Phase II Sampling and Analysis Plan
Building and Equipment Decontamination Survey

Former Photech Imaging System, Inc. Site
Site Investigation and Remedial Alternatives Project
City of Rochester
Title V Environmental Quality Bond Act

Prepared for:

City of Rochester
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Rochester. New York

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Introduction

Brownfield Restoration Group, LLC (BRG), subcontractor to IT Corporation (IT), is currently serving as a consultant to the City of Rochester, providing technical and project management support in performing the Site Investigation and Remedial Alternatives (SI/RA) project at the former Photech Imaging Systems, Inc. (Photech) property, located at 1000 Driving Park Avenue, Rochester, New York. The Photech SI/RA project includes a building and equipment decontamination (B/E) survey task. The B/E survey involves a comprehensive inspection of the facility, a review of available records and documents, and the collection of samples throughout the facility, in order to identify and assess environmental conditions in the buildings at the Photech property. This document presents the Phase II Sampling and Analysis Plan for the B/E survey, submitted as required by the New York State Department of Environmental Conservation (NYSDEC) in the approved project Work Plan (IT Corporation, November 1998).

Objective and Scope of BIE Survey

The objective of the B/E decontamination survey is to identify and assess environmental conditions in the buildings at the Photech property, and develop recommendations for the appropriate cleaning, removal, and certification for any potential hazardous materials present in the structures. In order to meet this objective, the scope of the B/E survey was developed in the approved project Work Plan, and involved a two phase approach to performing this task, as follows:

- Phase I- information review and site investigation phase
- Phase II- site inspection and sampling phase

The purpose of Phase I of the survey is to gather information from available sources to assess the potential presence and quantities of chemicals impacting the building materials which will be left in the buildings for decontamination and demolition activities. Using existing information and data collected as part of the project Environmental Site Assessment (ESA), the survey will locate and describe specific areas of concern in each building in a set of preliminary conclusions. From these conclusions, a determination as to the need and value of additional environmental testing will be made. Phase II activities will address each of the areas of concern identified in Phase I, and will include a targeted approach to collect wipe and bulk samples, as appropriate, from these areas to quantify potential environmental contamination inside the buildings at the Photech site.

Phase II Scope of Activities

BRG personnel have completed Phase I of the BIE survey task. After completing the review of available records and site inspection activities in Phase I, the Phase II scope of activities includes three tasks designed to evaluate the presence of chemical contamination in a building or a specific area in a building, as follows:

Task1

Review building usage and processes, as well as spill records, existing analytical results, and available waste profiles, to provide information as to impacted surfaces and areas, in order to coordinate sampling activities in each building for the potential of chemically impacted surfaces and materials.

- Task2

  Complete comprehensive site inspection. This step will include confirmation of the initial visual survey of the condition of building materials and surfaces, visible contamination and staining, and the physical layout of manufacturing and engineering systems and equipment. Please note the information already collected has been utilized to develop the sampling plan presented in this document.

- Task3

  Collect wipe and bulk samples from identified areas of concern and high risk areas. These areas are those portions of the building where chemical contamination is potentially significant and, as a result, will require most likely decontamination, cleaning, or removal prior to any planned demolition activities.

Additional detail on the proposed Phase II sampling activities is presented in the sections below.

Phase I Survey Summary

The following section presents an overview of the basic information collected as part of the Phase I activities of this task. For each Building at the Photech facility, a thorough site inspection was completed and available environmental, process, and waste handling records were reviewed. Buildings at the property are numbered and labeled according to the main Site Map, attached as Figure 1. Several non-labeled structures or other construction attached to an existing building are noted separately. Chemical information for the Photech facility is also introduced below.

In general, in locations where tanks, containers, drums, etc. are encountered in the facility buildings, container contents, if any, are also noted.

Facility Building Elements

Building 1- Main Offices and Research and Development Area

The main office building houses various offices and research and development laboratories on two separate floors. The basement of the building was utilized as a material storage and supply area. The building is of newer construction than most of the other buildings at the facility and is constructed of exterior drywall on metal studs, with an outer styrofoam wall attached. Interior walls are constructed in a similar fashion, with drop ceilings off from the I-beam and cement floor/ceiling tiers. The basement is poured cement and cinder block construction with the north wall of building coated with waterproofing

material. The roof of the building is plywood on a cement deck, covered with 2-inch thick foam insulation, a thin liner and a tarlpebble layer. Offices and conference rooms interior to the building have carpet and/or vinyl tile as flooring. Laboratories and work areas have vinyl flooring. Double-paned glass windows are present throughout both floors of the building. In addition, several of the rooms have significant water damage from leaking roof structures.

The areas in Building 1 where office-type operations were performed include Rooms 104, 105, 106, 107, 108, 109, 114, 115, 116, 117, 118, 119, 120, and 125 on the first floor; and Rooms 204, 210, 211, 212, 213, 214, 215,216, 217, 218,219, 220, and 221 on the second floor. These rooms clearly appear to be office space as ascertained by the contents in the room and the presence of carpeting on the floor. These rooms contain numerous desks, chairs, file cabinets, bookshelves, etc. These rooms are also in a disorganized state, with papers, books, shelves, cabinets, etc. strewn about the areas.

Rooms 101, 102, 103, 122, 123, and 124 on the first floor and Rooms 201, 202,203, 205, 222, 224, 225, 226, 227, 228, 229, and 230 on the second floor are areas where research and development activities took place. These rooms contain a variety of lab and work bench space, sinks, fume hoods, scientific and photographic instrumentation, and laboratory equipment, supplies, and glassware. Visual inspection of these rooms shows little gross contamination of work surfaces or equipment, with the exception of small splashes on surfaces and discolored sinks. However, a number of the rooms clearly show that chemicals were stored, handled and processed in these locations.

The basement area of Building 1 is comprised of a large, open storage area and a small utility room at the eastern wall that houses the building heating, cooling, and air systems. In one section, the open storage area is divided by a wood wall, which separates the different areas. Numerous metal storage racks store a variety of boxes, cardboard materials, and miscellaneous equipment. Older equipment, machines, motors and pumps, and extra desks and work tables are stored on wooden pallets. The entire storage area has significant water damage and seepage, with standing water in several locations. No apparent chemical storage or usage was noted in this area. In the utility room, spilled coolant material was noticed during the inspection. One floor drain was noted in the utility room.

Process and laboratory areas in Building 1 are targeted for wipe and bulk samples

Building 2- Emulsion Processing

The Emulsion building contains a variety of processing, chemical handling, and storage areas in a multi-floor structure. Building 2 is constructed of brick and concrete block with cement floors and ceilings. The roof includes a concrete deck overlaid with tar, insulation, and small gravel. The building has three floors, a small penthouse and roof fan room, and a basement. Past emulsion processing operations were conducted on all floors of the building. The building condition is not good, with an excessive amount of debris, equipment, and material scattered throughout the building. Offices and conference rooms interior to the building have carpet and/or vinyl tile as flooring. Laboratories and work areas have vinyl or tile

flooring. Block glass windows are present in the two stairwells of the building. In addition, several of the rooms have significant water damage from leaking roof structures.

At the top of the building, the penthouse contains several polyethylene tanks and associated piping that appear to have been involved in distilled water storage and treatment. No chemicals were observed in the area. The large roof fan room is directly adjacent to the penthouse.

The third floor is comprised of approximately 12 open spaced rooms that served as process mixing and storage areas. Several rooms still contain various sized stainless steel vats and tanks used in operations. Rooms 320 and 321 were chemical mixing rooms; in Rooms 312, 322, 322 and 324, silver and silver nitrate was handled. Emulsion and gel mixing and storage were done in Rooms 311, 311A, and 312A. Room 319 was the main chemical storage room on this floor; Rooms 317 and 318 also appear to be storage areas as evidenced by the open floor plans and the various chemical hazard labels posted throughout the rooms. Several of these rooms have ceramic tile walls and floors and have floor drains present. Process piping is also present, running through existing walls and egressing through the cement floor.

The second floor of Building 2 is segregated into several process areas and laboratory rooms. Most of the rooms clearly show that chemicals were stored, handled and processed in these locations. Rooms 215, 216, 217, 218, and 219 are laboratory-like rooms with lab benches, sinks, and heated melt units. Rooms 221, 227, 228, 229, and 230 were emulsion processing rooms, where emulsion material was made, melted, blended, fixed, and stored. Rooms 212 and 213 were large scale melt and mixing rooms. Container wash was completed in Rooms 229. Room 225 is an office area. Processing equipment, piping, and instrumentation remain in the rooms. Several of these rooms have ceramic tile walls and floors or have galvanized metal sheets on the walls. Many have a floor drain present. Process piping is also present, running through existing walls and egressing through the cement floor.

The first floor of Building 2 contains a number of office space, as well as process areas. The process areas clearly show that chemicals were stored, handled and processed in these rooms. Rooms 113, 115, 116, and 119 are office or support space and have drywall with carpeting or vinyl flooring. Various desks, filing cabinets, and reams of files and papers are located in these rooms. Rooms 124, 124A, 125, 125A, and 125B are partitioned office space having drywall construction with carpet or vinyl flooring. Processing operations, including melting and ripening, were conducted in Rooms 111, 111A, 111B, 112, and 112A. Large, stainless steel kettles and associated process piping remain in these rooms and appear to be free of residual chemicals or liquids. Room 123 served as a storage area. In the processing rooms, process piping and at least one floor drain is present. Room 121 was previously a shipping and receiving area for the building, although some process equipment and large amount of debris remains in the room.

In the basement of Building 2, two large open rooms, Rooms 11 and 13, served as refrigerated storage and processing areas for emulsion and gel product. These rooms are mostly empty, with a large refrigerated air handling unit present in one room (Room 13). Numerous black, 5-gallon buckets are

stacked in Room 11 and appear to be empty. Rooms 11A and 11B contain two large water bath tanks (and containment), a number of 250-gallon poly tanks, and various pumps, compressors, small steel tanks, and piping. All these containers appear empty. Room 4 is the machine room, where two large, insulated tanks and several small steel tanks are located, as well as a large amount of piping. Room 4 connects to the pipe tunnel running to the Boiler House, Building 5. The basement also holds men and women locker rooms, and a general area room (Room 7). The general area room connects via tunnel to Building 7 and the main corridor of the basement connects to one of the inter-building tunnels to Buildings 1 and 11. Several floor drains are located in the basement areas.

Rooms in all levels of Building 2 will be included in the sampling program for Phase II.

Building 3- Garage

The 12 x 22 foot original garage building abuts Building 2 to the north. It is constructed of cinder block material, with a poured cement floor and cement roof covered with tar paper and sealant. At the rear of the building, a wooden structure was added on to the building, constructed of wood studs and plywood walls and roof. The garage building apparently served as an area to perform maintenance on plant vehicles and equipment. Various materials and supplies, several work benches, and other abandoned equipment are present in the building. In the rear of the structure, there are several metal storage racks with a small amount of plumbing supplies on the shelves. The wooden structure is dilapidated and the roof has fallen in one area. The cement floor of the garage has oil stains on the severely pitted cement, which appears to be oil staining produced from typical vehicle or equipment maintenance activities. No floor drains were detected in the building. A small number of samples will be collected at this location.

Building 4- Maintenance Shop

Adjacent to the garage, the maintenance building is constructed of cinder block material, a poured cement floor, and a 2-inch thick composite roof. The shop has an added office structure approximately 10 x 20 feet in size made of wood and plywood with fiberglass insulation. Several metal storage racks, metal storage cabinets, and metal and wooden work benches are present in the work area. Approximately 25-30 containers, ranging from individual quart to 5-gallon bucket sizes, are still in the area. Several containers have been spilled or dumped on the concrete floor. The containers included various types of lube oil, grease, lubricants, cutting oils, motor oil, and paints. The back half of the building houses metal storage racks with maintenance- related supplies, materials, and parts stored in the area. No floor drains were detected in the building. Sampling will be completed in this area.

This building also has a wooden structure added on to the rear of the building. The wood shed is constructed of wood and plywood with a cement floor and plywood roof. Metal storage racks contain a wide variety of electrical supplies and parts. No visible contamination is present in this area.

Building 5- Boiler House

The boiler house building houses the large scale power, steam heating, and coolant equipment for the facility. The building is constructed of cinder block on concrete slab, with a cement roof covered with tar

liner and fiberglass insulation. The building is roughly divided in half, one part containing the three main boilers and associated piping, and the other half housing various tanks, compressors, and large machinery. The building is connected to the rest of the Photech facility through a below grade, approximately 12 foot deep, pipe tunnel and has two other sump and drain structures in the building. The main facility pipe chase, a concrete structure approximately six feet wide and eight feet deep containing numerous large diameter pipes, originates in the Boiler House and extends under grade to Building 11. The pipe chase is currently filled with about four feet of clear water, with no visible sheen to indicate the presence of chemicals or petroleum products.

In addition to the remaining piping, tanks, and large machinery, it was noted during the site inspection that approximately 12 containers of potential chemicals remaining in the building, including what appears to be some combination of lubricating oils, coolant mixture, and a container of trichloromonofluoromethane. Two separate 55-gallon drums, one with a vacuum motor on top and the other with a small hand pump, are also in the building. The contents of the existing tanks, if any, are unknown. Several corroded floor drains are present in this building. In addition, small trenches in the concrete pad for each boiler unit drain to the sump drain located in the northwest corner of the building.

Several samples will be collected from this building.

Building 6- Engineers Office

Building 6 is connected directly to Building 5, Boiler House, and is of recent construction with cement floor and ceiling supported by cinder blocks. The roof is of metal deck construction with tar pitch and fiberglass insulation. Building 6 houses the engineers office, a restroom, and the main electrical transformer/breaker units for the facility. The office area is constructed of drywall and metal studs and contains a desk, file cabinets, and bookshelf with assorted papers, books, and materials in the room. The restroom has the standard equipment. The transformer/breaker units have been totally scavenged for copper wiring and only the metal housing units remain. No visible contamination was noted, although a small, empty container (2-gallons) of Freon 111 is present in the building.

Building 7- Coating Alley

Building 7 is the main coating alley at Photech and is a two-level, narrow and elongated structure constructed partially below grade. The building is constructed of concrete block on concrete slab, is covered on its exterior with tar paper, and has a cement deck roof covered with tar, fiberglass insulation, and small gravel. On the upper level, the building has a brick exterior. At the approximate mid-point of the building the main facility pipe chase structure passes beneath Building 7.

Building 7 contains the main coating room, the main chill set section of the coating line, and numerous process storage racks. A large amount of debris is scattered throughout the building. The main coating room has tile floors and ceramic tile walls. Directly at the coating station, the location of the coating machine where all coats were applied to the product, there is a large basin filled with what appears to be water. No product or floating sheen was observed in the basin. Numerous small tanks and process lines

are present in the coating room. It is assumed that all facility coating materials and components were at one time or another present in the coating room, although the site inspection did not determine that any significant staining or spills had occurred in the immediate area. This building is targeted for Phase II sampling.

Adjacent to Building 7 (at grade on the east side of the building) is a small metal shack that serves as a fan room. This structure contains various motors, blowers, pumps, and associated piping and duct work. A small plywood shed next to this structure houses a small transformer. Both structures are constructed on a concrete pad.

Building 8- Exterior Maintenance Building

Building 8 is small cinder block building adjacent to Building 2. The building is constructed of cinder block on concrete slab and can only be accessed through a large metal exterior door. The building currently houses two unidentified skid mounted pump and valve systems (on pallets) along with several storage racks and fiber drums in the area. A variety of maintenance related supplies and materials are scattered on the storage racks and the two small wooden work benches. Over 25 5-gallon full to partially full buckets of parts cleaner solvent remain on the racks in the room. No visible contamination or spills were observed on the floor of the building. Samples will be collected in this building.

Building 9- Kathabar System

Building 9 is a small cinder block structure on a cement floor, built adjacent to Building 7, and houses the former coating line Kathabar cooling system. The roof is constructed of a steel deck. The operation of the Kathabar system provided necessary cool air for the coating line chill section. These systems typically contained ethylene glycol and barium or lithium chloride as cooling agents. This building contains the Kathabar unit, pumps, blower fans and numerous large diameter duct work and piping lengths. Liquid material is still present inside the cooling unit. A small amount of debris is on floor from the previous removal of copper in the area. No visible staining was observed during the inspection. A single floor drain is present in the building. Samples will be collected in this building.

Building 10- Kathabar System

Building 10 is a small cinder block structure on a cement floor, built adjacent to Building 17, and houses the former dryer line Kathabar cooling system. The roof is constructed of a steel deck. The operation of the Kathabar system provided necessary cool air for the dryer line chill set section. These systems typically contained ethylene glycol and barium or lithium chloride as cooling agents. This building contains the Kathabar unit, pumps, blower fans and numerous large diameter duct work and piping lengths. Liquid material is still present inside the cooling unit. A large amount of debris is on floor from the previous removal of copper in the area. No visible staining was observed during the inspection. Samples will be collected in this building.

Building 11- Chemical Laboratories

Building 11 houses a number of laboratories and research areas on two levels. The building is constructed with a brick exterior over cinder block, with cement floor and roof structures. The concrete deck roof is layered with tar pitch and fiberglass insulation covered by small gravel. Interior to the building on two levels are several process rooms, organic and analytical laboratories, a maintenance shop, and office space. Facility records indicate a large number of chemicals were used, handled, and stored in this building. Several rooms have stains on the walls and floors. Each room in the building has at least one floor drain. A number of process and drain lines are present in rooms in the building. A large amount of debris (lab equipment, supplies, glassware, etc.) is present, both dispersed on the floor and remaining on shelves or in drawers in the rooms. Scupper drains are present along the length and along the sides of the building. A number of samples will be collected from this building in Phase II.

Building 12- Sub Coating

The sub coating building, Building 12, was one of the primary areas where chemicals were used and handled at the Photech facility. It is constructed of concrete block with a steel deck roof. The floors are poured concrete. Building 12 contains areas where coating, mixing, and storage of chemicals was conducted, as well as rooms for storage of product and materials. The building is currently in poor shape, having experienced a fire in the recent past and with several holes in the roof structure. A number of pieces of large equipment, desks, chairs and other support material, supplies, boxes, and pallets remain in the building. Widespread debris is present throughout the building.

Due to the conditions inside the building, it is difficult to determine if walls or floors have any visible contamination or if spills are present. Facility records and operations logs indicate a large volume of chemicals were handled in the building, as various subcoat coating and drying, chemical mixing, and chemical storage activities were conducted in the past. One floor drain was observed in the room designated as the coating room on site drawings. This building is targeted for Phase II sampling.

Building 13- Warehouse

The facility warehouse, Building 13, is constructed of a brick exterior and cinder block, with a composite roof overlaid with tar pitch, fiberglass insulation, and large gravel. Interior walls and roof are constructed with wood studs and foam sheet insulation. The open spaced warehouse contains numerous large, metal storage racks, which have large amounts of product and material remaining on the shelves. Wooden pallets, various sized boxes, and other debris are located throughout the building. Records indicate no chemicals were handled in this area and inspection did not note the presence of any chemicals in the warehouse portion of the building.

Located between Building 13 and Building 16 is a small fan room that contains an air handling unit, various blowers, pumps and compressors, and a coolant system. The cooling system still contains a liquid suspected to be ethylene glycol. A limited number of samples will be collected from this building.

Building 14- Exterior Tank Farm

The structure of Building 14 is a containment pad for two above ground storage tanks. Building 14 does not have wall or roof structures. The containment area is constructed of a soil base and berm structure covered with a heavy plastic liner. The containment area maintains structural integrity and is currently filled with water to the top of the lined berm. No samples will be collected from this area.

Building 16- Process Building

Building 16 is a large structure, constructed of cinder blocks with the roof constructed of composite sheets overlaid with tar pitch, fiberglass insulation, and small gravel. The building is comprised of two levels, the upper level containing a large, open area used as a packing area, a break room and locker room, and office space. The upper level packing area and associated storage area currently contain numerous metal storage racks and tables/benches, with stacks of Photech supplies and products remaining on the shelves.

The lower level has several rooms and was a "dark" area, or an area where white light was not used because of the light sensitivity of Photech's film and paper products. The lower level rooms include film and paper processing areas and several laboratories. Bulk chemical use in the building was limited primarily to the lower level rooms, where processing equipment was located. Several of the rooms on the lower level have visible stains on the walls and floors. In one laboratory area, drains in the lab benches and sinks are piped directly into a large drainlsump. The drainlsump appears to be empty of liquids. Process and drain lines are present in the building. This building is targeted for sampling in Phase II.

External to Building 16, there is a penthouse structure on the roof, which contains the air handling unit for the building, and a below grade concrete vault (covered with an iron grate). Inside the vault are what appear to be two drainlsump structures. The contents of the drainlsump structures, if any, are unknown.

Building 17- Dryer Addition

Building 17 is comprised of an original lower level structure, a recently constructed upper level, and a mezzanine level. The original portion of Building 17 is constructed of concrete block with a brick exterior and has a concrete roof deck covered with tar pitch and fiberglass insulation. The newer, upper level is constructed of sheet metal walls and roof on concrete. The mezzanine is of similar construction as the original portion of the building.

Building 17 houses the Photech coating line dryer equipment and winding room apparatus. The dryer portion of the coating line is a two-level structure comprised of a series of separate chill and dryer sections served by massive cooled and heated air handling units, all of which are contained in Building 17. A significant amount of the equipment and instrumentation comprising the dryer unit remains inside the building. At the mezzanine level, the dryer unit is directly connected to the coating line, and two large air handling units, a Kathabar cooling system, and associated pumps, compressors, piping, and ductwork are located on this level. The upper level houses three large air handling and heating units, and another section of the dryer apparatus. Based on our knowledge of film and paper coating and processing, the

presence of chemicals in the dryer structure was most likely from the processing of film and paper product. The dryer would drive off from the product any volatile compounds and remove them in the air stream, thus the likelihood of residual chemicals remaining in the dryer apparatus is low. In addition, as in other locations, the Kathabar cooling unit retains some amount of liquid. A limited number of samples will be collected in this building.

Carpenter Shed

The carpenter shed to the north of Building 5- Boiler House is of wooden construction on concrete slab. Interior walls are wood and the exterior plywood walls have fiberglass insulation. The structure has a dilapidated, caved in tar paper/shingle roof. As indicated by its name, the structure appears to have been used as an area where various carpentry activities took place. Several 5-gallon buckets of what appears to be swimming pool-type chemicals are still present in the building. A 2-inch OD steel pipe extends from the roof of the shed into the concrete slab. BRG was unable to determine the purpose of this pipe from the Phase I inspection or facility records and drawings. No observable chemical stains are present inside the structure. Limited samples will be collected at this location.

Wooden Shed

A dilapidated wooden shed is located just to the north of the Carpenter Shed. The building is constructed of T-111 plywood built directly on grade. It appears the structure was used for storing a variety of facility materials such as fencing, posts, angle iron and like materials. No chemical use for the building was noted in facility records and the site inspection revealed no chemicals or staining present inside or adjacent to the building. No samples will be collected at this location.

Old Guard House

The old guard house is a small wooden structure adjacent to the south end of Building 11. The building is constructed with plywood and has floor and ceiling tiles, paneling, and double pane windows. No chemical use was noted for this building and no samples will be collected from this building.

Chemical Storage Shed

Located in the northwest corner of the property, the chemical storage shed is a 3-sided structure constructed of wood supports and fiberglass side walls and roof over a cement slab floor (with 3-inch perimeter berms). The structure was previously used to temporarily store chemicals and wastes exterior to the plant. Facility records show a variety of chemicals and wastes were handled at this location, varying in volume from several 55-gallon drums to numerous small, quart-sized containers at any one time. A floor drain exists in the structure, exiting to the rear of the building and draining into a partially buried containment drum. A number of samples will be collected from this building.

Inter-building Tunnel System

Several tunnels and adjunct corridors link the buildings at the Photech facility. As shown in the attached Site Map, below grade tunnels extend from Building 1, intersecting a tunnel running from Building 2 to Building 11; a single tunnel runs from Building 16 to Building 17; a tunnel connects Building 2 to Building

7; and a tunnel runs from the Building 2 basement to Building 5. In addition to the above, two above grade corridors (constructed as an adjunct to the buildings) also connect Building 17 to Building 12 and connect Building 12 and Building 16. The tunnel structures are constructed of concrete, with a layer of insulation for the ceiling and walls. The two corridors are of concrete block construction with some brick exterior, and have steel deck roofing. In all cases, the tunnels have only fluorescent lighting, various wiring and a limited amount of piping. The corridors are generally free of debris, although the corridor between Building 12 and Building 16 has storage material in the aisleway.

Facility Chemical Elements

A wide variety of chemicals were used, handled, and stored at the Photech facility. Facility records indicate the use at Photech of several common chemicals such as sulfuric and hydrochloric acids, ethylene glycol, sodium hydroxide, and toluene. Additionally, records show Photech processed chemicals known as common to the photographic manufacturing industry, including silver, silver halides, cadmium, methanol, acetone, formaldehyde, and pyridine.

During Phase I activities for the B/E survey, BRG examined all available records and documentation regarding past chemical use and storage at the Photech site. Chemical inventory lists (over several years), waste manifest documentation, SARA reporting forms, and product formulation information was reviewed to assess all of the possible chemicals that were at one time used, handled, or stored at the Photech facility. A partial list of the types of chemicals present at one time at Photech is presented below (as based on quantities at facility and potential health hazard of chemical):

- Acetic acid
- Acetone
- Ammonium bromide
- Ammonium sulfate
- Aniline
- Butyl carbitol (butyl cellusolve)
- Cadmium chloride
- Dichromate solution
- Diethyl ether
- Diethyl sulfate
- Dimethyl sulfoxide
- Ethyl alcohol
- Formaldehyde
- Gelatin
- Glycerol
- Glycols (ethylene)
- Hydrochloric acid
- Hydroquinone
- Jet Black
- Lithium chloride
- Methanol
- Nitric acid

Nitrocellulose
Phenol
Phenyl isothiocyanate
Polyvinyl alcohol
Propane sultone
Pyridine
Silver1silver nitrate

- Sodium cyanide
- Sodium sulfide
- Sulfuric acid
- Thioacetamide
- Toluene
- Triethylamine
- Various dyes
- Various petroleum products
- Various surfactants

Phase II Sampling and Analysis Program

BRG will collect wipe and bulk samples of representative building, equipment, and material surfaces to identify areas of contamination inside the buildings at Photech. The results of the Phase II sampling will provide the necessary information to assist the City in determining future decontamination plans, if required, at the Photech property and will allow the segregation of certain materials either prior to or during actual demolition activities.

Wipe samples will be collected from a variety of surfaces at the Photech facility to determine the potential contamination of building and facility materials, walls and floor structures, and equipment and instrumentation surfaces. Results from the wipe sampling will provide positive or negative indication of the presence of chemicals on these surfaces and will assist the City in determining if decontamination of these items is required or feasible. Bulk samples will be collected from materials such as ceiling, wall, and floor materials, various process materials, and liquids contained in vessels, tanks, and containers. These samples will provide information on the level of chemical contamination for the above materials and assist in determining proper segregation of waste streams for future building demolition activities.

Phase II wipe samples will collected using the methodology presented in the National Institute of Occupational Safety and Health (NIOSH) Method 9100, Lead in Surface Wipe Samples, in which a sterile gauze pad and a 100 cm^2 area template is used to collect each sample. Sample collection will be completed by removing a 2-inch by 2-inch sterile gauze pad from its protective package and moistening the pad with 1-2 milliliters of distilled water. The sampler will place the 100 cm^2 area template over the area to be sampled and will collect the sample by firmly wiping the area inside the template form 3-4 times in both the horizontal and vertical directions. Several sampling passes over the sample area will be completed, folding over the gauze pad. Once the sample is collected, the gauze pad will be put inside a clean, dedicated plastic bag (with appropriate preservative added as needed), sealed, labeled, and submitted to the laboratory for analysis.

Bulk samples will be collected from building materials located throughout the buildings. Bulk samples will be collected based on visual contamination encountered and noted in the buildings, including such items as liquids present in process piping, machinery, or equipment, stained concrete, floor tiles, or wall material, bulk chemicals/products remaining internal to the buildings, etc. Bulk samples will be collected by using sampling tools appropriate to the matrix of the material to be sampled. These tools may include hand power tools such as a saw or drill/corer, hammer, chisel, hacksaw, coliwasa, or other dredging device. Once collected, bulk samples will be placed inside an appropriate sample container (e.g., glass jar, plastic baggie, etc.). The sample technician will add the appropriate preservative, and then will seal, label, and ship the sample containers to the laboratory for analysis.

The laboratory analysis of both the wipe and bulk samples collected during this phase will include the necessary sample analyses as specified in the approved Work Plan. These analyses include:

Analyte List	*Analytical Methods*
RCRA Total Metals	1311/6010/7000
TCL Volatiles	ASP 95-1
TCL Semivolatiles	ASP 95-2
PCBs	ASP 95-3/8082
Total Petroleum Hydrocarbons (TPH)	418.111664
Alcohols	SW-846 8015

The types of analyses selected for a particular sample will be dependent on the location and manufacturing process history of where the sample is located. For example, not all samples collected will be submitted for TPH analysis, only those in areas where fuels, oils, or other petroleum products are suspected. Most samples collected in major processing areas, such as those in Building 2 and Building 16 will be submitted for most of the list of analyses above. All analyses will be completed by the approved New York State ELAP CLP certified laboratory for this project.

Based on the approved Work Plan, the B/E Phase II survey sampling scope includes provisions to collect approximately 100 wipe samples from the buildings at Photech. An additional 30 estimated bulk samples will also be submitted for laboratory analysis. Based on an evaluation of Phase I activities, BRG believes that the number of samples will be sufficient to adequately characterize contamination in the buildings at the facility.

Sample Locations

General sample locations for the wipe samples are introduced below. Due to the complex conditions present inside the Photech facility and the multitude of potential sampling options, BRG has not attempted to provide a specific sample by sample record of the 100-130 wipe and bulk samples that will be collected as part of the Phase II B/E survey.

Building 1- Main Offices and Research and Development Area

The areas in Building 1 on both the first and second floors where office space is located are being characterized together as having similar, non-chemical type of operations. A series of 4 wipe samples, two from each floor, will be considered representative for these types of rooms in this building.

Laboratory and process-related room on the first and second floors of Building 1 have numerous surfaces, material and equipment to provide sample locations. Since there is no visual evidence of significant contamination in these areas, BRG will collect 10 wipe samples from the rooms on these two levels to characterize the equipment and types of surfaces present in the building.

From the basement of Building 1, one wipe samples and one bulk sample will be collected from the utility room.

Building 2- Emulsion Processing

BRG will collect a series of wipe samples from Building 2, where there was a great variety of chemical handling, processing, and storing activities conducted in the past in the building. B/E survey samples will be collected from the following various processing and operation room locations: one wipe sample will be collected at the penthouse level; 5 wipe samples will be collected from the 12 rooms on the third floor; 10 wipe samples and 2 bulk samples will be collected from the rooms on the second floor; 10 wipe samples and 2 bulk samples will be collected from the rooms on the first floor; and, 5 wipe samples and ▌ bulk sample will be collected from the areas in the building basement.

Building 3- Garage

BRG will collect one wipe sample from the garage.

Building 4- Maintenance Shop

One wipe sample and one bulk sample will be collected from the maintenance shop.

Building 5- Boiler House

A total of 5 wipe samples will be collected from surfaces and equipment in the boiler house. A total of 4 bulk samples will be collected from the existing 5-gallon containers and 55-gallon drum(s) as appropriate. A single bulk sample will be collected from each of the sump structures and pipe chase.

Building 6- Engineers Office

No chemical use was noted for this building and no samples will be collected

Building 7- Coating Alley

Two wipe samples will be collected in the main part of Building 7. Two additional wipe samples will be completed in the coating room. Four bulk samples from existing process lines and tanks, the coating station sump, and stained ceramic tile will also be collected. A bulk sample will be collected from the contents of the small transformer.

Building 8- Exterior Maintenance Building

Due to the presence of the 5-gallon buckets of parts cleaner solvent in the building, one wipe sample and one bulk sample will be collected in this building.

Building 9- Kathabar System

A single wipe sample and a bulk sample from the Kathabar cooling system will be collected from this building.

Building 10- Kathabar System

A single wipe sample and a bulk sample from the Kathabar cooling system will be collected from this building.

Building 11- Chemical Laboratories

BRG will collect 3 wipe samples from rooms on the lower level of Building 11 and 8 wipe samples from the laboratory rooms on the upper level. An estimated 2 bulk samples will be collected, as needed, from material in the laboratories and process rooms.

Building 12- Sub Coating

An estimated 10 wipe samples will be collected throughout Building 12 ground level. These samples will be collected from areas where processing and chemical handling/storage activities occurred in the past. An estimated 2 bulk samples will be collected from available material and building construction (e.g., cement floor, wall material) in the building.

Building 13- Warehouse

BRG will collect one wipe sample in the main warehouse area, primarily due to that fact that facility records indicate no chemicals were handled in this area. One bulk sample will be collected from the cooling system liquid in the adjacent fan room.

Building 14- Exterior Tank Farm

No samples will be collected at this location. The exterior tank farm will be investigated and removed as part of another portion of the Photech SI/RA project.

Building 16- Process Building

One wipe sample will be collected on the upper level of Building 16. A more thorough collection of wipe samples will be completed for the rooms in lower level, where a large amount of material and equipment remain, and past chemical use was heavy. Wipe samples will be collected for each identified floor drain. Bulk samples of sump contents and process line piping will also be collected. External to the building, samples will be collected from the concrete vault sumps noted above. BRG estimates a total of 10 wipe samples and 3 bulk samples in this building.

Building 17- Dryer Addition

A limited number of samples will be collected in this building, mainly a random set of wipe samples to spot check for contamination and bulk samples of the liquid from the Kathabar units. BRG estimates a total of 8 wipe samples and 2 bulk samples in this building.

Carpenter Shed

One wipe samples will be collected from the inside of this structure. Although no observable chemical stains are present, it currently holds bags of swimming pool chemicals.

Wooden Shed

No chemical use was noted for this building and no samples will be collected.

Old Guard House

No chemical use was noted for this building and no samples will be collected.

Chemical Storage Shed

One wipe sample from the area at the existing floor drain will be collected at this location. One bulk sample from the partially buried containment drum will also be collected.

Inter-building Tunnel System

A series of wipe samples will be collected from along the tunnel and corridor passageways connecting the various buildings. BRG estimates a total of 5 wipe samples for these passageways.

In summary, BRG will collect an estimated total of 107 wipe samples and 32 bulk samples.

Phase II BIE Survey Sampling and Analysis Results

Based on the results of the information and documentation review, site inspection activities, and the Phase II sampling results, BRG will develop recommendations for the decontamination of chemical residues from the buildings and equipment at the Photech site. BRG will identify each building or section of building, delineating and characterizing the area or building as to its 'cleanliness', and, if necessary, for its suitability for the application of a particular cleaning method. Each building or section of building will be categorized as visibly clean with no suspected contamination- demolition as is; contamination confirmed or suspected- decontamination required; or, contamination confirmed- segregate and remove. Associated estimated quantities of materials will be provided as available. The recommendations and findings from the B/E survey will be incorporated into the Photech SI/RA Final Report document.