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**Report/Article Title** Memorandum: Agent Orange Dioxin Fat Biopsy Study, from Paul C. Legolvan to Lyndon E. Lee, December 31, 1979

**Journal/Book Title**

**Year** 0000

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**Color**

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**Description Notes** Laboratory studies on the fat biopsy cases.

*Memorandum*

DATE: December 31, 1979

TO: Dr. Lyndon E. Lee(112)

FROM: Deputy Director, Pathology Service(113)

SUBJ: Agent Orange Dioxin Fat Biopsy Study

1. Attached are the Laboratory Studies on the fat biopsy cases in table form from the data on each case submitted by each area (Hines, West Side, North Chicago and Lincoln, Nebraska). The Normal values are given for each except for Lincoln from which we have no data. The tests are divided into groupings as we had agreed upon except that Hematopoietic and the Reticuloendothelial groups are combined. The miscellaneous include other tests, x-ray, EKG and Surgical biopsy histopathological diagnoses submitted.

2. When the other data are received we can enter the values.

  
PAUL C. LEGOLVAN, M.D.

Att.



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VA FORM 2105  
JAN 1977

AP 6153

VA Medical Center, North Chicago

VA Medical Center, Lincoln, Nebraska

	C.C. NC 34	K.O. NC 22	Normal Values Ranges	✓ N.T. L-1	E.C.	N.M.	R.R.	H.W.	J.S.	J.R.	Normal Values RANGE	
H E M A T O C R I T	49.8		M-47 + 5 F-42 + 5		43.0	37.5	43.6	44.6	49.0	52.0	42.9	39-48%
H E M O G L O B I N	17.4		M-16 + 2 F-14 + 2		14.6	12.5	15.1	15.0	17.3	17.6	14.7	12.5-16.0
P L A T E L E T S	Adequate		Adequate 130-400,000		Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	
W H I T E B L O O D C E L L S	9.2		7,800 + 3,000		9,600	16,200	9,100	13,400	7,600	10,300	5,500	
D I F F E R E N T I A L	Normal		6. 0-8.5		Normal	Shift 80% Segs	Normal	Shift 66% Segs	Normal	Normal	Normal	
T O T A L P R O T E I N			2.6 - 5.2		6.7	7.5	6.9	6.0	7.1	7.8		6.0-8.0 GM/dl
A L B U M I N					3.4	4.7	4.1	4.2	4.2	4.7		3.4 - 4.9 GM/dl
P R O T H R O M B I N T I M E												
A S P A R T A T E A M I N O T R A N S F E R A S E (SGOT)			7-40 KU		15	12	11	16	12	12		5-19 IU/L
A L A N I N E A M I N O T R A N S F E R A S E (SGPT)	32		3-36 KU									
A L K A L I N E P H O S P H A T A S E			30 - 115 BU - IU		45	54	57	47	54	64		6-100 IU/L
L A C T I C D E H Y D R O G E N A S E (LDH)			10 - 225 U-IU		93	84	116	103	67	99		55-134 IU/L
C H O L E S T E R O L			120-330 mg/dl		175	243	191	203	228	176		150-300 mg/dl
U R I N A L Y S I S					WBC 5-10 Epith cells 2+ Blood	Normal	1-3 WBC	6-6 WBC 15-20 RBC 2-3 Epith cells	0-3 WBC 2-3 Epith cells	Normal	Normal	
B L O O D U R E A N I T R O G E N (BUN)			10-20 mg/dl		11	12	16	14	22	6.8		12-22 mg/dl
C R E A T I N I N E			0.7-1.4 mg/dl		1.2	1.3	1.2	1.4	1.7	0.9		0.6-1.5 mg/dl
F A S T I N G B L O O D S U G A R			70-100 mg/dl		76	119	99	140	110	89		70-105 mg/dl
C A L C I U M			8.5-10.5 mg/dl		9.2	9.5	9.3	7.6	7.4	9.9		9.0-11.5 mg/dl
P H O S P H O R U S			2.5-4.5 mg/dl		4.5	3.1	3.5	3.2	3.4	4.6		2.5-4.5 mg/dl
T O T A L B I L I R U B I N			0.2-1.2 mg/dl		0.4	0.4		0.3	0.8			0.1-1.5 mg/dl
D I R E C T B I L I R U B I N			0.0-0.3 mg/dl									
U R I C A C I D			2.5-7.5 mg/dl		6.4	3.6	4.5	7.6	7.0	5.5		2.5-8.0 mg/dl
E L E C T R O L Y T E S	Normal				Normal	Normal	Normal	Normal	Normal	Normal		
O T H E R T E S T S	CPK 72, Lipase 8 Ac. Phosphatase Q21 Sperm Count 88 mil- lion/cc, Vol 1.5 ml viscosity Lipoid 50% motile after 1 1/2 hour									GGT-16		8-37
X - R A Y												
E K G												
S U R G I C A L T I S S U E P A T H O L O G Y R E P O R T			occasional WBC, few Bacteria, morphology normal									

AP 0154

## VA Medical Center, West Side Chicago, Illinois

WS- 23	WS- 24	WS- 25	WS- 26	WS- 29	WS- 30	WS-31	WS- 32	Normal Values/Ranges
42.5		46.5	47.1	46.8		40.3		M 47 ± 5 F 42 ± 5
14.5		15.7	15.6	15.1		13.4	15.6	M 13.3 - 15.5 F 11.5 - 14.5
							450,000	200 - 400 x 10 <sup>3</sup>
7,700		8,000	7,300	6,700	17,500	5,000	9,000	5,000 - 10,000
Normal		Normal	Normal	Normal				
								6.6 - 8.3 g/dl
4.8		4.5	4.7	4.6		3.9	4.3	3.8 - 5.7 g/dl
								10-13 secs
								40 sections
21.3		30.0	14.9	14.2		13.0	16.3	22-58 I.U./L
								5-35 U
293		121	138	136		177	146	79 - 258 IU/L
141		141	109	150		132	109	1-8 - 235 I,U/L
		90				152		150 - 300 mg/dl
Amorphous Casts		1-2 WBC	Rare RBC			2-4 WBC	0-9 WBC	
21		17	18	12	11	12	14	6.4 - 2.6 mg/dl
		1.2		1.0		1.1	0.7	0.5 - 1.5 mg/dl
100		80	100	95		80	100	63-128 mg/dl
								9.0 - 10.6 mg/dl
								2.5 - 4.7 mg/dl
								0.3 - 1.2 mg/dl
								↓ 0.2 mg/dl
								2.8 - 8.8 mg/dl
ste neg	Sickle prep neg	ste neg		ESR-14, 1000 Hct 42% Hct 42% ste neg	ste neg	ste neg	ste neg	

AP-155

	H-1	H-2	H-3	H-4	H-5	H-6 <sup>TM</sup>	H-7	H-8	H-9	H-10	H-11	H-12		
HEMATOLOGY	Hematocrit	39.5	43	42.9	49.5	46.2		45.2		49.7	48.3	50.8	42.1	46.6
	Hemoglobin	12.7	14.8	14.8	16.3	15.1		15.5		17.3	16.5	17.2	14.6	16.1
	Platelets	Adequate	Adequate	Adequate	Adequate	Adequate		370,000		Adequate	Adequate	Adequate	Adequate	Adequate
	White Blood Cells	4,000	5,000	5,800	10,700	9,200		7,900		8,200	10,800	9,100	8,300	6,300
	Differential	Normal	Normal	Normal	Normal	Normal		Normal		Atypical Lymphs 12%	Normal	Normal	Normal	Normal
	Total Protein		7.2	7.4	7.7	8.0		6.7		8.0	7.8	7.6		
	Albumin		5.0	4.9	5.0	3.8		4.1		4.7	4.4	4.6		
	Partial Thromboplastin	Normal	Normal	Normal	Normal	Normal		Normal		Normal	Normal	Normal		Normal
	Prothrombin Time	Normal	Normal	Normal	Normal	Normal		Normal		Normal	Normal	Normal		Normal
	Aspartate Amino Transferase (SGOT)		38	58	60	64		40		69	240	71		
	Alanine Amino Transferase (SGPT)													
	HEPATIC	Alkaline Phosphatase		56	78	136	170		80		56	125	136	
Lactic Dehydrogenase (LDH)			146	133	160	124		178		144	160	162		
Cholesterol			224		300	127		205		188	210	229		
Urinalysis		1+ Prot		Few W.B.C.	Few WBC and Bacteria	protein-trace + occult blood		Few WBC		Few WBC & Bacteria	Few WBC & Bacteria	Few WBC Many Bact.	Normal	
RENAL	Urea Nitrogen (BUN)	30	14	21	17	30		12		13	6	12		16
	Creatinine		0.8	1.0	0.8	0.9		1.3		0.8	0.6	1.2		1.2
	Fasting Blood Sugar	52	80	96	123	111		91		103	92	99		118
	Calcium		9.9	10.0	10.1	9.4		10.1		10.8	9.7	10.3		
	Phosphorus		3.9	3.7	3.5	3.3		3.8		3.4	3.7	4.0		
	Total Bilirubin		1.1	0.6	0.8	1.6		1.0		1.0	1.0	0.5		
	Direct Bilirubin		0.2	0.1	0.1	0.3		0.2		0.2	0.5	0.1		
	Uric Acid		6.2	5.2	4.7	7.5		6.0		7.6	3.5	6.0		
	Electrolytes	Normal	Normal	Normal	↑ K	Normal		↑ CL		↑ CL	Normal	Normal		↑ CL
	Other Tests							CSF Prot 49 mg						
MISC	X-Ray (Chest)	Small Blebs Rt. Apex	Normal	Normal	Normal	Normal		Normal		Normal	Normal	Normal	Normal	Normal
	EKG	Normal	Bradycardia	Incomplete ventricular conduction defect	Normal	Normal		Sinus bradycardia		Normal	Normal	Normal	Normal	Normal
	Surgical Tissue Pathology Report	* 1	* 1	* 1				* 2		* 3	* 4			
*1 Skin biopsy-mild chronic perivascularitis						*4 Normal muscle biopsy - see hospital summary								
*2 Thyroid - papillary carcinoma						*5 Mediastinoscopy - sarcoid								
*3 Finger - hyperplastic synovitis and granulation						*6 Skin - chronic inflammation								

H-13	H-14	H-15	H-16	H-33	Hines Normal Values/Ranges
	45.1	48.1	41.9	38.5	47.5 ± 5
	15.0	16.1	14.4	13.3	16.0 ± 2
	Adequate	Adequate		Adequate	Adequate 130 - 400 x 10 <sup>2</sup>
	5,700	7,100	10,100	6,000	5 - 10,000
	Normal	Normal		Normal	
	7.3	7.7	7.8	7.4	6.8 - 8.0 g/dl
	4.8	4.8	4.9	4.9	3.5 - 5.0 g/dl
	Normal		Normal	Normal	
	Normal		Normal	Normal	
	41	47	98	49	10 - 50 I.V.
					5 - 24 I.V.
	90	98	74	80	30 - 85 Technicon Units
	186	170	195	193	50 - 200 Technicon Units
	295	255	235	205	150 - 300 mg/dl
		↑ WBC with cell bacteria & Mucus	Few Casts	Few WBC & Bacteria Mucus	
	17	15	15	8	10 - 20 mg/dl
	1.4	1.1	1.7	1.0	0.7 - 1.4 mg/dl
	90	104	209	115	65 - 110 mg/dl
	10.1	10.1	9.6	10.0	8.5 - 10.5 mEq/L
	3.5	4.0	4.4	4.0	2.5 - 4.4 ug/dl
	0.9	0.5	0.3	0.7	0.2 - 1.0 mg/dl
	0.2		0.1	0.2	0 - 0.2 mg/dl
	6.9	6.6	6.4	5.1	2.5 - 8.0 mg/dl
	↑ CO <sub>2</sub> Cl	↑ Na ↑ Cl	↑ CO <sub>2</sub>	↑ CO <sub>2</sub>	
		prominent ↑ R. ↑ ST T. ↓ ST		Normal	
	Normal		Tall T-Waves	Normal	
	*5		*6		