PLAINTIFF'S EXHIBIT UC-850

Union Carbide
Agricultural Products Company, Inc.
Institute Plant

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D. A. DUGA

# INDUSTRIAL HYGIENE SAMPLING RESULTS

TO: Mr. F. Boggs
Building 303
Institute Plant

COPIES TO: Mr. D. A. Duga
Mr. C. E. Miller
Mr. D. D. Miller
Mr. M. E. Tapp
Mr. L. W. Youngblood

Purpose: ____ Quarterly __X__ Semiannually ____ Annually
____ Regulatory Agency Inspection ____ Other (See Comments)

Sample Date(s): August 1, 4 and 5, 1986
Sample Location: Landfill Department No.: 308
Process/Activity: Waste Disposal
Contaminant: Asbestos
Exposure Limit: OSHA 0.2 fibers/cc ($TWA_8$); - ($TWA_{12}$)
ACGIH 0.2 fibers/cc ($TWA_8$); - ($TWA_{12}$)
UCC - ($TWA_8$); - ($TWA_{12}$)
AIHA - ($TWA_8$); - ($TWA_{12}$)
Sample Type: __X__ Personal __X__ Area ____ Source
____ Surface Wipe ____ Other (See comments)
Analytical Method: Per 29 CFR 1910.1001, Appex. A
Results: ____ See Comments __X__ See Attached Table

COMMENTS: Four job positions at the Goff Mountain Landfill were monitored for exposure to airborne asbestos fibers on the above dates. Area concentrations of airborne asbestos were measured too. The monitoring encompassed typical asbestos waste disposal, which consisted of using a front end loader and a bulldozer to blend the material with dirt and pack it down. The front end loader and bulldozer each were equipped with enclosed cabs and air conditioning units that provided filtered, cooled air to the cabs. In addition, the equipment operators wore half-mask dual-cartridge dust respirators while in the cabs.

The monitoring also covered operation of the drum crusher and typical area cleanup by the laborer. Cleanup consisted of sweeping the paved area around the landfill office and removing debris from the perimeter of the landfill.

Due to the hot and dry weather, "worst case" conditions existed during the survey regarding the potential for generation of airborne asbestos fiber concentrations. The monitoring and analytical procedures were performed in accordance with 29 CFR 1910.1001, including Appendix A.

The personal monitoring results for the laborer and environmental specialist job positions were all below the PEL as well as the action level (ie, one-half the PEL) for asbestos. The front end loader and bulldozer operators' exposures also were below the PEL though they did reach the 0.1 fiber/cc action level. The area monitoring results showed that concentrations of airborne asbestos fibers greater than the PEL were generated in the immediate vicinity of the bulldozer and front end loader while they were being used to blend and fill asbestos waste material. However, the extremely low concentration measured directly downwind of the disposal area at the drum crushing facility showed that the airborne asbestos fibers rapidly settled and/or dissipated within the confines of the landfill.

Based on the above results the following actions are required:

- A copy of these monitoring results must be posted immediately in the workplace (ie, the landfill office) where they will be accessible to all affected employees (including contract employees) for review. The affected employees should be made aware that the results have been posted. (Note: this was done prior to issuance of this report).

- Because airborne asbestos fiber concentrations measured at the disposal area during blending and filling exceeded the PEL, the "face" of the landfill must be established as a regulated area as soon as possible but no later than November 17, 1986. This requires:

  1. Posting of warning signs in conformance with the requirements of 29 CFR 1910.1001 (J)(1)(i) and (ii) to identify the regulated area.

  2. Prohibition of eating, drinking, smoking, application of cosmetics and tobacco and gum chewing in the regulated area.

  3. Use of half-mask air-purifying respirators equipped with high efficiency filters (or better*) by anyone entering the regulated area, regardless of duration.

     *Note: Powered air purifying respirators must be provided to employees if they choose to use that type of respirator. In addition, employees using negative pressure respirators must be fit tested before entering the asbestos regulated area and they must be fit tested every six months thereafter. Selection, use and care of respirators must be in accordance with the requirements of 29 CFR 1910.1001 (G).

- Training must be provided to the front end loader and bulldozer operators no later than October 20, 1986 and at least annually thereafter since these two job positions were exposed to airborne

concentrations of asbestos fibers at the action level. Training must cover the topics shown in 29 CFR 1910.1001 (J)(5).

- Medical surveillance must be provided or made available to the front end loader and bulldozer operators no later than November 17, 1986 and at least annually thereafter since these two job positions were exposed to airborne concentrations of asbestos fibers at the action level. Medical surveillance must be performed in accordance with 29 CFR 1910.1001(L).

RECOMMENDATIONS: In order to complete implementation of the above required activities, the following recommendations are made:

1. Per the advice of Employee Relations Department and Medical Department supervision, Environmental Protection Department supervision should immediately pursue the establishment of a contract between Union Carbide and Henson Brothers, Inc. in order to provide asbestos training, medical surveillance, respirator fit testing (if necessary) and respirator training to the bulldozer and front end loader operators on a fee-for-service basis. When the contract is established, Industrial Hygiene personnel will be available to provide the required training and fit testing, upon request.

2. Environmental Protection Department supervision should take appropriate steps as soon as possible to insure that a sufficient quantity of suitable respirators are on hand for the heavy equipment operators and the Institute Plant truck drivers who must enter the regulated area. In addition, a routine program (if one does not

already exist) should be established with Safety Supply for the cleaning, disinfecting, inspection and repair of the respirators.

3. Maintenance Area VI supervision should contact this office as soon as possible to coordinate the respirator fit testing and training that is required for Institute Plant truck drivers to enter the landfill regulated area. (Note: Already underway at this time.)

4. Environmental Protection Department supervision should contact this office for assistance in establishing the regulated area at the landfill. (Note: Already underway at this time.)

Report Date: October 17, 1986

Signed: Erik A. Osby Bldg. 2 Room: 172 Phone 6105

NOTE: ALL PERSONAL SAMPLE RESULTS MUST BE DISCUSSED WITH THE PARTICIPATING EMPLOYEE

Union Carbide
Agricultural Products Company, Inc.
Institute Plant

## INDUSTRIAL HYGIENE SAMPLING RESULTS

WORKPLACE LOCATION: Landfill NAME(s) OF SAMPLER(s): E.A. Osby & J.L. Miller

CONTAMINANT: Asbestos REPORT DATE: October 17, 1986

OSHA PEL: $TWA_8$ 0.2 Fibers/cc, $TWA_{12}$ - ACGIH TLV: $TWA_8$ 0.2 Fibers/cc, $TWA_{12}$ -

AIHA WEEL: $TWA_8$ -, $TWA_{12}$ - UCC GUIDELINE: $TWA_8$ -, $TWA_{12}$ -

| Sample Number | Sample Date | Sample Description | Sample Time (min.) | Sample Results (fibers/cc)* |
|---|---|---|---|---|
| | | Front End Loader Operator | | |
| W-4700-AA7915 | 8-1-86 | L. E. Pauley | 265 | * * |
| W-4700-AA7923 | 8-1-86 | L. E. Pauley | 125 | * * |
| W-4701-AA7925 | 8-4-86 | L. E. Pauley | 170 | 0.11 |
| W-4701-AA7932 | 8-4-86 | L. E. Pauley | 225 | 0.099 |
| | | | | 0.10 |
| W-4702-AA7935 | 8-5-86 | L. E. Pauley | 375 | 0.068 |
| | | Bulldozer Operator | | |
| W-4700-AA7916 | 8-1-86 | C. E. Wheeler | 265 | 0.051 |
| W-4700-AA7924 | 8-1-86 | C. E. Wheeler | 120 | 0.17 |
| | | | | 0.09 |
| W-4701-AA7926 | 8-4-86 | C. E. Wheeler | 170 | 0.097 |
| W-4701-AA7933 | 8-4-86 | C. E. Wheeler | 225 | 0.10 |
| | | | | 0.099 |
| W-4702-AA7936 | 8-5-86 | C. E. Wheeler | 180 | 0.087 |
| W-4702-AA7940 | 8-5-86 | C. E. Wheeler | 195 | 0.12 |
| | | | | 0.10 |

| Sample Number | Sample Date | Sample Description | Sample Time (min.) | Sample Results (fibers/cc)* |
|---|---|---|---|---|
| | | Senior Enviromental Specialist | | |
| W-4700-AA7917 | 8-1-86 | J. R. Fizer | 375 | 0.01 |
| W-4701-AA7927 | 8-4-86 | J. R. Fizer | 395 | 0.018 |
| W-4702-AA7938 | 8-5-86 | J. P. Monroe | 205 | 0.028 |
| | | Teague Laborer | | |
| W-4701-AA7928 | 8-4-86 | R. L. Barker | 303 | 0.021 |
| W-4701-AA7934 | 8-4-86 | R. L. Barker | 90 | 0.016 |
| | | | | 0.020 |
| W-4702-AA7937 | 8-5-86 | A. E. Barker | 370 | 0.029 |
| W-4700-AA7918 | 8-1-86 | Back end of front end loader while asbestos was being worked into landfill | 35 | 0.39 |
| W-4700-AA7922 | 8-1-86 | Back end of front end loader while asbestos was being worked into landfill | 10 | 1.2 |
| W-4701-AA7929 | 8-4-86 | Back end of front end loader while asbestos was being worked into landfill | 15 | * * |
| W-4700-AA7919 | 8-1-86 | Drum crusher area | 304 | 0.0047 |
| W-4702-AA7939 | 8-5-86 | On side of bulldozer while asbestos was being worked into landfill | 15 | 0.98 |

* Personal sample results are reported as time-weighted averages.

** Sample could not be analyzed for asbestos fibers due to excessive dust accumulation.