TELEDYNE
BROWN ENGINEERING
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September 5, 2000

Mr. Donald P. Heim
AET, Inc.
28 N. Pennell Road
Media, PA 19063

Dear Mr. Heim:

On September 1, 2000 Robert Mahoney of Teledyne Brown Engineering, Inc. (TBE) performed a radiation survey on debris, rubble, glass drain pipes and at random locations at your job site located at 1500 Spring Garden Street in Philadelphia, Pennsylvania. Also present at the site were representatives of the State of Pennsylvania, Department of Environmental Protection (DEP). The DEP inspectors also performed radiation surveys on the items mentioned above. The surveys were prompted by the return of a truck load of debris and rubble from the disposal facility. Radioactive material was located in the truck and upon further investigation, it was determined that the source of radiation was a broken wall clock with a radium dial. Luminescent paint containing radium had been commonly used on instrument dials and clocks allowing the user to view them with limited available external light.

Due to this discovery, more surveys were performed in other suspected areas of the building and as a result of these surveys, glass drain pipes containing contamination were found in the basement. Smears and residue samples were taken from the pipes and returned to the TBE laboratory for analysis. Smear samples and direct readings were also taken at random locations on the first six floors of the building. No further contamination was detected. The glass pipes that were found contain removable Carbon-14 and Tritium (H-3) contamination at levels below those specified in the NRC document *"Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Materials"*. The term "unrestricted use" in the guideline refers to a site which no longer requires "radiological controls" to protect the health and safety of employees or the public. Urine bioassays to screen for internally deposited radioactive material will be performed on personnel as a precautionary measure, although the probability and risk of an uptake and internal exposure from the contaminated drain pipes and radium dial is considered to be low.

NMSS/RGN MATERIALS-002

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The surveys were conducted using several different radiation detection instruments designed to reveal the presence of low energy beta and gamma radiation. The smear samples taken were analyzed by Liquid Scintillation Counting. The results of the analysis are attached. A detailed final report including results of the bioassays will be submitted at the conclusion of the project.

Sincerely,

TELEDYNE BROWN ENGINEERING

Jeffrey M Guenther

Jeffrey M. Guenther, Manager
Radiological Services Department

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SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Glass Drain Pipe/Basement & Random Smears/Bldg.

SMEAR No.	H-3 Activity dpm/sample	C-14 Activity dpm/sample
#1 - Glass Pipe-Ceiling/Residue	647 ± 65	289 ± 29
#2 - Glass Pipe-Ceiling/Smear	554 ± 55	422 ± 42
#3 - Glass Pipe-Floor/Small Dia./Smear	217 ± 22	239 ± 24
#4 - Glass Pipe-Floor/Large Dia./Smear	126 ± 13	223 ± 22
#5 - Glass Pipe-Floor/Residue	750 ± 75	460 ± 46
Smears #6,7,8 Floor/Basement	<MDA	<MDA
Smears #9,10,11 3rd Floor	<MDA	<MDA
Smears #12,13,14 4th Floor	<MDA	<MDA
Smears #15,16,17 5th Floor	<MDA	<MDA
Smears #18,19,20 6th Floor	<MDA	<MDA
Smears #21,22,23 Loading Dock/Entrance	<MDA	<MDA

MDA = MINIMUM DETECTABLE ACTIVITY.
RELEASABLE = 1,000 dpm - beta - gamma/100cm^2

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RECOMMENDATIONS

BASED ON THE SURVEYS THAT WERE PERFORMED AND THE DATA FROM THE SAMPLE ANALYSIS, IT APPEARS THAT WORK CAN BE RESUMED FOLLOWING THESE RECOMMENDATIONS AND STANDARD SAFETY PROCEDURES FOR ANY PROJECT OF THIS TYPE. ***IT IS ADVISABLE TO SEEK THE ADVICE AND RECOMMENDATIONS OF THE STATE OF PENNSYLVANIA DEP AND THE NUCLEAR REGULATORY COMMISSION .***

ALL PERSONNEL SHOULD BE ADVISED TO RETURN ANY WALL CLOCKS THAT MAY HAVE BEEN REMOVED FROM THE JOB SITE.

ALL ***UNBROKEN*** WALL CLOCKS STILL PRESENT IN THE BUILDING SHOULD BE REMOVED AND TAKEN TO A SECURE LOCATION FOR FURTHER INSPECTION TO DETERMINE IF THEY CONTAIN RADIUM DIALS.

THE ENTIRE BUILDING SHOULD BE CHECKED FOR THE PRESENCE OF SMOKE DETECTORS . THE DETECTORS SHOULD BE REMOVED AND STORED FOR PROPER DISPOSAL.

BROKEN, DAMAGED OR CRUSHED CLOCKS AND SMOKE DETECTORS SHOULD ONLY BE HANDLED BY TRAINED PERSONNEL.

GLASS DRAIN PIPES SHOULD BE REMOVED BY DESIGNATED PERSONNEL AND PROPER ATTIRE SHOULD BE USED. GLOVES AND DUST MASKS OR HALF - FACE RESPIRATORS. ALL OPEN ENDS CAN BE TAPED PRIOR TO REMOVAL AND PIPES STORED IN A SECURE AREA FOR FURTHER EVALUATION.

NOTE: PROPER PERSONNAL HYGIENE IS A GOOD IDEA AT ANY JOB SITE. HANDS AND FACE SHOULD BE WASHED BEFORE EATING OR DRINKING. SMOKING AND EATING SHOULD BE LIMITED TO OUTSIDE THE IMMEDIATE WORK AREA.