	Ft Bragg-Site	Ft Bragg-Site Assessment 1803/8 24-Apr-06	803/8	Sample Size: %Solide:	15.7 g 43 1	QC Batch No.: Date Analyzed DB-5:	7989 6-Mav-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	4-May-06 NA
	Conc.	(Dg/g)	DL ^a	EMPC ^b	Oualifiers	Labeled Standard	dard	%R	5	Oualifiers
		á			2	 -				
2,3,7,8-TCDD	4.08	ł				<u>13</u> C-2,3,7,8-1CDD	(DD)	/6.9	40 - 135	
1,2,3,7,8-PeCDD	2.49	5			J	13C-1,2,3,7,8-PeCDD	eCDD	79.1	40 - 135	
1,2,3,4,7,8-HxCDD	2.51	わ			J	13C-1,2,3,4,7,8-HxCDD	-HxCDD	76.0	40 - 135	
1,2,3,6,7,8-HxCDD	18.0					13C-1,2,3,6,7,8-HxCDD	-HxCDD	83.0	40 - 135	
1,2,3,7,8,9-HxCDD	12.7					13C-1,2,3,4,6,7,8-HpCDD	',8-HpCDD	97.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	233					13C-OCDD		65.4	40 - 135	
OCDD	618				В	13C-2,3,7,8-TCDF	DF	83.4	40 - 135	
2,3,7,8-TCDF	1.07					13C-1,2,3,7,8-PeCDF	eCDF	85.4	40 - 135	
1,2,3,7,8-PeCDF	1.24	っ			ſ	13C-2,3,4,7,8-PeCDF	eCDF	85.5	40 - 135	
2,3,4,7,8-PeCDF	20.0					13C-1,2,3,4,7,8-HxCDF	-HxCDF	74.0	40 - 135	
1,2,3,4,7,8-HxCDF	2.01	b			ſ	13C-1,2,3,6,7,8-HxCDF	-HxCDF	68.7	40 - 135	
1,2,3,6,7,8-HxCDF	6.80				D	13C-2,3,4,6,7,8-HxCDF	-HxCDF	80.2	40 - 135	
2,3,4,6,7,8-HxCDF	7.61					13C-1,2,3,7,8,9-HxCDF	-HxCDF	85.1	40 - 135	
1,2,3,7,8,9-HxCDF	1.18				J	13C-1,2,3,4,6,7,8-HpCDF	',8-HpCDF	80.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	15.2					13C-1,2,3,4,7,8,9-HpCDF	;,9-HpCDF	89.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.646	5			J	13C-OCDF		71.8	40 - 135	
OCDF	8.30					CRS 37CI-2,3,7,8-TCDD	CDD	79.0	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) D	ata ^e		
Total TCDD	16.6					TEQ (Min):	24.4		- 	
Total PeCDD	33.2									
Total HxCDD	190					a. Sample specific estimated detection limit.	ted detection limit.			
Total HpCDD	378					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	110				D	c. Method detection limit.				
Total PeCDF	237				D	d. Lower control limit - upper control limit.	pper control limit.			
Total HxCDF	118				D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Vorld Health Organizat	ion Toxic Eq	uivalent Factors.()	(OHA)
Total HpCDF	31.7									
Analyst: JMH	2 					Approved By:	Martha M. Maier		10-May-2006 14:12	0

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Sample ID: DP-5	DP-5.62-9							EPA Me	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
-	Curtis & Tompkins, Ltd.	02070	Matrix:	Soil	Lab Sample:	27646-002	Date Received:	:P	2-May-06
Project: Date Collected: 24-A Time Collected: 1300	Ft Bragg-Site Assessment 1803/8 24-Apr-06 1300	0/000	Sample Size: %Solids:	10.2 g 26.7	QC Batch No.: Date Analyzed DB-5:	7989 6-Mav-06	Date Extracted: Date Analyzed DB-225:	ed: d DB-225:	4-May-06 NA
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ard	%R LC	LCL-UCL ^d 0	Oualifiers
2,3,7,8-TCDD	5.56				<u>IS</u> 13C-2,3,7,8-TCDD	D	63.4 4	40 - 135	
1,2,3,7,8-PeCDD	16.0				13C-1,2,3,7,8-PeCDD	CDD	66.3 4	40 - 135	
1,2,3,4,7,8-HxCDD	14.8				13C-1,2,3,4,7,8-HxCDD	HxCDD	68.2 4	40 - 135	
1,2,3,6,7,8-HxCDD	52.7				13C-1,2,3,6,7,8-HxCDD	HxCDD	69.6 4	40 - 135	
1,2,3,7,8,9-HxCDD	43.2				13C-1,2,3,4,6,7,8-HpCDD	B-HpCDD	82.0 4	40 - 135	
1,2,3,4,6,7,8-HpCDD	966				13C-OCDD		65.1 4	40 - 135	
OCDD	4200			В	13C-2,3,7,8-TCDF	DF	70.5 4	40 - 135	
2,3,7,8-TCDF	2.70				13C-1,2,3,7,8-PeCDF	CDF	71.2 4	40 - 135	
1,2,3,7,8-PeCDF	2.13 J			ŗ	13C-2,3,4,7,8-PeCDF	CDF	70.7 4	40 - 135	
2,3,4,7,8-PeCDF	24.3				13C-1,2,3,4,7,8-HxCDF	HxCDF	66.3 4	40 - 135	
1,2,3,4,7,8-HxCDF	H 11.8			ŗ	13C-1,2,3,6,7,8-HxCDF	HxCDF	63.1 4	40 - 135	
1,2,3,6,7,8-HxCDF	10.1			D	13C-2,3,4,6,7,8-HxCDF	HxCDF	67.1 4	40 - 135	
2,3,4,6,7,8-HxCDF	14.0				13C-1,2,3,7,8,9-HxCDF	HxCDF	73.4 4	40 - 135	
1,2,3,7,8,9-HxCDF	3.10			ſ	13C-1,2,3,4,6,7,8-HpCDF	I-HpCDF	70.2 4	40 - 135	
1,2,3,4,6,7,8-HpCDF	133			D	13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	79.7 4	40 - 135	
1,2,3,4,7,8,9-HpCDF	P 10.8			J	13C-OCDF		67.7 4	40 - 135	
OCDF	422				CRS 37CI-2,3,7,8-TCDD	DD	64.2 4	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ita ^e		
Total TCDD	24.8				TEQ (Min): 60	60.6			
Total PeCDD	72.3								
Total HxCDD	467				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	1650				b. Estimated maximum possible concentration.	sible concentration.			
Total TCDF	147			D	c. Method detection limit.				
Total PeCDF	324			D	d. Lower control limit - upper control limit.	er control limit.			
Total HxCDF	275			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rld Health Organizatio	on Toxic Equiva	lent Factors.(W)	(OH
Total HpCDF	400			D					
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 14:12	

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Sample ID: DP-5	DP-5.62-14							EPA Me	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.	020701	Matrix:	Soil	Lab Sample:	27646-003	Date Received:	eived:	2-May-06
Project: FL Br Date Collected: 24-A Time Collected: 1310	rt Bragg-Site Assessment 1803/8 24-Apr-06 1310	0/5001	Sample Size: %Solids:	30.6 g 32.6	QC Batch No.: Date Analyzed DB-5:	7989 6-May-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-May-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ard	%R	LCL-UCL ^d Q	Oualifiers
2,3,7,8-TCDD	0.218			5	<u>IS</u> 13C-2,3,7,8-TCDD	DD	64.9	40 - 135	
1,2,3,7,8-PeCDD	0.223			ſ	13C-1,2,3,7,8-PeCDD	sCDD	69.4	40 - 135	
1,2,3,4,7,8-HxCDD	0.160			J	13C-1,2,3,4,7,8-HxCDD	HxCDD	70.2	40 - 135	
1,2,3,6,7,8-HxCDD	0.387			ŗ	13C-1,2,3,6,7,8-HxCDD	HxCDD	72.7	40 - 135	
1,2,3,7,8,9-HxCDD	0.524			ſ	13C-1,2,3,4,6,7,8-HpCDD	8-HpCDD	80.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	2.16			J	13C-OCDD		57.7	40 - 135	
OCDD	5.29 U			В	13C-2,3,7,8-TCDF	DF	73.5	40 - 135	
2,3,7,8-TCDF	1.84				13C-1,2,3,7,8-PeCDF	CDF	72.8	40 - 135	
1,2,3,7,8-PeCDF	0.655 J			J	13C-2,3,4,7,8-PeCDF	CDF	74.5	40 - 135	
2,3,4,7,8-PeCDF	0.510 J			Ţ	13C-1,2,3,4,7,8-HxCDF	HxCDF	66.4	40 - 135	
1,2,3,4,7,8-HxCDF	QN		0.214		13C-1,2,3,6,7,8-HxCDF	HxCDF	61.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.239			ſ	13C-2,3,4,6,7,8-HxCDF	HxCDF	69.3	40 - 135	
2,3,4,6,7,8-HxCDF	0.205			ſ	13C-1,2,3,7,8,9-HxCDF	HxCDF	72.5	40 - 135	
1,2,3,7,8,9-HxCDF	0.471			ſ	13C-1,2,3,4,6,7,8-HpCDF	8-HpCDF	73.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.422			J	13C-1,2,3,4,7,8,9-HpCDF	9-HpCDF	82.7	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.140 O.140			ſ	13C-OCDF		62.3	40 - 135	
OCDF	0.362 J			J	CRS 37CI-2,3,7,8-TCDD	DD	72.0	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) D2	ata ^e		
Total TCDD	13.8				TEQ (Min): 1	1.14			
Total PeCDD	10.1								
Total HxCDD	15.3				a. Sample specific estimated detection limit.	d detection limit.			
Total HpCDD	3.47				b. Estimated maximum possible concentration.	sible concentration.			
Total TCDF	33.9				c. Method detection limit.				
Total PeCDF	6.52				d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	2.29				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	orld Health Organizati	on Toxic Equ	uivalent Factors.(W	HO)
Total HpCDF	0.756								
Analyst: JMH					Approved By:	Martha M. Maier		10-May-2006 14:12	

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	PT-20.6-1U								
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27646-004	Date Received:	eived:	2-May-06
Project: F1 BT Date Collected: 24-A Time Collected: 1350	Ft Bragg-Site Assessment 1803/8 24-Apr-06 1350		Sample Size: %Solids:	18.0 g 55.6	QC Batch No.: Date Analyzed DB-5:	7989 6-May-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-May-06
	Conc. (pg/g) DL	- a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R	LCL-UCL ^d	Oualifiers
2.3.7.8-TCDD	4,11				<u>IS</u> 13C-2,3,7,8-TCDD	DD	70.5	40 - 135	
1,2,3,7,8-PeCDD	24.0				13C-1,2,3,7,8-PeCDD	eCDD	75.4	40 - 135	
1,2,3,4,7,8-HxCDD	24.9				13C-1,2,3,4,7,8-HxCDD	-HxCDD	73.5	40 - 135	
1,2,3,6,7,8-HxCDD	81.8				13C-1,2,3,6,7,8-HxCDD	-HxCDD	75.4	40 - 135	
1,2,3,7,8,9-HxCDD	51.8				13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	94.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1140				13C-OCDD		80.2	40 - 135	
OCDD	10100			В	13C-2,3,7,8-TCDF	DF	78.2	40 - 135	
2,3,7,8-TCDF	3.33				13C-1,2,3,7,8-PeCDF	eCDF	79.0	40 - 135	
1,2,3,7,8-PeCDF	2.92				13C-2,3,4,7,8-PeCDF	eCDF	80.6	40 - 135	
2,3,4,7,8-PeCDF	9.01				13C-1,2,3,4,7,8-HxCDF	-HxCDF	68.6	40 - 135	
1,2,3,4,7,8-HxCDF	12.7				13C-1,2,3,6,7,8-HxCDF	-HxCDF	64.4	40 - 135	
1,2,3,6,7,8-HxCDF	11.2			D	13C-2,3,4,6,7,8-HxCDF	-HxCDF	72.6	40 - 135	
2,3,4,6,7,8-HxCDF	14.4				13C-1,2,3,7,8,9-HxCDF	-HxCDF	78.9	40 - 135	
1,2,3,7,8,9-HxCDF	2.94				13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	76.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	253			D	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	87.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	14.2				13C-OCDF		77.1	40 - 135	
OCDF	804				CRS 37CI-2,3,7,8-TCDD	CDD	68.6	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ata ^e		
Total TCDD	26.9				TEQ (Min):	68.2			- - - - - - -
Total PeCDD	79.7								
Total HxCDD	492				a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	0161				b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	68.7			D	c. Method detection limit.				
Total PeCDF	145			D	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	340			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Vorld Health Organizati	ion Toxic Eq	uivalent Factors.(V	(OHA
Total HpCDF	749			D					

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates:	Ц	/24	106
	1		

Client: Acton Mickelson Environmental, Inc.

Reviewed By:	E. Deeley
Approved By:	Wyk J
Completion Date:	7110/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	1 🗸		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(j)	✓
Laboratory Method Blank Results	√	(a)	~
Ongoing Precision and Recovery Sample Results	1		~
Internal Standard Recoveries	√		✓
Cleanup Standard Recoveries	1		✓
Identification and Quantitation of Target Compounds	· •	(3)	~
Verification of the EDD in XLS Format	✓		√

Comments:	1 1	* 1	1	1 1 1 1
	(i) Sample plutte re	cure in le	ar dass Jars V	noted of the
	method-specifie	damber Kart	0 3	
	(2) OCD was prese	nt in the Mu	hod Blank,	
	Ca hamale portante	ations of her	ation land	the nationation
	[3] pange (manna)	rument. (U	So allanemister	the couldation
	has present in a	me or more isc	moles.	<u> </u>
Curtis & Tompk	ins SDG: 86378	-		
	•		١	eridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Quaimo	cation Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
Ø	З	MB	Method Blank (1989)	0000	1.9300/2		19.30
	We have an end a my give deadless per				0, 10		¢,
				·····			
				100-01- 100-01- 100-01-			
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							+
				· · · · · · · · · · · · · · · · · · ·			
				· · · · · · · · · · · · · · · · · · ·			
							-
							+
						<u>.</u>	

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank		-	EPA Method 8290
Matrix: Soil	QC Batch No.: 7989	Lab Sample: 0-MB001	
Sample Size: 10.0 g	Date Extracted: 4-May-06	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225: NA
Analyte Conc. (pg/g)	DL ^a EMPC ^b Qualifiers	iers Labeled Standard	%R LCL-UCL ^d Oualifiers
2,3,7,8-TCDD ND	0.0446	<u>IS</u> 13C-2,3,7,8-TCDD	93.3 40 - 135
1,2,3,7,8-PeCDD ND	0.0451	13C-1,2,3,7,8-PeCDD	86.7 40 - 135
1,2,3,4,7,8-HxCDD ND	0.0830	13C-1,2,3,4,7,8-HxCDD	86.1 40 - 135
1,2,3,6,7,8-HxCDD ND	0.0830	13C-1,2,3,6,7,8-HxCDD	90.5 40 - 135
1,2,3,7,8,9-HxCDD ND	0.0838	13C-1,2,3,4,6,7,8-HpCDD	90.8 40 - 135
1,2,3,4,6,7,8-HpCDD ND	0.129	13C-OCDD	67.8 40 - 135
OCDD 1.93		13C-2,3,7,8-TCDF	100 40 - 135
2,3,7,8-TCDF ND	0.0408	13C-1,2,3,7,8-PeCDF	88.0 40 - 135
1,2,3,7,8-PeCDF ND	0.0496	13C-2,3,4,7,8-PeCDF	87.6 40 - 135
2,3,4,7,8-PeCDF ND	0.0475	13C-1,2,3,4,7,8-HxCDF	84.7 40 - 135
1,2,3,4,7,8-HxCDF ND	0.0590	13C-1,2,3,6,7,8-HxCDF	83.5 40 - 135
1,2,3,6,7,8-HxCDF ND	0.0535	13C-2,3,4,6,7,8-HxCDF	88.2 40 - 135
2,3,4,6,7,8-HxCDF ND	0.0608	13C-1,2,3,7,8,9-HxCDF	84.7 40 - 135
1,2,3,7,8,9-HxCDF ND	0.0970	13C-1,2,3,4,6,7,8-HpCDF	85.3 40 - 135
1,2,3,4,6,7,8-HpCDF ND	0.222	13C-1,2,3,4,7,8,9-HpCDF	88.9 40 - 135
1,2,3,4,7,8,9-HpCDF ND	0.233	13C-OCDF	68.9 40 - 135
OCDF ND	0.196	CRS 37CI-2,3,7,8-TCDD	90.1 40 - 135
Totals		Toxic Equivalent Quotient (TEQ) Data	υ
Total TCDD ND	0.0446	TEQ (Min): 0.000193	-
Total PeCDD ND	0.0451		
Total HxCDD ND	0.0833	a. Sample specific estimated detection limit.	
Total HpCDD ND	0.129	b. Estimated maximum possible concentration.	
Total TCDF ND	0.0408	c. Method detection limit.	
Total PeCDF ND	0.0486	d. Lower control limit - upper control limit.	
Total HxCDF ND	0.0676	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	oxic Equivalent Factors (WHO)
Total HpCDF ND	0.228		
Analyst: JMH		Approved By: Martha M. Maier	r 10-May-2006 14:12

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Matrix: Soil		QC Batch No.:	7989	Lai	Lab Sample: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	4-May-06	D	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225:	ed DB-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	_	Labeled Standard	%R	TCT-NCT
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS	13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65		13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65		13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65		13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65		13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130		13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13		13C-1,2,3,7,8-PeCDF	<i>77.</i> 9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65		13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65		13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65		13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65		13C-2,3,4,6,7,8-HxCDF	7.77	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65		13C-1,2,3,7,8,9-HxCDF	62.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65		13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

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APPENDIX C

CASE NARRATIVES AND

CHAIN-OF-CUSTODY RECORDS

May 10, 2006

Alta Project I.D.: 27646

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the four soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186378". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



ella enalyte al habereter scienties den die repert haven nich val die requirements sei herdi be 84 bes sin dan e applicable is troctined. This repeat skundenet be reperdered e scept in full without des written approval sig MS



Section I: Sample Inventory Report Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27646-001	DP-4.14-6
27646-002	DP-5.62-9
27646-003	DP-5.62-14
27646-004	DP-5.62-4

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532 Project Number: 186378 Site: Ft Bragg-Site Assessment Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino Results due: Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled Matr	ix Analysi	s C&T Lab # C	Comments
DP-4.14-6	04/24 09:00 Soil	8290	186378-001	
P-5.62-9 P-5	04/24 13:00 Soil	8290	186378-004	
P-5.62-14	04/24 13:10 Soil	8290	186378-005	1. J. P.
DP-5.62+4	04/24 13:50 Soil	8290	186378-009	

Notes: Relinquished By: Received By: Date/Time

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

2.9°C

17646

SAMPLE LOG-IN CHECKLIST

Alta Project #:	.7646					_				
	Date/Time			Initials	:	Locat	ion:	WI	2-2	-
Samples Arrival:	5/2/06	095	7	Va	B	Shelf/				
	Date/Time			Initials	;:	Locat	ion:	S	R-	2
Logged In:	5/2/06	1413		FEB				k: <u>A</u>	-3	
Delivered By:	FedEx	UPS	UPS Cal DHL			Hano eliver		Otl	her	
Preservation:	Ice	Ice Blue Ice Dry Ice			се		No	one		
Temp °C 2.9°	Time: 1015 The			Thern	nom	eter ID	: DT-	20		
Adequate Sample Volume Received?					YES	NO	NA			
Adequate Sample Volume Received? Holding Time Acceptable?					\checkmark					
						V				
Shipping Containe							V			
	Custody Seals Intact? Documentation Present?					\checkmark				
Airbill	Trk # C10129 000026462				~	<u>.</u>				
Sample Container Intact?					$\overline{\mathbf{V}}$					
Sample Custody Seals Intact?							V			
Chain of Custody / Sample Documentation Present?					~					
COC Anomaly/Sample Acceptance Form completed?					V	1				
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				V						
Na ₂ S ₂ O ₃ Preserva					COC		Sam Sam		No	ne
Shipping Containe	er	Alt	ta 🖌	Client	Retair		Retu		Disp	ose
Comments:										

Samples received in clear gass jan



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27647
- Curtis & Tompkins, Ltd. #186403

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.63-12	27647-001	27647	04/25/06	D
Soil	DP-4.9-4.5	27647-002	27647	04/25/06	D
Soil	DP-4.9-10	27647-003	27647	04/25/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letters and Chain-of-Custody Records are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	~			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results			\checkmark	
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	~			
Cleanup Standard Recoveries	~			
Identification of Target Compounds			~	
Verification of the EDD in XLS Format	~			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. It was noted that the samples were received in clear jars as opposed to amber jars as required by the method. However, these exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the qualified results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>		
OCDD		

<u>Identification of Target Compounds</u> All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified results forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers. Qualification of the data was not warranted on this basis.

<u>Sample</u>	<u>Analyte</u>
DP-5.63-12	Total TCDF, Total PeCDF,
	1,2,3,6,7,8-HxCDF, and Total HxCDF
DP-4.9-4.5	Total TCDF and Total PeCDF

Concentration

1.93 pg/g

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-4.9-10	27647	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans

Acronym	Definition
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Jeeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

51122

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-5	DP-5.63-12							EPA Me	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	d.	Matrix:	Soil	Lab Sample:	27647-001	Date Received:	ived:	2-May-06
Project: Ft Br Date Collected: 25-A Time Collected: 0000	Ft Bragg-Site Assessment 180403 25-Apr-06	ent 186403	Sample Size: %Solids:	13.2 g 76.1	QC Batch No.: Date Analyzed DB-5:	7989 6-Mav-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	4-May-06 8-Mav-06
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ard	%R I	rcr-ncr _q d	Qualifiers
					IS 13C-2378-TCDD		757	40 - 135	
				,			010	101 01	
1,2,3,7,8-PeCDD				-, ,	19C-1,2,3,7,8-F6CUU		0.10	201 - 04 201 - 04	
1,2,3,4,7,8-HxCDD				Ŀ	13C-1,2,3,4,/,8-HXCDD		7.11	40 - 135	
1,2,3,6,7,8-HxCDD	5.28				13C-1,2,3,6,7, 8-H xCDD	HxCDD	83.1	40 - 135	
1,2,3,7,8,9-HxCDD	3.39				13C-1,2,3,4,6,7,8-HpCDD	3-HpCDD	95.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	84.1				13C-OCDD		68.3	40 - 135	
OCDD	553			В	13C-2,3,7,8-TCDF	ЭF	81.1	40 - 135	
2,3,7,8-TCDF	1.53				13C-1,2,3,7,8-PeCDF	CDF	82.0	40 - 135	
1,2,3,7,8-PeCDF	り 0.939 り			J	13C-2,3,4,7,8-PeCDF	CDF	84.3	40 - 135	
2,3,4,7,8-PeCDF	24.8				13C-1,2,3,4,7,8-HxCDF	HxCDF	73.5	40 - 135	
1,2,3,4,7,8-HxCDF	2.28 J			J	13C-1,2,3,6,7,8-HxCDF	HxCDF	68.1	40 - 135	
1,2,3,6,7,8-HxCDF	4.34			D	13C-2,3,4,6,7,8-HxCDF	HxCDF	77.9	40 - 135	
2,3,4,6,7,8-HxCDF	9.42				13C-1,2,3,7,8,9-HxCDF	HxCDF	83.5	40 - 135	
1,2,3,7,8,9-HxCDF	D 65.1			J	13C-1,2,3,4,6,7,8-HpCDF	3-HpCDF	79.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	28.7				13C-1,2,3,4,7,8,9-HpCDF	Э-HpCDF	95.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	1.47			ſ	13C-OCDF		75.0	40 - 135	
OCDF	65.8				CRS 37CI-2,3,7,8-TCDD	DD	75.7	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ata ^e		
Total TCDD	19.2				TEQ (Min): 2	28.3			
Total PeCDD	15.3								
Total HxCDD	45.7				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	154				b. Estimated maximum possible concentration.	sible concentration.			
Total TCDF	106			D	c. Method detection limit.				
Total PeCDF	287			D	d. Lower control limit - upper control limit.	er control limit.			
Total HxCDF	148			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	orld Health Organizati	on Toxic Equ	ivalent Factors.(W	HO}
Total HpCDF	79.4								
Analyst: JMH					Approved By:	Martha M. Maier		09-May-2006 15:42	

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Sample ID: DP-4	DP-4.9-4.5								EPA M	EPA Method 8290
Client Data				Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	cins, Ltd.		Matrix:	Soil	Lab Sample:	27647-002	Date Received:	eived:	2-May-06
	Ft Bragg-Site A 25-Apr-06	Ft Bragg-Site Assessment 186403 25-Apr-06	86403	Sample Size:	18.7 g	QC Batch No.:	7989	Date Extracted:	Date Extracted: Data Analyzad DB-236:	4-May-06
Time Collected: 1400				%Solids:	53.7	Date Allaryzeu DB-J.	6-May-U0		yzeu DD-223.	NA
Analyte	Conc. (pg/g)	/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R	rcr-ncr _q	Qualifiers
2,3,7,8-TCDD	0.253	1			J	<u>IS</u> 13C-2,3,7,8-TCDD	DD	75.3	40 - 135	
1,2,3,7,8-PeCDD	0.421	x			J	13C-1,2,3,7,8-PeCDD	eCDD	80.7	40 - 135	
1,2,3,4,7,8-HxCDD	0.325	ア			J	13C-1,2,3,4,7,8-HxCDD	-HxCDD	82.1	40 - 135	
1,2,3,6,7,8-HxCDD	2.41	h			J	13C-1,2,3,6,7,8-HxCDD	-HxCDD	83.3	40 - 135	
1,2,3,7,8,9-HxCDD	1.01	5			J	13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	93.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	29.9	1				13C-OCDD		69.2	40 - 135	
OCDD	215				В	13C-2,3,7,8-TCDF	DF	87.3	40 - 135	
2,3,7,8-TCDF	0.996					13C-1,2,3,7,8-PeCDF	eCDF	87.4	40 - 135	
1,2,3,7,8-PeCDF	0.406	Ь			ŗ	13C-2,3,4,7,8-PeCDF	eCDF	88.2	40 - 135	
2,3,4,7,8-PeCDF	1.21	ち			J	13C-1,2,3,4,7,8-HxCDF	-HxCDF	78.4	40 - 135	
1,2,3,4,7,8-HxCDF	0.451	っ			J	13C-1,2,3,6,7,8-HxCDF	-HxCDF	72.8	40 - 135	
1,2,3,6,7,8-HxCDF	0.515	っ			ſ	13C-2,3,4,6,7,8-HxCDF	-HxCDF	82.5	40 - 135	
2,3,4,6,7,8-HxCDF	0.704	5			J	13C-1,2,3,7,8,9-HxCDF	-HxCDF	87.5	40 - 135	
1,2,3,7,8,9-HxCDF	0.161	う			J	13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	83.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	6.53	ŀ				13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	95.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.383	┢つ			ſ	13C-OCDF		72.9	40 - 135	
OCDF	18.5	•				CRS 37CI-2,3,7,8-TCDD	DD	81.0	40 - 135	
Totals	- 					Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ata ^e		
Total TCDD	3.77					TEQ (Min):	2.35			
Total PeCDD	4.33									_
Total HxCDD	21.0					a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	59.3					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	18.1				D	c. Method detection limit.				
Total PeCDF	14.8				D	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	13.3					e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	orld Health Organizati	on Toxic Equ	uivalent Factors.(V	{OHV
Total HpCDF	18.5									
Analyst: JMH						Approved By:	Martha M. Maier		09-May-2006 15:42	

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Sample ID: DP-4	DP-4.9-10						EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data			
	Curtis & Tompkins, Ltd.	207.001	Matrix:	Soil	Lab Sample: 27647-003	003 Date Received:	ceived:	2-May-06
Project: FI Br Date Collected: 25-A Time Collected: 1410	rt Bragg-Site Assessment 180403 25-Apr-06 1410	c04051	Sample Size: %Solids:	12.4 g 80.4	QC Batch No.: 7989 Date Analyzed DB-5: 6-Mav-06		Date Extracted: Date Analyzed DB-225:	4-May-06 NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	rcr-ucr ^d	Oualifiers
2.3.7.8-TCDD	DN		0.151		IS 13C-2.3.7.8-TCDD	20.9	40 - 135	
1.2.3.7.8-PeCDD	ND		0.109			72.4	40 - 135	
1.2.3,4.7,8-HxCDD	QN	0.0417			13C-1.2.3.4.7.8-HxCDD	74.1	40 - 135	
1,2,3,6,7,8-HxCDD	0.168			ſ	13C-1,2,3,6,7,8-HxCDD	77.2	40 - 135	
1,2,3,7,8,9-HxCDD	0.119			Ţ	13C-1,2,3,4,6,7,8-HpCDD	77.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.25			ſ	13C-OCDD	63.4	40 - 135	
OCDD	6.79			В	13C-2,3,7,8-TCDF	77.0	40 - 135	
2,3,7,8-TCDF	0.928				13C-1,2,3,7,8-PeCDF	77.5	40 - 135	
1,2,3,7,8-PeCDF	0.227 J			ſ	13C-2,3,4,7,8-PeCDF	78.4	40 - 135	
2,3,4,7,8-PeCDF	0.352 J			Ţ	13C-1,2,3,4,7,8-HxCDF	71.7	40 - 135	
1,2,3,4,7,8-HxCDF	0.0841			ſ	13C-1,2,3,6,7,8-HxCDF	68.6	40 - 135	
1,2,3,6,7,8-HxCDF	0.0728 3			J	13C-2,3,4,6,7,8-HxCDF	75.2	40 - 135	
2,3,4,6,7,8-HxCDF	0.0826				13C-1,2,3,7,8,9-HxCDF	76.8	40 - 135	
1,2,3,7,8,9-HxCDF	D	0.0231			13C-1,2,3,4,6,7,8-HpCDF	72.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	D.288 J			.	13C-1,2,3,4,7,8,9-HpCDF	81.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	DN	0.0255			13C-OCDF	66.7	40 - 135	
OCDF	0.603 J			J	CRS 37CI-2,3,7,8-TCDD	76.0	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	EQ) Data ^e	- - -	
Total TCDD	1.60				TEQ (Min): 0.349			
Total PeCDD	0.935							
Total HxCDD	1.54				a. Sample specific estimated detection limit.	nit.		
Total HpCDD	2.32				b. Estimated maximum possible concentration.	ration.		
Total TCDF	14.1				c. Method detection limit.			
Total PeCDF	2.69				d. Lower control limit - upper control limit.	nit.		
Total HxCDF	0.739				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	rganization Toxic E	quivalent Factors.(V	(OH)
Total HpCDF	0.565							
Analyst: JMH					Approved By: Martha	Martha M. Maier 09-N	09-May-2006 15:42	

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates:	4	1251	α

Client: Acton Mickelson Environmental, Inc.

Boolor Reviewed By: Approved By 7/10/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 37647 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	~		4
Sample Condition Upon Receipt at Subcontract Laboratory	~	(1)	*
Laboratory Method Blank Results	4	(a)	4
Ongoing Precision and Recovery Sample Results	✓		4
Internal Standard Recoveries	~		~
Cleanup Standard Recoveries	4		4
Identification and Quantitation of Target Compounds	~	(3)	~
Verification of the EDD in XLS Format	4		✓

Comments:	
	() Bamples were received in clear afass jano, instead of the method-
	pourified amber land.
	(2) OCDS upp present in the Method Blank
	(3) Dample concentrations were below the colibration range of the instrument, also, diphenistether interference up assessed in
	instrument, also diphenerether interference une asserved in
	me or more to mpleb.
Curtis & Tom	pkins SDG: 186403
	Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	\	
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
0	Ð	MB	Method Blank (1989)	OCAS	1.93 pr/a		19.300
							-
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							<u> </u>
				· · · · · · · · · · · · · · · · · · ·			

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank			EPA Method 8290
Matrix: Soil	QC Batch No.: 7989	Lab Sample: 0-MB001	
Sample Size: 10.0 g	Date Extracted: 4-May-06	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225: NA
Analyte Conc. (pg/g)	DL ^a EMPC ^b Qualifiers	Labeled Standard	%R LCL-UCL ^d Oualifiers
2,3,7,8-TCDD ND	0.0446	<u>IS</u> 13C-2,3,7,8-TCDD	93.3 40 - 135
1,2,3,7,8-PeCDD ND	0.0451	13C-1,2,3,7,8-PeCDD	86.7 40 - 135
1,2,3,4,7,8-HxCDD ND	0.0830	13C-1,2,3,4,7,8-HxCDD	86.1 40 - 135
1,2,3,6,7,8-HxCDD ND	0.0830	13C-1,2,3,6,7,8-HxCDD	90.5 40 - 135
1,2,3,7,8,9-HxCDD ND	0.0838	13C-1,2,3,4,6,7,8-HpCDD	90.8 40 - 135
1,2,3,4,6,7,8-HpCDD ND	0.129	13C-0CDD	67.8 40 - 135
0CDD 1.93	I	13C-2,3,7,8-TCDF	100 40 - 135
2,3,7,8-TCDF ND	0.0408	13C-1,2,3,7,8-PeCDF	88.0 40 - 135
1,2,3,7,8-PeCDF ND	0.0496	13C-2,3,4,7,8-PeCDF	87.6 40 - 135
2,3,4,7,8-PeCDF ND	0.0475	13C-1,2,3,4,7,8-HxCDF	84.7 40 - 135
1,2,3,4,7,8-HxCDF ND	0.0590	13C-1,2,3,6,7,8-HxCDF	83.5 40 - 135
1,2,3,6,7,8-HxCDF ND	0.0535	13C-2,3,4,6,7,8-HxCDF	88.2 40 - 135
2,3,4,6,7,8-HxCDF ND	0.0608	13C-1,2,3,7,8,9-HxCDF	84.7 40 - 135
1,2,3,7,8,9-HxCDF ND	0.0970	13C-1,2,3,4,6,7,8-HpCDF	85.3 40 - 135
1,2,3,4,6,7,8-HpCDF ND	0.222	13C-1,2,3,4,7,8,9-HpCDF	88.9 40 - 135
1,2,3,4,7,8,9-HpCDF ND	0.233	13C-OCDF	68.9 40 - 135
OCDF ND	0.196	CRS 37CI-2,3,7,8-TCDD	90.1 40 - 135
Totals		Toxic Equivalent Quotient (TEQ) Data	ita e
Total TCDD ND	0.0446	TEQ (Min): 0.000193	
Total PeCDD ND	0.0451		
Total HxCDD ND	0.0833	a. Sample specific estimated detection limit.	
Total HpCDD ND	0.129	b. Estimated maximum possible concentration.	
Total TCDF ND	0.0408	c. Method detection limit.	
Total PeCDF ND	0.0486	d. Lower control limit - upper control limit.	
Total HxCDF ND	0.0676	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	on Toxic Equivalent Factors.(WHO)
Total HpCDF ND	0.228		
Analyst MAS		Approved By: Martha M. Maier	aier 09-May-2006 15:42

Project 27647

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OPR Results						EPA	EPA Method 8290
Matrix: Soil Sample Size: 10.0 g		QC Batch No.: Date Extracted:	7989 4-May-06	Ds Lat	Lab Sample: 0-OPR001 Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225:	ed DB-225: NA
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS	13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65		13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65		13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65		13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1.2.3,4,6,7,8-HpCDD	50.0	52.3	35 - 65		13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130		13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13		13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65		13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65		13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65		13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65		13C-2,3,4,6,7,8-HxCDF	7.7.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65		13C-1,2,3,7,8,9-HxCDF	65.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1.2.3,4,7,8,9-HpCDF	50.0	52.8	35 - 65		13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS	CRS 37CI-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:42

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27647

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186403". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



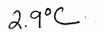
illa Anni taval Labatanna, a certies den the organi innern mens all the raquerenems va parth by No Gai Une thus gydradik 1930 methoda. This e para de mild not he reprincipal except in fuil walhent the serviced approval of AfA



Section I: Sample Inventory Report Date Received: 5/2/2006

<u>Alta Lab. ID</u>	Client Sample ID
27647-001	DP-5.63-12
27647-002	DP-4.9-4.5
27647-003	DP-4.9-10

27647



Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 186403 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sample	ed I	Matrix	Analysis		C&T Lab # Comments	
DP-5.63-12	04/25	09:00	Soil	8290		186403-001	
P-4.9-4.5 רב ^י	0.4/25	14:00	Soil	8290	•.	186403-004	
P-4.9-10	04/25	14:10	Soil	8290		186403-005	

Notes:	Relinquished By:	Received By:
	ANNY MANUN	pettma of Benedict
	Date/Time: 5-1-06/(700.	Date/Time: 0957

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1 Project 27647

SAMPLE LOG-IN CHECKLIST

Alta Project #:	7647				· .	_				
	Date/Time			Initials	:	Locat	ion: し	NR	2-2	7
Samples Arrival:	$5/2/06$ 0957 $\sqrt{300}$ Shelf/Rack									
Date/Time Initials: Location:					ion: (رحر	R-	Z		
Logged In:	5/2/06 1423 FEB Shelf/Rack			Rack:_						
Delivered By:	FedEx	Fodey I IPS I / Cal / DHL I			Hand elivered		Otl	her		
Preservation:	ervation: Ice Blue Ice Dry Ice						Nor	ne		
Temp °C 2.9°C Time: 1015 Thermor						nomete	r ID:	DT-	20	
						YE		NO	NA	
Adequate Sample Volume Received?								NO	NA	
						V	\leftarrow			
Holding Time Acceptable?						V	\checkmark			
Shipping Container(s) Intact?								V		
Shipping Custody Seals Intact?						\geq				
Airbill Trk # CIDI2900026462					L	\geq				
		10	1.00				V			
Sample Container Intact? Sample Custody Seals Intact?									V	
Chain of Custody / Sample Documentation Present?						~ ~	\nearrow			
COC Anomaly/Sample Acceptance Form completed?							V			
If Chlorinated or Drinking Water Samples, Acceptable Preservation?								V		
Na ₂ S ₂ O ₃ Preserva	tion Documen	ted?			COC		Sample ontaine	r	No	ne
Shipping Containe	r	Alt	a 🕻	Client) Retair	1.	Return)	Disp	ose

Comments:

Samples received in clear glass jus



July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762 **DATA VALIDATION REPORT** *Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project ID:*

- Alta Analytical Laboratory, Inc. #27669
- Curtis & Tompkins, Ltd. #186609

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on five samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	SL-7.1-0.6	27669-001	27669	05/03/06	D
Soil	SL-7.2-0.6	27669-002	27669	05/03/06	D
Soil	SL-7.3-0.6	27669-003	27669	05/03/06	D
Soil	AS-7.1-GRASS	27669-004	27669	05/03/06	D
Soil	AS-7.2-GRASS	27669-005	27669	05/03/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290. The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	~			
Sample Condition Upon Receipt at Subcontract Laboratory		~		
Laboratory Method Blank Results			~	
Ongoing Precision and Recovery Sample Results	~			
Internal Standard Recoveries	~			
Cleanup Standard Recoveries	 ✓ 			

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2 °C. In addition, samples AS-7.1-GRASS and AS-7.2-GRASS were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) or as biased high (J+) on the qualified results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

Analyte	Concentration
1,2,3,4,7,8-HxCDF	0.124 pg/g
1,2,3,6,7,8-HxCDF	0.0834 pg/g
1,2,3,4,6,7,8-HpCDF	0.545 pg/g
OCDF	0.508 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified results forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
SL-7.2-0.6	27669	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF	U	Positive result for analyte in laboratory method blank

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
SL-7.2-0.6 (cont.)	27669	Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank
AS-7.1-GRASS	27669	1,2,3,4,6,7,8-HpCDF OCDF	U	Positive result for analyte in laboratory method blank
		Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank
AS-7.2-GRASS	27669	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF	U	Positive result for analyte in laboratory method blank
		Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

Data Qualifier Definitions

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Eller E. Jeeley

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

SJE

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

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Curtis & Tompkins, Ltd.Sammle Data Matrix:Sould Sample Size:Sould SouldF. Bragg-Site Assessment 186609 $Matrix:SouldSample Size:Matrix:SouldSample Size:Matrix:3.May-063.May-069.KSolids:9.4.39.4.3Matrix:SouldSample Size:9.4.30.13.53DLaEMPCbQualifiers9.4.30.17.86KCDD9.51KCDD9.51EMPC^bQualifiers0.17.86KCDD9.51EMPC^bQualifiersB_10.17.86KCDD9.51EMPC^bQualifiersB_10.17.86KCDD9.51B_2B_1B_10.17.86EMPC^bB_1B_1B_10.1T. 23B_1B_2B_1B_20.1B_1B_2B_1B_2B_10.1B_2T_1B_2B_1B_10.1B_2T_1B_2B_1B_20.1B_2T_1B_2B_2B_10.1B_2T_1B_2B_2B_20.1B_2T_1B_2B_20.1B_2T_1B_2B_20.1B_2T_2B_2B_20.1B_2T_2B_2B_20.1B_2T_2$	lers
Full Curits & Tompkins, Ltd. Matrix: Soil Filleretet: 7-May-06 Sample Size: 10.7 g Allectet: 3-May-06 Sample Size: 94.3 FrCDD 3.53 P.P.CDD 3.53 FrCDD 3.53 P.P.CDD 94.3 FrCDD 3.53 P.P.CDD 94.3 Arrot 4.99 P.A.CDD 951 Arrot 4.99 P.A.CDD 951 Strend 4.70 P.A.CDF 25.1 Strend 12.3 S.P.ECDF 12.3 Strend 12.8 P.A.CDF 25.1 Arrot 12.8 P.A.CDF 2.62 Arrot 12.8 T B A.R.CDF 2.62 3.2.1 B A.R.CDF 2.48 T	Lab Sample: 27669-001 Date Received: QC Barch No.: 8024 Date Extracted: Date Analyzed DB-5: 17-May-06 Dates Analyzed DB-225: Ister Analyzed DB-5: 17-May-06 Dates Analyzed DB-225: Ister I abeled Standard % R LCL-UCL ^d Out IST 13C-2,3,7,8-TCDD 75.0 40 - 135 13C-1 23 7 8-0
Alteret: 3-May-06 Sample Size: 10.7 g Illected: 3-May-06 Sample Size: 10.7 g Illected: 3-May-06 Sample Size: 10.7 g -17CDD 3.53 PL EMPC ^b Qualifiers -17CDD 3.53 SecDD 7.86 PL A PC 7,8-HxCDD 9.51 8,9-HxCDD 9.51 B B B 7,78-HxCDD 6.7,8-HpCDD 7.84 B B B B B 7,78-HxCDF 2.5.1 3.53 B B B B C 7,78-HxCDF 2.5.1 8 9 B B C B C 7,8-HxCDF 2.62 9.3 3.1 B D B C 7,8-HxCDF 2.62 3.7 B B C B C 7,8-HxCDF 2.62 5.7 3.21 B C B C B C	QC Batch No.: 8024 Date Extracted: Date Analyzed DB-5: 17-May-06 Dates Analyzed DB-225: Labeled Standard %R LCL-UCL ^d Qu IS 13C-2,3,7,8-TCDD 75.0 40 - 135 13C-1<2,3,7,8-Pe-CDD 67.2 40 - 135
Rectain Distant Tabulas P4.3 FTCDD 3.53 Tranual P4.3 FTCDD 3.53 DL EMPC ^b Qualifiers FTCDD 3.53 P. P. C. P. P. C. P. P. C. 7.8 FrecDD 7.86 P. P. C. P. P. C. P. P. C. 7.7 8 HxCDD 9.51 P. P. C. P. P. P. P. P. P. P. P. P. P. P. P. P. P. P. P. P. P	Labeled Standard %R LCL-UCL ^d Out IS 13C-2,3,7,8-TCDD 75.0 40 - 135
te Conc. (pg/g) DL a EMPC ^b Qualifiers -TCDD 3.53 (3.8 PeCDD) 3.53 (3.8 PeCDD) 3.53 (7,8 HxCDD) 3.81 (3.8 PeCDD) 7.86 (7.8 HxCDD) 9.51 (8,9 HxCDD) 7.84 (4.7 shered) 9.51 (5.7 shered) 9.51 (6,7,8 HpCDD) 7.84 (7.8 HpCDF) 2.5.1 (7.8 HpCDF) 12.3 (6,7,8 HpCDF) 12.3 (8.9 HxCDF) 12.3 (8.9 HxCDF) 12.3 (7,8 HxCDF) 12.3 (8.9 HxCDF) 12.3 (6.7 shered) 1 1 (7,8 HrxCDF) 12.3 (7.8 HrxCDF) 1.2 1 1 1 (7,8 HrxCDF) 2.48 T 1	Labeled Standard %R LCL-UCL ^d IS 13C-1,3,7,8-TCDD 75.0 40 - 135 I3C-1,2,3,7,8-DeCDD 62.2 40 - 135
-TCDD 3.53 (8.PeCDD 7.86 (7,8-HxCDD 9.51 (3,9-HxCDD 9.51 (5,7,8-HpCDD 6.82 (6,7,8-HpCDD 6.82 (6,7,8-HpCDF 12.3 (6,7,8-HpCDF 12.3 (8,9-HxCDF 12.3 (8,9-HxCDF 12.3 (6,7,8-HpCDF 12.3 (6,7,8-HpCDF 16.9 (6,7,8-HpCDF 16.9 (7,8)-HpCDF 16.9 (6,7,8-HpCDF 16.9 (6,7,8-HpCDF 16.9 (7,8)-HpCDF 16.9 (7,8)-HpCDF 16.9 (7,8)-HpCDF 16.9 (6,7,8-HpCDF 16.9 (6,7,8-HpCDF 16.9 (7,8)-HpCDF 16.	13C-2,3,7,8-TCDD 75.0 13C-1,0,3,7,8-P6CDD 62.0
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(3,9-HxCDD 6,82 (5,7,8-HpCDD 78.4 (5,7,8-HpCDD 78.4 (7) -TCDF 25.1 (3,8-PeCDF 12.3 (3,8-PeCDF 12.3 (3,8-HxCDF 6.27 (3,8-HxCDF 6.27 (5,7,8-HpCDF 12.3 (5,7,8-HpCDF 16.9 (6,7,8-HpCDF 16.9 (7,8,9-HpCDF 16.9) (6,7,8-HpCDF 16.9 (7,8,9-HpCDF 16.9 (7,8,11,11) (7,8,9-HpCDF 16.9 (7,8,11,11) (7,8,11) (7,8,11,11) (7,8,	13C-1,2,3,6,7,8-HxCDD 81.9 40 - 135
,6,7,8-HpCDD 78.4 -TCDF 25.1 470 -TCDF 25.1 ,8-PeCDF 12.3 ,8-PeCDF 12.3 ,7,8-HxCDF 6.27 ,7,8-HxCDF 6.27 ,7,8-HxCDF 8.29 ,7,8-HxCDF 16.9 ,7,8-HpCDF 16.9 ,5,7,8-HpCDF 16.9 ,5,7,8-HpCDF 2.62 ,5,7,8-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,	13C-1,2,3,4,6,7,8-HpCDD 76.0 40 - 135
470 -TCDF 25.1 .8-PeCDF 12.3 .8-PeCDF 12.3 .8-PeCDF 12.3 .8-PeCDF 18.4 .7,8-HxCDF 6.27 .7,8-HxCDF 6.27 .7,8-HxCDF 6.27 .7,8-HxCDF 6.27 .7,8-HxCDF 2.62 .8,9-HpCDF 16.9 .7,8,9-HpCDF 2.62 .7,8,9-HpCDF 2.63 .7,8,9-HpCDF 16.9 .	13C-OCDD 53.0 40 - 135
-TCDF 25.1 3-PeCDF 12.3 3-PeCDF 18.4 7,8-HxCDF 6.27 7,8-HxCDF 6.27 8.9-HxCDF 7.23 8,9-HxCDF 1.23 5,7,8-HpCDF 16.9 8,7,8-HpCDF 16.9 7,8,9-HpCDF 16.9 7,8,9-HpCDF 2.48 7,8,9-HpCDF 16.9 11 12 12 13 13 1 1 1 1 1 1 1 1 1 1 1 1 1	13C-2,3,7,8-TCDF 83.4 40 - 135
3-PeCDF 12.3 3-PeCDF 18.4 7,3-HxCDF 6.27 3,7,8-HxCDF 6.27 3,7,8-HxCDF 6.27 3,7,8-HxCDF 8.29 3,7,8-HxCDF 8.29 5,7,8-HpCDF 16.9 5,7,8-HpCDF 16.9 5,7,8-HpCDF 2.62 32.1 32.1 32.1 1 32.1 1 32.1 1 1 1 7,8,9-HpCDF 1.69 1 32.1 1 32.1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13C-1,2,3,7,8-PeCDF 69.2 40 - 135
3-PecDF 18.4 7,3-HxCDF 6.27 7,3-HxCDF 6.27 7,3-HxCDF 6.27 7,3-HxCDF 8.29 7,3-HxCDF 8.29 8,9-HxCDF 2.62 8,9-HxCDF 2.62 8,9-HxCDF 2.62 3,9-HpCDF 16.9 7,8,9-HpCDF 2.48 7,8,9-HpCDF 2.48 7,8,9-HpCDF 16.9 32.1 32.1 8 11 CDD 11 rCDD 122 hxCDD 143	13C-2,3,4,7,8-PeCDF 66.5 40 - 135
7,8-HxCDF 6.27 7,8-HxCDF 7.23 7,8-HxCDF 7.23 8,9-HxCDF 8.29 8,9-HxCDF 2.62 6,7,8-HpCDF 16.9 7,8,9-HpCDF 2.48 7,8,9-HpCDF 2.48 7,8,9-HpCDF 2.48 7,8,9-HpCDF 16.9 3.2.1 B 9 7,8,9-HpCDF 16.9 1 1 1 1 1 1 1 1 1 1 1 1 1	13C-1,2,3,4,7,8-HxCDF 77.0 40 - 135
7,8-HxCDF 7.23 7,8-HxCDF 8.29 ,8,9-HxCDF 8.29 ,6,7,8-HpCDF 16.9 ,6,7,8-HpCDF 16.9 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 16.9 ,7,8,9-HpCDF 16.9 ,7,9,9-HpCDF 16.9 ,7	3 13C-1,2,3,6,7,8-HxCDF 67.0 40 - 135
7,8-HxCDF 8.29 ,8,9-HxCDF 2.62 ,6,7,8-HpCDF 16.9 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 2.48 ,7,8,9-HpCDF 16.9 ,32.1 B 32.1 B (CDD) 1111 (CDD) 1111 (CDD) 111 (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CDD) (CD)	3 13C-2,3,4,6,7,8-HxCDF 74.6 40 - 135
8,9-HxCDF 2.62 6,7,8-HpCDF 16.9 7,8,9-HpCDF 2.48 32.1 B 32.1 B 32.1 B 32.1 B 32.1 B 32.1 B 32.1 CDD 111 cCDD 111 cCDD 11	13C-1,2,3,7,8,9-HxCDF 77.4 40 - 135
6,7,8-HpCDF 16.9 7,8,9-HpCDF 2.48 32.1 32.1 B 32.1	13C-1,2,3,4,6,7,8-HpCDF 66.6 40 - 135
7,8,9-HpCDF 2.48 J 32.1 B 9 G 2 2.48 J 2.1 B 2.1 B 2.1 B 2.1 B 2.1 B 2.1 CDD 111 CDD 111 CDD 111 CDD 112 CDD 112 CDD 113 CDD 114 CDD 1	3 13C-1,2,3,4,7,8,9-HpCDF 56.8 40 - 135
32.1 B <u>5</u> CDD 111 eCDD 122 hCDD 143	
CDD 111 eCDD 122 hcCDD 143	3 CRS 37CI-2,3,7,8-TCDD 73.6 40 - 135
11 22 43	Toxic Equivalent Quotient (TEQ) Data ^c
122 143	TEQ (Min): 29.3
143	
	a. Sample specific estimated detection limit.
Total HpCDD 166 b.E.	b. Estimated maximum possible concentration.
Total TCDF 468 c. M	c. Method detection limit.
Total PeCDF 195 B d. Lu	d. Lower control limit - upper control limit.
Total HxCDF 74.4 B e. TI	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)
Total HpCDF 37.3 B	

Project 27669

Page 6 of 15

Sample ID: SL-7	SL-7.2-06					EPA	EPA Method 8290
Data			Sample Data		Laboratory Data		
Name: Curt Project: Ft R	Curtis & Tompkins, Ltd. Et Brang-Site Assessment 186600	d. ent 186600	Matrix:	Soil	Lab Sample: 27669-002)2 Date Received:	6-May-06
llected: ollected:	3-May-06 0900		Sample Size: %Solids:	10.9 g 92.5	QC Batch No.: 8024 Date Analyzed DB-5: 18-May-06	Date Extracted: 06 Dates Analyzed DB-225	15-May-06 19-May-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R LCL-UCL ^d	^d Oualifiers
2,3,7,8-TCDD	0.271 3			J	<u>IS</u> 13C-2,3,7,8-TCDD	69.1 40 - 135	
1,2,3,7,8-PeCDD	0.243			ſ	13C-1,2,3,7,8-PeCDD	57.3 40 - 135	
1,2,3,4,7,8-HxCDD	QN		0.176		13C-1,2,3,4,7,8-HxCDD	70.3 40 - 135	
1,2,3,6,7,8-HxCDD	0.643			J	13C-1,2,3,6,7,8-HxCDD	72.2 40 - 135	
1,2,3,7,8,9-HxCDD	0.415 3			J	13C-1,2,3,4,6,7,8-HpCDD	66.6 40 - 135	
1,2,3,4,6,7,8-HpCDD	11.0				13C-OCDD	45.4 40 - 135	
OCDD	99.9				13C-2,3,7,8-TCDF	77.4 40 - 135	
2,3,7,8-TCDF	1.90				13C-1,2,3,7,8-PeCDF	65.4 40 - 135	
1,2,3,7,8-PeCDF	0.583 J			J	13C-2,3,4,7,8-PeCDF	62.9 40 - 135	
2,3,4,7,8-PeCDF	0.753 J			J	13C-1,2,3,4,7,8-HxCDF	67.6 40 - 135	
1,2,3,4,7,8-HxCDF	0.268 U			J,B	13C-1,2,3,6,7,8-HxCDF	59.7 40 - 135	
1,2,3,6,7,8-HxCDF	0.299			J,B	13C-2,3,4,6,7,8-HxCDF	65.6 40 - 135	
2,3,4,6,7,8-HxCDF	0.263			J	13C-1,2,3,7,8,9-HxCDF	70.7 40 - 135	
1,2,3,7,8,9-HxCDF	UN CIN	0.0612			13C-1,2,3,4,6,7,8-HpCDF	58.6 40 - 135	
1,2,3,4,6,7,8-HpCDF	2.34			J,B	13C-1,2,3,4,7,8,9-HpCDF	55.6 40 - 135	
1,2,3,4,7,8,9-HpCDF	0.187 J			J	13C-OCDF	43.1 40 - 135	
OCDF	5.94			В	CRS 37CI-2,3,7,8-TCDD	70.1 40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	2) Data ^e	
Total TCDD	3.19				TEQ (Min): 1.44		
Total PeCDD	2.65						
Total HxCDD	5.31				a. Sample specific estimated detection limit.		
Total HpCDD	20.4				b. Estimated maximum possible concentration.	ion.	
Total TCDF	27.2				c. Method detection limit.		
Total PeCDF				В	d. Lower control limit - upper control limit.		
Total HxCDF	4.19			В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic Equivalent Factor	s.(WHO)
Total HpCDF	5.94 Jt			В			
Analyst: JMH					Approved By: William J	William J. Luksemburg 22-May-2006 09:18	006 09:18

Sample ID: SL-7	SL-7.3-06								EPA M	EPA Method 8290
Client Data				Sample Data		Laboratory Data		-		
_	Curtis & Tompkins, Ltd	s, Ltd.	9	Matrix:	Soil	Lab Sample:	27669-003	Date Received:	eived:	6-May-06
Project: FLDF Date Collected: 3-Ma Time Collected: 0915	rt bragg-site Assessment 100009 3-May-06 0915	ssment 1 0000	2	Sample Size: %Solids:	11.3 g 88.9	QC Batch No.: Date Analyzed DB-5:	8024 18-May-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	15-May-06 19-May-06
Analyte	Conc. (pg/g)		DL ^a	EMPC ^b	Qualifiers	Labeled Standard	dard	%R	rcr-ucr ^d c	Oualifiers
2,3,7,8-TCDD	0.410	F			ſ	<u>IS</u> 13C-2,3,7,8-TCDD	DD	78.0	40 - 135	
1,2,3,7,8-PeCDD	0.719	5			ſ	13C-1,2,3,7,8-PeCDD	eCDD	65.4	40 - 135	
1,2,3,4,7,8-HxCDD	0.648	Ь			J	13C-1,2,3,4,7,8-HxCDD	-HxCDD	81.6	40 - 135	
1,2,3,6,7,8-HxCDD	1.54	5			J	13C-1,2,3,6,7,8-HxCDD	-HxCDD	81.5	40 - 135	
1,2,3,7,8,9-HxCDD	1.19	5			J	13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	82.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	25.8					13C-0CDD		60.0	40 - 135	
OCDD	250					13C-2,3,7,8-TCDF	DF	87.7	40 - 135	
2,3,7,8-TCDF	2.99					13C-1,2,3,7,8-PeCDF	eCDF	72.4	40 - 135	
1,2,3,7,8-PeCDF	1.12	D			J	13C-2,3,4,7,8-PeCDF	eCDF	68.8	40 - 135	
2,3,4,7,8-PeCDF	1.66	5			J	13C-1,2,3,4,7,8-HxCDF	-HxCDF	76.2	40 - 135	
1,2,3,4,7,8-HxCDF	0.670	Г			J,B	13C-1,2,3,6,7,8-HxCDF	-HxCDF	67.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.736	Ð			J,B	13C-2,3,4,6,7,8-HxCDF	-HxCDF	76.9	40 - 135	
2,3,4,6,7,8-HxCDF	ND			0.830		13C-1,2,3,7,8,9-HxCDF	-HxCDF	79.1	40 - 135	
1,2,3,7,8,9-HxCDF	0.285	っ			J	13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	71.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	6.06				В	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	62.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.435	b			ſ	13C-OCDF		52.3	40 - 135	
OCDF	16.5				В	CRS 37CI-2,3,7,8-TCDD	CDD	76.4	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Da	ita ^e		
Total TCDD	9.66					TEQ (Min):	3.17			
Total PeCDD	9.48									
Total HxCDD	16.1					a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	50.2					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	48.0					c. Method detection limit.				
Total PeCDF	18.8				B	d. Lower control limit - upper control limit.	oper control limit.			
Total HxCDF	11.3				В	c. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Vorld Health Organizatio	on Toxic Equ	uivalent Factors.(W	(OH
Total HpCDF	14.4				В					
Analyst: JMH						Approved By:	William J. Luksemburg	semburg	22-May-2006 09:18	09:18

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Sample ID: AS-7	AS-7.1-GRASS	S							EPA M	EPA Method 8290
Client Data				Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd	ins, Ltd.	00770	Matrix:	Soil	Lab Sample:	27669-004	Date Received:	eived:	6-May-06
Troject: Troject: 2-UDI Date Collected: 3-Ma Time Collected: 0830	rt Diagg-sue Assessificin 100007 3-May-06 0830		600001	Sample Size: %Solids:	22.9 g 24.7	QC Batch No.: Date Analyzed DB-5:	8024 18-May-06	Date Extracted: Date Analyzed]	Date Extracted: Date Analyzed DB-225:	15-May-06 NA
Analyte	Conc. (pg/g)	g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	QN		0.0528			<u>IS</u> 13C-2,3,7,8-TCDD	DD	74.5	40 - 135	
1,2,3,7,8-PeCDD	ND			0.135		13C-1,2,3,7,8-PeCDD	eCDD	60.9	40 - 135	
1,2,3,4,7,8-HxCDD	ND		0.0753			13C-1,2,3,4,7,8-HxCDD	-HxCDD	79.8	40 - 135	
1,2,3,6,7,8-HxCDD	DN		0.0803			13C-1,2,3,6,7,8-HxCDD	-HxCDD	78.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND		0.0786			13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	76.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.851	5			ſ	13C-OCDD		56.1	40 - 135	
OCDD	4.72	5			ŗ	13C-2,3,7,8-TCDF	DF	83.0	40 - 135	
2,3,7,8-TCDF	0.406	+-			ŗ	13C-1,2,3,7,8-PeCDF	eCDF	68.5	40 - 135	
1,2,3,7,8-PeCDF	0.187				ſ	13C-2,3,4,7,8-PeCDF	eCDF	65.2	40 - 135	
2,3,4,7,8-PeCDF	ND)	0.0685			13C-1,2,3,4,7,8-HxCDF	-HxCDF	75.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0517			13C-1,2,3,6,7,8-HxCDF	-HxCDF	67.1	40 - 135	
1,2,3,6,7,8-HxCDF	DN		0.0516			13C-2,3,4,6,7,8-HxCDF	-HxCDF	73.1	40 - 135	
2,3,4,6,7,8-HxCDF	QN		0.0578			13C-1,2,3,7,8,9-HxCDF	-HxCDF	76.4	40 - 135	
1,2,3,7,8,9-HxCDF	QN	•	0.0790			13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	65.4	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.444	5			J,B	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	60.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	DN		0.114			13C-OCDF		49.8	40 - 135	
OCDF	1.00	D			J,B	CRS 37CI-2,3,7,8-TCDD	CDD	74.9	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) Di	ata ^e		
Total TCDD	1.06					TEQ (Min): (0.0635			
Total PeCDD	1.99									
Total HxCDD	1.94					a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	2.24					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	7.02					c. Method detection limit.				
Total PeCDF	2.01	ŀ			В	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	0.490	+ . -+			В	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	/orld Health Organizati	ion Toxic Equ	uivalent Factors.(V	(онл
Total HpCDF	0.654	+ 7			В					
Analyst: JMH						Approved By:	William J. Luksemburg	semburg	22-May-2006 09:18	81:60

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Sample ID: AS-7	AS-7.2-GRASS	SS							EPA M	EPA Method 8290
Clicnt Data				Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.	okins, Ltd.	00770	Matrix:	Soil	Lab Sample:	27669-005	Date Received:	ved:	6-May-06
Project: Ft B Date Collected: 3-M	rt bragg-site . 3-Mav-06	rt Bragg-Site Assessment 180009 3-Mav-06	60008	Sample Size:	31.0 g	QC Batch No.:	8024	Date Extracted:	cted:	15-May-06
				%Solids:	23.2	Date Analyzed DB-5:	18-May-06	Date Analy	Date Analyzed DB-225:	NA
Analyte	Conc. (p	(bg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	lard	%R L	rcr-ncrq	Qualifiers
2,3,7,8-TCDD	QN			0.166		<u>IS</u> 13C-2,3,7,8-TCDD	DD	72.2	40 - 135	
1,2,3,7,8-PeCDD	0.238	5			ſ	13C-1,2,3,7,8-PeCDD	eCDD	61.3	40 - 135	
1,2,3,4,7,8-HxCDD	0.109	þ			ſ	13C-1,2,3,4,7,8-HxCDD	-HxCDD	78.2	40 - 135	
1,2,3,6,7,8-HxCDD	ND			0.168		13C-1,2,3,6,7,8-HxCDD	-HxCDD	80.5	40 - 135	
1,2,3,7,8,9-HxCDD	0.137	Þ			ſ	13C-1,2,3,4,6,7,8-HpCDD	,8-HpCDD	78.3	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.07	6			ſ	13C-OCDD		59.0	40 - 135	
OCDD	4.29	þ			ŗ	13C-2,3,7,8-TCDF	DF	81.3	40 - 135	
2,3,7,8-TCDF	0.657	Ь			J	13C-1,2,3,7,8-PeCDF	eCDF	67.8	40 - 135	
1,2,3,7,8-PeCDF	0.310	5			ŗ	13C-2,3,4,7,8-PeCDF	eCDF	65.5	40 - 135	
2,3,4,7,8-PeCDF	0.459	þ			J	13C-1,2,3,4,7,8-HxCDF	-HxCDF	73.1	40 - 135	
1,2,3,4,7,8-HxCDF	0.175	2			J,B	13C-1,2,3,6,7,8-HxCDF	-HxCDF	65.2	40 - 135	
1,2,3,6,7,8-HxCDF	0.184	כ			J,B	13C-2,3,4,6,7,8-HxCDF	-HxCDF	72.9	40 - 135	
2,3,4,6,7,8-HxCDF	0.214	h			ſ	13C-1,2,3,7,8,9-HxCDF	-HxCDF	80.4	40 - 135	
1,2,3,7,8,9-HxCDF	Ŋ		0.0672			13C-1,2,3,4,6,7,8-HpCDF	,8-HpCDF	70.4	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.338	2			J,B	13C-1,2,3,4,7,8,9-HpCDF	,9-HpCDF	73.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND		0.0733			13C-OCDF		55.5	40 - 135	
OCDF	QN			0.581		CRS 37CI-2,3,7,8-TCDD	CDD	72.5	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) D:	ata ^c		
Total TCDD	2.42					TEQ (Min):	0.646			
Total PeCDD	2.68									
Total HxCDD	2.75					a. Sample specific estimated detection limit.	ed detection limit.			
Total HpCDD	2.40					b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	13.2					c. Method detection limit.				
Total PeCDF	4.70				В	d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF	1.71	+++++++++++++++++++++++++++++++++++++++			8	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	/orld Health Organizati	ion Toxic Equ	valent Factors.(V	(OHA
10tal HPULF	V CC.V				В					

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Project 27669

ALTA

ATTACHMENT B

SUPPORTING DOCUMENTATION

Veridian Project Name: Georgia Pacific		Reviewed By:	E. Seeley wgK
Sample Collection Dates: 5/3	106	Approved By:	wah
Client: Acton Mickelson	a Environmental, Inc.	Completion Date:	717/06
Project Manager: Jeff Heglie			
Laboratory: Alta Analytical I	aboratory, Inc. subcontracted by Cu	utis & Tompkins, Ltd.	
Deliverables: Level II		SDG:	27669 *Refer to Table in QA Report for Applicable Sample No's.
The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	×		✓
Sample Condition Upon Receipt at Subcontract Laboratory	~	(1)	4
Laboratory Method Blank Results	4	(z)	~
Ongoing Precision and Recovery Sample Results	4		~
Internal Standard Recoveries	*		~
Cleanup Standard Recoveries	<i>~</i>		✓
Identification and Quantitation of Target Compounds	~	(3)	✓
Verification of the EDD in XLS Format	1		✓

AS-7.2- 6 RASS Received jars. and clear *~ Positive results less than the lowest culibration (2) stendard were reported in the method blank

(3) Positure result less than low - ste calibration the standard were reported in samples

Curtis & Tompkins SDG: 186609

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifica	ition Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
Ø	Ъ	MB	Withod Blank (8024)	1.2.3.4.7.8-HxCDF	0,12400/0	0.62 0.10	1.24 pala
				1,2,3,6,7,8-H, COF	0.0834	0.417mala	0.834 001
				Jotal HXCDF	0.588000	12.9409/0	5.88 palo
				1.2.3.4.6.7.8-HOCDF	0.545 00	2.72500/0	5.45ma/a
				Jotal HOCDF	0.545 pate	2.725 dil	5.45001
				OCDF'	0.508 m/a	2.540h	5.08 ml
				Jotal PoCDF	0.186 m/a	0.93pg/q	1.86 mg/
						, , , , , ,	- 1/0
						<u> </u>	
		-					
							<u> </u>
							<u> </u>

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank						EPA Method 8290
Matrix: Soil		QC Batch No.:	8024	Lab Sample: 0-MB001		
Sample Size: 10.0 g		Date Extracted:	15-May-06	Date Analyzed DB-5: 17-May-06	Date An	Date Analyzed DB-225: NA
Analyte Conc.	Conc. (pg/g)	DL ^a EM	EMPC ^b Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	DN	0.0269		<u>1S</u> 13C-2,3,7,8-TCDD	76.0	40 - 135
1,2,3,7,8-PcCDD	ND	0.0385		13C-1,2,3,7,8-PeCDD	63.9	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.0387		13C-1,2,3,4,7,8-HxCDD	78.3	40 - 135
1,2,3,6,7,8-HxCDD	QN	0.0422		13C-1,2,3,6,7,8-HxCDD	75.7	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.0408		13C-1,2,3,4,6,7,8-HpCDD	74.8	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.0331		13C-OCDD	53.4	40 - 135
OCDD	DN	0	0.208	13C-2,3,7,8-TCDF	83.1	40 - 135
2,3,7,8-TCDF	QN	0.0378		13C-1,2,3,7,8-PcCDF	70.0	40 - 135
1,2,3,7,8-PeCDF	DN	0.0388		13C-2,3,4,7,8-PeCDF	68.4	40 - 135
2,3,4,7,8-PcCDF	ΟN	0.0366		13C-1,2,3,4,7,8-HxCDF	71.5	40 - 135
1,2,3,4,7,8-HxCDF	0.124		ſ	13C-1,2,3,6,7,8-HxCDF	64.3	40 - 135
1,2,3,6,7,8-HxCDF	0.0834		ſ	13C-2,3,4,6,7,8-HxCDF	72.4	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-1,2,3,7,8,9-HxCDF	74.1	40 - 135
1,2,3,7,8,9-HxCDF	QN	0.0436		13C-1,2,3,4,6,7,8-HpCDF	66.5	40 - 135
1,2,3,4,6,7,8-HpCDF	0.545			13C-1,2,3,4,7,8,9-HpCDF	60.6	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.0707		13C-0CDF	48.1	40 - 135
OCDF	0.508			CRS 37CI-2,3,7,8-TCDD	75.5	40 - 135
Totals				Toxic Equivalent Quotient (TEQ) Data	ita ^e	
Total TCDD	ND	0.0269		TEQ (Min): 0.0262		
Total PeCDD	ND	0.0385				
Total HxCDD	ND	0.0406		a. Sample specific estimated detection limit.		
Total HpCDD	QN	0.0331		b. Estimated maximum possible concentration.		
Total TCDF	ND	0.0378		c. Method detection limit.		
Total PeCDF	0.186			d. Lower control limit - upper control limit.		
Total HxCDF	0.588			e. TEQ based on (1997) World Ilealth Organization Toxic Equivalent Factors (WHO)	on Toxic Equi	valent Factors.(WHO)
Total HpCDF	0.545					

1

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ALTA

OPR Results							EPA	EPA Method 8290	0	
Matrix: Soil		QC Batch No.:	8024	Lab Sample:		0-OPR001				
Sample Size: 10.0 g		Date Extracted:	15-May-06	Date A	Date Analyzed DB-5: 17-May-06	1ay-06	Date Analyzed DB-225:		NA	
Analyte	Spike Conc.	Spike Conc. Conc. (ng/mL)	OPR Limits	La	Labeled Standard		%R	LCL-UCL		
2,3,7,8-TCDD	10.0	9.94	7 - 13	<u>15</u> 13(13C-2,3,7,8-TCDD		<i>T.TT</i>	40 - 135		
1,2,3,7,8-PeCDD	50.0	49.2	35 - 65		13C-1,2,3,7,8-PeCDD		69.4	40 - 135		
1,2,3,4,7,8-HxCDD	50.0	50.1	35 - 65	130	13C-1,2,3,4,7,8-HxCDD		79.6	40 - 135		
1,2,3,6,7,8-HxCDD	50.0	51.8	35 - 65	130	13C-1,2,3,6,7,8-HxCDD		80.2	40 - 135		يلا 0
1,2,3,7,8,9-HxCDD	50.0	50.0	35 - 65	130	13C-1,2,3,4,6,7,8-HpCDD	Q	75.8	40 - 135)
1,2,3,4,6,7,8-HpCDD	50.0	51.5	35 - 65	130	13C-OCDD		52.3	40 - 135		
OCDD	100	100	70 - 130	130	13C-2,3,7,8-TCDF		86.1	40 - 135		
2,3,7,8-TCDF	10.0	10.3	7 - 13	130	13C-1,2,3,7,8-PeCDF		74.9	40 - 135		
1,2,3,7,8-PcCDF	50.0	49.8	35 - 65	130	13C-2,3,4,7,8-PcCDF		74.4	40 - 135		
2,3,4,7,8-PeCDF	50.0	49.4	35 - 65	130	13C-1,2,3,4,7,8-HxCDF		73.0	40 - 135		
1,2,3,4,7,8-HxCDF	50.0	48.8	35 - 65	130	13C-1,2,3,6,7,8-HxCDF		65.0	40 - 135		
1,2,3,6,7,8-HxCDF	50.0	48.3	35 - 65	130	13C-2,3,4,6,7,8-HxCDF		73.3	40 - 135		
2,3,4,6,7,8-HxCDF	50.0	49.6	35 - 65	130	13C-1,2,3,7,8,9-HxCDF		72.9	40 - 135		
1,2,3,7,8,9-HxCDF	50.0	49.5	35 - 65	13(13C-1,2,3,4,6,7,8-HpCDF	Ε	66.7	40 - 135		
1,2,3,4,6,7,8-HpCDF	50.0	50.4	35 - 65	130	13C-1,2,3,4,7,8,9-HpCDF	F	57.3	40 - 135		
1,2,3,4,7,8,9-HpCDF	50.0	50.3	35 - 65	130	13C-OCDF		34.4	40 - 135		
OCDF	100	96.4	70 - 130	<u>CRS</u> 37(CRS 37CI-2,3,7,8-TCDD		76.7	40 - 135	•	5
Analysi: JMH				A I	Approved By: Willia	William J. Luksemburg		22-May-2006 08:49	6	

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD



July 03, 2006

Alta Project I.D.: 27669

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the three soil and two grass samples received at Alta Analytical Laboratory on May 06, 2006 under your Project Name "Ft Bragg-Site Assessment 186609". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

Three sample IDs were corrected as directed in your email of July 3, 2006.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

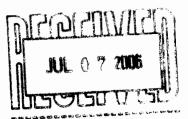
Marthe

Martha M. Maier Director of HRMS Services



to Analytic of Caroo and Contakes that appendicavan in Storid their subsections is reported by Mohr Hower, or s presented to the doub Max capacit chanditation by copy where story of the addication the system appendent of Afr





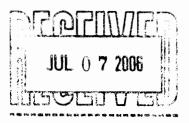
Alta Analytical Laboratory Inc.

1104 Windfield Way El Dorado Hills, CA 95762 FAX (916) 673-0106 (916) 933-1640



Section I: Sample Inventory Report Date Received: 5/6/2006

<u>Alta Lab. 1D</u>	Client Sample ID
27669-001	SL-7.1-0.6
27669-002	SL-7.2-0.6
27669-003	SL-7.3-0.6
27669-004	AS-7.1-GRASS
27669-005	AS-7.2-GRASS



Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

27669 0.5¢ Saturday Delivery

Project Number: 186609 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments
SL-7.1-0.6	05/03 08:	45 Soil	8290	186609-003-Dioxins & Furans
SL-7.2-0.6	05/03 09:	00 Soil	8290	186609-004 Dioxins & Furans
SL-7.3-0.6	05/03 09:	15 Soil	8290	186609-005-Dioxins & Furans
AS-7.1-GRASS	05/03 084	30 Soil	8290	186609-006 Rinse w/ DI
	water bef	ore prepping	g for analysis	
AS-7.2-GRASS	05/03 08:	20 Soil	8290	186609-007 <i>_</i> Rinse w/ DI
	water bef	ore prepping	g for analysis	

Relinquished By: Received By: Notes: Date/Time: Date/Time 131

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #:	2766	, 9			_			
	Date/Time		Initials	5:	Location	n: (1) /	1.2	-
Samples Arrival:	5/6/00	6 1115	MO	A	Shelf/Ra	v		
	Date/Time		Initials	s: 	Location	1: W,	R-2	2
Logged In:	5/8/04	, 0933		BB	Shelf/Ra	ick:)-3	5
Delivered By:	FedEx	UPS (Cal	DHL		ind /ered	Ot	her
Preservation:	lce	Blue	Ice	Dry lo			one	
Temp °C Ør	5°	Time: //	20		Thermo	meter II): DT	-20
						YES	NO	NA
Adagusta Completi	Valuma Room						NO	NA
Adequate Sample						V		
Holding Time Acce								
Shipping Container					·····	V		V
Shipping Custody S					·····			
Shipping Documen		C10129	2000	21.11	Δ			
Airbill	Trk #	CIUPI	0000	0000	20			
Sample Container Intact?								
Sample Custody Seals Intact?								
Chain of Custody /	Sample Doc	cumentation Pre	esent?					k
COC Anomaly/San	nple Accepta	ince Form comp	pleted?					
If Chlorinated or Dr	rinking Water	r Samples, Acce	eptable F	Preservatio	n?			
Na ₂ S ₂ O ₃ Preservat	ion Docume	nted?		coc		nple ainer	No	ne
Shipping Container	r	Alta	Client)	Retain		turn	Disp	ose
Comments:					2 5			
Samples: 45- A5-	- 7.1- Gi - 7.2 - Gr	rass re	ceive V	d in V	clear V	glas V	SS	jar



July 11, 2006

Prepared for:

Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT *Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs*

- Alta Analytical Laboratory, Inc. #27711
- Curtis & Tompkins, Ltd. #186842

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client	AAL	Laboratory	Collection	Parameters
	Sample ID	Sample ID	Project ID	Date	Analyzed
Soil	AS-7.4-5	27711-001	27711	05/16/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	\checkmark			
Sample Condition Upon Receipt at Subcontract Laboratory		\checkmark		
Laboratory Method Blank Results		\checkmark		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	\checkmark			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}$ C. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	Concentration
Total HxCDF	0.102 pg/g
1,2,3,4,6,7,8-HpCDF	0.176 pg/g
Total HpCDF	0.176 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J" on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	Analyte
AS-7.4-5	Total PeCDF and Total HxCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

Data Qualifier Definitions

DV Qualifier	Definition
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
Ν	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran

Acronym	Definition
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Clen E. Heeley Con

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: AS-7.4-5	7.4-5				E	EPA Method 8290
Client Data		Sample Data		Laboratory Data		
	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample: 27711-001	Date Received.	17-May-06
Project: F1 B1 Date Collected: 16-M Time Collected: 1336	rt Bragg-bite Assessment 100042 16-May-06 1336	Sample Size: %Solids:	18.5 g 53.8	QC Batch No.: 8036 Date Analyzed DB-5: 22-May-06	Date Extracted: 6 Dates Analyzed DB-225:	19-May-06
	Conc. (pg/g) DL ^a	1	Qualifiers	Labeled Standard	%R LCL-UCL ^d	CL ^d Oualifiers
2,3,7,8-TCDD	19.3			<u>IS</u> 13C-2,3,7,8-TCDD	87.4 40 - 135	15
1,2,3,7,8-PeCDD	16.1			13C-1,2,3,7,8-PeCDD	78.7 40 - 135	55
1,2,3,4,7,8-HxCDD	7.09			13C-1,2,3,4,7,8-HxCDD	85,4 40 - 135	55
1,2,3,6,7,8-HxCDD	9.36			13C-1,2,3,6,7,8-HxCDD	94.0 40 - 135	5
1,2,3,7,8,9-HxCDD	8.11			13C-1,2,3,4,6,7,8-HpCDD	81.7 40 - 135	5
1,2,3,4,6,7,8-HpCDD	28.9			13C-OCDD	51.7 40 - 135	55
OCDD	32.7			13C-2,3,7,8-TCDF	97.6 40 - 135	5
2,3,7,8-TCDF	180			13C-1,2,3,7,8-PeCDF	85.3 40 - 135	5
1,2,3,7,8-PeCDF	60.7			13C-2,3,4,7,8-PeCDF	81.4 40 - 135	55
2,3,4,7,8-PeCDF	72.4			13C-1,2,3,4,7,8-HxCDF	81.6 40 - 135	5
1,2,3,4,7,8-HxCDF	18.8			13C-1,2,3,6,7,8-HxCDF	80.9 40 - 135	5
1,2,3,6,7,8-HxCDF	21.2			13C-2,3,4,6,7,8-HxCDF	83.9 40 - 135	55
2,3,4,6,7,8-HxCDF	20.7			13C-1,2,3,7,8,9-HxCDF	84.0 40 - 135	55
1,2,3,7,8,9-HxCDF	8.17			13C-1,2,3,4,6,7,8-HpCDF	78.9 40 - 135	5
1,2,3,4,6,7,8-HpCDF	15.8		B	13C-1,2,3,4,7,8,9-HpCDF	73.6 40 - 135	5
1,2,3,4,7,8,9-HpCDF	5.19			13C-OCDF	55.5 40 - 135	5
OCDF	4.99 J		J	CRS 37CI-2,3,7,8-TCDD	84.9 40 - 135	55
Totals				Toxic Equivalent Quotient (TEQ) Data) Data ^e	
Total TCDD	389			TEQ (Min): 102		
Total PeCDD	240					
Total HxCDD	166			a. Sample specific estimated detection limit.		
Total HpCDD	51.2			b. Estimated maximum possible concentration.	Jn.	
Total TCDF	2370			c. Method detection limit.		
Total PeCDF	744		۵	d. Lower control limit - upper control limit.		
Total HxCDF	198		B,D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	nization Toxic Equivalent F	ctors.(WHO)
Total HpCDF	33.9		В			
Analyst JMH				Approved By: William J.	William J. Luksemburg 23-Ma	23-May-2006 14:57

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Sample Collection Dates: 5/16/06

Client: Acton Mickelson Environmental, Inc.

Reviewed By: Approved By: 7/11/06 Completion Date:

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: Refer to Table in QA Report for Applicable Sample No's.

The following table indicates Criteria Examined Problems Support Documentation criteria which were examined, the in Detail Identified Attachments identified problems, and support Check if Yes or Footnote Check if Yes or Identify documentation attachments. Check if Yes or Footnote Letter for Comments Below Number for Comments Below Attachment No. PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 PCDD/PCDF by U.S. EPA Method 8290 1 1 Analytical Holding Times 1 Sample Condition Upon Receipt at ~ (1 / Subcontract Laboratory / / S Laboratory Method Blank Results 1 1 Ongoing Precision and Recovery Sample Results 1 1 Internal Standard Recoveries ✓ 1 Cleanup Standard Recoveries Identification and Quantitation of `~ (3) 1 Target Compounds √ Verification of the EDD in XLS Format ~

Comments:

ot subcontrac oratory was below H_CDF and HOCDF present in tample mountration was below ca libration ramae of the instrument. ver inter lenence und observed in the sample IMU Curtis & Tompkins SDG:

Veridian Environmental, Inc.

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualifica	ation Limit			
(1)	(Aq., S)	(2)	Number		(units)	5x	10x			
Q	\$	MB	Mathad Blank (803C)	JOCOL HXCOF 1,2,3,4,6,7,8-HPCOF JOCOL HOCOF	0.100 pg/g	0.51 pg/2 0.83 pg/2	1.00 pg/ 1. Te pg/ 1. Te pg/			
			Pesticide/PCB; 0 = Other:							

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other: Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Veridian Environmental, Inc.

Matrix: Soil QC Batch No.: Sample Size: 10.0 g Date Extracted: Analyte Conc. (pg/g) DL ^a Analyte Conc. (pg/g) DL ^a 2,3,7,8-TCDD ND 0.0537 1,2,3,7,8-TCDD ND 0.0537 1,2,3,7,8-HxCDD ND 0.0665 1,2,3,4,7,8-HxCDD ND 0.0663 1,2,3,4,7,8-HxCDD ND 0.0663 1,2,3,4,7,8-HxCDD ND 0.0684 1,2,3,4,7,8-HxCDD ND 0.0953 0CDD ND 0.0684 1,2,3,4,7,8-HxCDF ND 0.0395 1,2,3,4,7,8-HxCDF ND 0.0620 1,2,3,4,6,7,8-HxCDF ND 0.0623 1,2,3,4,6,7,8-HxCDF ND 0.0975	8036 19-May-06 EMPC ^b Qualifiers	Lab Sample: 0-MB001 Date Analyzed DB-5: 22-May-06 Labeled Standard <u>IS</u> 13C-2,3,7,8-TCDD 13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0,2DD	Date Analyzed DB-225:	NA
Size: 10.0 g Conc. (pg/g) CDD ND R-PeCDD ND R-PeCDD ND R-PeCDD ND R-PeCDF ND R-P	EMPC ^b	te Analyzed DB-5: Labeled Standard 13C-2,3,7,8-TCDE 13C-1,2,3,7,8-PeC 13C-1,2,3,4,7,8-H5 13C-1,2,3,4,6,7,8-H5 13C-1,2,3,4,6,7,8-H5 13C-0CDD	Date Analyzed DB-225:	NA
conc. (pg/g) DL TCDD ND 0.0537 TCDD ND 0.0537 7,8-HxCDD ND 0.0558 7,8-HxCDD ND 0.0665 7,8-HxCDD ND 0.0665 7,8-HxCDD ND 0.0665 8,9-HxCDD ND 0.0664 8,9-HxCDD ND 0.0653 8,9-HxCDD ND 0.0653 7,8-HyCDD ND 0.0953 7,8-HxCDF ND 0.0953 7,8-HxCDF ND 0.0546 8-PeCDF ND 0.0620 7,8-HxCDF ND 0.0620 7,8-HxCDF ND 0.0635				
TCDD ND 8-PeCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD ND 6,7,8-HpCDD ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HpCDF ND			%R LCL-UCL ^d 0	Oualifiers
8-PeCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD ND 6,7,8-HpCDD ND 6,7,8-HpCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 5,7,8-HpCDF ND			85.0 40-135	
7,8-HxCDD ND 7,8-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD ND 7,8-HpCDD ND TCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 8,9-HxCDF ND		13C-1,2,3,4,7,8-HxCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0CDD	77.4 40 - 135	
7,8-HxCDD ND 8,9-HxCDD ND 6,7,8-HpCDD ND 6,7,8-HpCDD ND ND RD 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 5,7,8-HpCDF ND		13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-OCDD	79.9 40 - 135	
8,9-HxCDD ND 6,7,8-HpCDD ND TCDF ND 8-PeCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 8,9-HxCDF ND		13C-1,2,3,4,6,7,8-HpCDD 13C-OCDD	88.3 40 - 135	
6,7,8-HpCDD ND TCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 8,9-HxCDF ND		13C-OCDD	80.0 40 - 135	
TCDF ND 8-PeCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF 0.176 2,8,9-HbCDF ND			50.5 40 - 135	
ND ND ND ND ND ND ND ND ND ND ND ND ND N		13C-2,3,7,8-TCDF	96.0 40 - 135	
ND ND ND ND ND ND ND ND ND ND ND ND ND N		13C-1,2,3,7,8-PeCDF	83.3 40-135	
ND ND ND ND ND ND ND ND ND ND ND ND		13C-2,3,4,7,8-PeCDF	81.9 40 - 135	
ND ND ND ND ND ND ND		13C-1,2,3,4,7,8-HxCDF	76.1 40 - 135	
ND ND ND ND ND ND		13C-1,2,3,6,7,8-HxCDF	78.0 40 - 135	
ND ND ND ND ND		13C-2,3,4,6,7,8-HxCDF	80.8 40 - 135	
ND DF 0.176 DF ND		13C-1,2,3,7,8,9-HxCDF	79.0 40 - 135	
0.176 ND		13C-1,2,3,4,6,7,8-HpCDF	74.5 40 - 135	
ND	7	13C-1,2,3,4,7,8,9-HpCDF	72.4 40 - 135	
		13C-OCDF	55.5 40 - 135	
OCDF ND 0.230		CRS 37CI-2,3,7,8-TCDD	83.9 40 - 135	
Totals		Toxic Equivalent Quotient (TEQ) Data	ta e	
Total TCDD ND 0.0537		TEQ (Min): 0.00176		
Total PeCDD ND 0.0558				
Total HxCDD ND 0.0680		a. Sample specific estimated detection limit.		
Total HpCDD ND 0.0953		b. Estimated maximum possible concentration.		
Total TCDF ND 0.0546		c. Method detection limit.		
Total PeCDF ND 0.0408		d. Lower control limit - upper control limit.		
		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	on Toxic Equivalent Factors (WHO)	-
Total HpCDF 0.176				

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OPR Results							
Matrix: Soil		QC Batch No.:	8036	Lab Sample:	0-OPR001		
Sample Size: 10.0 g		Date Extracted:	19-May-06	Date Analyzed DB-5: 22-May-06	3-5: 22-May-06	Date Analyzed DB-225:	d DB-225: NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	lard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.21	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	CDD	87.6	40 - 135
1,2,3,7,8-PeCDD	50.0	47.3	35 - 65	13C-1,2,3,7,8-PeCDD	PeCDD	81.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	48.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	8-HxCDD	83.8	40 - 135
1,2,3,6,7,8-HxCDD	50.0	47.3	35 - 65	13C-1,2,3,6,7,8-HxCDD	8-HxCDD	93.1	40 - 135
1,2,3,7,8,9-HxCDD	50.0	47.7	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	7,8-HpCDD	77.0	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	48.5	35 - 65	13C-OCDD		51.7	40 - 135
OCDD	100	92.8	70 - 130	13C-2,3,7,8-TCDF	CDF	98.9	40 - 135
2,3,7,8-TCDF	10.0	8.98	7 - 13	13C-1,2,3,7,8-PcCDF	PeCDF	87.6	40 - 135
1,2,3,7,8-PeCDF	50.0	47.0	35 - 65	13C-2,3,4,7,8-PeCDF	PeCDF	86.8	40 - 135
2,3,4,7,8-PeCDF	50.0	45.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	8-HxCDF	79.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	46.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	8-HxCDF	77.1	40 - 135
1,2,3,6,7,8-HxCDF	50.0	49.2	35 - 65	13C-2,3,4,6,7,8-HxCDF	8-HxCDF	84.4	40 - 135
2,3,4,6,7,8-HxCDF	50.0	46.9	35 - 65	13C-1,2,3,7,8,9-HxCDF	9-HxCDF	83.7	40 - 135
1,2,3,7,8,9-HxCDF	50.0	48.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	7,8-HpCDF	76.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	48.4	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	8,9-HpCDF	74.2	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	47.9	35 - 65	13C-OCDF		56.7	40 - 135
OCDF	100	93.7	70 - 130	CRS 37CI-2,3,7,8-TCDD	CDD	86.2	40 - 135

Analyst: JMH

Approved By: William J. Luksemburg 23-May-2006 14:57

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 23, 2006

Alta Project I.D.: 27711

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one soil sample received at Alta Analytical Laboratory on May 17, 2006 under your Project Name "Ft Bragg-Site Assessment 186842". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Mia Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those upplicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 5/17/2006

<u>Alta Lab, ID</u>

Client Sample ID

27711-001

AS-7.4-5

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532 0.20 Project Number: 186842 Site: Ft Bragg-Site Assessment Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Maricel Avelino Results due: Report Level: II Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #. Sample ID Sampled Matrix Analysis C&T Lab # Comments AS-7.4-5 05/16 13:36 Soil 8290 186842-001

Notes	Relinquis	shed By:	Received By:	
	killa ~	Z	Detting & Beredict	
	Date/Time: 5/16/06	15:00	Date/Time: 0900	
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	• ***		·	

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Samples Arrival:	Date/Time	Initials:	Locati	on: W	1-2
Samples Arrival.	5/17/06 0400	(S)	Shelf/I	Rack:	
	Date/Time	Initials:	Locati	on: WR	-2
Logged In:	5/17/06 1247	BAB	Shelf/I	Г	-4
Delivered By:	FedEx UPS	Cal DHL		land livered	Other
Preservation:	Lce Blue	Ice Dry	lce	No	ne
Temp °C 0.2	C Time: O	110	Therm	ometer ID	: DT-20

					TES	<u>NO</u>	NA
Adequate Sample Volume Receive	ed?				V	/	
Holding Time Acceptable?					V	-	
Shipping Container(s) Intact?					\checkmark		
Shipping Custody Seals Intact?							\checkmark
Shipping Documentation Present?					V		
Airbill Trk # C	10/290	5000	27121		\mathbf{V}		
Sample Container Intact?					V		
Sample Custody Seals Intact?						ł	V
Chain of Custody / Sample Documentation Present?					V		
COC Anomaly/Sample Acceptance Form completed?						\checkmark	
If Chlorinated or Drinking Water Sa	amples, Acc	eptable P	reservation?				V
Na ₂ S ₂ O ₃ Preservation Documente	d?		COC	Sarr Conta	•	No	ne
Shipping Container	Alta (Client	Retain	Ret	ur	Disp	ose
0				the second s			

Comments:

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July 11, 2006

Prepared for: Mr. Jeff Heglie Acton Mickelson Environmental, Inc. 5175 Hillsdale Circle, Suite 100 El Dorado Hills, California 95762

DATA VALIDATION REPORT Georgia-Pacific California Wood Products Manufacturing Facility Laboratory Project IDs

- Alta Analytical Laboratory, Inc. #27743
- Curtis & Tompkins, Ltd. #187069

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on six soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.13-15	27743-001	27743	04/06/06	D
Soil	DP-4.7-20	27743-002	27743	04/17/06	D
Soil	DP-4.7-1	27743-003	27743	04/17/06	D
Soil	DP-4.12-18	27743-004	27743	04/18/06	D
Soil	DP-4.10-16	27743-005	27743	04/18/06	D
Soil	DP-4.15-10	27743-006	27743	04/20/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290. The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times			✓	
Sample Condition Upon Receipt at Subcontract Laboratory		~		
Laboratory Method Blank Results		~		
Ongoing Precision and Recovery Sample Results	\checkmark			
Internal Standard Recoveries	\checkmark			
Cleanup Standard Recoveries	\checkmark			

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Identification and Quantitation of Target Compounds			\checkmark	
Verification of the EDD in XLS Format	\checkmark			

Analytical Holding Times

The holding times from sampling to extraction (30 days) and from sampling to analysis (45 days) exceeded the method-specified holding time for the samples listed below. Consequently, the data has been qualified as estimated (J/UJ) on the qualified analytical result forms. Although qualified, in accordance with protocols, the impact to data quality may be negligible.

<u>Sample</u>	<u>Date</u> <u>Collected</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Analyzed</u>	<u>Days to</u> <u>Extraction</u>	<u>Days to</u> <u>Analysis</u>
DP-7.13-15	04/06/06	06/01/06	06/03/06	54	56
DP-4.7-20	04/17/06	06/01/06	06/03/06	45	47
DP-4.7-1	04/17/06	06/01/06	06/03/06	45	47
DP-4.12-18	04/18/06	06/01/06	06/03/06	44	46
DP-4.10-16	04/18/06	06/01/06	06/03/06	44	46
DP-4.15-10	04/20/06	06/01/06	06/03/06	42	44

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature $(0.5^{\circ}C)$ of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^{\circ}C$. In addition, the samples were received in clear plastic core tubes as opposed to amber jars as required by the method. Also, sample DP-4.7-1 was received with less than ideal sample volume, as well. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Compound</u> 1,2,3,4,6,7,8-HpCDF Concentration 0.172 pg/g Identification and Quantitation of Target Compounds

According to the laboratory, the concentration of the compound PeCDF in sample DP-4.7-20 has been reported as the maximum possible concentration due to possible interferences from chlorinated diphenylethers.

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-7.13-15	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.7-20	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.7-1	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.12-18	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.10-16	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.15-10	27743	All analytes	J/UJ	Extracted outside of holding time

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged "J".

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

DV Qualifier	Definition
	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to excessive holding times, results below the calibration range of the instrument, and possible interfernces. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

Acronym	Definition
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Ellen E. Heeley Cg

Ellen E. Seeley Quality Assurance Chemist

Report Reviewed and Approved By:

Mal The

William G. Kay II, M.S. Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7	DP-7.13-15							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix	Soil	Lab Sample: 27	27743-001	Date Received:	ived:	26-May-06
Troject: r.t. Di Date Collected: 6-Ap Time Collected: 0850	rt Diagg-Dite Assessingit 6-Apr-06 0850		Sample Size: %Solids:	10.8 g 93.8	QC Batch No.: 80 Date Analyzed DB-5: 3-	8062 3-Jun-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	1-Jun-06 NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R	rcr-ncr _q	Oualifiers
2,3,7,8-TCDD	SU du	0.0923			<u>IS</u> 13C-2,3,7,8-TCDD		78.8	40 - 135	
1,2,3,7,8-PeCDD	QN	0.119			13C-1,2,3,7,8-PeCDD	•	70.4	40 - 135	
1,2,3,4,7,8-HxCDD	QN	0.117			13C-1,2,3,4,7,8-HxCDD	QC	84.8	40 - 135	
1,2,3,6,7,8-HxCDD	QN	0.118			13C-1,2,3,6,7,8-HxCDD	QC	79.7	40 - 135	
1,2,3,7,8,9-HxCDD	DN	0.113			13C-1,2,3,4,6,7,8-HpCDD	CDD	88.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	QN	0.228			13C-OCDD		64.4	40 - 135	
OCDD	QN	0.473			13C-2,3,7,8-TCDF		79.6	40 - 135	
2,3,7,8-TCDF	DN	0.0673			13C-1,2,3,7,8-PeCDF		62.9	40 - 135	
1,2,3,7,8-PeCDF	ND	0.124			13C-2,3,4,7,8-PeCDF		63.7	40 - 135	
2,3,4,7,8-PeCDF	QN	0.125			13C-1,2,3,4,7,8-HxCDF	JF	78.1	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0447			13C-1,2,3,6,7,8-HxCDF	DF	76.6	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0410			13C-2,3,4,6,7,8-HxCDF	ЭF	76.8	40 - 135	
2,3,4,6,7,8-HxCDF	DN	0.0431			13C-1,2,3,7,8,9-HxCDF	DF	77.9	40 - 135	
1,2,3,7,8,9-HxCDF	DN	0.0588			13C-1,2,3,4,6,7,8-HpCDF	CDF	<i>T.T</i>	40 - 135	
1,2,3,4,6,7,8-HpCDF	DN	0.0601			13C-1,2,3,4,7,8,9-HpCDF	CDF	83.2	40 - 135	
1,2,3,4,7,8,9-HpCDF	DN	0.0674			13C-OCDF		66.6	40 - 135	
OCDF	ND UJ	0.301			CRS 37CI-2,3,7,8-TCDD		L.LT	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	nt (TEQ) Dat	a B		
Total TCDD	ND US	0.0923			TEQ (Min): 0				
Total PeCDD	DN	0.259							-
Total HxCDD	DN	0.116			a. Sample specific estimated detection limit.	tíon limit.			
Total HpCDD	ND	0.228			b. Estimated maximum possible concentration.	oncentration.			
Total TCDF	QN	0.0673			c. Method detection limit.				
Total PeCDF	QN	0.124			d. Lower control limit - upper control limit.	trol limit.			
Total HxCDF		0.0463			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	calth Organization	n Toxic Equ	iivalent Factors.(W	(OH)
Total HpCDF	S) dN	0.0636							
Analyst: MAS					Approved By: Wi	William J. Luksemburg	emburg	07-Jun-2006 12:04	12:04

Sample ID: DP-4	DP-4.7-20							EPA Mo	EPA Method 8290
Client Data			Sample Data		Laboratory Data		1		
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27743-002	Date Received:	eived:	26-May-06
Project: F1 B1 Date Collected: 17-A Time Collected: 1025	Ft Bragg-Sue Assessment 17-Apr-06 1025		Sample Size: %Solids:	24.2 g 41.5	QC Batch No.: Date Analyzed DB-5:	8062 3-Jun-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DB-225:	1-Jun-06 3-Jun-06
	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	rd	%R	LCL-UCL ^d C	Oualifiers
2.3.7.8-TCDD	18.5				<u>IS</u> 13C-2,3,7,8-TCDD	D	76.1	40 - 135	
1,2,3,7,8-PeCDD	17.9				13C-1,2,3,7,8-PeCDD	CDD	70.1	40 - 135	
1,2,3,4,7,8-HxCDD	7.72				13C-1,2,3,4,7,8-HxCDD	x CDD	79.3	40 - 135	
1,2,3,6,7,8-HxCDD	6.66				13C-1,2,3,6,7,8-HxCDD	(xCDD	78.3	40 - 135	
1,2,3,7,8,9-HxCDD	7.92				13C-1,2,3,4,6,7,8-HpCDD	-HpCDD	83.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	30.9				13C-OCDD		69.5	40 - 135	
OCDD	48.7				13C-2,3,7,8-TCDF	Н	79.0	40 - 135	
2,3,7,8-TCDF	178				13C-1,2,3,7,8-PeCDF	CDF	62.9	40 - 135	
1,2,3,7,8-PeCDF	57.2				13C-2,3,4,7,8-PeCDF	CDF	62.3	40 - 135	
2,3,4,7,8-PeCDF	78.9				13C-1,2,3,4,7,8-HxCDF	I xCDF	78.5	40 - 135	
1,2,3,4,7,8-HxCDF	16.7				13C-1,2,3,6,7,8-HxCDF	I xCDF	72.7	40 - 135	
1,2,3,6,7,8-HxCDF	20.6				13C-2,3,4,6,7,8-HxCDF	IXCDF	72.4	40 - 135	
2,3,4,6,7,8-HxCDF	23.6				13C-1,2,3,7,8,9-HxCDF	IXCDF	76.2	40 - 135	
1,2,3,7,8,9-HxCDF	7.82				13C-1,2,3,4,6,7,8-HpCDF	-HpCDF	<i>77.9</i>	40 - 135	
1,2,3,4,6,7,8-HpCDF	12.8			В	13C-1,2,3,4,7,8,9-HpCDF	-HpCDF	83.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	4.06				13C-OCDF		66.8	40 - 135	
OCDF	4.65 J			J	CRS 37CI-2,3,7,8-TCDD	D	74.1	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	otient (TEQ) Da	ita ^e		
Total TCDD	326 J				TEQ (Min): 106	9			
Total PeCDD	199								
Total HxCDD	117				a. Sample specific estimated detection limit.	detection limit.			
Total HpCDD	54.4				b. Estimated maximum possible concentration.	ble concentration.			
Total TCDF	2820				c. Method detection limit.				
Total PeCDF	842			D	d. Lower control limit - upper control limit.	r control limit.			
Total HxCDF	209			ç	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	ld Health Organizatio	on Toxic Eq	uivalent Factors (W	(OH
Total HpCDF	51.0			В					
Analyst: MAS					Approved By:	William J. Luksemburg	semburg	07-Jun-2006 12:04	12:04

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Sample ID: DP-4.7-1	.7-1							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
Name: Curti	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27743-003	Date Received:	eived:	26-May-06
ollected:	17-Apr-06		Sample Size: %Solide:	6.34 g 43 1	QC Batch No.: Date Analyzed DB-5:	8062 3-1un-06	Date Extracted: Dates Analyzed	Date Extracted: Dates Analyzed DR-225	1-Jun-06
			1	1.01		00-110-0			00-TINE-C
Analyte	Conc. (pg/g)	DL ^a	EMPC ^D	Qualifiers	Labeled Standard	đ	%R	rcr-ncr _q (Oualifiers
2,3,7,8-TCDD	1.62 J			J	<u>IS</u> 13C-2,3,7,8-TCDD		67.5	40 - 135	
1,2,3,7,8-PeCDD	1.27 J			J	13C-1,2,3,7,8-PeCDD	DD	58.0	40 - 135	
1,2,3,4,7,8-HxCDD	SU CJ CJ	0.792			13C-1,2,3,4,7,8-HxCDD	(CDD	77.8	40 - 135	
1,2,3,6,7,8-HxCDD	1.20 J			J	13C-1,2,3,6,7,8-HxCDD	(CDD	74.6	40 - 135	
1,2,3,7,8,9-HxCDD	1.17 J			J	13C-1,2,3,4,6,7,8-HpCDD	HpCDD	78.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	21.1				13C-OCDD		62.6	40 - 135	
OCDD	325				13C-2,3,7,8-TCDF		67.7	40 - 135	
2,3,7,8-TCDF	D 0.11				13C-1,2,3,7,8-PeCDF	DF	55.2	40 - 135	
1,2,3,7,8-PeCDF	S) dv		3.38		13C-2,3,4,7,8-PeCDF	DF	52.9	40 - 135	
2,3,4,7,8-PeCDF	4.72 3			J	13C-1,2,3,4,7,8-HxCDF	(CDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	5 GN		1.43		13C-1,2,3,6,7,8-HxCDF	(CDF	66.4	40 - 135	
1,2,3,6,7,8-HxCDF	1.38 3			J	13C-2,3,4,6,7,8-HxCDF	(CDF	69.0	40 - 135	
2,3,4,6,7,8-HxCDF	1.35 5			ſ	13C-1,2,3,7,8,9-HxCDF	(CDF	71.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND ON	0.596			13C-1,2,3,4,6,7,8-HpCDF	HpCDF	72.7	40 - 135	_
1,2,3,4,6,7,8-HpCDF	4.46 J			J,B	13C-1,2,3,4,7,8,9-HpCDF	HpCDF	75.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	BI an	0.446			13C-OCDF		62.7	40 - 135	
OCDF	28.2 J				CRS 37C1-2,3,7,8-TCDD	0	68.2	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	tient (TEQ) Da	ta ^e		i
Total TCDD	15.3 J		19.7		TEQ (Min): 7.15	S			
Total PeCDD	11.5		13.4						-
Total HxCDD	11.6				a. Sample specific estimated detection limit.	etection limit.			
Total HpCDD	39.7				b. Estimated maximum possible concentration.	le concentration.			
Total TCDF	184		187		c. Method detection limit.				
Total PeCDF	47.0		51.0		d. Lower control limit - upper control limit.	control limit.			
Total HxCDF	13.9		15.3		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	l Health Organizatio	n Toxic Equ	iivalent Factors.(W	(OH
Total HpCDF	ل 17.0			В					
Analyst: MAS					Approved By:	William J. Luksemburg	emburg	07-Jun-2006 12:04	2:04

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Sample ID: DP-	DP-4.12-18								EPA M	EPA Method 8290
Client Data				Sample Data		Laboratory Data				
-	Curtis & Tompkins, Ltd.	cins, Ltd.		Matrix	Soil	Lab Sample:	27743-004	Date Received:	cived:	26-May-06
	18-Apr-06	ssessificit		Sample Size:	11.6 g 07 c	QC Batch No.: Date Analyzed DR-5	8062 3 1 06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	1-Jun-06
1 Ime Collected: 0815				Spiloco/	C./ 0	nair milary and a second	00-linf-c		1 con 000 con	W
Analyte	Conc. (pg/g)	(g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	ard	%Β	rcr-ucr ^d	Oualifiers
2,3,7,8-TCDD	QN	3	0.175			<u>IS</u> 13C-2,3,7,8-TCDD	DD	68.8	40 - 135	
1,2,3,7,8-PeCDD	ND	,	0.245			13C-1,2,3,7,8-PeCDD	CDD	62.5	40 - 135	
1,2,3,4,7,8-HxCDD	ND		0.184			13C-1,2,3,4,7,8-HxCDD	HxCDD	74.3	40 - 135	
1,2,3,6,7,8-HxCDD	ND		0.177			13C-1,2,3,6,7,8-HxCDD	HxCDD	68.8	40 - 135	
1,2,3,7,8,9-HxCDD	ND	3	0.372			13C-1,2,3,4,6,7,8-HpCDD	8-HpCDD	76.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.294	0			ſ	13C-OCDD		63.2	40 - 135	
OCDD	0.722	b			ſ	13C-2,3,7,8-TCDF	DF	6.69	40 - 135	
2,3,7,8-TCDF	0.240	6			ſ	13C-1,2,3,7,8-PeCDF	cDF	59.9	40 - 135	
1,2,3,7,8-PeCDF	ND	3	0.349			13C-2,3,4,7,8-PeCDF	CDF	58.9	40 - 135	
2,3,4,7,8-PeCDF	ND		0.341			13C-1,2,3,4,7,8-HxCDF	HxCDF	66.4	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0842			13C-1,2,3,6,7,8-HxCDF	HxCDF	64.3	40 - 135	
1,2,3,6,7,8-HxCDF	ND		0.0780			13C-2,3,4,6,7,8-HxCDF	HxCDF	69.3	40 - 135	
2,3,4,6,7,8-HxCDF	ND		0.0826			13C-1,2,3,7,8,9-HxCDF	HxCDF	75.9	40 - 135	
1,2,3,7,8,9-HxCDF	QN		0.105			13C-1,2,3,4,6,7,8-HpCDF	8-HpCDF	72.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND		0.0652			13C-1,2,3,4,7,8,9-HpCDF	9-HpCDF	75.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND		0.0813			13C-OCDF		63.6	40 - 135	
OCDF	QN	3	0.267			CRS 37CI-2,3,7,8-TCDD	DD	71.8	40 - 135	
Totals						Toxic Equivalent Quotient (TEQ) Data	uotient (TEQ) D:	ata ^e		
Total TCDD	DN	3	0.175			TEQ (Min): 0	0.0270			
Total PeCDD	ŊŊ	3	0.314							
Total HxCDD	ŊŊ	3	0.381			a. Sample specific estimated detection limit.	d detection limit.			
Total HpCDD	0.500	6				b. Estimated maximum possible concentration.	ssible concentration.			
Total TCDF	1.89	D.				c. Method detection limit.				
Total PeCDF	0.0906	h				d. Lower control limit - upper control limit.	per control limit.			
Total HxCDF Total HpCDF	0.0798 ND	ηĘ	0.0727			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	orld Health Organizatı	ion Toxic Eq	uivalent Factors.(V	(OHA)
Analyst: MAS						Approved By:	William J. Luksemburg	semburg	07-Jun-2006 12:04	12:04
								,		

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Sample Data Matrix: Soil Matrix: Soil Sample Size: 12.3 g %Solids: 82.6 %Solids: 82.6 J J J J 0.249 0.249			EPA M	EPA Method 8290
Curtis & Tompkins, Ltd.Matrix MatrixSoil Sizefeeted:18-Apr-06 18-Apr-06 3 -Sample Size:12.3 g 9-Scolids: 32.6 9-Scolids: <th></th> <th>Laboratory Data</th> <th></th> <th></th>		Laboratory Data		
Interdet Trundings onter Assessment Sample Size: 12.3 g (Solids: 12.3 g (Solids: Size: 12.3 g (Solids: Size: <th>Matrix: Soil</th> <th>Lab Sample: 27743-005</th> <th>Date Received:</th> <th>26-May-06</th>	Matrix: Soil	Lab Sample: 27743-005	Date Received:	26-May-06
e Cone. (pg/g) D.L a EMPcb Qualifiers 7.8-HxCDD <nd< td=""> ND $U_{\overline{1}}$ 0.197 0.197 1 7.8-HxCDD<nd< td=""> ND $U_{\overline{1}}$ 0.142 0.142 7.8-HxCDD<nd< td=""> ND $U_{\overline{1}}$ 0.119 0.112 7.8-HxCDD<nd< td=""> ND $U_{\overline{1}}$ 0.112 0.112 8.9-HxCDD<nd< td=""> ND $U_{\overline{1}}$ 0.113 0.112 8.9-HxCDD<nd< td=""> ND $U_{\overline{1}}$ 0.244 0 0.115 8.9-HxCDF<nd< td=""> ND $U_{\overline{1}}$ 0.232 0.134 0.232 7.8-HxCDF<nd< td=""> ND $U_{\overline{1}}$ 0.232 0.134 0.232 7.8-HxCDF<nd< td=""> ND $U_{\overline{1}}$ 0.233 0.248 0.249 8.9-HxCDF<nd< td=""> ND $U_{\overline{1}}$ 0.233 0.197 0.249 7,8,9-HpCDF<nd< td=""> ND $U_{\overline{1}}$ 0.249 0.249 0.249 7,8,9-HpCDF<nd< td=""> ND $U_{\overline{1}}$ 0.240 0.249 0.249<!--</th--><th>Sample Size: 12.3 g %Solids: 82.6</th><th>QC Batch No.: 8062 Date Analyzed DB-5: 3-Jun-06</th><th>Date Extracted: Date Analyzed DB-225:</th><th>1-Jun-06 NA</th></nd<></nd<></nd<></nd<></nd<></nd<></nd<></nd<></nd<></nd<></nd<></nd<>	Sample Size: 12.3 g %Solids: 82.6	QC Batch No.: 8062 Date Analyzed DB-5: 3-Jun-06	Date Extracted: Date Analyzed DB-225:	1-Jun-06 NA
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	^a EMPC ^b	Labeled Standard	%R LCL-UCL ^d (Oualifiers
8-PeCDD ND 0.119 7,8-HxCDD ND 0.119 7,8-HxCDD ND 0.119 8,9-HxCDD ND 0.115 6,7,8-HpCDD ND 0.347 6,7,8-HpCDP ND 0.347 8-PeCDF ND 0.347 8-PeCDF ND 0.248 8-PeCDF ND 0.232 7,8-HxCDF ND 0.0970 8,9-HxCDF ND 0.0897 7,8,9-HpCDF ND 0.134 6,7,8-HpCDF ND 0.0397 7,8,9-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 7,8,9-HpCDF ND 0.134 7,9-HPCDF ND 0.134 7,9-HPCDF ND 0.134 7,9-HPCDF ND 0.134 7,9-HP		13C-2,3,7,8-TCDD	73.5 40 - 135	
3.8-HxCDD ND 0.119 3.8-HxCDD ND 0.118 3.8-HxCDD ND 0.118 8.9-HxCDD ND 0.857 4.7.8-HpCDD ND 0.857 5.7.8-HpCDD ND 0.857 3.8-PeCDF ND 0.857 3.8-PeCDF ND 0.0972 3.8-HxCDF ND 0.0972 3.8-HxCDF ND 0.0970 3.8-PeCDF ND 0.0972 3.8-HxCDF ND 0.0970 3.8-HxCDF ND 0.0970 3.8-PeCDF ND 0.0972 3.8-HxCDF ND 0.0972 3.8-HxCDF ND 0.0970 3.8-PeCDF ND 0.097 3.8-HxCDF ND 0.097 3.8-HxCDF ND 0.097 3.8-PeCDF ND 0.029 3.8-PeCDF ND 0.097 3.8-PeCDF ND 0.029 3.8-PeCDF ND	0.142	13C-1,2,3,7,8-PeCDD	66.5 40 - 135	
	0.119	13C-1,2,3,4,7,8-HxCDD	79.0 40 - 135	
8,9-HxCDD ND 0.115 6,7,8-HpCDD ND 0.347 -TCDF 0.224 3-PeCDF ND 0.37 7,8-HxCDF ND 0.37 7,8-HxCDF ND 0.0972 7,8-HxCDF ND 0.0970 7,8-HxCDF ND 0.0970 6,7,8-HpCDF ND 0.0867 7,8,9-HpCDF ND 0.0867 7,8,9-HpCDF ND 0.0897 7,8,9-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.249 7,8,9-HpCDF ND 0.249 0.197 0.137 7,8,9-HpCDF ND 0.249 0.197 0.106 0.197 0.197 0.240 0	0.118	13C-1,2,3,6,7,8-HxCDD	74.7 40 - 135	
6.7,8-HpCDD ND び 0.347 -TCDF 0.254 び 0.857 び 0.347 8-PeCDF ND び 0.248 8-PeCDF ND 0.248 3.8-PeCDF ND 0.0972 7,8-HxCDF ND 0.0970 7,8-HxCDF ND 0.0970 3,9-HxCDF ND 0.0970 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 0.106 0.087 0.347 0.249 0.249 0.249 0.249 0.249 0.240 ND 05 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.240 0.240 0.249 0.240 0.240 0.240 0.240 0.249 0.249 0.249 0.240 0.249 0.249 0.249 0.240 0.240 0.249 0.249 0.240 0.24	0.115	13C-1,2,3,4,6,7,8-HpCDD	80.9 40 - 135	
TCDF 0.857 J TCDF 0.224 J 8-PeCDF ND U 3.8-PeCDF ND 0.232 7.8-HxCDF ND 0.0972 7.8-HxCDF ND 0.0970 3.9-HxCDF ND 0.0970 6,7,8-HpCDF ND 0.0970 8,9-HxCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134 7,8,9-HpCDF ND 0.197 0.134 0.106 0.134 6,7,8-HpCDF ND 0.107 0.134 0.106 0.134 0.134 0.107 0.238 0.134 0.238 0.249 0.137 0.249 0.249 0.137 0.249 0.249 0.137 0.249 0.249 0.149 0.240 0.249 <td>0.347</td> <td>13C-OCDD</td> <td>62.2 40 - 135</td> <td></td>	0.347	13C-OCDD	62.2 40 - 135	
TCDF 0.224 J 8-PeCDF ND U 0.248 8-PeCDF ND U 0.232 7,8-HxCDF ND U 0.232 7,8-HxCDF ND 0.0972 0.332 7,8-HxCDF ND 0.0972 0.0972 7,8-HxCDF ND 0.0972 0.0972 8,9-HxCDF ND 0.134 0.0970 8,9-HxCDF ND 0.134 0.0970 8,9-HxCDF ND 0.134 0.134 6,7,8-HpCDF ND 0.134 0.197 8,9-HxCDF ND 0.197 0.238 7,8,9-HpCDF ND 0.197 0.238 7,8,9-HpCDF ND 0.238 0.197 7,8,9-HpCDF ND 0.238 0.249 ND U 0.238 0.249 0.249 CDD ND U 0.249 0.249 CDF 1.82 ND 0.249 0.249 CDF ND 0.240 0.249 CDF ND <t< td=""><td></td><td>13C-2,3,7,8-TCDF</td><td>73.4 40 - 135</td><td></td></t<>		13C-2,3,7,8-TCDF	73.4 40 - 135	
8-PeCDF ND UC 0.248 8-PeCDF ND UC 0.248 7,8-HxCDF ND 0.0972 7,8-HxCDF ND 0.0970 8,9-HxCDF ND 0.0970 8,9-HxCDF ND 0.134 6,7,8-HpCDF ND 0.134 6,7,8-HpCDF ND 0.134	ſ	13C-1,2,3,7,8-PeCDF	63.4 40 - 135	
8-PecDF ND 7,8-HxCDF ND 7,8-HxCDF ND 7,8-HxCDF ND 8,9-HxCDF ND 8,9-HxCDF ND 6,7,8-HpCDF ND 6,7,8-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND 0.106 0.134 0.106 0.197 0.258 0.197 0.291 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.0207 0.0207 0.02010 0.0207 0.007	0.248	13C-2,3,4,7,8-PeCDF	59.0 40 - 135	
パ 8-H×CDF ND の 0.087 の 0.134 の 0.087 の 0.024	0.232	13C-1,2,3,4,7,8-HxCDF	77.6 40 - 135	
1.8-H×CDF ND 7.8-H×CDF ND 7.8-H×CDF ND 7.8-H×CDF ND 8.9-H×CDF ND 8.9-H×CDF ND 6.7,8-HpCDF ND 0.134 6.7,8-HpCDF ND 0.106 7,8,9-HpCDF ND 0.106 7,8,9-HpCDF ND 0.107 0.238 0.107 0.249 0.24 0.249	0.0972	13C-1,2,3,6,7,8-HxCDF	77.7 40 - 135	
1.8-H×CDF ND	0.0867	13C-2,3,4,6,7,8-HxCDF	74.4 40 - 135	
8,9-HxCDF ND 0.134 6,7,8-HpCDF ND 0.0897 7,8,9-HpCDF ND 0.0897 7,8,9-HpCDF ND 0.106 0.106 0.258 ND UC 0.258 0.258 0.249	0.0970	13C-1,2,3,7,8,9-HxCDF	77.5 40 - 135	
6,7,8-HpCDF ND 7,8,9-HpCDF ND 7,8,9-HpCDF ND ND CDD ND CDD ND CDD ND CDD ND CD CD ND CD CD ND CD CD ND CD CD ND CD CD ND CD CD ND CD CD CD CD ND CD CD CD ND CD CD CD CD CD CD CD CD CD C	0.134	13C-1,2,3,4,6,7,8-HpCDF	74.8 40 - 135	
7,8,9-HpCDF ND (0.106 ND U (0.258 ND (0.258 CDD ND (0.291 CDD ND (0.291 CDF 1.82 CDF ND (0.291 CDF ND (0.249 0.249 0.240 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249 0.249	0.0897	13C-1,2,3,4,7,8,9-HpCDF	75.4 40 - 135	
ND U U 0.258 CDD ND U 0.197 CDD ND U 0.197 eCDD ND U 0.291 hCDD ND U 0.291 hCDD ND U 0.249 hCDD ND U 0.249 hCDF 1.82 U 0.347 CDF ND U 0.240 KCDF ND U 0.240		13C-OCDF	-	
ND VD 0.197 ND VD 0.197 ND VD 0.291 1.82 ND VD 0.347 0.347 0.249 0.249 0.249 0.249 0.249 0.102		<u>RS</u> 37Cl-2,3,7,8-TCDD	78.7 40 - 135	
ND US 0.197 ND US 0.197 ND US 0.249 ND US 0.347 ND US 0.240 0.240 0.240 0.102	L	Toxic Equivalent Quotient (TEQ) Data	a B	
ND ND 0.291 0.249 ND UD 0.291 0.249 ND UD 0.347 0.347 ND UD 0.240 ND 0.240		TEQ (Min): 0.0225		
ND C291 ND C4 ND C40 0.347 0.240 0.102	0.249			
ND UZ 0.347 1.82 UZ 0.347 ND UZ 0.240 ND UZ 0.102		a. Sample specific estimated detection limit.		
1.82 J ND UJ ND UJ 0.102 0.102		b. Estimated maximum possible concentration.		
ND US 0.102 ND US 0.102	<u>ડ</u>	c. Method detection limit.		
0.102 TU UN 20020		d. Lower control limit - upper control limit.		-
		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Toxic Equivalent Factors (W	(OH/
2				

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Sample ID: DP-4	DP-4.15-10							EPA M	EPA Method 8290
Client Data			Sample Data		Laboratory Data				
	Curtis & Tompkins, Ltd.		Matrix:	Soil	Lab Sample:	27743-006	Date Received:	eived:	26-May-06
Troject: True Date Collected: 20-4 Time Collected: 1355	rt Diagg-sue Assessinent 20-Apr-06 1355		Sample Size: %Solids:	11.9 g 84.1	QC Batch No.: Date Analyzed DB-5:	8062 3-Jun-06	Date Extracted: Date Analyzed I	Date Extracted: Date Analyzed DB-225:	1-Jun-06 NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard		%R	rcr-ncrq (Oualifiers
2,3,7,8-TCDD	II) ON	0.0974			<u>IS</u> 13C-2,3,7,8-TCDD		76.7	40 - 135	
1,2,3,7,8-PeCDD	DN CN	0.132			13C-1,2,3,7,8-PeCDD	D	67.2	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.201			13C-1,2,3,4,7,8-HxCDD	CDD	79.9	40 - 135	
1,2,3,6,7,8-HxCDD	DN	0.200			13C-1,2,3,6,7,8-HxCDD	CDD	74.5	40 - 135	
1,2,3,7,8,9-HxCDD	DN	0.194			13C-1,2,3,4,6,7,8-HpCDD	pCDD	82.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	B		0.265		13C-OCDD		69.2	40 - 135	
OCDD	D 056.0			J	13C-2,3,7,8-TCDF		75.1	40 - 135	
2,3,7,8-TCDF	B	0.0861			13C-1,2,3,7,8-PeCDF)F	63.9	40 - 135	
1,2,3,7,8-PeCDF	DN	0.104			13C-2,3,4,7,8-PeCDF)F	63.3	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0976			13C-1,2,3,4,7,8-HxCDF	CDF	76.9	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0563			13C-1,2,3,6,7,8-HxCDF	CDF	76.0	40 - 135	
1,2,3,6,7,8-HxCDF	DN	0.0514			13C-2,3,4,6,7,8-HxCDF	CDF	77.3	40 - 135	
2,3,4,6,7,8-HxCDF	DN	0.0527			13C-1,2,3,7,8,9-HxCDF	CDF	77.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0809			13C-1,2,3,4,6,7,8-HpCDF	pCDF	76.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0818			13C-1,2,3,4,7,8,9-HpCDF	pCDF	79.1	40 - 135	
1,2,3,4,7,8,9-HpCDF	DN	0.0975			13C-OCDF		69.4	40 - 135	
OCDF	D GN	0.444			CRS 37CI-2,3,7,8-TCDD		76.6	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data	ent (TEQ) Da	ita ^e		
Total TCDD	ND UN		0.115		TEQ (Min): 0.00	0.000050			2 2 2 2
Total PeCDD	DN	0.207							
Total HxCDD	ON .	0.198			a. Sample specific estimated detection limit.	tection limit.			
Total HpCDD	ND		0.265		b. Estimated maximum possible concentration.	concentration.			
Total TCDF	DN	0.144			c. Method detection limit.				
Total PeCDF	DN	0.179			d. Lower control limit - upper control limit.	ontrol limit.			
Total HxCDF	DN	0.0592			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	Health Organization	on Toxic Eq	uivalent Factors.(W	(OH
Total HpCDF	S an	0.0890							
Analyst: MAS					Approved By: V	William J. Luksemburg	semburg	07-Jun-2006 12:04	2:04

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ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment Sample Collection Dates: 4/6, 4/17, 4/18, 4/20/06 Client: Acton Mickelson Environmental, Inc Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc.

Deliverables: Level II

Reviewed By: Approved By: WGK 7/10/66 Completion Date:

ී SDG: Refer to Table in QA Report

for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
documentation attachments.	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	4	(1)	~
Sample Condition Upon Receipt at Subcontract Laboratory	4		~
Laboratory Method Blank Results	4	(\mathfrak{I})	~
Ongoing Precision and Recovery Sample Results	4		~
Internal Standard Recoveries	4		~
Cleanup Standard Recoveries	4		✓
Identification of Target Compounds	4	(3)	✓
Verification of the EDD in XLS Format	4		<i>✓</i>

Comments

mpten were found to be subject to holding times above the to hande 7.8- HOCDF UDD present in the Method а 5 1.0000 LOPOMA α_{i} Mtin IN MICH MORE GAMPLED

187069 Curtis & Tompkins SDG:

Blank Analysis Results for Target Analytes

Fraction	Matrix	Blank Type	Blank Sample	Contaminant	Concentration	Qualificat	ion Limit
(1)	(Aq., S)	(2)	Number		(units)	5x	10x
0	8	MB	Method Blank 18003	1,2,3,4,6,7,8-HpCDF	0.172 pm/	0.8Gpp	
						/ J	
				· · · · · · · · · · · · · · · · · · ·			
			Pesticide/PCB: Q = Other: AMI				

1) V = Volatile; S = Semivolatile; P = Pesticide/PCB; O = Other:

Aq. = Aqueous; S = Solid

2) MB = Method Blank; TB = Trip Blank; EB = Equipment Rinse Blank; FB = Field Blank; IB = Instrument Blank; SB = Storage Blank

Notes:

Method Blank				EPA	EPA Method 8290
Matrix: Soil	QC Batch No.:	8062	Lab Sample: 0-MB001	1	
Sample Size: 10.0 g	Date Extracted:	l-Jun-06	Date Analyzed DB-5: 3-Jun-06	5 Date Analyzed DB-225:	-225: NA
Analyte Conc. (pg/g)	DL ^a EI	EMPC ^b Qualifiers	Labeled Standard	%R LCL-UCL ^d	L ^d Qualifiers
2,3,7,8-TCDD ND	0.105		<u>IS</u> 13C-2,3,7,8-TCDD	77.7 40 - 135	135
1,2,3,7,8-PeCDD ND	0.107		-	71.7 40 - 135	135
1,2,3,4,7,8-HxCDD ND	0.0975		13C-1,2,3,4,7,8-HxCDD	86.5 40 - 135	135
1,2,3,6,7,8-HxCDD ND	0.100		13C-1,2,3,6,7,8-HxCDD	79.4 40 -	135
1,2,3,7,8,9-HxCDD ND	0.0955		13C-1,2,3,4,6,7,8-HpCDD	95.1 40 - 1	135
1,2,3,4,6,7,8-HpCDD ND	0.189		13C-OCDD	87.4 40 -	135
OCDD ND	0.551		13C-2,3,7,8-TCDF	72.7 40 - 135	135
2,3,7,8-TCDF ND	0.120		13C-1,2,3,7,8-PeCDF	62.1 40 - 135	135
1,2,3,7,8-PeCDF ND	0.141		13C-2,3,4,7,8-PeCDF	61.3 40 - 135	135
2,3,4,7,8-PeCDF ND	0.132		13C-1,2,3,4,7,8-HxCDF	78.1 40 - 135	135
1,2,3,4,7,8-HxCDF ND	0.110		13C-1,2,3,6,7,8-HxCDF	86.3 40 -	135
1,2,3,6,7,8-HxCDF ND	0.0939		13C-2,3,4,6,7,8-HxCDF	83.5 40 - 135	135
2,3,4,6,7,8-HxCDF ND	0.0426		13C-1,2,3,7,8,9-HxCDF	79.4 40 -	135
1,2,3,7,8,9-HxCDF ND	0.0653		13C-1,2,3,4,6,7,8-HpCDF	81.9 40 - 135	135
1,2,3,4,6,7,8-HpCDF 0.172		ſ	13C-1,2,3,4,7,8,9-HpCDF	82.8 40 - 135	135
1,2,3,4,7,8,9-HpCDF ND	0.0766		13C-OCDF	78.0 40 - 135	135
OCDF ND	0.402		CRS 37CI-2,3,7,8-TCDD	80.9 40 - 135	135
Totals			Toxic Equivalent Quotient (TEQ) Data	Q) Data ^e	
Total TCDD ND	0.105		TEQ (Min): 0.00172		
Total PeCDD ND	0.343				
Total HxCDD ND	0.0979		a Sample specific estimated detection limit.		
Total HpCDD ND	0.189		b. Estimated maximum possible concentration.	ion.	
Total TCDF ND	0.120		c. Method detection limit.		
Total PeCDF ND	0.136		d. Lower control limit - upper control limit.		
Total HxCDF ND		0.0824	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	anization Toxic Equivalent Factor	(OHM)
Total HpCDF 0.172					
Analyst: MAS			Approved By: William	William J. Luksemburg 07-Jun-2006 12:04	06 12:04

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OPR Results						EPA	EPA Method 8290
Matrix: Soil		QC Batch No.:	8062	Lab	Lab Sample: 0-OPR001		
Sample Size: 10.0 g		Date Extracted:	1-Jun-06	Dai	Date Analyzed DB-5: 3-Jun-06	Date Analyzed DB-225:	id DB-225: NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.2	7 - 13	IS	13C-2,3,7,8-TCDD	72.0	40 - 135
1,2,3,7,8-PeCDD	50.0	48.2	35 - 65		13C-1,2,3,7,8-PeCDD	71.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	47.4	35 - 65		13C-1,2,3,4,7,8-HxCDD	83.0	40 - 135
1,2,3,6,7,8-HxCDD	50.0	46.9	35 - 65		13C-1,2,3,6,7,8-HxCDD	76.0	40 - 135
1,2,3,7,8,9-HxCDD	50.0	45.8	35 - 65		13C-1,2,3,4,6,7,8-HpCDD	79.3	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	51.8	35 - 65		13C-OCDD	61.7	40 - 135
OCDD	100	96.0	70 - 130		13C-2,3,7,8-TCDF	68.1	40 - 135
2,3,7,8-TCDF	10.0	16.9	7 - 13		13C-1,2,3,7,8-PeCDF	63.8	40 - 135
1,2,3,7,8-PeCDF	50.0	51.3	35 - 65		13C-2,3,4,7,8-PeCDF	61.6	40 - 135
2,3,4,7,8-PeCDF	50.0	50.5	35 - 65		13C-1,2,3,4,7,8-HxCDF	73.3	40 - 135
1,2,3,4,7,8-HxCDF	50.0	49.9	35 - 65		13C-1,2,3,6,7,8-HxCDF	78.3	40 - 135
1,2,3,6,7,8-HxCDF	50.0	51.0	35 - 65		13C-2,3,4,6,7,8-HxCDF	77.6	40 - 135
2,3,4,6,7,8-HxCDF	50.0	49.5	35 - 65		13C-1,2,3,7,8,9-HxCDF	73.2	40 - 135
1,2,3,7,8,9-HxCDF	50.0	50.1	35 - 65		13C-1,2,3,4,6,7,8-HpCDF	71.9	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	48.4	35 - 65		13C-1,2,3,4,7,8,9-HpCDF	75.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	48.6	35 - 65		13C-OCDF	62.6	40 - 135
OCDF	100	102	70 - 130	CRS	CRS 37CI-2,3,7,8-TCDD	72.3	40 - 135

Analyst: MAS

Approved By: William J. Luksemburg 07-Jun-2006 11:35

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ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 07, 2006

Alta Project I.D.: 27743

Ms. Lisa Brooker Curtis & Tompkins, Ltd. 2323 Fifth Street Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the six soil samples received at Alta Analytical Laboratory on May 26, 2006 under your Project Name "Ft Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier Director of HRMS Services



Mta Analytical Laboratory certifies that the report herein mests all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report Date Received: 5/26/2006

<u>Alta Lab. ID</u>	Client Sample ID
27743-001	DP-7.13-15
27743-002	DP-4.7-20
27743-003	DP-4.7-1
27743-004	DP-4.12-18
27743-005	DP-4.10-16
27743-006	DP-4.15-10

Curtis & Tompkins, Ltd. Analytical Laboratories, Since 1878 2323 Fifth Street Berkeley, CA 94710 (510) 486-0900 (510) 486-0532

Project Number: 187069 Site: Ft Bragg-Site Assessment

Subcontract Laboratory: Alta Analytical Lab, Inc. 1104 Windfield Way El Dorado Hills, CA 95762 (916) 933-1640 ATTN: Martha

Results due:

Report Level: II

Please send report to: Lisa Brooker *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab # Comments
DP-7.13-15	04/06 08:50	Soil	8290	186053-002
DP-4.7-20	04/17 10:25	Soil	8290	186230-003
¹ 7-4.7-1	04/17 12:50	Soil	8290	186230-007
2-4.12-18	04/18 08:15	Soil	. 8290	• 186277-002
DP-4.10-16	04/18 13:50	Soil	8290	· 186277-008
DP-4.15-10	04/20 13:55	Soil	8290	186320-008

Please provide EDD

Notes:	Relinquished By: Received By:
	Date/Time: 5-25-06 5:5 Date/Time: 106 0935

Signature on this form constitutes a firm Purchase Order for the services requested above. Page 1 of 1

0.5°C

SAMPLE LOG-IN CHECKLIST

	Alta Project #:	27743)			•.			
	Samples Arrival:	Date/Time 5/24/06	0935	Initials	: IB	Locatio Shelf/R	on: WK	2-2	-
	Logged In:	Date/Time 5/24/06	1600 09 660	Initials B	: B		ack:_[]	2-)-4	-
	Delivered By:	FedEx	UPS	Cal	DHL		and ivered	Ot	her
	Preservation:IceBlue IceDry IceTemp °C0.5Time:09.45Thermon							one	
): DT-	20
		YES	NO	NA					
*	Adequate Sample	Volume Receiv	red?						
••••••	Holding Time Acce	ptable?					V	•	
	Shipping Containe	r(s) Intact?	. <u></u>				V		
	Shipping Custody	Seals Intact?							\checkmark
	Shipping Documer	tation Present	?				V		
	Airbill	Trk # C	101290	<u> 0000</u>	27 44	14	V		
	Sample Container	Intact?						[
	Sample Custody S	eals Intact?	`						V
	Chain of Custody /	Sample Docur	mentation Pre	sent?				L,	
	COC Anomaly/Sar	nple Acceptanc	ce Form comp	leted?				V	
	If Chlorinated or D			\checkmark					
	Na ₂ S ₂ O ₃ Preservation	tion Documente	ed?		coc		ample ntainer	No	ne
	Shipping Container Alta Client Retain Ret							Disp	ose

Comments:

Samples recieved in clear plastic core tubes

* Sample "DP-4.7-1. (low volume)