New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

John P. Cahill
Acting Commissioner

MEMORANDUM

TO: Michael J. O'Toole, Jr., Director, Division of Environmental Remediation

FROM: Stephen B. Hammond, Director, Bureau of Central Remedial Action SBHammond

SUBJECT: Explanation of Significant Difference
CAE-ELECTRONICS - (formerly Singer Link Flight Simulator Division)

DATE: March 20, 1997

After under going several property changes since our Record of Decision (ROD) in March 1994, CAE-ELECTRONICS, the entity responsible for remediation of this property has conducted a value engineering review of the original design for this facility. The main difference in the new proposal versus the old, is excavation of all sludges and contaminated soils whereas the ROD had selected in-situ solidification of the contaminated soils. This new proposal adds a better level of performance to the remedy as all sludges and contaminated soils will be removed from the site.

Being in support of this proposal the Bureau has prepared the attached "Explanation of Significant Difference (ESD) as required by the National Contingency Plan (NCP). The document provides a more detailed explanation of the pending decision.

Our counterparts at the New York State Department of Health have reviewed and concur with the ESD. We recommend you approved the attached for release. Upon your approval we will schedule an availability session, with the forecast of approving the new design in March 1997.

MAR 21 1997 Michael J. O'Toole Jr.

Approval Date Michael J. O'Toole, Jr., Director, DER

Attachment
cc: T. Quinn

bcc: M. O'Toole (2)
W. Demick
R. Heerkens, NYSDOH
A. Carlson, NYSDOH
K. Farrar
file

WED:ker

Explanation of Significant Difference Regarding the Selected Remedy for

CAE - ELECTRONICS, INC.
(Formerly Singer Link Flight Simulator Division)
Site I.D. 704015
March 1997

Introduction:

The New York State Department of Environmental Conservation is announcing a significant difference in the scope of the remedy selected to clean up the CAE-ELECTRONICS site located in the Town of Fenton, Broome County, New York. The main difference in the new proposal versus the old, is excavation of all sludges and contaminated soils (to a selected action level of 80 ppm Cadmium) with offsite disposal. Whereas, the 1994 Record of Decision had specified removal and offsite disposal of sludges but insitu solidification of contaminated soils. All other aspects of the remedy remain the same, including action levels for Cadmium and Chromium in the soils. A public notice is being provided in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, and the National Contingency Plan (NCP, 40 CFR Section 300.435 (c)(2)(i).

Under the new design proposal each of the leaching pits previously utilized for wastewater disposal will be excavated. Remaining sludges, concrete block and contaminated soils will be removed for offsite disposal. Excavation will continue in a vertical and horizontal direction until action levels for the contaminants of concern are met. Excavations will be backfilled with clean offsite materials, then top soil and appropriate seeding will be emplaced.

Summary of Site History, Contamination Problems, and Selected Remedy:

The CAE Facility is located at 11 Beckwith Avenue in the Town of Fenton, Chenango County. This 15 acre facility is located in a mixed industrial/commercial/residential community approximately 1000 feet east of Interstate 88 and 2000 feet east of the Chenango River. The site is bordered on the east by rail lines and the Chenango Valley Cemetery, and on the north, west, and south by residential and commercial property. A small stream, Phelps Creek, exists approximately 300 feet south of the site. (See Figure 1).

This facility has produced aviation related products (primarily flight simulators and related equipment) since 1940. Generally, the eastern portion of the building complex was used for manufacturing, and the western portion for offices.

Prior to July 1986, industrial and other waste waters were discharged to a subsurface leaching system (004 outfall) regulated by a State Pollutant Discharge Elimination System Permit (SPDES). Processes (including contaminants) at the site which contributed to the wastewater discharge included plating (chromium, cadmium, silver, zinc,

copper, nickel, rhodium, gold and tin/lead alloy), degreasing and paint stripping (trichloroethene, 1,1,1-trichloroethane, methylene chloride).

Remedial history at the site consisted of the following actions:

October 1983 - Leaching pits A,B,C, and D of the 004 outfall were put out of service, excavated and removed.

July 1986 - Discharge of all industrial process water, boiler blowdown, sanitary, and cafeteria wastewaters at CAE was transferred to the Johnson City Sewer District.

During early 1988, samples were collected from a number of private drinking water supplies serving commercial establishments along the Brandywine Highway (Route 7) to the west of the CAE property. All the wells sampled were found to be contaminated with volatile organic chemicals common to the CAE groundwater contamination. Singer Link was asked to provide an alternate drinking water supply to these facilities and declined to do so. Groundwater investigations in this area were required of Singer Link as part of the RI/FS, as the wells in question are located within the area impacted by the Singer Link plume. The Town of Fenton has extended a water main into the area and connections have been made to these businesses.

Current Status:

The New York State Department of Environmental Conservation (NYSDEC) and the CAE Link Corporation (CAE) entered into an Administrative Consent Order in February 1988 which required CAE to conduct a Remedial Investigation/Feasibility Study (RI/FS) at its Hillcrest Facility to address the contamination at the site. The Hillcrest Facility had been the subject of prior investigations, as summarized below.

April 1985 - Report on "Hydrogeological Conditions at the Singer Company, Link Flight Simulator Division, Hillcrest Facility (H2M).

May 1986 - Phase II Report, Groundwater Investigation at Singer Link Company, Hillcrest Facility (H2M).

September 1987 - Phase III Report, Groundwater Investigation at Singer Link Company, Hillcrest Facility (H2M).

Summary of the Remedial Investigation:

The purpose of the RI was to define the nature and extent of contamination at the Hillcrest facility and to gather information necessary to select remedy. The remedial Investigation was conducted from July 1989 to September 1992. Reports entitled "Remedial Investigation, Link Flight Simulation Division, Hillcrest Facility" (H2M, 1990) and "Addendum to Remedial Investigation, Hillcrest Facility" (H2M, 1993) have been prepared describing the field activities and findings of the RI in detail. A summary of the RI follows.

The RI activities consisted of the following:

1. Contamination Source Investigation - The 12 former subsurface leaching pits in the 004 outfall system were investigation by drilling soil borings and collecting and analyzing soil samples.

2. Additional groundwater monitoring wells were installed to determine the extent of groundwater contamination associated with the Hillcrest Facility.

3. Hydrogeological investigation were conducted to confirm the lateral and vertical continuity of a silt layer below the contaminant plume.

4. A soil gas investigation was performed in the residential area adjacent to the Hillcrest Facility to evaluate the potential for the subsurface migration of volatile organic compounds.

The analytical data obtained from the RI was compared to Applicable Standards, Criteria, and Guidance, (SCGs), in determining remedial alternatives. Groundwater, drinking water and surface water SCGs identified for the Singer Link Flight Simulator Division Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values, Part 703 and Part V of the NYS Sanitary Code. For the evaluation and interpretation of soil and sediment analytical results, NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk based remediation criteria were used to develop remediation goals.

Based on the results of the remedial investigation and in comparison to the SCGs and potential public health and environmental exposure, certain areas and media of the site require remediation.

Areas of Concern:

1. The sludges and soils associated with twelve leaching pits which make up the former 004 outfall system contain significant levels of the heavy metals; cadmium, chromium, copper nickel, zinc and lead. The range of concentrations is listed below:

   Concentration Range (in milligrams per kilogram, or in parts per million)
   Contaminant

Cadmium	3.7 to 4,020 mg/kg
Chromium	45.9 to 8,410 mg/kg
Copper	135 to 14,700 mg/kg
Nickel	39.1 to 4,690 mg/kg
Zinc	87.8 to 6,110 mg/kg
Lead	29.5 to 1,070 mg/kg

The total volume of contaminated sludges in the bottoms of the various leaching pits is estimated at 40 cubic yards. The volume of contaminated soils surrounding the leaching pits is estimated at 1,400 cubic yards.

2. As a result of discharges through the former 004 outfall system the groundwater in the shallow aquifer beneath the Hillcrest Facility is contaminated, above New York State Standards for cadmium, chromium, trichloroethene, 1,1,1-trichloroethane, dichloroethene and dichloroethane (volatile organic contaminants or VOCs).

Concentrations of these contaminants in the groundwater are summarized below:

Concentration Range (in micrograms per liter, or parts per billion)

Contaminant on-Site	Range	RI Average	Standard
Cadmium	0-7,290 ug/l	1782 ug/l	10 ug/l
Chromium	0-21,900 ug/l	3761 ug/l	50 ug/l
Hexavalent Chromium	0-1,800 ug/l	332 ug/l	50 ug/l
Cyanide	0-395 ug/l	46 ug/l	200 ug/l
Trichloroethene	0-1,600 ug/l	219 ug/l	5 ug/l
Dichloroethene	0-620 ug/l	13 ug/l	5 ug/l
1,1,1-Trichloroethane	0-23 ug/l	9 ug/l	5 ug/l

Concentration Range (in micrograms per liter, or parts per billion)

Contaminant Off-Site	Range	RI Average	Standard
Cadmium	0-85 ug/l	28 ug/l	10 ug/l
Chromium	0-1090 ug/l	459 ug/l	50 ug/l
Hexavalent Chromium	0-330 ug/l	30 ug/l	50 ug/l
Cyanide	0-290 ug/l	6 ug/l	200 ug/l
Trichloroethene	0-594 ug/l	36 ug/lg	5 ug/l
Dichloroethene	0-30 ug/l	1 ug/l	5 ug/l
1,1,1-Trichloroethane	0-36 ug/l	8 ug/l	5 ug/l

Concentrations of chromium in groundwater are highest in Monitoring Well MW-10, located east of the plant buildings adjacent to one of the leaching pits in the former 004 outfall system, suggesting that the leaching pits are a continuing source of chromium to the shallow groundwater.

Concentrations of VOCs in groundwater are highest in the north-central portion of the Hillcrest Facility, and have decreased slowly through the period of study suggesting that the source of VOCs to the shallow aquifer has been reduced or eliminated, and that the contaminant plume is dissipating and moving downgradient.

The contaminant plume emanating from the Hillcrest Facility extends to the northwest beneath Chenango Street and I-88. Groundwater from the contaminant plume discharges to the Chenango River. The northern end of the contaminant plume does not extend within the influent of the town of Fenton Municipal water supply wells, and is south of the southern end of Cornell Avenue. The southern extent of the contaminant plume is in the vicinity of Hastings Street. (See Figure 2).

The heavy metals and VOC contamination in groundwater exists only in the shallow aquifer. The geology in the Hillcrest area is described in the RI as follows: The overburden formation is composed of sands and gravel sand glacial outwash deposits overlying silts and clays. The upper ten to thirty feet of saturated aquifer materials ranges from medium sand to cobbles more than six inches in diameter, and contains layers of compact silty sands and gravel, generally less than one foot thick and discontinuous. The underlying silt unit ranges in thickness from approximately 125 to 160 feet. Highly permeable sand and gravel terrace deposits are found below the silt unit, above Upper Devonian bedrock. The Town of Fenton municipal water supply is drawn from three wells screened in the lower sand and gravel. Groundwater flow is westward, towards the Chenango River which is the ultimate receptor of shallow groundwater leaving the CAE site.

Since the Municipal water supply wells pump water from the lower aquifer which is separated from the upper shallow aquifer by the thick, relatively impermeable silt layer, the heavy metals and VOCs should not impact the municipal water supply. Also, the contaminant plume in the shallow aquifer does not extend to the vicinity of the Town wells.

Information gathered in the RI was used in the FS to develop a list of possible alternatives to clean up the Site which would be protective of human health and the environment. The NYSDEC and NYSDOH proposed a remedial action plan and solicited public comments in February 1994. The selected remedy was then finalized in a Record of Decision (ROD), a document that outlines the chosen remedy and responds to public concerns. The ROD was signed by the NYSDEC on March 30, 1994.

Under a legal agreement (Order on Consent) between he NYSDEC and CAE, CAE had agreed to design and construct the remedy selected in the ROD. The selected remedy required CAE to complete or conduct the following:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS will be resolved.

2. Construction of a water service to the impacted residence, and provide bottled water, if desired, in the interim.

3. Removal of sludges at the base of the former subsurface leaching pits (004 outfall) and off-site disposal.

4. Injection of stabilization/fixation agents into the contaminated soils to fixate the contaminants within the soils, thereby reducing the overall solubility, toxicity and/or mobility of the contaminants. Metals are immobilized into insoluble compounds within the soil matrix, and organic contaminants are immobilized, and then, chemically altered into innocuous complexes.

   Chemicals used in stabilization/chemical fixation process typically include Portland cement, cement kiln dust, lime, bentonite, various types of clays, sodium silicate (water glass), slag, gypsum, etc. Proprietary treatment products are also available which serve to increase the number of active pore sites/surface area for chemical bonding reactions that take place.

   In-situ waste treatment of subsurface soils would be accomplished utilizing an auger mixing system mounted on a crane, backhoe or drilling rig. Cement slurries, and proprietary mixes or dry reagents used to stabilize and fixate the soils are injected through the mixing blades and are blended evenly into the soil column to produce a homogeneous mixture of soil and reagent. Reactions occur between the contaminants, reagents and organic matter in the soil, which produces a chemically and physically stabilized soil mixture. Treatability testing must be conducted to develop the most effective reagent mixture, chemical feed rate, and in-situ mixing method for this site application.

5. Monitoring of Surface Water and Groundwater.

   If the remedy results in hazardous waste remaining untreated at the site, a long term monitoring program would be instituted. This program would allow the effectiveness of the selected remedy to be monitored. This long term monitoring program would be a component of the operation and maintenance for the site and would be developed in accordance with the approved design for the site.

   The monitoring program will include, once sufficient data exists to define a significant trend in groundwater contaminant concentrations, an evaluation to determine if further remedial action, including groundwater recovery and treatment, is necessary to achieve the goals of the remedial program for this site.

   Specifically, the monitoring program will include groundwater monitoring to confirm the reduction in contaminant concentrations over time, and sampling in the Chenango River and any other potentially impacted surface water bodies to monitor potential impacts to wildlife.

Description of the Significant Differences and the Basis for Those Differences:

During the process of investigating this site, several changes of ownership occurred,

most recently December 1994 to Hughes Training and June 1996 to Elliot Manufacturing. Although CAE Electronics maintained management of the environmental problems the influence of the other firms had a retardation effect on the project.

As a result of corporate policy and based upon the value engineering review conducted, it is now proposed to modify the Record of Decision as depicted in the following matrix.

ACTIVITY	1994 ROD	1997 ESD
Sludges	off-site disposal	off-site disposal
Soils	chemical solidification on site	*off-site disposal*
Groundwater	monitoring	monitoring
Single Residence	connect to public water (done)	_____

The Department is in agreement with CAE-Electronics that the proposed change in design, *off-site disposal* of contaminated soils, will meet the desired cleanup goals and be equally protective of public health and the environment. Therefore in an effort to move this project forward, the Department has issued the "Explanation of Significant Difference" to the public to document the change.

As indicated in the above matrix all other components of the proposed remedy remain the same.

Affirmation of the Statutory Determinations:

Upon evaluating the change in scope of the remedy for addressing contaminated soils, off-site disposal versus chemical solidification on site, the NYSDEC believes and the NYSDOH concurs that the change of remedy in this project continues the protectiveness to the human health and environment, complies with federal and State requirements that are applicable, or relevant and appropriate to this remedial action. In addition, the selected remedy continues to utilize permanent solutions to the maximum extent practicable for the site.

Public Participation Activities:

Information regarding the change in addressing contaminated soils at this site is available in the administrative record that document the decision made regarding cleanup

of the site. These documents are available for public inspection at the information repositories listed below:

NYSDEC
Kirkwood Sub-Office
1679 NY Route 11
Kirkwood, NY 13795-9772
(607)775-2545

NYSDEC
Central Office
50 Wolf Rd.
Albany, NY 12233-7010
(518)457-5637
Prog. Mngr. Kevin Farrar

NYSDOH
Office of Public Health
217 S. Salina Street
Third Floor
Syracuse, NY 13202
(315)436-7613
Attn: Ronald Heerkens