APPENDIX E
ANALYTICAL RESULTS

DHL ANALYTICAL

October 07, 2002

Doug Granger
Cook-Joyce, Inc.
812 West 11th Street
Austin, Texas 78701

TEL: (512) 474-9097
FAX (512) 474-8463

RE: Corsicana Technologies

Order No.: 0209131

Dear Doug Granger:

DHL Analytical received 4 samples on 9/26/02 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative and all estimated uncertainties of results are within method specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michelle Green
QA Specialist

DHL ANALYTICAL

2300 Double Creek Drive • Round Rock, TX 78664
Phone (512) 388-8222 • FAX (512) 388-8229

№ 11980

CHAIN-OF-CUSTODY

CLIENT: Cook - Joyce, Inc
ADDRESS: 812 W. 11TH AUSTIN 78701
PHONE: 474-9097 FAX 474-8463
DATA REPORTED TO: DOUG GRANGER
ADDITIONAL REPORT COPIES TO:

DATE: PAGE OF
PO #: 97147.10 DHL WORK ORDER #: 0209131
PROJECT LOCATION OR NAME: CORSICANA TECHNOLOGIES
CLIENT PROJECT #: 97147.10 COLLECTOR:

Authorize 5% surcharge for TRRP report? ☐ Yes ☑ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX + MTBE ☐; TRPH 418.1 ☒; TPH 1005 ☐ TPH 1006 ☐; GASOLINE MOD 8015 ☐; DIESEL - MOD 8015 ☐; ~~VOC 8260~~; SVOC 8270 ☐ PAH 8270 ☐; ODOR; 8081 PESTICIDES ☐ 8151 HERBICIDES ☐; ~~8082 PCB~~; NITRATE + NITRITE; TCLP - METALS (RCRA) ☐ TCLP VOC ☐; TCLP - PEST ☐ HERB ☐ Semi-VOC ☐; TOTAL METALS (RCRA) ☐ OTHER LIST ☒; LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐; RCI ☐ TOX ☐ FLASHPOINT ☐; TDS ☒ TSS ☐ % MOISTURE ☐; pH ☒ HEXAVALENT CHROMIUM ☐; EXPLOSIVES ☐ PECHLORATE ☐; CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐; ALPHA + BETA; FLUORIDE; SULFATE

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4	ICE	UNPRESERVED	BTEX + MTBE	TRPH 418.1	GASOLINE MOD 8015	DIESEL - MOD 8015	SVOC 8270	PAH 8270	8081 PESTICIDES	8151 HERBICIDES	TCLP - METALS (RCRA)	TCLP VOC	TOTAL METALS (RCRA)	LEAD - TOTAL	RCI	TOX	TSS	% MOISTURE	HEXAVALENT CHROMIUM	EXPLOSIVES	CHLORIDES	ALPHA + BETA	FLUORIDE	SULFATE	FIELD NOTES
GRAY 1	01	9/24	11:30	W		1	✓			✓			✓																					
GRAY 2	02	9/24	6:00	W		8	✓	✓		✓		✓	✓		✓		✓			✓		✓		✓	✓			✓	✓	✓	✓			
CROWN 1	03	9/25		W		1	✓			✓			✓																					YELLOW/GREEN
CROWN 2	04	9/25	4:00	W		7	✓	✓		✓		✓	✓		✓		✓			✓		✓		✓	✓			✓	✓	✓	✓			GRAY/GREEN
																																		METALS OTHER LIST: PRIMARY + SECONDARY DRINKING WATER STANDARDS
TOTAL																																		

RELINQUISHED BY: (Signature) Doug Granger DATE/TIME 9/26/02 10:20 RECEIVED BY: (Signature) Megan Ko
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return ☐ Pickup

TAT
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☑
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.6 °C (38)
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #
☐ PICKED UP BY DHL ANALYTICAL STAFF
☒ HAND DELIVERED

DHL Analytical

Date: *07-Oct-02*

CLIENT:	Cook-Joyce, Inc.	**Client Sample ID:**	Gray 1
Project Name:	Corsicana Technologies	**Lab ID:**	0209131-01
Project No:	97147.10	**Collection Date:**	9/24/02 11:30:00 AM
Lab Order:	0209131	**Matrix:**	AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TRPH		E418.1				Analyst: DEW
Petroleum Hydrocarbons, TR	101	10.0		mg/L	10	9/27/02 10:15:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected between MDL and RL

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside control limits

C - Sample Result or QC discussed in the Case Narrative

E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *07-Oct-02*

CLIENT:	Cook-Joyce, Inc.	**Client Sample ID:**	Gray 2
Project Name:	Corsicana Technologies	**Lab ID:**	0209131-02
Project No:	97147.10	**Collection Date:**	9/24/02 6:00:00 PM
Lab Order:	0209131	**Matrix:**	AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MTBE AND BTEX IN WATER		**SW8021B**				Analyst: **RPC**
Benzene	17.7	2.00		µg/L	1	9/27/02 2:27:38 PM
Toluene	14.3	4.00		µg/L	1	9/27/02 2:27:38 PM
Ethylbenzene	ND	4.00		µg/L	1	9/27/02 2:27:38 PM
Xylenes, Total	7.14	4.00		µg/L	1	9/27/02 2:27:38 PM
TOTAL METALS: ICP-MS		**E200.8**				Analyst: **JLS**
Antimony	ND	1.20		µg/L	1	10/1/02 2:19:00 PM
Arsenic	ND	10.0		µg/L	1	10/1/02 2:19:00 PM
Barium	12600	100		µg/L	10	10/1/02 4:44:00 PM
Beryllium	ND	0.800		µg/L	1	10/1/02 2:19:00 PM
Cadmium	ND	1.00		µg/L	1	10/1/02 2:19:00 PM
Chromium	ND	10.0		µg/L	1	10/1/02 2:19:00 PM
Copper	56.4	10.0		µg/L	1	10/1/02 2:19:00 PM
Lead	64.1	3.00		µg/L	1	10/1/02 2:19:00 PM
Selenium	32.6	10.0		µg/L	1	10/1/02 2:19:00 PM
Thallium	ND	1.00		µg/L	1	10/1/02 2:19:00 PM
AQUEOUS MERCURY, TOTAL		**E245.1**				Analyst: **JLS**
Mercury	ND	0.200		µg/L	1	10/2/02 1:22:00 PM
ANIONS BY IC METHOD - WATER		**E300**				Analyst: **JBC**
Chloride	11200	500		mg/L	500	10/2/02 11:55:43 AM
Fluoride	ND	2.00		mg/L	5	10/2/02 2:19:21 PM
Nitrate-N	ND	2.50		mg/L	5	10/2/02 2:19:21 PM
Nitrite-N	ND	2.50		mg/L	5	10/2/02 2:19:21 PM
Sulfate	ND	15.0		mg/L	5	10/2/02 2:19:21 PM
TRPH		**E418.1**				Analyst: **DEW**
Petroleum Hydrocarbons, TR	78.9	10.0		mg/L	10	9/27/02 10:15:00 AM
PH		**E150.1**				Analyst: **JBC**
pH	7.12			pH units	1	9/27/02 10:00:00 AM
TDS		**E160.1**				Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	20000	10.0		mg/L	1	9/30/02 11:30:00 AM

Qualifiers:

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J - Analyte detected between MDL and RL

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside control limits

C - Sample Result or QC discussed in the Case Narrative

E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *07-Oct-02*

CLIENT:	Cook-Joyce, Inc.	**Client Sample ID:**	Crown 1
Project Name:	Corsicana Technologies	**Lab ID:**	0209131-03
Project No:	97147.10	**Collection Date:**	9/25/02 8:45:00 AM
Lab Order:	0209131	**Matrix:**	AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
TRPH		**E418.1**				Analyst: DEW
Petroleum Hydrocarbons, TR	31.5	1.00		mg/L	1	9/27/02 10:15:00 AM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected between MDL and RL

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside control limits

C - Sample Result or QC discussed in the Case Narrative

E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *07-Oct-02*

CLIENT:	Cook-Joyce, Inc.	**Client Sample ID:**	Crown 2
Project Name:	Corsicana Technologies	**Lab ID:**	0209131-04
Project No:	97147.10	**Collection Date:**	9/25/02 4:00:00 PM
Lab Order:	0209131	**Matrix:**	AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
MTBE AND BTEX IN WATER		**SW8021B**				Analyst: **RPC**
Benzene	ND	2.00		µg/L	1	9/27/02 2:45:45 PM
Toluene	13.3	4.00		µg/L	1	9/27/02 2:45:45 PM
Ethylbenzene	ND	4.00		µg/L	1	9/27/02 2:45:45 PM
Xylenes, Total	5.98	4.00		µg/L	1	9/27/02 2:45:45 PM
TOTAL METALS: ICP-MS		**E200.8**				Analyst: **JLS**
Antimony	ND	1.20		µg/L	1	10/1/02 2:24:00 PM
Arsenic	ND	10.0		µg/L	1	10/1/02 2:24:00 PM
Barium	3580	100		µg/L	10	10/1/02 4:49:00 PM
Beryllium	ND	0.800		µg/L	1	10/1/02 2:24:00 PM
Cadmium	ND	1.00		µg/L	1	10/1/02 2:24:00 PM
Chromium	262000	2000		µg/L	200	10/3/02 8:45:00 PM
Copper	41.4	10.0		µg/L	1	10/1/02 2:24:00 PM
Lead	250	3.00		µg/L	1	10/1/02 2:24:00 PM
Selenium	ND	10.0		µg/L	1	10/1/02 2:24:00 PM
Thallium	ND	1.00		µg/L	1	10/1/02 2:24:00 PM
AQUEOUS MERCURY, TOTAL		**E245.1**				Analyst: **JLS**
Mercury	ND	0.200		µg/L	1	10/2/02 1:22:00 PM
ANIONS BY IC METHOD - WATER		**E300**				Analyst: **JBC**
Chloride	2820	500		mg/L	500	10/2/02 12:28:23 PM
Fluoride	ND	2.00		mg/L	5	10/2/02 2:41:59 PM
Nitrate-N	ND	2.50		mg/L	5	10/2/02 2:41:59 PM
Nitrite-N	ND	2.50		mg/L	5	10/2/02 2:41:59 PM
Sulfate	41.2	15.0		mg/L	5	10/2/02 2:41:59 PM
TRPH		**E418.1**				Analyst: **DEW**
Petroleum Hydrocarbons, TR	ND	1.00		mg/L	1	9/27/02 10:15:00 AM
PH		**E150.1**				Analyst: **JBC**
pH	7.70			pH units	1	9/27/02 10:00:00 AM
TDS		**E160.1**				Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	6370	10.0		mg/L	1	9/30/02 11:30:00 AM

Qualifiers:

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C - Sample Result or QC discussed in the Case Narrative

E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical Date: *07-Oct-02*

CLIENT:	Cook-Joyce, Inc.
Project:	Corsicana Technologies
Lab Order:	0209131

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition and EPA methods 418.1, 200.8, 245.1, 300, 150.1 and 160.1.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives except where noted in the following. For TRPH analysis by method 418.1 the matrix spike and matrix spike duplicate recoveries were above control limits. These are flagged accordingly in the enclosed QC summary report. The "S" flag denotes spike recovery was outside control limits. The LCS was within control limits. No further corrective actions were required and no sample results were adversely affected.

For Anions analysis by EPA method 300, Chloride was detected in the method blank. The samples were greater than 10 times the amount in the method blank for Chloride. No further corrective actions were required and no sample results were adversely affected.

The Gross Alpha/Beta analyses were sub-contracted to Jordan Laboratories.

DHL Analytical

Sample Receipt Checklist

Client Name Cook-Joyce, Inc. | Date Received: 9/26/02

Work Order Numbe 0209131 | Received by: MKS

Checklist completed by [signature] (Signature) 9-26-2 (Date) | Reviewed by JD (Initials) 9/26/02 (Date)

Carrier name: Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐
Water - pH acceptable upon recipt?	Yes ☑	No ☐	NotApplicable ☐

Adjusted? _____ Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action Taken: _____

DHL Analytical

Date: *07-Oct-02*

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: GC9_020927A

Sample ID: **MB-11491** Batch ID: **11491** TestNo: **SW8021B** Units: **µg/L**
SampType: **MBLK** Run ID: **GC9_020927A** Analysis Date: **9/27/02 10:10:08 AM** Prep Date: **9/27/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1								
Toluene	ND	1								
Ethylbenzene	ND	1								
Xylenes, Total	ND	1								

Sample ID: **LCS-11491** Batch ID: **11491** TestNo: **SW8021B** Units: **µg/L**
SampType: **LCS** Run ID: **GC9_020927A** Analysis Date: **9/27/02 10:28:02 AM** Prep Date: **9/27/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	49.87	1	50	0	99.7	75	125	0		
Toluene	47.74	1	50	0	95.5	71	129	0		
Ethylbenzene	47.51	1	50	0	95	70	125	0		
Xylenes, Total	146.7	1	150	0	97.8	71	133	0		

Sample ID: **0209128-13A MS** Batch ID: **11491** TestNo: **SW8021B** Units: **µg/L**
SampType: **MS** Run ID: **GC9_020927A** Analysis Date: **9/27/02 11:39:37 AM** Prep Date: **9/27/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	49.36	1	50	0	98.7	75	125	0		
Toluene	47.4	1	50	0	94.8	71	129	0		
Ethylbenzene	47.51	1	50	0	95	70	125	0		
Xylenes, Total	147.1	1	150	0	98.1	71	133	0		

Sample ID: **0209128-13A MSD** Batch ID: **11491** TestNo: **SW8021B** Units: **µg/L**
SampType: **MSD** Run ID: **GC9_020927A** Analysis Date: **9/27/02 11:57:32 AM** Prep Date: **9/27/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	49.76	1	50	0	99.5	75	125	0.807	20	
Toluene	48.15	1	50	0	96.3	71	129	1.57	20	
Ethylbenzene	47.92	1	50	0	95.8	70	125	0.859	20	
Xylenes, Total	147.7	1	150	0	98.5	71	133	0.396	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: GBC_AA_021002A

Sample ID: 0209112-01C MS	Batch ID: 11526	TestNo: E245.1	Units: µg/L
SampType: MS	Run ID: GBC_AA_021002A	Analysis Date: 10/2/02 1:22:00 PM	Prep Date: 10/1/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	2.065	0.2	2	0	103	77	120	0		

Sample ID: 0209112-01C MSD	Batch ID: 11526	TestNo: E245.1	Units: µg/L
SampType: MSD	Run ID: GBC_AA_021002A	Analysis Date: 10/2/02 1:22:00 PM	Prep Date: 10/1/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	2.201	0.2	2	0	110	77	120	6.38	15	

Sample ID: MB-11526	Batch ID: 11526	TestNo: E245.1	Units: µg/L
SampType: MBLK	Run ID: GBC_AA_021002A	Analysis Date: 10/2/02 1:22:00 PM	Prep Date: 10/1/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.2								

Sample ID: LCS-11526	Batch ID: 11526	TestNo: E245.1	Units: µg/L
SampType: LCS	Run ID: GBC_AA_021002A	Analysis Date: 10/2/02 1:22:00 PM	Prep Date: 10/1/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	2.145	0.2	2	0	107	77	120	0		

Sample ID: LCSD-11526	Batch ID: 11526	TestNo: E245.1	Units: µg/L
SampType: LCSD	Run ID: GBC_AA_021002A	Analysis Date: 10/2/02 1:22:00 PM	Prep Date: 10/1/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	2.183	0.2	2	0	109	77	120	0		

Qualifiers:
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R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS_021001A

Sample ID: **0209112-01C MS** Batch ID: **11515** TestNo: **E200.8** Units: **µg/L**
SampType: **MS** Run ID: **ICP-MS_021001A** Analysis Date: **10/1/02 3:25:00 PM** Prep Date: **9/30/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	201.9	1.2	200	0	101	80	120	0		
Arsenic	193.5	10	200	0	96.8	80	120	0		
Barium	225.2	10	200	14.87	105	80	120	0		
Beryllium	194.5	0.8	200	0	97.2	80	120	0		
Cadmium	197.3	1	200	0	98.6	80	120	0		
Chromium	211.6	10	200	0	106	80	120	0		
Copper	190	10	200	0	95	80	120	0		
Lead	219.1	3	200	0	110	80	120	0		
Selenium	187.7	10	200	0	93.8	80	120	0		
Thallium	214.3	1	200	0	107	80	120	0		

Sample ID: **0209112-01C MSD** Batch ID: **11515** TestNo: **E200.8** Units: **µg/L**
SampType: **MSD** Run ID: **ICP-MS_021001A** Analysis Date: **10/1/02 3:30:00 PM** Prep Date: **9/30/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	202	1.2	200	0	101	80	120	0.0495	15	
Arsenic	197.5	10	200	0	98.8	80	120	2.05	15	
Barium	222.5	10	200	14.87	104	80	120	1.21	15	
Beryllium	186.9	0.8	200	0	93.4	80	120	3.99	15	
Cadmium	197.3	1	200	0	98.6	80	120	0	15	
Chromium	211.5	10	200	0	106	80	120	0.0473	15	
Copper	186.5	10	200	0	93.2	80	120	1.86	15	
Lead	213.1	3	200	0	107	80	120	2.78	15	
Selenium	189.8	10	200	0	94.9	80	120	1.11	15	
Thallium	209.7	1	200	0	105	80	120	2.17	15	

Sample ID: **MB-11515** Batch ID: **11515** TestNo: **E200.8** Units: **µg/L**
SampType: **MBLK** Run ID: **ICP-MS_021001A** Analysis Date: **10/1/02 2:10:00 PM** Prep Date: **9/30/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	1.2								
Arsenic	ND	10								
Barium	ND	10								
Beryllium	ND	0.8								
Cadmium	ND	1								
Chromium	ND	10								
Copper	ND	10								
Lead	ND	3								
Selenium	ND	10								
Thallium	ND	1								

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: IC_021002A

Sample ID: **MB-021002** Batch ID: **R12495** TestNo: **E300** Units: **mg/L**
SampType: **MBLK** Run ID: **IC_021002A** Analysis Date: **10/2/02 10:26:52 AM** Prep Date: **10/2/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	0.3326	1								
Fluoride	ND	0.4								
Nitrate-N	ND	0.5								
Nitrite-N	ND	0.5								
Sulfate	ND	3								

Sample ID: **LCS-021002** Batch ID: **R12495** TestNo: **E300** Units: **mg/L**
SampType: **LCS** Run ID: **IC_021002A** Analysis Date: **10/2/02 10:43:12 AM** Prep Date: **10/2/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.265	1	6	0	87.8	80	120	0		
Fluoride	3.624	0.4	4	0	90.6	80	120	0		
Nitrate-N	20.75	0.5	20	0	104	80	120	0		
Nitrite-N	19.89	0.5	20	0	99.4	80	120	0		
Sulfate	25.46	3	30	0	84.9	80	120	0		

Sample ID: **LCSD-021002** Batch ID: **R12495** TestNo: **E300** Units: **mg/L**
SampType: **LCSD** Run ID: **IC_021002A** Analysis Date: **10/2/02 10:59:32 AM** Prep Date: **10/2/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.274	1	6	0	87.9	80	120	0.167	20	
Fluoride	3.626	0.4	4	0	90.7	80	120	0.0634	20	
Nitrate-N	20.78	0.5	20	0	104	80	120	0.157	20	
Nitrite-N	19.89	0.5	20	0	99.5	80	120	0.0201	20	
Sulfate	25.93	3	30	0	86.4	80	120	1.86	20	

Sample ID: **0209131-02B DUP** Batch ID: **R12495** TestNo: **E300** Units: **mg/L**
SampType: **DUP** Run ID: **IC_021002A** Analysis Date: **10/2/02 12:12:02 PM** Prep Date: **10/2/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	11110	500	0	0	0	0	0	1.21	25	

Sample ID: **0209131-04B DUP** Batch ID: **R12495** TestNo: **E300** Units: **mg/L**
SampType: **DUP** Run ID: **IC_021002A** Analysis Date: **10/2/02 2:58:22 PM** Prep Date: **10/2/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.769	2	0	0	0	0	0	0	25	
Nitrate-N	ND	2.5	0	0	0	0	0	0	25	
Nitrite-N	ND	2.5	0	0	0	0	0	0	25	
Sulfate	41.23	15	0	0	0	0	0	0.00728	25	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: IR207_020927A

Sample ID: MB-11499	Batch ID: 11499	TestNo: E418.1	Units: mg/L
SampType: MBLK	Run ID: IR207_020927A	Analysis Date: 9/27/02 10:15:00 AM	Prep Date: 9/27/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	1								

Sample ID: LCS-11499	Batch ID: 11499	TestNo: E418.1	Units: mg/L
SampType: LCS	Run ID: IR207_020927A	Analysis Date: 9/27/02 10:15:00 AM	Prep Date: 9/27/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	10.17	1	10	0	102	80	120	0		

Sample ID: 0209131-04F MS	Batch ID: 11499	TestNo: E418.1	Units: mg/L
SampType: MS	Run ID: IR207_020927A	Analysis Date: 9/27/02 10:15:00 AM	Prep Date: 9/27/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	12.23	1	10	0	122	80	120	0		S

Sample ID: 0209131-04F MSD	Batch ID: 11499	TestNo: E418.1	Units: mg/L
SampType: MSD	Run ID: IR207_020927A	Analysis Date: 9/27/02 10:15:00 AM	Prep Date: 9/27/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	13.07	1	10	0	131	80	120	6.63	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT:	Cook-Joyce, Inc.	**ANALYTICAL QC SUMMARY REPORT**
Work Order:	0209131	
Project:	Corsicana Technologies	**RunID: PH_020927A**

Sample ID: **0209131-02B DUP**	Batch ID: **PH_W-09/27/02**	TestNo: **E150.1**	Units: **pH units**
SampType: **DUP**	Run ID: **PH_020927A**	Analysis Date: **9/27/02 10:00:00 AM**	Prep Date: **9/27/02**

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.119	0	0	0	0	0	0	0	15	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies

ANALYTICAL QC SUMMARY REPORT

RunID: WC_020930B

Sample ID: MB-020930	Batch ID: TDS_W-09/30/02	TestNo: E160.1	Units: mg/L
SampType: MBLK	Run ID: WC_020930B	Analysis Date: 9/30/02 11:30:00 AM	Prep Date: 9/30/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10								

Sample ID: LCS-020930	Batch ID: TDS_W-09/30/02	TestNo: E160.1	Units: mg/L
SampType: LCS	Run ID: WC_020930B	Analysis Date: 9/30/02 11:30:00 AM	Prep Date: 9/30/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	160	10	148	0	108	70	126	0		

Sample ID: 0209131-02B DUP	Batch ID: TDS_W-09/30/02	TestNo: E160.1	Units: mg/L
SampType: DUP	Run ID: WC_020930B	Analysis Date: 9/30/02 11:30:00 AM	Prep Date: 9/30/02

Analyte	Result	RL	SPK value	SPK Ref	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	19780	10	0	0	0	0	0	1.06	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

DHL Analytical

Date: 07-Oct-02

CLIENT: Cook-Joyce, Inc.
Work Order: 0209131
Project: Corsicana Technologies
Test No: SW8021B **Matrix:** W

QC SUMMARY REPORT
SURROGATE RECOVERIES

Sample ID	PCE							
0209128-13A MS	100							
0209128-13A MSD	99.9							
0209131-02A	91.4							
0209131-04A	101							
LCS-11491	96.8							
MB-11491	99.2							

Acronym		Surrogate	QC Limits
PCE	=	Tetrachloroethene	50-130

* Surrogate recovery outside acceptance limits

TEL. 361-884-0371 PO BOX 2552 78403

JORDAN LABORATORIES, INCORPORATED
ANALYTICAL & ENVIRONMENTAL CHEMISTS
CORPUS CHRISTI, TEXAS
October 02, 2002

DHL Analytical
2300 Double Creek Drive
Round Rock, Texas 78664

Report of Analysis

Lab. No.	Identification	Gross Alpha Activity pci/L	Gross Beta Activity pci/L
M40-3347	0209131-04E 4:00 PM 9-25-02	115 +/- 28	78 +/- 19
M40-3348	0209131-02E 6:00 PM 9-24-02	35 +/- 32	106 +/- 37

Analysts: Nixon/Allen
Analysis Date: 9-30-02
Method: 7110 B.

Note: Method limits sample size taken for analysis based on dissolved and suspended solids. High counting error shown results from this limitation.

Respectfully Submitted,

Carl F. Crownover, Pres.

APPENDIX F
JETCO WELL LOG INTERPRETATION

JETCO CHEMICAL COMPANY, WDW-117, NAVARRO COUNTY
INJECTION OF WASTESTREAM INTO AN
UNDERGROUND SOURCE OF DRINKING WATER

TECHNICAL REPORT

The Underground Injection Control team reviewed the application of Jetco Chemical Company to renew Permit WDW-117. It was determined that Jetco is injecting its wastestream into an underground source of drinking water (USDW).

The existing permitted injection interval is 2790' to 2960', which lies within the lower Woodbine Formation. The actual perforated interval is from 2790' to 2844' and from 2926' to 2955' (November, 1992 Mechanical Integrity Test and Ambient Monitoring Report). No injection zone is designated in the permit. The Woodbine Formation is penetrated by the well from 2500' to 2964' total depth (see attached induction-electric log). It consists of permeable sandstone with interbeds of shale 30' to 60' in thickness. Complex interfingering of sandstone and shale are characteristic of the Woodbine in this area and the entire formation is considered to be a single hydrostratigraphic unit.

The base of the USDW is defined as water containing 10,000 mg/L total dissolved solids (TDS). At this locality it lies within the Woodbine, as determined from two sources:
(1) The technical report submitted with the 1984 permit application, which states that the upper part of the formation contains water with about 6000 mg/L NaCl, and the lower part contains water with about 16,000 mg/L NaCl (p. 11).
(2) An evaluation of water quality based on the induction-electric log made in November, 1993, by John Estepp of the Ground Water Assessment Section, Environmental Assessment Division, TNRCC (see attached memorandum). A summary of the average TDS in the water at each of five selected depths is:

1.	2535' depth	7614 mg/L TDS
2.	2625'	7943
3.	2695'	7067
4.	2810'	7000
5.	2944'	17,981

The intervals perforated for injection include the depths of 2810' and 2944'. The 10,000 mg/L limit falls between those two depths. An examination of the deep induction curve on the well log indicates that the limit is at approximately 2910'.

It is clearly evident that waste is being injected into a USDW. Even if injection were occurring only beneath the 2910'depth, it would still be into a USDW because the Woodbine is a single hydrostratigraphic unit. The injection interval and injection zone must be below and separated from the USDW aquifer by a confining zone that would act as a barrier to migration of fluids out of the injection zone.

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

INTEROFFICE MEMORANDUM

To : Larry Walker
I&HW Division, Permits Section

Date: 11/15/93

From : John D. Estepp, Geologist/Log Analyst
Environmental Assessment Division,
Ground Water Assessment Section

Subject : Well-Log Evaluation of JETCO Chemical Company Disposal Well WDW-117, Navarro County, Texas.

Larry:

Pursuant to your telephone request of November ~~11~~ 10, 1993, a review of the above captioned well log was conducted. Five sand zones in the Woodbine Sand, between a depth of 2510 feet and the total depth of 2964 feet were evaluated. The total dissolved solid (TDS) content was evaluated using the spontaneous potential (SP) curve and the water-saturated deep induction (Ro) curve. The following table summarizes the results.

#	Depth[ft]	Tf[°F]	Rmf‡	SPmV	Ro‡	TDS(SP)	TDS(Ro)	TDS(ave)
1	2535	118	1.92	-54	5	8225	7000	7614
2	2625	120	1.90	-47	5	8885	7000	7943
3	2695	121	1.88	-47	4.7	6633	7500	7067
4	2810	123	1.85	-45	6	6500	5500	7000
5	2944	125	1.82	-67	2.9	15,762	20,200	17,981

‡Units of ohm-m.

Log calculations from the SP and Ro curves yielded TDS values less than 10,000 mg/L in zones 1 through 4. Zone 5 calculated a TDS value greater than 10,000 mg/L. These results agree with my initial quick-look evaluation last ~~Thursday~~ Wed. during our telephone conversation.

If you have any further questions concerning this evaluation, please call me at 371-6371.

John D. Estepp

Enclosures

cc: Steven Musick, Manager, Ground Water Assessment Section