PLAINTIFF'S
EXHIBIT
AL-1213

Refractory
Ceramic
Fibers

SAFE HANDLING

OF

REFRACTORY CERAMIC

FIBERS

RMJ

511961 0420

Transparencies for
Mtg 4-4-90 @
Rick Rawe &
Ron Keyanse

MANAGEMENT APPROACH

I. QUALITY TEAMS

* A. IH, Medical, Legal

B. Engineering (Replacement)

II. PLANT INPUT

III. BENCHMARKING

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PROBLEM STATEMENT

ALCOA employees and outside personnel may be exposed to refractory ceramic fibers in an unsafe manner.

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IMPACT

1. ≈ 2000 U.S. Employees (Ingot, Smelting)

2. Worldwide Issue

3. Another "ASBESTOS" ?

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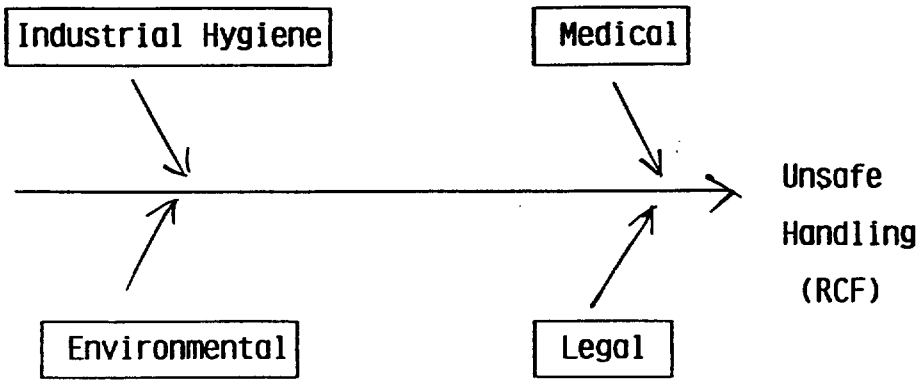
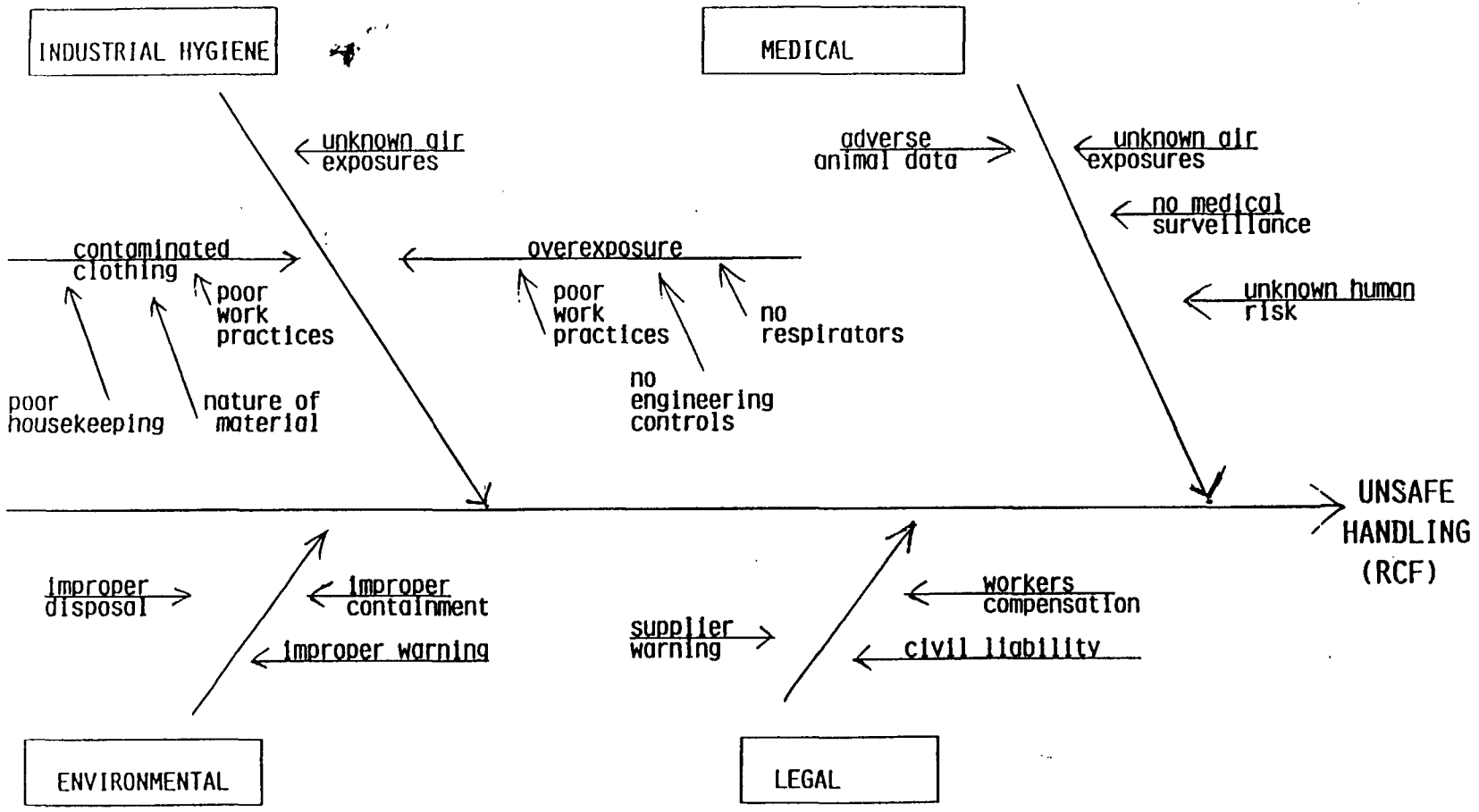

Industrial Hygiene
Medical
Unsafe
Handling
(RCF)
Environmental
Legal

511961 0424


INDUSTRIAL HYGIENE
MEDICAL
unknown air exposures
adverse animal data
unknown air exposures
no medical surveillance
unknown human risk
contaminated clothing
overexposure
poor work practices
poor work practices
no respirators
poor housekeeping
nature of material
no engineering controls
UNSAFE HANDLING (RCF)
improper disposal
improper containment
improper warning
supplier warning
workers compensation
civil liability
ENVIRONMENTAL
LEGAL

511961 0425

ACTION ITEMS

I. MONITOR TOXICITY DATA

II. REDUCE AIRBORNE EXPOSURE LIMITS

III. IMPLEMENT MEDICAL SURVEILLANCE

IV. DOCUMENT EMPLOYEE EXPOSURES

V. EVALUATE RESPIRATORY REQUIREMENTS

VI. PROVIDE LAUNDERED CLOTHING

VII. IMPLEMENT DISPOSAL PRACTICES

* VIII. REDUCE/ELIMINATE RCF USE

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I. MONITOR TOXICITY DATA

II. REDUCE AIRBORNE LIMITS

A. 1.0 f/cc - TWA

B. Manville - "0" is SAFE

C. DuPont - 0.5 f/cc (.25 f/cc action)

D. Proposed ALCOA limits

1.) 0.2 f/cc TWA

2.) 1.0 f/cc Ceiling

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III. IMPLEMENT MEDICAL SURVIELLANCE

A. Lung Function, Xrays

B. 0.1 f/cc - TWA trigger

C. 1.0 f/cc - ceiling trigger

D. Same as asbestos

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IV. DOCUMENT EMPLOYEE EXPOSURES

V. EVALUATE RESPIRATORY REQUIREMENTS

A. Lower limits

B. Hi Efficiency vs. Regular

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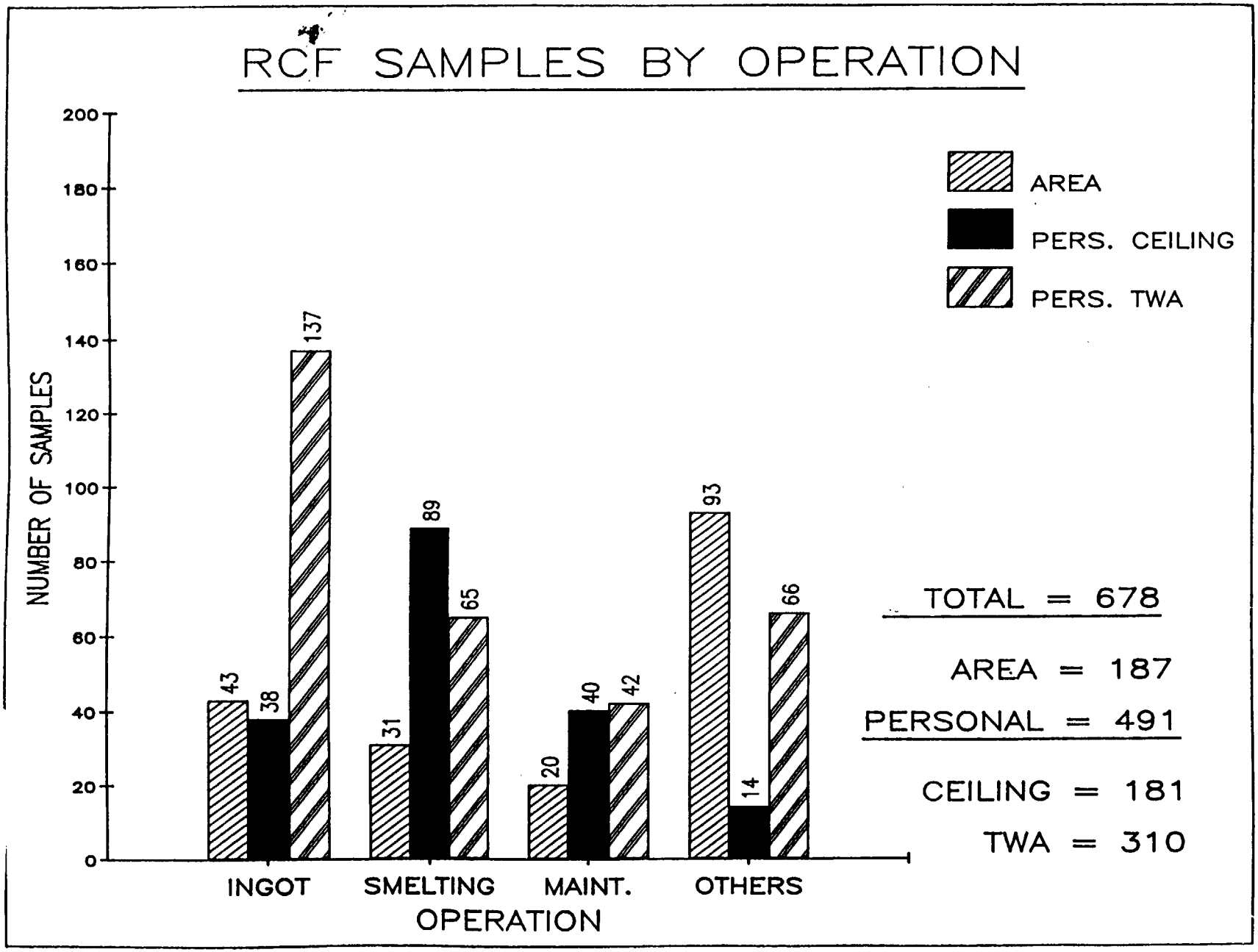
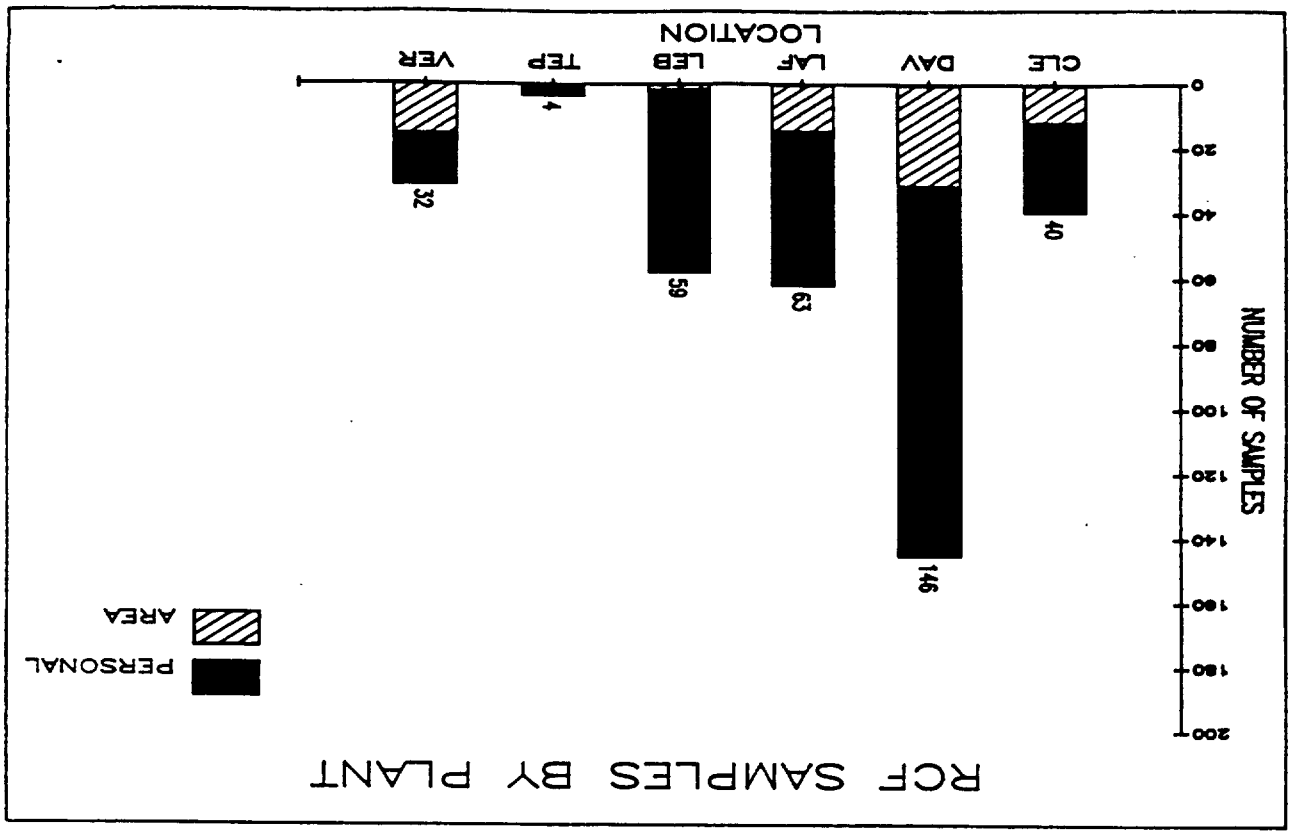
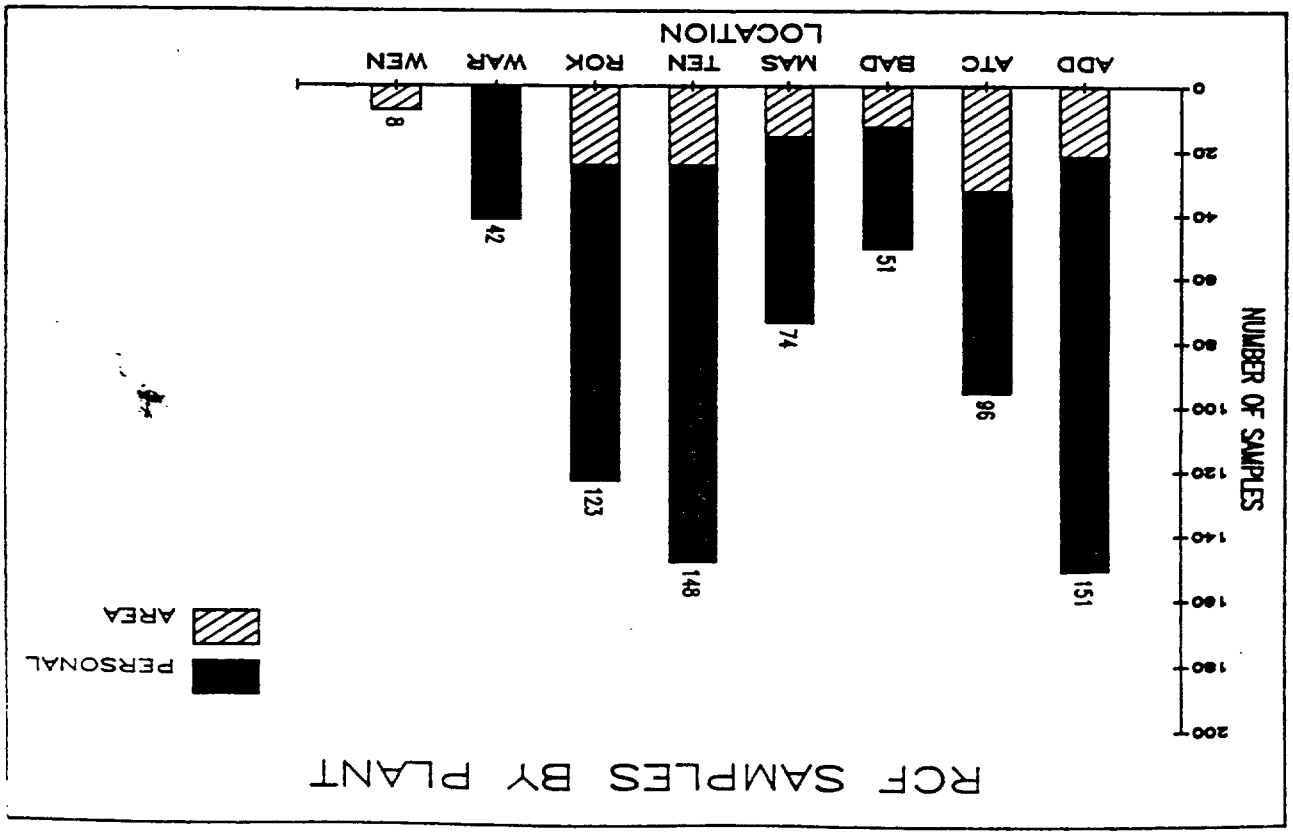
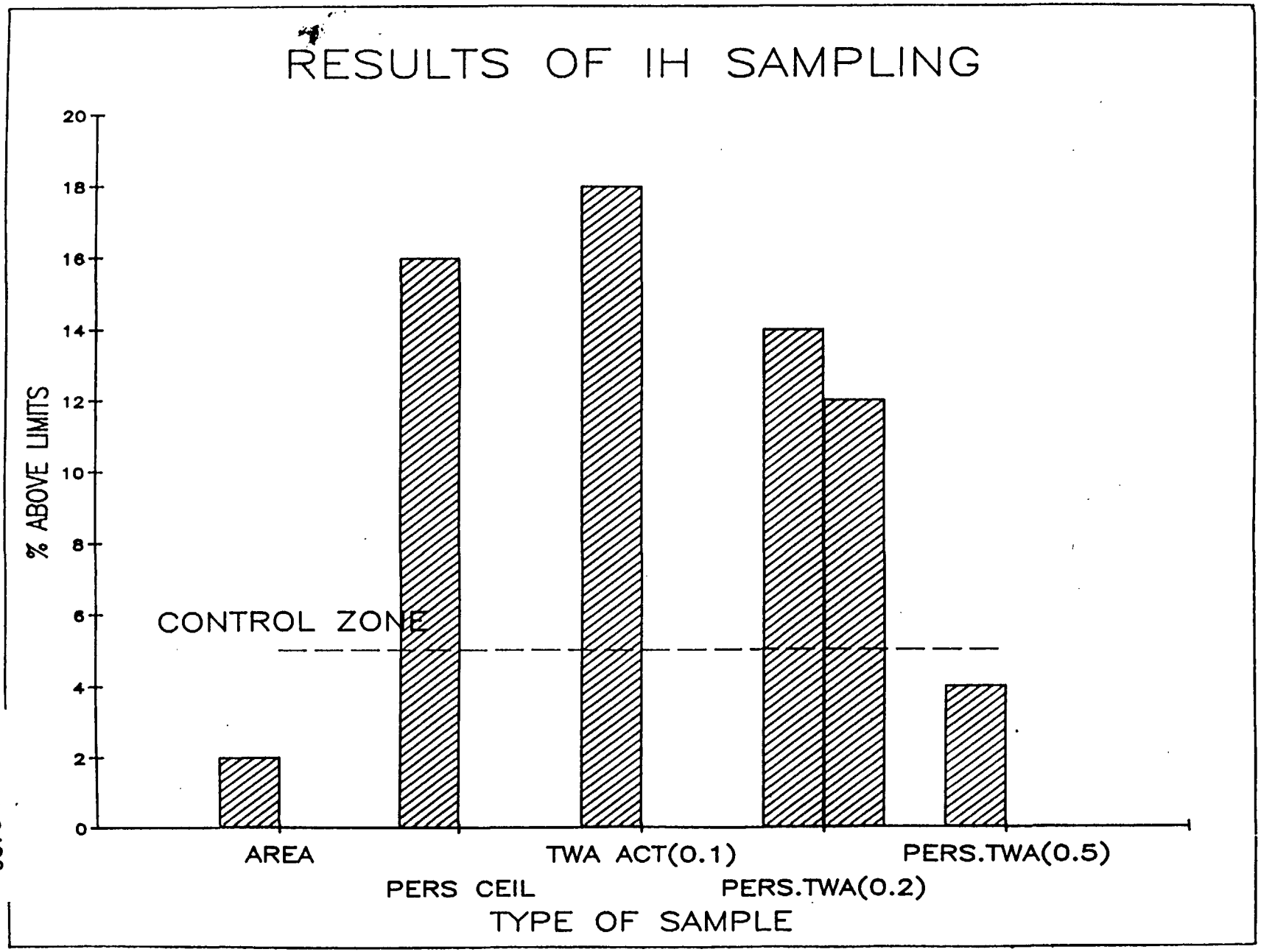

RCF SAMPLES BY OPERATION
NUMBER OF SAMPLES
200
180
160
140
120
100
80
60
40
20
0
AREA
PERS. CEILING
PERS. TWA
43
38
137
31
89
65
20
40
42
93
14
66
INGOT
SMELTING
MAINT.
OTHERS
OPERATION
TOTAL = 678
AREA = 187
PERSONAL = 491
CEILING = 181
TWA = 310

511961 0430

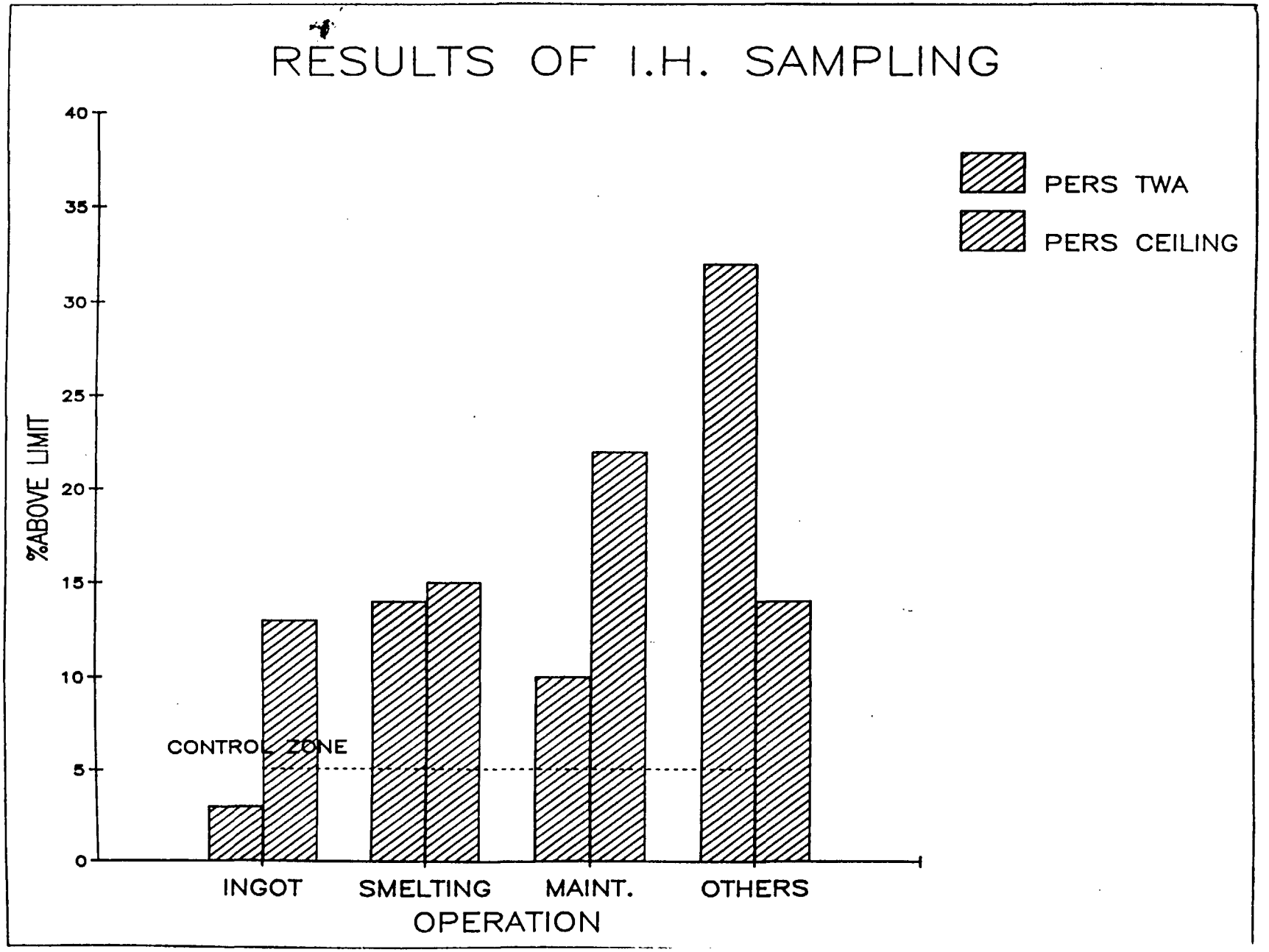

RCF SAMPLES BY PLANT
LOCATION
CLE
DAV
LAF
LEB
TEP
VER
40
146
63
59
4
32
NUMBER OF SAMPLES
0
20
40
60
80
100
120
140
160
180
200
AREA
PERSONAL


RCF SAMPLES BY PLANT
LOCATION
ADD
ATC
BAD
MAS
TEN
ROK
WAR
WEN
151
96
51
74
148
123
42
8
NUMBER OF SAMPLES
0
20
40
60
80
100
120
140
160
180
200
AREA
PERSONAL

511961 0431


RESULTS OF IH SAMPLING
% ABOVE LIMITS
20
18
16
14
12
10
8
6
4
2
0
CONTROL ZONE
AREA
PERS CEIL
TWA ACT(0.1)
PERS.TWA(0.2)
PERS.TWA(0.5)
TYPE OF SAMPLE

511961 0432


RESULTS OF I.H. SAMPLING
PERS TWA
PERS CEILING
%ABOVE LIMIT
40
35
30
25
20
15
10
5
0
CONTROL ZONE
INGOT
SMELTING
MAINT.
OTHERS
OPERATION

511961 0433

VI. PROVIDE LAUNDERED CLOTHING

A. Ground Rules

1.) Keep off street clothes - (Suppliers)

2.) Disposable garments $\neq$ molten metal

B. Overexposure in air $\neq$ contaminated street clothes

1.) Visual

2.) Quantitative tests

C. Impact - Plant Input

1.) $\cong$ 2000 employees

a) 500 smelting

b) 1500 ingot

2.) $\cong$ $1,000,000 ($500 per man per year)

511961 0434

VI. PROVIDE LAUNDERED CLOTHING, Con't.

D. Plant Input

1. Flexibility

2. Laundered clothing vs. Aprons

3. Clothing only if above airborne limits

4. Linkage to flame retardant clothing

E. Scope/Type of Clothing

1. Direct Contact

2. Coveralls vs. Pants/Shirts

3. Socks, Undergarments

4. Locker Facilities

511961 0435

VII. Disposal

A. Impermeable containers

B. Warning labels

C. Disposed like asbestos

* D. Resolve poor housekeeping practices

VIII. RCF Replacements

A. Complex task

B. Need resource/financial commitments

C. Need good communication (networking)

D. Engineering/Plant Task Force

* E. Priority issue

511961 0436

BENCHMARKING

I. No government regulation

II. Numerous Companies (12)

A. Moving toward asbestos

B. DuPont - treat like asbestos (0.5 f/cc)

C. ALCOA - cutting edge

511961 0437