



Shell Oil Company
Interoffice Memorandum

PLAINTIFF'S EXHIBIT

SH-1213

FEBRUARY 5, 1982

FROM: INDUSTRIAL HYGIENIST

TO: SUPERINTENDENT HEALTH AND SAFETY

SUBJECT: INDUSTRIAL HYGIENE LABORATORY PROPOSAL UPDATE

In mid 1981, the development of an expanded Industrial Hygiene analytical capability at DPMC was proposed. This memorandum updates the basis for that proposal to reflect current program activities and costs.

Shown as Attachment I, is a revised summary of the air contaminant sampling conducted for the years 1979, 1980, and 1981. The total reported cost for Westhollow's analytical services in 1981 was approximately \$92,800. Organic vapor sample analysis represented most of these charges.

The approximate 1981 27% increase in organic vapor sample analysis at Westhollow reflects in part a mid-year reduction in DPMC Industrial Hygiene analysis of samples and a greater dependence on the Westhollow facility. To allow greater technician field time, generally all DPMC samples except vinyl chloride are now analyzed at Westhollow.

The Westhollow Industrial Hygiene Laboratory has been requested to develop a solid state sampling method for vinyl chloride. The elimination of the bag method now in use for VCM would provide several benefits including a further reduction in lab work by Industrial Hygiene Technicians.

The increased work load that Westhollow is encountering (in part due to DPMC) is requiring them to investigate the possibility of using an outside contract laboratory, such as Spectrix in Houston. As DPMC is geographically closest to Spectrix, it is most likely that the DPMC Industrial Hygiene Group will be working directly with a contract laboratory in the near future. In such an arrangement, Westhollow would serve a limited oversight function to verify quality assurance.

LAM 000541

DPMC-16249

The costs of using an outside contract lab will be similar to Westhollow's. Each organic vapor sample analysis is \$30 for the first analysis and \$10 for each additional one. Using an average three component analysis (\$50) for 1,800 air samples would be approximately \$90,000. Other lab charges may be encountered for method verification and development.

The development of an in-house Industrial Hygiene Laboratory capability is still considered to be a desirable program objective. A rough comparison of using a contract lab versus a DPMC lab is provided as Attachment II.

Please let me know if you have any questions.



P. J. Snyder

PJS/gri

Attachments

cc: J. D. Ransdell
ECB Satellite
Project File
PJS Chron File

LAM 000542

DPMC-16250

ATTACHMENT I

Approximate Number of Samples Analyzed by Westhollow by Year

	<u>1979</u>	<u>1980</u>	<u>1981</u>
Asbestos Dust Samples	10	12	7
Dust/Fume Samples	90	320	43
Polycyclic Aromatics	50	27	23
Organic Vapor DPMC North	816	1001	1186
Organic Vapor DPMC South	311	465	681
	1127	1466	1867
	1277	1825	1940

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DPMC-16251

ATTACHMENT II

<u>Costs</u>	<u>DPMC LAB</u>	<u>CONTRACT LAB</u>
Initial		
Space	✓ ?	-
Equipment	✓ \$30-40M	-
Westhollow Lab Assist. on Start-Up	✓ ?	-
Annual		
Charges	-	\$90M
Depreciation	✓ ?	-
Eq. Maintenance	✓ ? Increased from present level	-
Staffing	✓ \$30M + Overhead	-
Westhollow Q.C. Oversight	✓ ? Comparable to contract lab	✓
<u>Turnaround Time</u>	✓ 3-5 Days Est.	2-4 Weeks
<u>Quality Assurance</u> (people + methods)	Known. DPMC to possibly become AIHA accredited.	Unknown. Some oversight by Westhollow

LAM 000544

DPMC-16252

Spectrix
PRICE SCHEDULE
Continued

4.0 ✓ INDUSTRIAL HYGIENE

Per Sample

✓ Metals content on filters \$ 15.00/metal

✓ Organic vapors on charcoal and/or silica gel tube

Includes separate analyses of front and back of tube;
analyses per NIOSH methods (1st component) \$ 30.00

Additional components (same tube, same GC conditions) \$ 10.00 each

✓ Organic vapors on passive dosimeters \$ 20.00

Additional components (same GC conditions) \$ 10.00 each

✓ Determination of PNA's in air particulates Q¹

PCB's Q¹

¹ Request quotation

5.0 METALS¹

Atomic Absorption Spectrophotometry

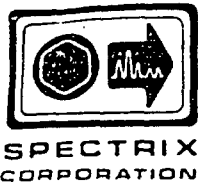
	<u>Flame</u>	<u>Flameless</u>
Aluminum, Barium, Beryllium, Boron, Calcium, Cadmium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Strontium, Sodium, Thallium, Tin, Vanadium, Zinc	\$15.00/each	\$25.00/each
Arsenic, Selenium		\$25.00/each
Mercury		\$25.00/each

¹ Prices include digestion for all samples, with spikes and replicate runs normally required to maintain high quality analyses. Price quotes are for water and wastewater samples. Solids/sludges require additional preparation charges.

5/29/81

LAM 000545

DPMC-16253



D. H. MORMAN
SEP 8 1981

PRICE SCHEDULE

June 1, 1981

Designated prices are subject to review and change except where specified by contract. Multiple sample price reductions are available for similar analyses received in a single shipment as follows:

<u>Number of Samples</u>	<u>Discount*</u>
6 - 10	Less 10%
11 - 20	Less 15%
21 - 50	Less 20%
>50	Less 30%

✓ *Discounts apply to AA, GC & wet methods

5/29/81

LAM 000546

DPMC-16254

ANALYTICAL DEPARTMENT

SAMPLE CHARGE RATE

MONTH 10 OCT, 1981

(DEPRECIATION FREE)

METHOD	GROUP	HOURS	SUPPORT	\$
FLTRA	FILTER DIGESTION-AA	BIHEP	.5000	.80 25.30
FLTRP	FILTER DIGESTION-PVC	BIHEP	1.0000	.80 50.60
METAA	METALS/ATOMIC ABSORPT	BIHEP	.5000	.80 25.30
NONRCU	NON-ROUTINE ANALYSIS	BIHEP		.50 ****
ARPEST	PESTICIDES IN AIR	WIHBS	1.00	****
AMMON	NH3 BY IMPINGER/COLOR	WIHIM	1.0000	1.00 44.00
ASBDS	ASBESTOS-DISPER STAIN	WIHIM	1.0000	1.00 44.00
ASBOM	ASBESTOS OPT MICRO	WIHIM	1.0000	1.00 44.00
BZGC	BENZENE IN LIQ HC-GC	WIHIM	2.0000	1.00 88.00
→ BZSOL	BENZENE SOLUABLE RESID	WIHIM	.7500	1.00 33.00 839
CAYZ	CURING AGENTS Y AND Z	WIHIM	2.0000	1.00 88.00
CHSOL	CYCLOHEXANE SOLUBLES	WIHIM	1.0000	1.00 44.00
CRVI	CHROMIUM VI, COLCR	WIHIM	1.0000	1.00 44.00
FLTRAW	FILTER DIGESTION-AA	WIHIM	.5000	1.00 22.00
FLTRPW	FILTER DIGESTION-PVC	WIHIM	.8000	1.00 35.20
→ GRAV	DUST AND PART./WT.	WIHIM	.2000	1.00 8.80
GVPMMC	GASOLINE VAPOR BY PMCC	WIHIM	2.5000	1.00 110.00
METAAW	METALS/ATOMIC ABSORPT	WIHIM	.4500	1.00 19.80
METPLW	METALS PLASMA JET	WIHIM	2.0000	1.00 88.00
NONRCU	NON-ROUTINE ANALYSIS	WIHIM		.50 ****
ARPNA	NON-ROU POLYNUC AROM	WIHIM		1.00 ****
GILMST	OIL MIST IN AIR	WIHIM	1.2000	1.00 52.80
GVGCA	ORG VAPOR/GC (6+SPLS)	WIHIM	.7500	1.00 33.00
GVGCB	ORG VAPOR/GC (ROUTINE)	WIHIM	1.2500	1.00 55.00
GVGC8Z	ORG VAPOR/GC - BENZENE	WIHIM	.7500	1.00 33.00
GVGCC	ORG VAPOR/GC (3+ COMP)	WIHIM	2.0000	1.00 88.00
GVGCC	ORG VAPOR/GC (SPECIAL)	WIHIM	3.0000	1.00 132.00
PNAGC	PNA BY GC	WIHIM	2.0000	1.00 88.00
PNALC	PNA BY HPLC	WIHIM	2.0000	1.00 88.00
PREP	PREANALYTICAL PREPARAT	WIHIM	.5000	1.00 22.00
PTBBA	P-T-BUTYLBENZOIC ACID	WIHIM	1.7000	1.00 74.80
RM0X	RM-17 AND OXIDE	WIHIM	2.0000	1.00 88.00
SHPTPP	SHOP LIGAND/TPP	WIHIM	2.0000	1.00 88.00
SIXR	SILICA-X-RAY DIFFRACT	WIHIM	2.0000	1.00 88.00
SIXRB	SILICA-XRD ON BULK	WIHIM	2.0000	1.00 88.00
TMALC	TRIMELLITIC ANHYDRIDE	WIHIM	1.5000	1.00 66.00

LAM 000547

**** THE CHARGE WILL BE BASED ON THE ACTUAL TIME REQUIRED TO
PERFORM THE ANALYSIS.

DPMC-16255

ANALYTICAL DEPARTMENT

SUMMARY OF REPORTED ANALYSES BY RESPONSIBLE DEPARTMENT

JAN THRU DEC, 1981 - WIH AND BIH

01/18/82 14.17.28

RESP DEPT ----	PROJECT -----	LOC GRP ---	CODE ----	METHOD -----	SAMPLES -----
BR1	39123	WIH	ASBDS	ASBESTOS-DISPER STAIN	5
*TOTAL PROJECT 39123					5
	60431	WIH	NONROU	NON-ROUTINE ANALYSIS	10
*TOTAL PROJECT 60431					10
	82701	BIHEP	FLTRA	FILTER DIGESTION-AA	56
			METAA	METALS/ATOMIC ABSORPT	137
		WIH	ASBDS	ASBESTOS-DISPER STAIN	1
			ASBOM	ASBESTOS OPT MICRO	25
			CRVI	CHROMIUM VI, COLOR	3
			GRAV	DUST AND PART./WT.	3
			NONROU	NON-ROUTINE ANALYSIS	8
			OVGCB	ORG VAPOR/GC (ROUTINE)	45
			OVGCBZ	ORG VAPOR/GC - BENZENE	8
			OVGCC	ORG VAPOR/GC (3+ COMP)	3
			PREP	PREANALYTICAL PREPARAT	17
			SIXR	SILICA-X-RAY DIFFRACT	44
*TOTAL PROJECT 82701					350
	82711	BIHEP	FLTRA	FILTER DIGESTION-AA	2
			FLTRP	FILTER DIGESTION-PVC	18
			METAA	METALS/ATOMIC ABSORPT	45
			NONROU	NON-ROUTINE ANALYSIS	12
		WIH	ASBDS	ASBESTOS-DISPER STAIN	4
			ASBOM	ASBESTOS OPT MICRO	4
			BZSOL	BENZENE SOLUABLE RESID	45
			CRVI	CHROMIUM VI, COLOR	2
			GRAV	DUST AND PART./WT.	2
			NONROU	NON-ROUTINE ANALYSIS	20
			OVGCB	ORG VAPOR/GC (ROUTINE)	11
			PNALC	PNA BY HPLC	14
			PREP	PREANALYTICAL PREPARAT	5
*TOTAL PROJECT 82711					184
<i>DPMC - Refinery</i>					
	82712	BIHEP	FLTRA	FILTER DIGESTION-AA	22
			METAA	METALS/ATOMIC ABSORPT	142
		WIH	BZSOL	BENZENE SOLUABLE RESID	11
			GRAV	DUST AND PART./WT.	43

LAM 000548

DPMC-16256

ANALYTICAL DEPARTMENT

SUMMARY OF REPORTED ANALYSES BY RESPONSIBLE DEPARTMENT

JAN THRU DEC, 1981 - WIH AND BIH

01/18/82 14.17.28

RESP DEPT	PROJECT	LOC GRP	CODE	METHOD	SAMPLES
881	82712	WIH	NONROU	NON-ROUTINE ANALYSIS	18
	<i>DPMC Refinery (Cont'd)</i>		OILMST	OIL MIST IN AIR	3
			OVGCA	ORG VAPOR/GC (6+SPLS)	19
			OVGCB	ORG VAPOR/GC (ROUTINE)	592
			OVGCBZ	ORG VAPOR/GC - BENZENE	386
			OVGCC	ORG VAPOR/GC (3+ COMP)	191
			OVGCD	ORG VAPOR/GC (SPECIAL)	17
			PNALC	PNA BY HPLC	4

*TOTAL PROJECT 82712

1448

82713	BIHEP	NONROU	NON-ROUTINE ANALYSIS	2
	WIH	ASBOM	ASBESTOS OPT MICRO	93
		BZSOL	BENZENE SOLUABLE RESID	21
		GRAV	DUST AND PART./WT.	4
		NONROU	NON-ROUTINE ANALYSIS	78
		OVGCB	ORG VAPOR/GC (ROUTINE)	46
		OVGCC	ORG VAPOR/GC (3+ COMP)	33
		PNALC	PNA BY HPLC	4
		PREP	PREANALYTICAL PREPARAT	29

*TOTAL PROJECT 82713

310

82714	WIH	OVGCBZ	ORG VAPOR/GC - BENZENE	7
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*TOTAL PROJECT 82714

7

82715	BIHEP	FLTRA	FILTER DIGESTION-AA	19
		METAA	METALS/ATOMIC ABSORPT	24
	WIH	ASBDS	ASBESTOS-DISPER STAIN	1
		ASBOM	ASBESTOS OPT MICRO	7
		BZSOL	BENZENE SOLUABLE RESID	12
		CRVI	CHROMIUM VI, COLOR	2
		GRAV	DUST AND PART./WT.	18
		NONROU	NON-ROUTINE ANALYSIS	9
		OILMST	OIL MIST IN AIR	11
		OVGCB	ORG VAPOR/GC (ROUTINE)	7
		OVGCBZ	ORG VAPOR/GC - BENZENE	23
		PNALC	PNA BY HPLC	6
		PREP	PREANALYTICAL PREPARAT	6
		SIXR	SILICA-X-RAY DIFFRACT	3
		SIXRB	SILICA-XRD ON BULK	1

LAM 000549

DPMC-16257

ANALYTICAL DEPARTMENT

SUMMARY OF REPORTED ANALYSES BY RESPONSIBLE DEPARTMENT

JAN THRU DEC, 1981 - WIH AND BIH

01/18/82 14,17,28

RESP DEPT ----	PROJECT -----	LOC GRP ---	CODE ----	METHOD -----	SAMPLES -----
*TOTAL PROJECT 82715					149
881	82717	WIHIH	OVGCBZ	ORG VAPOR/GC - BENZENE	37
*TOTAL PROJECT 82717					37
	82718	WIHIH	OVGCBZ	ORG VAPOR/GC - BENZENE	27
*TOTAL PROJECT 82718					27
	82731	RIHEP	FLTRA	FILTER DIGESTION-AA	1
			METAA	METALS/ATOMIC ABSORPT	4
		WIHIH	ASBOM	ASBESTOS OPT MICRO	35
			NONROU	NON-ROUTINE ANALYSIS	1
			OVGCB	ORG VAPOR/GC (ROUTINE)	3
*TOTAL PROJECT 82731					44
<i>DPMC - Chem. Plant</i>					
	82732	RIHEP	FLTRA	FILTER DIGESTION-AA	11
			METAA	METALS/ATOMIC ABSORPT	11
		WIHIH	ASBOM	ASBESTOS OPT MICRO	7
			BZSOL	BENZENE SOLUABLE RESID	12
			NONROU	NON-ROUTINE ANALYSIS	14
			OVGCB	ORG VAPOR/GC (ROUTINE)	159
			OVGCBZ	ORG VAPOR/GC - BENZENE	453
			OVGCC	ORG VAPOR/GC (3+ COMP)	63
			OVGCD	ORG VAPOR/GC (SPECIAL)	6
			PNALC	PNA BY HPLC	3
			PREP	PREANALYTICAL PREPARAT	6
*TOTAL PROJECT 82732					745
	82733	WIHIH	RZSOL	BENZENE SOLUABLE RESID	3
			GRAV	DUST AND PART./WT.	22
			NONROU	NON-ROUTINE ANALYSIS	16
			OVGCB	ORG VAPOR/GC (ROUTINE)	41
			OVGCC	ORG VAPOR/GC (3+ COMP)	32
			PNALC	PNA BY HPLC	3
*TOTAL PROJECT 82733					117
	82734	BIHEP	FLTRA	FILTER DIGESTION-AA	8
			METAA	METALS/ATOMIC ABSORPT	12

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DPMC-16258