DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Former Cessna Aircraft Facility, Aircraft Radio and Control Division
Facility Address: Rockaway Valley Road, Boonton Township, New Jersey
Facility EPA ID #: NJD002155448

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EIs are near-term objectives, which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI is for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Facility Description

The Former Cessna Aircraft Facility is located on approximately 160 acres and consisted of several

manufacturing and storage buildings. (See Figure 1.) The Cessna facility commenced operations in 1941 and ceased operations in late 1983. No active aviation business or manufacturing processes currently operate at the site. Cessna manufactured electronic components for aircraft communications and navigation, which included the manufacturing of microcircuitry, metallic housings for circuit boards, printed circuit boards, and assembly of components. The manufacturing process generated solvent and plating wastes. Most of the plating wastes were discharged to a surface impoundment. Groundwater at the site flows generally west-northwest, toward Stony Brook, which forms the northwestern site boundary. Land use in the surrounding area is mostly residential, with some other industrial land use in the area.

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   __X__ If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

Summary of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs): The SWMUs and AOCs listed below have been identified at the facility and are considered for this evaluation. (The locations of SWMUs and AOCs are shown on Figure 2 and Figure 3.)

SWMU #1 - Inactive Refuse Landfill: The former landfill encompassed approximately 14,000 square feet with an average thickness of five feet. (See Figure 2.) Refuse material included construction and demolition material, printed circuit boards, and radio parts. Sampling revealed VOCs in soil and groundwater. Approximately 3,500 cubic yards of contaminated soil and refuse were removed. Post-excavation soil sampling confirmed all contaminated soil was removed. No further action was required for the soil. A groundwater pump and treat system operated in this area from 1992 to 1994. The system was permitted by NJDEP to be shut down, on a trial basis, to determine whether the contaminant levels in the groundwater would continue to decline, remain stable, or increase following the cessation of pumping. Groundwater is being monitored in this area.

SWMU #2 - Inactive Sludge Landfill: This was an area for disposal of sludge from SWMU #4. This SWMU encompassed approximately 7,000 square feet and was three to six feet deep. (See Figure 2.) Sampling revealed soil and groundwater contamination. Approximately 1,400 cubic yards of contaminated soil was excavated from the area. Post-excavation soil sampling showed no remaining soil contamination. No further action was required for the soil. Due to the proximity of SWMU #1 and SWMU #2, the contaminated groundwater from these SWMUs is being addressed as described under SWMU #1, above.

SWMU #3 - Closed Wastewater Disposal Lagoon: RCRA-regulated hazardous waste unit used to contain facility wastewater discharges, containing spent solvents, heavy metals and cyanide. The unit had a capacity of 120,000 gallons, and had a 1/4 acre surface area. (See Figure 3.) The unit was unlined, and operated from 1959 to 1983. Contaminated soil associated with the lagoon was excavated and NJDEP required no further action. Dense non-aqueous phase liquid (DNAPL) was identified in subsurface soil during the drilling of monitoring well MW-33, downgradient of the former lagoon. Contaminated groundwater is being remediated in this area via a pump and treat system, since August 1992.

SWMU #4 - Four Infiltration/Percolation Underground Storage Tanks (I/P USTs): RCRA-regulated tanks, with a total capacity of 10,000 gallons, were used for storage, on an intermittent basis,

when the RCRA-regulated Wastewater Disposal Lagoon reached capacity. (See Figure 3.) The tanks were taken out of service in 1984. One tank was removed and three tanks were emptied and filled with sand. Soil boring test results showed no contaminants or contaminants below NJDEP clean-up levels. No further action was required for the soil. Groundwater contamination from the tanks is being addressed by the groundwater remedial system described under SWMU #3.

SWMU #5 - Drum Storage Area (Basement Building No. 10): Former drum storage area located in basement of Hangar building (Building #10). Core samples collected from beneath the drum storage pad showed contaminants of concern were either not detected or were below NJDEP cleanup standards. No further action was required.

SWMU #6 - Drum Storage Area (Maintenance Building No. 11): Building was used to store equipment and supplies for maintenance of grounds and buildings. Materials stored included oils, grease, brake fluid, diesel fuel, gasoline and paints. Approximately 20 cubic yards of VOC- and total petroleum hydrocarbon (TPH)-contaminated soil was excavated. Post-excavation soil sample results were non-detect. No further action was required.

SWMU #7 - Drum Storage Area (Behind the Maintenance Garage): Drum storage area identified by NJDEP (DWR Enforcement) behind maintenance garage. Investigations showed that the concentrations of contaminants in the soil were below NJDEP cleanup standards. No further action was required.

SWMU #8 - Non-hazardous Waste Incinerator/Former Incinerator Pad: Non-hazardous waste incinerator and associated drum storage pad used to store containerized waste. Soil and groundwater sample results showed non-detect or concentrations below NJDEP cleanup standards. No further action was required.

SWMU #9 - Two Aboveground Storage Tanks: The tanks had a total capacity of 1,100 gallons and stored incoming raw materials (trichloroethane). No further action was required for this SWMU.

AOC #1 - Fenceline Areas: Past practices included dumping waste oil contaminated with waste solvents along property fencelines for the purpose of weed and dust control. Soil sampling indicated volatile and semi-volatile organic compounds below detection limits and non-detected, respectively. No further action was required for the soil. VOCs were detected in the groundwater in the Northern Runway Area portion of AOC #1. NJDEP has determined that the groundwater contamination in the Northern Runway Area is most likely due to both former dumping by Cessna and migration of contaminated groundwater from the upgradient Johanson Manufacturing site. The Northern Runway Area is not within the influence of the active groundwater pump and treat system at Cessna. The groundwater in this area is being monitored on a quarterly basis. (This AOC is not shown on the attached Figures.)

AOC #2 - Miscellaneous Subsurface Disposal Units: These units include twenty-two (22) septic tanks, sumps, cesspools, dry wells, and seepage pits. The contents of the units were cleaned out and properly disposed. Results of soil, groundwater, and sludge/sediment sampling demonstrated that

contaminant levels, where detected, were below applicable cleanup standards at all 22 units, except the Spray Booth Sump (SBS). (The Spray Booth Sump is shown on Figure 3.) The SBS reportedly received floor drainage from the former spray booth. Approximately 80 cubic yards of PCB-contaminated soil and sump materials were removed, and the area was backfilled with clean fill. No further action was required for this AOC.

AOC #3 - Interior Basement Wall (Buildings 4 and 5): Operations conducted at these buildings consisted of metal plating, etching, and the use of lead-based paints. Results from core samples from beneath the concrete floor and a chip sample from material buildup on the wall were below NJDEP cleanup standards. No further action was required for this AOC.

Reference(s):

(1) Final Hazardous and Solid Waste Amendments (HSWA) of 1984 Permit issued by U.S. EPA on September 30, 1997, for the Former Cessna Aircraft Facility, Aircraft Radio and Control Division, EPA I.D. No. NJD002155448.
(2) Letter dated January 8, 1998 from Thomas B. Waldron, Dan Raviv Associates, Inc., to Richard Burgos, NJDEP, "Re: Summary of Spray Booth Sump Excavation and Soil Removal."
(3) Letter dated May 27, 1998 from Brian Moore, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Summary of Spray Booth Sump Excavation and Soil Removal, January 8, 1998; Alternate Plume Containment Work Plan, March 30, 1998."
(4) Letter dated March 30, 1998 from Daniel Nachman, Dan Raviv Associates, Inc., to Mr Richard Burgos, NJDEP, "Re: Alternate Plume Containment Work Plan."
(5) Letter dated May 13, 1997 from Stephen E. Maybury, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Spray Booth Sump Investigation, Sample Results and Remedial Action Workplan, December 15, 1996."
(6) Letter dated November 26, 1996 from Stephen A. Maybury, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Cessna Aircraft–ARC Avionics Div.
(7) Work Plan for an Investigation of Former Drum Storage Areas, prepared by Geraghty & Miller, Inc., dated January 1991.
(8) Cleanup Plan, Prepared for Aircraft Radio and Control, Division of Cessna Aircraft Company, prepared by Woodward Clyde Consultants, September 25, 1985, Revised April 23, 1986.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

Media	**Yes**	**No**	**?**	**Rationale / Key Contaminants**
Groundwater	X			VOCs, including: 1,1,1-trichloroethane; 1,1-dichloroethane; 1,1-dichloroethene; cis-1,2-dichloroethene; tetrachloroethene; trichloroethene, vinyl chloride, chloroform
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment		X		
Subsurface Soil (e.g., >2 ft)	X			Dense non-aqueous phase liquid (DNAPL)
Air (outdoors)		X		

_____ If no (for all media) - skip to #6, and enter "YE,"status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

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[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Rationale:

Groundwater: Releases from SWMU #1 (Inactive Refuse Landfill), SWMU #2 (Inactive Sludge Landfill), SWMU #3 (Closed Wastewater Disposal Lagoon), SWMU #4 (Infiltration/Percolation Underground Storage Tanks), and AOC #1 (Fenceline Areas) have resulted in groundwater contamination at the site. The contaminant concentrations in the groundwater on-site exceed the applicable NJDEP Groundwater Quality Criteria (NJ GWQC) for Class II-A groundwaters. The contaminants listed in the table above exceed their respective NJ GWQC.

SWMU #1 and SWMU #2 were located in the northern portion of the site, west of the hangar (Building #10). This area is referred to as the "ECRA Area", and the area just to the south of this area is referred to as the " Engle Property". Quarterly groundwater sampling from October 2000 detected exceedences of the NJ GWQC in several monitoring wells in the ECRA Area and Engle Property, as shown on Table 1 (attachment to checklist). Table 1 lists the monitoring wells, contaminants, concentrations, and NJ GWQC. The wells in the ECRA Area that exceeded the NJ GWQC were MW-19SR, MW-20, MW-21S, MW-23S and MW-23D. The wells on the Engle Property that exceeded the NJ GWQC were TMW-D and TMW-E. (See Figure 2 for monitoring well locations.)

SWMU #3 and SWMU #4 were located in the southern portion of the facility. This area is referred to as the "RCRA Area". Quarterly groundwater monitoring data from October 2000 showed several wells that contained contaminants that exceeded the NJ GWQC. Table 1 lists the wells, contaminants, concentrations, and NJ GWQC. The wells in the RCRA Area that exceeded the NJ GWQC were MW-1R, MW-7, MW-8, MW-9, MW-10, MW-28S, MW-28M, MW-33, MW-34S, MW-35S, MW-35D, MW-36S, MW-36D, MW-37S, and P-1. (See Figure 3 for monitoring well locations.)

AOC #1 includes the Northern Runway Area. Quarterly groundwater monitoring data from October 2000 showed exceedences of NJ GWQC in one monitoring well (MW-5) in the Northern Runway Area. Table 1 (under the heading "ECRA Area") includes MW-5, which is located in the Northern Runway Area. The Table lists the contaminant that exceeded the NJ GWQC, the concentration, and the NJ GWQC. (See Figure 2 for monitoring well locations.)

Air (indoor): Indoor air quality can be adversely impacted in structures located above and adjacent to groundwater with volatile contaminants. The Johnson-Ettinger Model for Subsurface Vapor Intrusion into Buildings was used to calculate the incremental risks to indoor air based on the groundwater contaminant concentrations at the site. There is no current groundwater quality data from beneath or adjacent to the buildings. However, as a conservative assumption, the highest groundwater contaminant concentrations from monitoring wells located closest to the buildings were used, and it was assumed that the contaminant concentrations were under the buildings. The model was applied several times, for different locations and contaminants at the site. The results of the model indicated that the groundwater concentrations do not pose an unacceptable risk to the quality of indoor air. See attached, the worst case result of running the model.

Surface Soils (e.g., <2 ft): Contaminated surface soils and waste materials have been removed from the site, as described in the list of SWMUs in Question #1 above.

Surface Water: Stony Brook flows through and adjacent to the northwestern side of the Former Cessna Aircraft Facility. Stony Brook has been classified by NJDEP as FW2-NT surface water. The designated uses of these waters are the following:

1. Maintenance, migration and propagation of the natural and established biota;
2. Primary and secondary contact recreation;
3. Industrial and agricultural water supply;
4. Public water supply after conventional filtration treatment and disinfection; and
5. Any other reasonable uses.

Surface water in Stony Brook is sampled on a quarterly basis at three locations at the site. Based upon this information, the surface water in Stony Brook does not appear to be impacted by contamination from the facility.

Sediment: There has been no documented sediment contamination in Stony Brook or associated wetlands as a result of site related activities at the Former Cessna Aircraft Facility. In addition, a September 29, 1998 letter, from NJDEP to Textron, Inc., specifies "It is unlikely that the contaminated groundwater would partition onto the wetland soils at concentrations that would cause any adverse ecological effects to terrestrial receptors." "Typically, groundwater contaminated by volatile organic compounds are more of a concern when discharged to surface water; the surface water sampling conducted in Stony Brook does not indicate a discharge above the appropriate screening criteria."

Subsurface Soils (e.g., >2 ft): Contaminated soils and waste materials have been removed from the facility, as described in the list of SWMUs and AOCs in Question #1 above. In a limited area downgradient of SWMU #3, VOC concentrations in groundwater have been sufficiently high to indicate the potential presence of dense non-aqueous phase liquid (DNAPL) in the subsurface. DNAPL was identified in the subsurface soil in this area only during the drilling of monitoring well MW-33. Strong organic odors and high organic vapor analyzer (OVA) field screening readings were observed in the soil at a depth of 56 to 58 feet below ground surface. Soil samples from this interval exhibited a positive determination for DNAPL using hydrophobic dye in the field. This is the only direct evidence of the presence of DNAPL at the site. The dissolved contaminants in the groundwater in this area are being addressed by the RCRA Area groundwater pump and treat system.

Air (outdoors): There is no reason to believe that outdoor air has been impacted based on the contaminants detected, and the high degree of air mixing that would occur in the area of the site due to normal air flow.

Reference(s):

(1) Annual Groundwater Remedial Progress Report, Fourth Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT corporation, dated January 18, 2001.

(2) Quarterly Groundwater Remedial Progress Report, Third Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT Corporation, dated October 10, 2000.
(3) Quarterly Groundwater Remedial Progress Report, Second Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT Corporation, dated August 3, 2000.
(4) Quarterly Groundwater Remedial Progress Report, First Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT Corporation, dated April 20, 2000.
(5) Annual Groundwater Remedial Progress Report, Fourth Quarter 1999, Former Cessna ARC Facility, Textron, Inc., prepared by IT corporation, dated January 7, 2000.
(6) Letter dated September 29, 1998 from Bryan Moore, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Baseline Ecological Evaluation dated August 1998".

(7) Baseline Ecological Evaluation for the Former Cessna/ARC Facility, prepared by IT Corporation, dated August 1998.
(8) Letter dated March 30, 1998 from Daniel Nachman, Dan Raviv Associates, Inc., to Mr Richard Burgos, NJDEP, "Re: Alternate Plume Containment Work Plan."
(9) Letter dated November 26, 1996 from Stephen A. Maybury, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Cessna Aircraft–ARC Avionics Div.
(10) Johnson-Ettinger Model for Subsurface Vapor Intrusion into Buildings, by Paul Johnson and Robbie Ettinger (available at the EPA web site: www.epa.gov/superfund/programs/risk/airmodel/johnson_ettinger.htm)

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table
*Potential **Human Receptors** (Under Current Conditions)*

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	No	No	No	--	--	No
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)	--	--	--	No	--	--	No
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces. These spaces instead have dashes ("--"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__X__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale:

Groundwater:
SWMU #1 and SWMU #2 (ECRA Area): A groundwater pump and treat system operated in the "ECRA Area" from 1992 until late 1994. Operation of the pump and treat system has been suspended on a trial basis due to the low concentrations of contaminants that were being pumped from the groundwater. The groundwater quality in the ECRA Area and in the adjacent Engle Property is being monitored to see if the contaminant levels in the groundwater in the area continue to decline, remain stable, or increase following the cessation of pumping. The pump and treat system is required to be kept on standby, in case contaminant levels increase significantly and/or groundwater contamination from the area is determined to be impacting, or is about to impact a receptor, including Stony Brook. The site is located in a groundwater use area in which there is no public potable water system. Sampling data has shown that there has been no impact to on-site potable wells, off-site domestic potable wells, or to Stony Brook from the groundwater contamination in this area.

SWMU #3 and SWMU #4 (RCRA Area): A groundwater remediation system has been operating in the RCRA Area since 1992. A second recovery well was installed in September 1999 to further establish and maintain hydraulic control and to remediate the contaminated groundwater in this area. The recovery wells, RW-5 and RW-6, are screened from 20 to 50 feet below ground surface and 10 to 45 feet below ground surface, respectively. During the fourth quarter of 2000, the recovery wells were pumped at a combined rate of approximately 30 gallons per minute. The pumping rate may be increased if groundwater sampling results over time indicate that the plume is not being captured at this pumping rate. The recovered groundwater is treated with granular activated carbon, prior to reinjection on-site, upgradient and outside the capture zone of the groundwater recovery wells. From the start-up of the pump and treat system in 1992, through December 2000, approximately 75 million gallons of groundwater have been recovered, treated, and reinjected. The groundwater contamination is not known to extend beyond the RCRA Area. Sampling of on-site potable wells, off-site domestic potable wells, and Stony Brook, which borders this area, shows that there has been no impact to these receptors from the groundwater contamination in the RCRA Area.

AOC #1 - Northern Runway Area: NJDEP has determined that groundwater contamination in this area is most likely due to both former dumping by Cessna of waste oil contaminated with chlorinated solvents, and migration of contaminated groundwater from the upgradient Johanson Manufacturing Corporation site. Cessna monitoring well MW-5 has shown trichloroethene (TCE) over the last four years ranging from 28 ug/l to 46 ug/l. MW-14, which is located downgradient of this area has historically shown either non-detection or very low levels of TCE, at concentrations below or approximately equivalent to the NJ GWQC. Domestic potable wells have been sampled in a residential area adjacent to the Northern Runway. The domestic well sampling was initially conducted as part of the ISRA investigation of the Cessna site. However, based on the investigations of the Cessna site and the Johanson Manufacturing

Corporation site, NJDEP concluded that subsequent sampling of the residential wells would be conducted as part of the investigation of the Johanson Manufacturing Corporation site. The NJDEP identified nine potable wells to comprise the residential well sampling program. No organic contaminants were detected in six of the wells. TCE, ranging from 1.8 ug/l to 2.1 ug/l (NJ GWQC: 1 ug/l), was detected in one residential well. Johanson Manufacturing Corporation installed a groundwater treatment system at the residence in December 1995. TCE was detected in the groundwater in a potable well at a second residence at concentrations ranging from 1.6 ug/l to 2.2 ug/l; and 1,2-DCE, PCE, and 1,1,1-TCA were detected below 1 ug/l. The TCE concentrations exceeded the NJ GWQC for TCE of 1 ug/l, but did not exceed the EPA Maximum Contaminant Level (MCL) of 5 ug/l. The NJDEP has reported that, following three quarterly rounds of sampling, the resident declined further sampling and the resident indicated that he was not interested in any further action. In addition, the resident did not respond to NJDEP's correspondence regarding information on the availability of the installation of a treatment system. At a third residence, the homeowner declined three quarterly rounds of sampling and then requested sampling. TCE was detected in the residential well at 3.4 ug/l; and 1,2-DCE and 1,1,1-TCA were detected at less than 1 ug/l. The homeowner of the third residence installed and is maintaining a carbon treatment system for the groundwater.

The off-site residential well sampling has been conducted as part of the Johanson Manufacturing Corporation site investigation, with oversight by NJDEP. The NJDEP has not attributed any off-site residential well contamination to the Cessna site. Actions have been taken by the Johanson Manufacturing Corporation to address the impacted wells. The wells have been sampled and treatment systems have been installed. One homeowner refused access for additional groundwater sampling, indicated that he was not interested in any further action, and did not respond to correspondence from NJDEP regarding the availability if the installation of a treatment system. The TCE concentration in the well ranged from 1.6 ug/l to 2.2 ug/l. These concentrations exceed the NJ GWQC for TCE of 1 ug/l, however, they do not exceed the EPA MCL of 5 ug/l. In addition, the contamination in this well has not been attributed to the Cessna site.

Sampling of on-site potable wells, and Stony Brook shows that there has been no impact to these receptors from the groundwater contamination in the Northern Runway Area.

Workers conducting groundwater sampling and operating the groundwater recovery and treatment system are required to follow the Site-Specific Health and Safety Plan, which would mitigate any exposure to contaminated groundwater.

Subsurface Soil (e.g., > 2 ft): In a limited area downgradient of SWMU #3, VOC concentrations in groundwater have been sufficiently high to indicate the potential presence of dense non-aqueous phase liquid (DNAPL) in the subsurface. DNAPL was identified in the soil during the drilling of monitoring well MW-33, at a depth of 56 to 58 feet below ground surface. This is the only direct evidence of the presence of DNAPL at the site. Due to the depth at which the DNAPL was identified in the soil, human exposure to the contamination cannot reasonably be expected under the current land use conditions. The primary focus downgradient of SWMU #3 is capturing the dissolved VOC plume. Geological and analytical data from recent borings installed in the RCRA Area was used for the design and placement of an additional groundwater recovery well. The recovery wells were designed to capture the extent of the

dissolved contaminants in the groundwater. The contaminated groundwater in this area is being remediated by a groundwater pump and treat system, as discussed under SWMU #3 and SWMU #4 above.

Reference(s):

(1) Letter dated March 29, 2001, from Stephen Maybury, NJDEP, to Alan Straus, EPA, "Re: Cessna Aircraft Company, Boonton Twp., Morris County, ISRA Case # E84091, EPA I.D. # NJD002155448."
(2) Quarterly Groundwater Remedial Progress Report, Second Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT Corporation, dated August 3, 2000.
(3) Quarterly Groundwater Remedial Progress Report, First Quarter 2000, Former Cessna ARC Facility, Textron, Inc., prepared by IT Corporation, dated April 20, 2000.
(4) Letter dated July 12, 2000 from Bryan Moore, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Final Report - Alternate Plume Containment Work Plan, dated January 12, 2000, Annual Progress Report - 1999, dated January 24, 2000, Recovery Well Abandonment, dated February 17, 2000."
(5) Letter dated October 7, 1998, from Barker G. Hamill, NJDEP, to Pat Pignatelli, Township of Boonton Health Department, "Re: Private Potable Well Water Analysis in the vicinity of the Cessna Aircraft-ARC Avionic Division Site, 199 Rockaway Valley Road, Boonton Township, Morris County."
(6) Letter dated March 30, 1998 from Daniel Nachman, Dan Raviv Associates, Inc., to Mr Richard Burgos, NJDEP, "Re: Alternate Plume Containment Work Plan."
(7) Site-Specific Health and Safety Plan, Former Cessna/ARC Facility, Boonton, NJ, prepared by IT Corporation, dated February 25, 1998.
(8) Letter dated November 26, 1996 from Stephen A. Maybury, NJDEP, to Robert C. Brayley, Textron, Inc., "Re: Cessna Aircraft–ARC Avionics Div.
(9) Letter dated December 22, 1994, from Daniel Nachman, Geraghty & Miller, Inc., to David Sweeney, NJDEP, "Re: NJPDES/DGW Permit No. NJ0099074: Fourth Quarter Monitoring Report 1994, Former Cessna ARC Facility, Boonton, New Jersey.
(10) Fourth Annual Report on the Effectiveness of the Groundwater Monitoring System and Interim Remedial Measures Former Cessna ARC Facility, Boonton, New Jersey, prepared by Geraghty & Miller, Inc., dated July 1994.
(11) Letter dated June 27, 1994 from Geraghty & Miller, Inc. to NJDEP, "Re: NJPDES/DGW Permit No. NJ0099074: Second Quarter 1994 Groundwater Monitoring Report, Former Cessna ARC Facility, Boonton, New Jersey.
(12) Letter dated November 10, 1992 from Lynne Buzzi, Enseco Inc., to John Leatherdale, Trace Technologies, Inc., Results of analysis of drinking water samples taken 10/21/92.
(13) Letter dated January 27, 1992 from Barker G. Hamill, NJDEP, to James Gallo, Kinnelon Board of Health, "Re: Private Potable Well Water Analysis in vicinity of Cessna Aircraft ARC Division and Johanson Manufacturing Corporation sites, Boonton Township, Morris County."

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s): This question is not applicable, see answer to Question #3.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s): This question is not applicable, see answer to Question #3.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

__X__ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Former Cessna Aircraft Facility, Aircraft Radio and Control Division facility, EPA ID # NJD002155448, located at Rockaway Valley Road, Boonton Township, New Jersey under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by: original signed by **Date**: 04/18/01
Alan Straus, Project Manager
RCRA Programs Branch
EPA Region 2

original signed by **Date**: 04/18/01
Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Approved by: original signed by **Date**: 04/27/01
Raymond Basso, Chief
RCRA Programs Branch
EPA Region 2

Locations where References may be found: References reviewed to prepare this EI determination are identified after each response. Reference materials are available at the U.S. EPA Region 2, RCRA Records Center, located at 290 Broadway, 15th floor, New York, New York, and the New Jersey Department of Environmental Protection Office located at 401 East State Street, Records Center, 6th Floor, Trenton, New Jersey.

Contact telephone and e-mail numbers:

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Attachments:

Table 1 - Summary of Groundwater Analytical Results Above Groundwater Cleanup Standards
Figure 1 - Facility Plan
Figure 2 - Water Table and SWMU/AOC Map
Figure 3 - Water Table and SWMU/AOC Map
Johnson & Ettinger Model results.

Attachments truncated, see facility file (MSS, 06/13/02)