Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Anitec Image Corporation Site
Operable Unit #6 - Chenango River
Binghamton (C), Broome County
Site Number 7-04-022

March 1997

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Acting Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

ANITEC IMAGE CORPORATION SITE

Operable Unit #6 - Chenango River

City of Binghamton, Broome County, New York
Site No. 7-04-022
March 1997

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for Operable Unit 6 (OU#6) of the Anitec Image Corporation inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Anitec Image Corporation Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Upon completion of an Interim Remedial Measure (IRM) to address cadmium and silver contaminated sediments in the Chenango River, no hazardous waste would remain associated with this operable unit of the Anitec Image Corporation Site. Therefore actual or threatened release of hazardous waste constituents from OU#6 of the site will no longer be a concern.

Description of Selected Remedy

Based on the results of the remedial investigation (RI) for OU#6 of the Anitec Site the NYSDEC has determined that no further action is necessary, once the ongoing IRM is completed.

Subsequent to the completion of the IRM, it is anticipated that OU#6, the Chenango River Sediments, would be removed from the description of the Anitec Image Corporation Site in the Registry of Inactive Hazardous Waste Disposal Sites.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/27/97
Date

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

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SECTION 1: SITE LOCATION AND DESCRIPTION

The Anitec Image Corporation (Anitec) Site, Site No. 704022, is located at 40 Charles Street in the City of Binghamton, Broome County, New York. Anitec maintains and operates a manufacturing facility on the site. The site occupies a property of approximately 35 acres. Immediately adjacent to the facility are the Spring Forest Cemetery and a cogeneration power facility as well as residential and industrial areas.

Operable Unit No. 6 is the subject of this PRAP. Operable Unit 6 (OU6) consists of the segment of the Chenango River which is located approximately one mile east of the Anitec Image main plant site. This parcel of property is not contiguous to Anitec Image's main plant site. It is located in the Chenango River at the vicinity of the of Trout Brook outfall. See Figure 1 for the location of this operable unit.

An Operable Unit represents a discrete portion of the remedy for a site which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the contamination present at a site. The remaining operable unit(s) for this site are described in Section 2.2 below.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

Anitec Image, Division of International Paper Company ("Anitec") operates an imaging products manufacturing facility in Binghamton, New York. The facility has operated under a succession of different owners. In 1902, a merger between Anthony Company and Scovill & Adams Company resulted in the name Ansco. General Aniline Film (GAF) operated the facility from 1942 to 1981. In 1981, a group of investors formed Anitec Image Corporation and purchased the facility from GAF. International Paper Company purchased Anitec in December 1987, and in January 1990, Anitec was merged into International Paper Company. Due to historic unregulated

liquid discharges to Trout Brook, which drains into the Chenango River in the area of McDonald Street in the City of Binghamton, silver and cadmium were detected in Chenango River sediments.

2.2: Remedial History

This site was selected as a Multi Media Pollution Prevention (M^2P^2) Facility in May 1991. The New York State Department of Law and the DEC required Anitec to perform various programs to address M^2P^2 concerns identified at this site. Anitec has completed most of the required programs. On October 15, 1992 Anitec and the DEC entered into a consent order requiring Anitec to perform a remedial investigation/feasibility study(RI/FS). Prior to entering into the RI/FS consent order the following remedial measures were performed:

- In 1988 the below ground chemical storage tanks located at the Building 32 area were removed. At that time the DEC required Anitec to dispose of contaminated soil excavated during tank removal. Approximately 200 cubic yards of soil were removed.

- In 1990 a soil vapor extraction system was install to remove volatile organic compounds (VOCs) from subsurface soils in the Buildings 14 & 32 areas.

- Removal of a residual coal pile from the Building 8 Powerhouse.

Operable Unit 1 (OU1) consists of the former Building #8 Powerhouse and the associated coal storage area. This parcel of property is not contiguous to Anitec Image's main plant site. It is located southwest of the main plant site on Clinton Street. The Record of Decision (ROD) for OU1 was signed in March 1996.

Operable Unit 2 (OU2) addressed surface soils with elevated levels of cadmium, silver, barium and arsenic at 51 Mygatt Street. The ROD for OU2 was signed in March 1995 and remediation of the contaminated surface soil was completed in June 1996.

Operable Unit 3 (OU3) involves two separate areas located on the main plant site. The Building 95 area was used to remove ammonia from a liquid waste stream prior to treatment at Anitec's Building 96 wastewater pretreatment plant. Both areas require remediation due to high levels of silver and cadmium in soils.

Operable Unit 4 (OU4) involves two contiguous areas on the east side of the main plant site. Low level VOCs have been detected in site soils in these two areas.

Operable Unit 5 (OU5) addresses all groundwater under the main plant site. Low levels of VOCs have been detected at various locations in a portion of the aquifer located under the main plant site. The ROD for OU 3,4 & 5 was signed in March 1996.

OU1 through OU5 are not addressed by this document, only OU6, the Chenango River sediments will be the subject of this ROD.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and the environment, Anitec Image has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The Operable Unit No. 6 RI was conducted in various phases between November 1993 and November 1996. The "Remedial Investigation Report-Anitec Image Division of International Paper Company-Binghamton, New York" dated February 1995, the "Phase 2 Remedial Investigation Report" dated August 1995, the "Phase 2 Remedial Investigation Addendum - Chenango River Sediment Investigations" dated December 1995, and the "Operable Unit 6 Chenango River Sediments Remedial Action Work Plan" dated November 1996 have been prepared describing the field activities and findings of the RI in detail.

The RI activities included the following:

- River sediment sampling for cadmium and silver.
- Benthic organism sediment toxicity testing.

To determine which media (sediments, surface water, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). For the evaluation and interpretation of sediment analytical results, NYSDEC Division of Fish and Wildlife required Anitec to perform mortality and growth studies of the benthic organisms in the Chenango River to develop remediation goals for the sediments. Chemical concentrations are reported in milligrams per kilogram (ppm).

Sediments

As a result of the Phase 1 RI sediment sampling of Trout Brook, Anitec was requested to perform additional sediment sampling in the Chenango River in the area where Trout Brook enters the river. In January 1995, 21 sediment samples were collected from the Chenango River. Cadmium

was detected in 18 of the 21 samples, with all concentration above the sediment guidance value of 0.6 parts per million (ppm). Cadmium levels in the sediments ranged from non-detect (ND) to 128 ppm. See Figure 2.

Silver was also detected in 16 of the 21 samples with all concentrations above the sediment guidance value of 1 ppm. Silver levels in the sediments ranged from ND to 119 ppm. See Figure 3.

Based on the above results, additional investigative work was performed to determine whether silver and/or cadmium sediment concentrations were toxic to aquatic biota in the Chenango River. As a result of the toxicity testing performed, it has been determined that the sediment concentrations of silver and cadmium, in the area where Trout Brook enters the Chenango River, are not acutely toxic to benthic(bottom dwelling) aquatic life.

Based upon the elevated concentrations of cadmium and silver detected in the sediments, additional sampling to determine if the heavy metals were present at levels which would define them as characteristic hazardous waste became necessary. This additional sampling was performed by the GNOSTIC on September 26, 1996. The sampling identified sediments with levels of cadmium in excess of 1 ppm, when analyzed by the Toxicity Characteristic Leaching Procedure (TCLP). Sediments contaminated with cadmium in excess of the TCLP limit of 1 ppm are considered hazardous waste by definition and will need to be remediated. Silver was not identified at levels which would qualify as characteristic hazardous waste by the TCLP analysis. Additional sampling was performed to determine the extent of sediments requiring remediation. More complete information on these sampling events can be found in the previously noted reports.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized in Table 1. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb), parts per million (ppm). For comparison purposes, SCGs are given for each medium.

3.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before the completion of the RI/FS.

Due to the presence of characteristic hazardous waste levels of cadmium in the Chenango River sediments in the vicinity of the Trout Brook outfall, an IRM is currently underway to remove these contaminated sediments. The work consists of the of the removal of an estimated 45 cubic yards of material from an area 70 feet by 35 feet to a depth of 0.5 feet. The excavated material

will be allowed to drain on-site and then transported to Anitec's main plant site for processing. The material will be solidified/stabilized by an approved process which will render the sediments nonhazardous. The treated sediments will be disposed in a permitted off-site nonhazardous waste landfill. See Figure 4 for the area to be remediated.

Table 1
Operable Unit 6 - Chenango River
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY Detections to Samples	SCG (ppm)
Sediments	Inorganic	Cadmium (total concentration)	ND-128	18/21	0.6*
		Silver (total concentration)	ND-119	16/21	1.0*
		Cadmium (TCLP)**	0.1 - 2.9	1/4	1.0
		Silver (TCLP)**	ND	0/4	5.0

* Lowest Effect Level for metals in sediments. Since this number was exceeded in the sediments, acute toxicity and growth studies were conducted on the benthic organisms to determine if existing metal contaminant levels in the Chenango River are acceptable. It was determined that the levels of metals are not acutely toxic and are not effecting growth. Chronic toxicity testing for the metals was not conducted.
**Toxicity Characteristic Leaching Procedure

3.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 4.0 of the RI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Prior analytical results indicated an average concentration of 12 ppm of cadmium in the river sediments in the study area. This concentration did not present a public health concern because

of the limited area involved and the small likelihood of exposure. The IRM will further reduce the average concentration of cadmium.

3.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site.

Sediments in the area of the Trout Brook outfall are contaminated with the heavy metals cadmium and silver at levels above the NYSDEC Sediment Criteria, which indicates there is the potential for an impact to animals which contact the sediments. Because of these elevated levels a toxicity testing program was undertaken to determine if cadmium and silver were in fact impacting aquatic life.

Based upon the removal of the sediments by the IRM and the findings of the toxicity testing for benthic organisms carried out by the RI, no significant environmental exposure pathways would remain for Operable Unit No. 6 upon completion of the IRM.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and the Anitec Image entered into a Consent Order on October 15, 1992. The Order obligates Anitec Image to implement a full remedial program.

Order on Consent

Date	Index	Subject
10/15/92	A702739105	RI/FS

SECTION 5: SUMMARY OF THE REMEDIATION GOALS AND SELECTED ACTION

The selected remedy for any site should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at he site.

Based upon the results of the RI that has been performed at this operable unit and the ongoing IRM, the NYSDEC is proposing No Further Action as the preferred remedial alternative for the site. Once the IRM is completed to the NYSDEC's satisfaction, the Department would no longer include the Chenango River in the description of the site in the New York State Registry of Inactive Hazardous Waste Disposal Sites.

Community Acceptance

Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary", included as Appendix A, presents the public comments received and the Department's response to the concerns raised. In general the public comments received were supportive of the selected remedies.

SECTION 6: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.
- A Fact Sheet was prepared and mailed to everyone on the established mailing list.
- A public meeting was held on February 6, 1997 to present the PRAP to the public and to solicit formal comments from the public.
- In March, 1997 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Appendix A

RESPONSIVENESS SUMMARY

Anitec Image Corporation Site
Operable Unit No. 6
Proposed Remedial Action Plan
City Of Binghamton, Broome County
Site No. 7-04-022

The Proposed Remedial Action Plan (PRAP) for the Anitec Image Site, Operable Unit (OU) No. 6 - Chenango River, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) and issued to the local document repository on January 27, 1997. This plan outlined the preferred remedy proposed for the remediation of contamination found in a segment of the Chenango River at the outlet of Trout Brook approximately one mile east of the Anitec Image main plant site. The preferred remedy for OU#6 is no further action beyond the currently ongoing Interim Remedial Measure (IRM) for the removal of silver and cadmium contamination from the Chenango River.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on February 6, 1997, which included a presentation of the Remedial Investigation (RI), the IRM as well as a discussion of the proposed remedy. The meeting provided an opportunity for the citizens to discuss their concerns, ask questions and comment on the documents. The public comment period for the PRAP ended on February 26, 1997. These comments have become part of the Administrative Record for this site.

This Responsiveness Summary responds to all questions and comments raised at the February 6, 1997 public meeting.

The following are the comments received at the public meeting along with the NYSDEC and NYSDOH responses:

COMMENT 1: At times, air in the cemetery was very pungent and individuals had to leave that area. No smoke was associated with the odor. What was that likely due to?

RESPONSE 1: If the odors were coming from Anitec, it would most likely have been due to historic unregulated air emission points and/or fugitive emissions.

COMMENT 2: What happens to the environment due to the release of photographic chemicals?

RESPONSE 2: There are many chemicals associated with manufacturing of photographic films, papers and other photographic products. The compounds of concern associated with this site are methylene chloride, acetone, methanol, cadmium and silver. They are the compounds of concern because, if released in sufficient quantities, unacceptable levels of contamination could result. When levels of contaminants exceed established standards, a potential for an impact to human health and/or the environment exists.

COMMENT 3: Due to a back-up of water in Trout Brook in 1994, basements were flooded. Did this leave any contamination behind?

RESPONSE 3: This concern was addressed at an earlier date. Inspections of two homes were performed, visually and with field test equipment, to determine if impacts to the basements had occurred during flooding. No indications of an impact were identified.

COMMENT 4: Was anything detected around the Trout Brook conduit?

RESPONSE 4: The Trout Brook conduit was investigated and the only contamination found above background was at its Chenango River outfall in the area of the Operable Unit 6.

COMMENT 5: First Ward Park was flooded for hockey. Concrete blocks were placed over the drain. Why don't they remove the concrete blocks?

RESPONSE 5: The City of Binghamton has jurisdiction over the Trout Brook drainage conduit. In the future the City of Binghamton should be contacted for issues regarding Trout Brook..

COMMENT 6: Residents remember historical fish kills and foam on the water in the Chenango River in the vicinity of the Trout Brook outfall. Was this due to the Anitec facility?

RESPONSE 6: It would be impossible to determine if either the foaming or the fish kills were the result of discharges coming from the Anitec facility. Other sites in the past have historically discharged into Trout Brook and could have caused either the fish kills and/or the foaming.

COMMENT 7: How much sediment will be removed?

RESPONSE 7: An estimated volume of 45 cubic yards will be removed from the site.

COMMENT 8: Why is the excavation depth estimated to be only six inches deep? Wouldn't flooding have covered up deposits in the sediments?

RESPONSE 8: The average depth of six inches is based on sampling performed in the area of contamination. Based on the sampling that was performed, there is no indication that deposits exist under the average depth of six inches.

COMMENT 9: How much leakage over the years came from Trout Brook conduit?

RESPONSE 9: It would be very difficult to determine the leakage coming from Trout Brook. There is minor leakage occurring to the groundwater table. However, based on groundwater sampling performed as part of the Remedial Investigation it has been determined that the leakage is having to impact on groundwater quality.

COMMENT 10: Was there another discharge point from the Anitec facility to the Chenango River other than the Trout Brook discharge point?

RESPONSE 10: No. The City of Binghamton was contacted, and based on a review of historical City drainage maps, no other discharge point was identified.

COMMENT 11: Are there any other comparable sites found in the U.S.?

RESPONSE 11: A comparable site would be the Kodak site in Rochester, New York. It is similar because Kodak has identified releases of some of the same photographic chemicals that have been identified at the Anitec site.

COMMENT 12: Has the contamination at Kodak been remediated?

RESPONSE 12: Various contamination problems at Kodak are currently under remediation, but not all the contamination has been addressed to date.

COMMENT 13: Has the water in the First Ward Recreation Park been tested?

RESPONSE 13: No. We do not feel that it needs to be tested because the First Ward Recreation Park is not considered part of the Anitec site.

COMMENT 14: Would there have been any sediments retained in the Trout Brook conduit?

RESPONSE 14: The Trout Brook conduit has been inspected and there is no visual indication of sediments remaining in the conduit.

COMMENT 15: When Trout Brook backs up what happens to the retained water?

RESPONSE 15: The Trout Brook acts as a retention area until the water can be discharged by the pump station to the Chenango River.

COMMENT 16: How many years would Cadmium have been used at the Anitec facility?

RESPONSE 16: According to Anitec, cadmium was used in the film process for 25 years. Residual cadmium was discharged to Trout Brook until 1975, when wastewater pretreatment was provided for the removal of the cadmium. Cadmium was completely eliminated from the film process in 1991.

COMMENT 17: Could soot (from Anitec's coal fired generating plant) on the First Ward Park Playground have been a health concern? Has anyone looked at air pollution from the plant as a possible health concern?

RESPONSE 17: Surface soils from the playground were sampled in August 1992 for a variety of contaminants including heavy metals. The areas in the park chosen for sampling were places frequently used by children so that the likelihood of exposure could be most clearly measured. Background areas in other locations in the community, where no industrial discharges have taken place, were chosen for comparison sampling. The results from the park were comparable to background results. No public health hazard was found.

In response to concerns regarding heavy metals contamination in particulate emissions from Anitec's coal-fired power generation plant, particulates collected by a high-volume air filter sampling device located on the roof of the nearby former Vail Ballou printing facility were analyzed. A series of particulate samples collected between 1/12/91 and 8/04/91 were analyzed for the heavy metals of concern. The results of that sampling did not indicate that there were levels of heavy metals that would present a public health concern.

COMMENT 18: Why wasn't or isn't there a likelihood of human exposure to the Chenango River sediments in the area where OU6 will be carried out?

RESPONSE 18: The Remediatial Investigation (RI) and sediment removal described in the PRAP address conditions as they currently exist in the River. Production discharges containing metals have been eliminated at the Anitec Plant. The contaminants in the River exhibit a spotty distribution and the levels of cadmium on average are relatively low at 12 parts per million (ppm). The area within the River exhibiting sediment contamination (2450 sq.ft.) is small. The information from the study indicates that frequent human exposures to significant levels of cadmium in the sediments are unlikely. The greatest exposure concern is for ingestion (eating) the sediments, which is unlikely.

COMMENT 19: Looking at the half-life of cadmium, there appears to be a potential for cancer development?

RESPONSE 19: Cadmium is a stable metal and cannot be said to exhibit a half-life in the environment. The solubility of cadmium is low and, as seen in the River sediments, there is a tendency for cadmium to settle out of water and collect in bottom sediments. Concentrations in sediments could diminish as more material buries the cadmium or as it is washed away. The remedial work

will remove cadmium that appears at the sediment surface and that which is buried at lower levels. Some workplace studies indicate a possible relationship between the inhalation of cadmium dust and cancer. The lack of exposure to cadmium in sediments by the inhalation route makes the potential for cancer development very low.

COMMENT 20: Who is conducting the health studies, and what is being done?

RESPONSE 20: In 1991-92, the New York State Department of Health (Bureau of Environmental and Occupational Epidemiology) surveyed residents living within about a mile of the Anitec facility about health and exposure issues. A report discussing the findings of the survey was produced in June 1993. NYSDOH is currently working on an investigation of cancer incidence in the area of Binghamton near the facility. This study uses data from the New York State Cancer Registry. By law, physicians and hospitals report all cases of cancer diagnosed among New York State residents to the registry. The study will look at the number of cases of cancer diagnosed during 1981-1990 in the area near the facility, and will compare that number to what would be expected based on standard cancer rates. All cancers combined, as well as 18 specific types of cancer, will be included.

COMMENT 21: Who is supplying NYSDOH with the information on cancer?

RESPONSE 21: Physicians and hospitals across the state report individuals diagnosed with cancer to NYSDOH's New York State Cancer Registry. The data for the cancer study has been obtained from this registry.

COMMENT 22: The methodology used in the health studies does not evaluate synergistic effects. There was bias introduced by the way the health survey was worded. The low response rate for the health survey was not adequately addressed.

RESPONSE 22: The major chemicals of concern at the Anitec facility were methylene chloride, acetone and methanol. All three chemicals are solvents and primarily affect the central nervous system. All three compounds can also affect the liver and heart. Methylene chloride causes cancer in laboratory animals, and may cause cancer in humans. The health survey collected information on cancer and on adverse effects on the central nervous system, liver and heart. When synergism occurs, one compound enhances the

action of another. If one of these compounds enhanced the effect of another, the health survey would still detect the effect because information on the adverse health effects of all three compounds is already being collected.

COMMENT 23: Why do health studies have to be designed by the State and Federal government? Why couldn't neighborhood watch people be utilized for door-to-door surveying?

RESPONSE 23: The Bureau of Environmental and Occupational Epidemiology has considerable experience in this area from conducting health surveys in many communities across the state. This experience includes conducting detailed reviews of the environmental data and the medical and toxicologic literature so that the investigation focuses on health problems that are known to be associated with the contaminants of concern. In conducting these surveys, NYSDOH is under strict constraints to protect the confidentiality of the health information obtained; employees who work with confidential health information must sign a pledge of confidentiality, must carefully follow written procedures, and can be prosecuted for a violation under the Public Officers Law.

COMMENT 24: Is methylene chloride a carcinogen?

RESPONSE 24: In rats and mice, inhalation of high levels of methylene chloride causes cancer of the lung and liver. Studies of occupational groups exposed to methylene chloride have not shown consistent findings. One study of film workers showed a non-significant excess of mortality due to pancreatic cancer, and a study of cellulose fiber workers found excess mortality due to cancer of the liver and biliary passages. Other studies have not found excess mortality due to cancer. EPA has classified methylene chloride as a probable human carcinogen.

COMMENT 25: Who did the Kodak and Anitec health studies?

RESPONSE 25: See above.

COMMENT 26: What are the health effects of long-term exposure to silver and cadmium?

RESPONSE 26: Silver causes a gray-blue discoloration of the skin called argyria in people who have ingested metallic silver and silver compounds over periods of months to years for medicinal purposes. Inhalation of silver compounds can irritate the respiratory tract. Individuals who have accidentally swallowed solutions of silver nitrate have reported gastric discomfort.

In studies of workers, inhalation of high levels of cadmium have caused lung damage. Inhalation and ingestion of cadmium has been shown to cause kidney damage. Ingestion of cadmium can irritate the gastrointestinal tract, causing nausea and vomiting. Prolonged inhalation or ingestion of cadmium can cause bone disease in people with poor nutrition.

Chronic inhalation of cadmium can cause lung cancer in rats, and there is some evidence that prolonged inhalation exposure to cadmium may increase the risk of lung cancer in humans. Several occupational groups have been studied, and excess lung cancer has been seen in some studies. However, some of the workers studied were also exposed arsenic and nickel, which are lung carcinogens, and the effect of smoking could not be adequately considered. No studies were found that indicate that oral exposure to cadmium causes cancer in human or animals.

COMMENT 27: Long-term effects will continue to develop, so we need more surveying and better information.

RESPONSE 27: It is expected that the results of the cancer incidence study will be available later this year. Since the New York State Cancer Registry collects information on cancer cases on an on-going basis, it would be possible to review cancer incidence again after several more years of data become available.

Appendix B

Administrative Record

Anitec Image Corporation Site
Operable Unit No. 6
Proposed Remedial Action Plan
City Of Binghamton, Broome County
Site No. 7-04-022

The following documents constitute the Administrative Record for the Operable Unit 6 of the Anitec Image Corporation Site Record of Decision.

- "Remedial Investigation Report, Anitec Image Division of International Paper Company, Binghamton" dated February 1995.
- "Data Analysis - Chenango River Sampling - Anitec Phase 2 Remedial Investigation" dated April 1995.
- "Phase 2 Remedial Investigation Report" dated August 1995.
- "Phase 2 Remedial Investigation Addendum - Chenango River Sediment Investigations" dated December 1995.
- "Health and Safety Plan Supplements" dated January 1995.
- "Regulated TCLP Metals Results" dated September 1996.
- "Data Results of Additional Chenango River Sediment Samples" dated November 1996.
- "Operable Unit 6 Chenango River Sediments Remedial Action Work Plan" dated November 1996.
- Fact Sheet "Notice of Public Meeting for the Anitec Image Corporation Site" dated January 1997.