

**Technical Review Panel (TRP)
Decision Document
Site Remediation and Waste Management Program**

Panelists: Barry Frasco, Assistant Director, Hazardous Site Science Element
Ed Putnam, Assistant Director, Remedial Response Element
Wayne Howitz, Assistant Director, Responsible Party Remediation Element

Remediating Parties: Coats & Clark – Peter McGrath, Attorney, Moore & Van Allen
Scientific Glass – Craig Provorny, Attorney, Harold & Haines
Leo Reality – John Scagnelli, Attorney, Scarinci & Hollenbeck

Date of Request: 11/6/03

Date of Meeting: 6/23/04

Consultant(s): Elizabeth Davis – Representing Coats & Clark and SGA
Environmental Waste Management (EWMA)
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Site Address: SGA Scientific, Inc.
735 Broad Street
Bloomfield, Essex County NJ
Case #: 93-06-07-SP01M
PI #: G000005812

Disputed Technical Issue(s) Per Technical Review Request:

SGA raises the following issues:

- The Department's request for sampling at eleven areas of concern on the site that should be closed
- The Department's request for a chemical inventory;
- The Department's request for sampling additional parameters; and
- The Department's failure to provide closure of portions of the site not subject to new investigation.

Relevant Regulations: N.J.A.C. 7:26E

Pertinent Information Considered: Amended Preliminary Assessment Report (APAR).

Decision of Technical Review Panel: The following areas of concern (AOC) require no further action. AOCs: 2, 7, 10,17, 25, 36 and 39 require no further remediation. The Department understands that the chemical inventory is not available and will not require an inventory.

Background

Two manufacturers have operated at this site, Clark Thread Company (d/b/a Coates & Clark (C&C)) and Scientific Glass Apparatus (SGA). From 1921 to the late 1940's C&C processed cotton threads by bleaching and mercerizing (a process of treating cotton thread with sodium hydroxide to shrink the fiber and increase its color absorption and luster.) processes for off-site dye-house operations.

C&C is believed to have utilized the following chemicals in their operations: sodium hydroxide, wetting agents, sulfuric acid, sodium hypochlorite and dyes. With the exception of the sulfuric acid and sodium hydroxide (exterior AST), all of the chemicals were stored inside the plant. The sodium hypochlorite was stored in the "Chlorine Building" which was actually a small room off the East Side of the "Bleach Building". The exact storage location of the other chemicals is not known.

Scientific Glass Apparatus Company, Inc (SGA), operated at this site from circa 1950 to 1985, SGA was a distributor of pre-fabricated laboratory glassware, laboratory instruments and pre-packaged chemicals. SGA also fabricated mercury thermometers. SGA utilized mercury and is believed to have utilized hydrofluoric acid (glass etching), carborundum and olive oil (glass grinding). SGA also purchased and resold a variety of prepackaged laboratory chemicals. With the exception of the mercury, the exact storage location of the other chemicals is not known. Mercury storage and usage was confined to a small area of the facility, specifically the 1,200 square foot second floor located over the southwest corner of AOC 10 (Bleach House).

The mercury was utilized for two processes: 1) to calibrate glassware, and 2) to fill thermometers. The calibration process, according to SGA did not generate any appreciable mercury waste, as the spillage of mercury would result in an inaccurate calibration. However, in the rare event that globules would be spilled, they would be containerized immediately. Prior to the early 1970's, the spills were brushed or vacuumed up, put into a container with water and then distilled on site for reuse.

In the early 1970's, SGA designed stainless steel testing stations. The testing stations were designed to slant to a collection point. A hole was located at this collection point, and a container (i.e. 16-oz jar with water) was located beneath each hole to collect the mercury. The containers were emptied every two or three months and distilled on site until approximately 1972. At that time, the waste mercury was shipped to Bethlehem Apparatus Company (BAC) for distillation.

Starting in 1972, mercury was also sold as a virgin product to SGA customers. The mercury was received in metal canisters from suppliers and sent to BAC in its original containers. BAC also removed any mercury that was collected as a result of spills. BAC distilled the mercury and packaged it in one and five pound plastic containers. These jars were returned to SGA. SGA then shipped the majority of the mercury directly to its customers without repackaging. A small amount of the mercury was utilized by SGA to fill thermometers.

Leo Realty Enterprises, L.P. (Leo Realty) acquired the property in 1987. In 1989, Leo Realty razed the buildings where the property has remained vacant.

The surrounding properties are residential on 3 sides and a golf course on the 4th. The future plan for this site is a residential townhouse development. On 9/10/02 the Bloomfield Planing Board approved Leo Realty's (owner/developer) development plan contingent on completion of all DEP requirements.

The original MOA was executed 10/28/93 with Leo Realty, the property owner/developer. This MOA was terminated and a second MOA was executed 7/17/01 with C&C and SGA to address the contamination associated with their operations. A third MOA was executed 8/6/03 with Leo Realty for several Areas of Concern (Leo Realty MOA). Approximately ten consultants have investigated the site for various purposes over the last 15 - 20 years with 41 Areas of Concern (AOCs) identified to date.

The AOCs include former manufacturing areas, underground storage tanks (USTs), various on site waste disposal areas, fill layers (historic and site related) and groundwater. The investigation/remediation of these AOCs are at varying stages from no action yet taken to fully remediated. The contaminants identified above cleanup criteria include: mercury (likely from thermometer manufacture operations), asbestos (likely from glass manufacturing operations, on site disposal practices and building demolition), elevated pH (likely from the former mercerizing process) and other metals and PAH contamination which may be from site activities, building demolition and the fill materials (both historic and site activity related).

There have been several reports from former employees concerning a "mercury disposal pit", slit trenches used for on site disposal and emptying drums of various/unknown materials throughout the site and to the adjacent Third River. The exact location of these areas has not been determined. It is likely that the alleged mercury pit is part of another disposal AOC currently under investigation. However this can not be confirmed until a PA/SI is completed and all potential locations investigated.

Several large debris/fill piles exist at the site that have not been investigated to date. These piles include demolition debris from the former site buildings, soil and materials dumped at the site (likely illegally) since the buildings were demolished in the mid 1980's. These will be addressed under the Leo Realty MOA.

Initial groundwater results exceeded the GWQS for several metals (including lead), PCE and chloroform. On 9/11/02 the Department issued a letter replying to a recent Groundwater Remedial Investigation Workplan and detailing additional groundwater investigations that are necessary. These requirements were further discussed and amended during the 10/21/03 meeting with the Department.

The following is a summary of each AOC and the need for further actions at each AOC:

AOC 1 - Mercury Disposal Pit.

The Department received reports in the early 1980's that mercury was disposed in a shallow hole approximately 1-foot deep about the size of an automobile. The Department investigated these allegations on two occasions (September 2, 1982 and October 7, 1982). The investigations did not observe any mercury, but concluded that it could be covered by fill prior to construction of the paved parking area. Investigations conducted by NUS Corporation, EcolSciences and EWMA have not identified this alleged area. The location of this AOC has not been determined. Additional investigation has been proposed by EWMA.

The Department agrees with EWMA that further investigation is warranted for this AOC.

AOC 2 - Third River, a tributary of the Passaic River that runs along the eastern and southern property boundaries.

The Third River flows in a southerly direction past the SGA property. Sediment sampling performed by EWMA (SED-1, SED-2 and SED-3) analyzed for volatile organics + 10 (VO+10). Only the upstream sample SED-1 exhibited a detectable concentration of xylenes (0.00543J ppm). EWMA collected three additional sediment samples from the river. Samples were collected as follows:

<u>Sample ID</u>	<u>Sample Location</u>
TR-1	Spillway
TR-2	Just below the former discharge pipe outfall
TR-3	10' below the downgradient edge of subject property

Copper, lead, mercury as well as chlordanes were detected in the samples above the lowest effects level (LEL). The highest concentrations were detected in the upgradient sample upgradient of the site in TR-1 demonstrating the contaminants are not attributed to site operations. Based upon this information, the Department does not require any additional investigation.

AOC 3 - Concrete Pit.

A 2' x 3' wide 10 – 15' deep concrete pit was identified during a site inspection performed in 1988. EWMA believes that this pit may have been the influent point for non-municipal water to the plant. The pit was located on the East Side of the building, between AOC 10 (Bleach House) and the water plant located on the East Side of the Third River. According to EWMA, the water plant pumped water from a lake located several miles upstream of the property. EWMA believes that if this pit had been a

discharge pit, it would have been located on the West Side of the building, between the building and AOC17 (Wastewater agitator tank)

EcolSciences performed a test pit (TP-27) of this area to a depth of 9 feet below surface grade (bsg). Samples were analyzed for total petroleum hydrocarbons (TPH), priority pollutant metals (PPM), pH, base neutral extractable, plus a forward and reverse library search (BN+15), acid extractable organics, plus a forward and reverse library search (AE+10) and cyanide. The results of the sampling did not detect any contaminants above the residential direct contact soil cleanup criteria (RDCSCC).

The APAR indicates that this AOC received water from an old power plant on the opposite side of the Third River. In addition, the Assistant General Manager, Mr. George Sterris' deposition indicates that wash water from the glass manufacturing operation was discharged to on site pits. It is unclear if this AOC is one of those pits. Further clarification of the use of this AOC is needed before the Department can confirm that the activities proposed in the RIW will be adequate. If neighboring AOCs are adjacent or overlap this AOC then there is the potential that sample locations may be shared possibly reducing the total number of samples if additional sampling is necessary.

AOC 4 - Groundwater.

The Department detailed the groundwater investigation requirements for this site in the September 11, 2002 letter. To date this investigation has not been completed. EWMA has proposed further investigation in their RIW.

AOC 5 - Rocky Fill Area.

Investigation of this AOC has not been completed to date. EWMA has proposed further investigation in their RIW. The Department agrees that additional investigation of the AOC is warranted.

AOC 6 - Waste Disposal Area.

Limited information has been provided concerning the types of material disposed of in the area therefore the AOC should be investigated pursuant to N.J.A.C.7: 26E-2.1(c) 2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site samples from this AOC should be analyzed for these in addition to the unknown parameters. Initial samples collected in this AOC were analyzed for a limited number of parameters and the data packages are not available. Therefore this early data may not be used to document compliance with the Department's cleanup criteria and further investigation is warranted. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 7 - Glass Disposal Area

A former employee reported this AOC to the Department. In 1982, the Assistant General Manager Mr. George Sterris reported that SGA stored glass waste on their property (glassware and glass grinding). According to Mr. Sterris, a company picked up this material to use for glass insulation.

EcolSciences performed a test pit (TP-26) of this area to a depth of 8 feet bsg (bsg). Crystalline yellow granules were encountered at 5-6' bsg. A sample (TP-26M) was collected and analyzed for total petroleum hydrocarbons (TPHC), priority pollutant metals (PPM) and pH. Composite samples were collected at three distinct levels ("S", 1-2' bsg), mid-depth ("M", 5-6' bsg) and bottom ("B", 7-8"bsg) of the test pit. EcolSciences reported that the samples did not exceed the most stringent soil cleanup criteria. EcolSciences reported the absence of glass waste in this area.

June 2000, EWMA advanced five test pits (TP26A – TP26E) in this area to a depth of 10' bsg. No broken glass debris or elevated PID readings were observed in any of the test pits and no crystalline yellow granules were encountered at 5-6' bsg. A sample (YCP) was extracted from this depth. The sample was analyzed for pH and priority pollutants + 40 (PP+40), including total analyte list (TAL) metals.

The results of soils samples collected in this area were below the RDCSCC. No additional investigation is required at this AOC.

AOC 8 - Mercerizing Building.

This is a 123' x 242' one-story reinforced concrete building. The building was constructed in 1922 – 1923. Several additions were added to this building. A 16' x 42' addition was added to the southern corner of the building. A 39' x 28' addition was added to northern corner. Two additions were located in the middle of the building, 20' x 60' and 42' x 53'. A loading canopy was associated with one of these additions. This building was joined to the Bleach House (AOC 10) in 1946. An addition was added (building annex) to the building off the southwest corner of the former Bleach House building between 1961 and 1974.

Cotton thread was treated with sodium hydroxide. After treatment, the thread was neutralized. The water utilized in this process was discharge to the wastewater agitation tank (AOC 17) located to the west of the Bleach House (AOC 10).

During SGA's operation at this site, AOC 8 was utilized for the distribution of pre-fabricated laboratory glassware, laboratory instruments and pre-packaged chemicals. The building was divided into warehouse space, stockrooms and offices. EWMA reports that only non-hazardous, solid wastes were generated for these operations.

EcolSciences installed four random test pits using a grid sampling within the former building footprint (TP-1, TP-2, TP-3 and TP-4). Samples collected from the test pits were analyzed for TPH, PP Metals and pH. EcolSciences analyzed the sample exhibiting the most elevated TPH concentration (TP-2) for Base Neutrals +15, Acid Extractable +10, PCBs and cyanide. EcolSciences reported that all analytes were below the most stringent soil cleanup criteria. The pH values ranged from 8.78 to 9.8.

EWMA performed additional sampling within the building footprint. Thallium had been detected in sampling performed by Handex Environmental Management (HEM) from this

AOC. Samples (MB-1, MB-2, MB-3 and MB-4) were collected and evaluated for the presence of thallium in the 3.5-4.0' soil depth interval.

EWMA analyzed the samples for thallium and pH. Thallium was detected at a concentration of 0.12 ppm in one sample, below the Department's most stringent soil cleanup criteria.

The Department's review of the laboratory data deliverables package submitted for the samples collected by EcolSciences exceed the Department's cleanup criteria for several PAH compounds. Further investigation is necessary in the AOC. Also elevated pH levels have been identified in this AOC, a likely result of the use of sodium hydroxide in the mercerizing process. Therefore both PAH and pH analysis should be conducted to complete delineation and then appropriate remedial actions should be proposed.

AOC 9 - Chlorine Building.

This 1,600 square foot one story brick room constructed on a 6' concrete slab was attached to the eastern side of the Bleach House (AOC 10). A loading canopy was located on the south side of this room. EWMA reports that Clark used this building to store sodium hydrochloride utilized in the bleaching process. During SGA's operation at the site this area was utilized as a machine shop and boiler room.

EWMA based upon historic work performed by HEM, collected a sample within the building footprint to further evaluate the possible existence of thallium in the 1.0 – 1.5' soil interval. Thallium was not detected; the pH of the sample collected was 8.56.

The APAR depicts this AOC as the same structure later referred to as AOC 30 - Boiler Room. These AOCs will be investigated as part of Boswell Engineering's investigation of AOC 38. Therefore, AOCs 9, 30 and 38 will be investigated by Boswell Engineering.

AOC 10 - Bleach House.

This is a 106' x 330' reinforced concrete building constructed in 1922. A 1,200 square foot second story office was added to the southwest corner of the building. A 400 square foot mezzanine area was added along the western side of this building. The building also had four additions along the east wall of the building. A 16' x 42' addition was added at each corner. These additions each included a loading platform with an 8' x 35' canopy along the East Side. A 19 x 64' addition was located to the south of the north wall of the building and a 45' x 36' building was located to the north of this south wall of the building. This later addition was referred to as the chlorine building (AOC 9). This building was joined to the Mercerizing Building (AOC 8) by a one-story addition constructed in 1946. An addition was added (building annex) to the building off the southwest corner of the former Bleach House building (AOC 10) between 1961 and 1974.

The process water utilized by Clark in bleach operations was discharged to the waste water agitation tank (AOC 17) located to the west of the building.

SGA utilized this building for thermometer and glass operations. Prior to 1972, the small amount of mercury waste generated was distilled on site. After that time, it was transported to BAC for distillation. Waste glassware and wash water were also generated. The wash water was discharged to the sanitary sewer system. Prior to 1967 broken glassware and glass grindings were stored outside until a glass insulation manufacturer removed the material. This storage area for this material was reported adjacent to the northwest corner of this building.

EcolSciences installed four random test pits using a grid sampling within the former building footprint (TP-1, TP-2, TP-3 and TP-4). Samples collected from the test pits were analyzed for TPH, PP Metals and pH. EcolSciences analyzed the sample exhibiting the most elevated TPH concentration (TP-2) for Base Neutrals +15, Acid Extractable +10, PCBs and cyanide. EcolSciences reported that all analytes were below the most stringent soil cleanup criteria. The pH values ranged from 8.78 to 9.8

EWMA performed additional sampling within the building footprint. Thallium had been detected in sampling performed by Handex Environmental Management (HEM) from this AOC. Samples (BH-1, BH-2, BH-3 and BH-4) were collected and evaluated for the presence of thallium in the 3.5-4.0' solid depth interval.

EWMA analyzed the samples for thallium and pH. Thallium was detected at a concentration of 0.12 ppm in one sample, below the Department's most stringent soil cleanup criteria. The pH values ranged from 8.87 to 9.11.

In June 2000, EWMA collected two additional samples (BH-1A and BH-4A) from within the building footprint. Base Neutral compounds had been detected in sampling performed by Handex Environmental Management (HEM) from this AOC. The samples were analyzed for the presence of Base Neutral compounds. One sample BH-1A exceeds the Residential Direct Contact Cleanup Criteria (RDCCC). Chrysene 10.8 ppm, Benzo(a)anthracene 14.2 ppm, benzo(b)fluoranthene 15.2 ppm benzo[k] fluoranthene 4.3 ppm, indeno[1,2,3-cd]pyrene 4.2 ppm, benzo(a)pyrene 11.6, dibenz[a,h]anthracene 1.3 ppm .

In order to further delineate the RDCCC exceedance from the June 2000 sampling event EWMA collected a total of thirty-five horizontal and vertical delineation samples around the BH-1A sample location in November 2000. Samples were collected from 0-6", 1.5-2', 3-3.5' and 4.5-5' bsg. Based upon this sampling, the area was delineated and 171.97 tons of soil was excavated and transported to the Linden Landfill, Linden, NJ.

The Department does not require any additional action for this AOC.

AOC 11 - Sulfuric Acid Above Ground Storage Tank.

Historic Sanborn maps (1938 & 1950) depict an elevated above ground storage tank approximately twenty-five feet from the northwest corner of the building. The tank was reportedly elevated seventeen feet above the surface grade on a wood frame. This tank was also observed on a 1948 aerial photograph, but not in a 1951 aerial photograph.

EWMA has proposed further investigation in their RIW.

AOC 12 - Southern Fill Area (Formerly known as area IIB).

EcolSciences installed one test pit, TP-9 at the southwest corner of the property in an area of reworked soil. Small amounts of wood, charcoal and concrete were encountered in the test pit. The test pit was advanced to a depth of 10' bsg. Ground water was not encountered. Samples were obtained from the top ("S", 0-1' bsg), midpoint ("M", 5-6' bsg) and base ("B", 9-10' bsg) of the test pit and analyzed for TPH, PPM and pH.

EcolSciences reports the TPH concentrations ranged from 29.8 ppm to 65.4ppm. The pH values ranged from 6.68 to 7.13. No metals were detected above the RDCCC. EWMA obtained samples from TP-9 and analyzed the samples for TPHC and priority pollutant plus forty (PP+40). EWMA reported that none of the samples collected had concentrations in excess of the RDCCC.

The Department does not understand why EWMA or EcolSciences excluded in their sampling the 1.5' to 5' interval. Previous investigation conducted by EcolSciences at the AOC extended to 10 feet below grade and identified several distinct layers of fill. Further clarification of the limited investigation is necessary before the Department can determine if the investigation conducted is appropriate. Also the horizontal extent of the AOC has not been determined. The Department is requiring additional clarification of this AOC.

AOC 13 - Northeast Fill Area.

This area is believed to consist of the demolition debris from the Raw Materials Storage Building (AOC 31). Limited information has been provided concerning the operations conducted in this area therefore the AOC should be investigated pursuant to N.J.A.C.7:26E-2.1(c)2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site samples from this AOC should be analyzed for these in addition to the unknown parameters. Initial samples collected in this AOC were analyzed for a limited number of parameters, some contaminants detected exceed the Department's cleanup criteria and the data package has been determined to be unacceptable. Therefore, this early data may not be used to document compliance with the Department's cleanup criteria and further investigation is warranted. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 14 - Parking Lot Fill Area (formerly known as area III).

This portion of the property was reportedly backfilled with soil obtained from the construction of the Garden State Parkway in the 1950's. The material was then graded and covered with an asphalt-paved parking lot. A large pile of rubble and wood debris (AOC 15) overlies this AOC. The rubble and wood debris was generated during the demolition of the on-site buildings.

EcolSciences installed six test pits within this area to characterize the fill materials (TP-12 through TP-14, TP-19, TP-20 and TP-25). The test pits were advanced to depths of 4-8' bsg. Ground water was not encountered. The EcolSciences test pit logs reflect the 0' depth as either the top of the debris pile (if the test pit was installed through debris) or surface grade (if the test pit was not installed through the debris, or extended below the asphalt). All of the samples were analyzed for TPH, PPM and pH. Additionally, sample TP-14M (1-6' bsg) were analyzed for BN+15, PCB's and Cyanide.

The TP-14M was the only sample to exhibit contamination in excess of the RDCCC. Sample TP-14M exhibited antimony (19.1 ppm), copper (1,880 ppm) and lead (1,470 ppm) at concentrations above the RDCCC.

EWMA installed test pits to further evaluate the antimony, copper and lead contamination identified in EcolSciences sample location TP-14M. One vertical delineation sample (TP-14) was obtained from a depth of 8-9' bsg at location TP-14M. The sample was analyzed for PPM. No PPMs were detected above the RDCCC.

Two test pits (TP-14E and TP14S) were installed 10 feet from location TP-14M. Two samples were obtained from each test pit. TP14E-A and TP14S-a were obtained from the 0-1' increment below the asphalt for horizontal delineation purposes and were analyzed for BN+15 and PPM. TP-14E-B and TP14S-B were obtained from the native soil underlying the parking lot. Two additional test pits were installed to further evaluate the native soil beneath the parking lot fill, TP-14N-B and TP14W-B. All of the samples were obtained from the depths ranging from 5-8' bsg and analyzed for PPMs.

No PPMs were detected in the samples at concentrations above the RDCCC. One sample, PT-14E-A, exhibited several targeted BNs above the RDCCC: benzo[a]anthracene at 2.75 ppm, benzo[b]fluoranthene at 4.01 ppm, benzo[k]fluoranthene at 1.48 ppm, benzo[a]pyrene at 2.6 ppm and indeno[1,2,3-cd]pyrene at 1.82 ppm.

EWMA advanced test pits through the former paved parking lot to perform a more thorough evaluation of the parking lot fill material. Three test pits (PLF-1, PLF-2, PLF-3) were installed with a backhoe on June 5, 2000. The test pits were extended to a depth of 6' bsg. No elevated PID readings or visual discoloration was noted. Samples were extracted from the 1.5-2' increment bsg to evaluate the fill material ("A" designated samples) and from the 5.5-6' increment bsg to evaluate the underlying native soil ("B" designated samples).

Only one sample PLF-1A, exhibited contaminants in excess of the RDCCC. Sample PLF-1A exhibited three targeted base neutral compounds at concentrations above the RDCCC: benzo[a]anthracene 1.89 ppm, benzo[b]fluoranthene at 1.88 ppm and benzo[a]pyrene 1.37 ppm. No other contaminants were detected in this sample at concentrations exceeding the RDCCC.

EWMA based on the investigation and delineation results, remediation was required to mitigate the metal (antimony, copper and lead) and base neutral (benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluroanthene, benzo[a]pyrene and indeno[1,2,3-cd]pyrene) contamination detected in this AOC.

A total of 1,592.46 tons of soil was excavated and transported to the Linden Landfill, Linden, NJ for use as landfill cover. Post excavation sampling performed at different intervals found no exceedances above the RDCCC.

The APAR indicates that remediation is complete in this area however, it appears that post excavation soil samples were collected on the western edge of the excavation from a zone significantly higher than earlier post excavation samples that contained contamination in excess of the Department's cleanup criteria. The "final" sidewall samples appear to have been collected 5 feet higher than the previous sidewall samples and a final base sample base collected 4 feet above the previous sidewall samples. Since these samples appear to have been collected significantly above the contaminated zone it can not be confirmed that remediation is complete. The final post excavation soil sample along the northern edge of the excavation, in the area of PLN-4A was not analyzed for the contaminants of concern (metals). Therefore it can not be confirmed that remediation in this area is complete. Additional sampling is necessary to confirm that remediation is complete. It should also be noted that during excavation activities in this AOC Department representatives noted a strong formaldehyde odor in the area. Consequently formaldehyde analysis was required. Formaldehyde was detected in all samples that were analyzed for these compounds and therefore any future sampling analysis should include formaldehyde.

AOC 15 - Western Perimeter Fill Area.

This area is believed to consist of the demolition debris from the Bleach House and Mercerizing buildings (AOCs 10&8). Limited information has been provided concerning the operations conducted in this area therefore the AOC should be investigated pursuant to N.J.A.C.7:26E-2.1(c)2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site, samples from this AOC should be analyzed for these in addition to the unknown parameters. Initial samples collected in this AOC were analyzed for a limited number of parameters, some contaminants detected exceed the Department's cleanup criteria and the data package has been determined to be unacceptable. Therefore, this early data may not be used to document compliance with the Department's cleanup criteria and further investigation is warranted. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 16 - Building Annex Fill Area (formerly known as area V).

The footprint of the office annex, located within the south-central portion of the subject property, was reportedly filled with construction rubble prior to the construction of this portion of the building sometime between 1950 and 1977. The construction rubble was reportedly generated from the demolition of several nearby residences. The depth of this

material extends approximately 4-6' bsg. The building annex encompassed an area of approximately 10,000square feet.

EcolSciences installed one test pit (TP-21) to evaluate this area. Samples were obtained from TP-21 from the top ("S," 0-1' bsg), midpoint ("M", 5-6' bsg) and base ("B", 8-9' bsg) of the test pit and analyzed for TPH, BN+15, PPM and pH. Additionally, sample TP-21S was also analyzed for AE+10, PCBs and cyanide, and TP21M was also analyzed for cyanide. The "S" increment is representative of the fill material. The "M" and "B" samples are representative of the underlying native soil.

TP-21S was the only sample to exhibit contamination in excess of the RDCCC. Sample TP-21S exhibited benzo(a) anthracene at 78 ppm, benzo(b)fluoranthene at 50 ppm, benzo(k)fluoranthene at 46 ppm, indeno[1,2,3-cd]pyrene at 36 ppm, chrysene at 80 ppm, benzo(a)pyrene at 60 ppm and pyrene at 110 ppm.

EWMA installed five borings to delineate the horizontal and vertical extent of the elevated targeted base neutral concentrations detected at location TP-21S. One vertical delineation sample (TP-21) was obtained from a depth of 2-3' bsg (2' below the elevated sample location). Four horizontal delineation samples (TP-21N, TP-21S, TP-21E and TP-21W) were obtained 10 feet away from the initial sample location at a depth of 0-1' bsg. All of the samples were analyzed for BN+15.

Several targeted base neutral compounds were detected at concentrations above the RDCCC in all five samples: flouranthene, benzo(a)anthracene, chrysene, benzo(b) fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenz[a,h]anthracene.

At the direction of the Department, EWMA advanced test pits through the former building annex footprint to perform a more through evaluation of the former building annex fill material. Two test pits (BAF-1 and BAF-2) were installed with a backhoe on June 5, 2000. The test pits were extended to a depth of 6' bsg. No elevated PID readings or visual discoloration was noted. Building type debris (i.e. bricks) was encountered in the test pits. The debris extended to an approximated depth of 5.5' bsg.

Samples were extracted from the 1.5-2' increment to evaluate the fill material ("A" designated samples) and from the 5.5-6' increment to evaluate the underlying native soil ("B" designated samples). The samples were analyzed for PP+40.

Targeted base neutrals were the only compounds detected above the RDSCC in the fill samples. Seven individual BN constituents were detected in each sample above the RDSCC: benzo(a)anthracene, chrysene, benzo(b)fluoranthracene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and dibenz[a,h]anthracene.

EWMA based upon an evaluation of the samples and the contaminants detected, it was evident that contamination in excess of the RDCSCC was only present in those samples visually impacted by fill. Therefore, all visual fill debris was excavated from this AOC

and no post excavation samples were obtained, since the contamination was confined to the debris itself.

The excavated fill was temporarily staged on site on 6 mil. Plastic sheeting until it was run through a separator that was brought onto the subject property. Debris larger than 4' was transported to Bayshore Recycling Corp, 1050 State Street, Perth Amboy, NJ. The remaining material was transported to the Linden Landfill in Linden, NJ for use as landfill cover. A total of 1,573.54 tons of material was transported to Bayshore and 3,740.09 tons were transported to the Linden Landfill in Linden, NJ.

EWMA has proposed further investigation for this area.

AOC 17 - WasteWater Agitation Tank.

An above ground wastewater agitator tank was located on the subject property to the west of the former Bleach House building. The tank, whose dimensions are not known, was located beneath the parking lot in the western portion of the site. The tank was referred to as an agitation, filtering and settling tank.

EcolSciences installed TP-24 to evaluate this area of concern. During the installation of the test pit, it was discovered that the wastewater agitation tank had previously been abandoned in place. The tank had a concrete bottom with wooden sides and was open at the top. Three samples were collected from the test pit:

TP-24S – Collected from suspected backfill placed over the tank

TP-24M – Collected from the suspected backfill placed over the tank.

TP-24B – Collected from native soil 2' below the base of the tank.

All of the samples were analyzed for TPH, PPM and pH. Additionally, sample TP-24M was also analyzed for BN+15, AE+10 and cyanide. The sample collected from TP-24B was also analyzed for BN+15. According to the sample summary table generated by EcolSciences, no parameters were present in these samples at concentrations exceeding the RDCSCC.

The Department required EWMA to perform additional sampling in this area. EWMA advanced one test pit (WAT) through the midpoint of the former wastewater agitator tank on June 5, 2000. EWMA encountered the base of the former tank at a depth of 4-4.5' bsg. The base was found to be 1' thick and of sound integrity and could not be penetrated with the backhoe. The test pit was subsequently extended to the southern end of the tank where it was advanced an additional foot in depth.

The Department is not requiring any additional action for this AOC.

AOC 18 - Historic Stream Channel.

EcolSciences identified a "historic stream channel" via the examination of a December 1948 aerial photograph. EWMA's review of aerial photographs, revealed the presence of an apparent drainage ditch on the western adjoining property that traversed

southwestward from the access road entering the property from Broad Street to Spring Brook. The 1948 aerial photograph depicts this ditch as extending a short distance on the subject property. However, the 1940 and aerial photographs after 1951 did not depict this ditch extending onto the subject property.

Two test pits installed by EcolSciences, (TP-11 and TP-23) were determined to be within this AOC. Samples obtained from varying depths within these test pits were analyzed for TPH, PPM and pH. Some of the samples were also analyzed for BN+15, AE+10 and cyanide. EWMA reported that none of the samples exhibited contaminants in excess of RDCSCC.

However, the NJDEP stated that the EcolSciences boring log did not confirm the presence of the streambed. Therefore, additional investigation and sampling is proposed in EWMA's June 11, 2003 Remedial Investigation Workplan.

EWMA has proposed further investigation for this area.

AOC – 19 Soil Pile

The Department has approved Boswell Engineering's workplan for further investigation in this area

AOC 20 - BROKEN GLASS AREA (FORMERLY KNOWN AS AREA XII).

This area encompasses an approximately one-quarter acre of the woodlands within the northwest corner of the property. This disposal area contains broken thermometers and broken laboratory glassware. A portion of this area also contains a gray fine ash-like material. Visual examination of this area indicates the dumping occurred primarily at the surface but does extend to a depth of approximately 4.5' to 5' below grade in some areas.

EcolSciences excavated three test pits to evaluate this area of concern (TP-16, TP-17 and TP-18). The test pits were excavated to a depth of 5-7' bsg. Ground water and fill materials were not encountered. Samples were collected from the surface ("S", 0-1' below surface grade), mid-depth ("M", 1-3' below surface grade) and bottom ("B", 4-6' below surface grade) of each test pit. All of the samples were analyzed for TPH, PPM and pH. Additional analysis for BN+15 was performed on sample TP-16S. Additional analyses for BN+15, PCBs and cyanide were performed on sample TP-18S. EcolSciences reported that none of the samples exhibited contamination in excess of the RDCSCC.

EcolSciences performed additional sampling in this area via a grid sampling approach. Six 25' x 50' grids were established within this area. Samples were collected at each grid node (BG-1 through BG-12). Four samples were also collected on the perimeter of the grid (BG-13 through BG-16). All of the samples were analyzed for PPMs. Hexavalent chromium analysis was performed on the perimeter samples.

Hexavalent chromium was not detected. Six of the samples (BG-4, BG-5, BG-7, BG-8, BG-9 and BG-13) exhibited at least one PPM in excess of the most stringent RDCSCC.

Copper was detected in one of the grid samples at a concentration of 3,000 ppm. Lead was detected in one of the grid samples at a concentration of 1,690 ppm. Lead was detected in one of the perimeter samples at a concentration of 414 ppm. Mercury was detected in five of the grid samples at concentrations ranging from 24.4 ppm to 70.7 ppm. Mercury was detected in one of the perimeter samples at a concentration of 19.9 ppm. Zinc was detected in two of the grid samples at concentrations ranging from 2,090 ppm to 6,710 ppm.

To further evaluate the horizontal and vertical extent of the elevated metal contamination detected at location BG-13; EWMA installed test pits/soil borings. EWMA reported broken glass was observed in all of the test pit/boring locations. Four horizontal delineation samples (BG-13N, BG-13E, BG-13S and BG-13W) were obtained 10 feet away from the initial sample location at a depth of 0.5 - 1' bsg. One vertical delineation sample (BG-13) was obtained from a depth of 3-4' bsg. The vertical delineation test pit was advanced by a backhoe to a depth of 6" above the desired sample depth.

EWMA analyzed all of the samples for PPM. Mercury was detected in the vertical delineation sample (BG-13) at a concentration of 26.4 ppm. Arsenic was detected in one of the horizontal delineation samples, BG-13W, at a concentration of 127 ppm. Lead was detected in one of the horizontal delineation samples, BG-13N, at a concentration of 1,400 ppm. Mercury was detected in one of the horizontal delineation samples, BG-13E. Zinc was detected in one of the horizontal delineation samples, BG-13N, at a concentration of 1,580 ppm.

EWMA also collected three samples along the northeast boundary of this area in order to delineate the northern horizontal extent of the elevated metal concentrations. Three horizontal delineation samples (BG-NE-1, BG-NE-2, and BG-NE-3) were obtained at a depth of 0-1' bsg. All of the samples were analyzed for PPM. No PPMs were detected at concentrations above the RDCSCC.

EWMA also collected three samples along the southwest boundary of this area to delineate the southern horizontal extent of the elevated metal concentrations. Three horizontal delineation samples (BG-SW-1, BG-SW-2, and BG-SW-3) were obtained at a depth of 0-1' below surface grade. All of the samples were analyzed for PPMs. One of the samples exhibited concentrations above the SCC. BG-SW-2 exhibited a mercury concentration of 38.8 ppm.

After evaluating this data, the Department instructed EWMA to advanced three additional test pits in this area to further evaluate this area of concern (BG-5, BG-15 and BG-16). The test pits were advanced to a depth of 2' below grade. Glass debris was observed in one of the test pits, BG-5, to a depth of 1.5' below surface grade. EWMA did not note that any elevated PID readings were recorded in any of the test pits. Samples were obtained from native soils, at a depth of 1.5-2' below surface grade in each test pit and analyzed for pH and PP+40, including TAL metals. No parameters were detected at concentrations in excess of the RDCSCC.

EWMA, based upon the sampling performed, excavated and disposed off-site contaminated soils. Remediation of the soil impacted with metals was accomplished via excavation and off-site disposal. Excavation and sampling was completed in November of 2000 and January and September of 2001. The excavated soil was staged on site on 6 mil. plastic sheeting and was sampled and analyzed for waste classification purposes. The excavated material was segregated into two distinct piles prior to waste classification. The soil excavated in November of 2000 (356.97 tons) was transported to Linden Landfill, in Linden, New Jersey for use as landfill cover. The soil excavated in 2001 (1,122 tons) was transported to American Landfill in Waynesburg, Ohio due to the visible presence of thermometer fragments. The excavation was backfilled to grade with ¾" quarry process from Tilcon New Jersey, located in Millington, New Jersey.

The Department is requiring additional samples be collected in the area of BGW-2. Due to the absence of locating the mercury disposal areas and the confirmation of mercury in samples collected from this AOC additional post excavation sampling is necessary. The final sample, BGW-2A, was collected to the west of sample BGW-2 from a depth below the BGW-2 and therefore horizontal delineation to the west can not be confirmed. Post excavation soil sampling was not conducted to the south of BGS-2, therefore horizontal delineation can not be confirmed to the south. In addition, post excavation soil samples were not collected to the west of BGS-6 and BGS-6A therefore horizontal delineation can not be confirmed in this area. The collection of three additional samples is recommended to resolve these issues. These samples should be analyzed for the contaminants of concern (metals) as well as asbestos and formaldehyde. These additional parameters have been detected within or adjacent to the AOC and the additional analysis is warranted.

AOC 21- Concrete & Soil Pile, Large pile of demolition debris.

Limited information has been provided concerning the source of this material therefore the AOC should be investigated pursuant to N.J.A.C.7: 26E-2.1(c) 2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site samples from this AOC should be analyzed for these in addition to the unknown parameters. To date no investigation has been conducted in this area. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 22 - Former 5,000-gallon heating oil Underground storage tank (UST).

Leo Realty removed this UST however; the required investigation was not conducted. The type of heating oil stored in this tank has not been documented and therefore samples collected in this area should be analyzed pursuant to N.J.A.C.7:26E-2.1 Table 2-1 for areas of #2 and #4 & #6 heating oils and pH. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 23, Debris piles around the Mercerizing Building.

These piles are located around the perimeter and partly in the former foundation of this building. The piles consist of soil and miscellaneous debris including material that was likely dumped illegally from an offsite source. The source of these piles has not been well documented and therefore the AOC should be investigated pursuant to N.J.A.C.7:26E-

2.1(c)2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site samples from this AOC should be analyzed for these in addition to the unknown parameters. To date no investigation has been conducted in this area. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 24, Debris piles around the Bleach House Building.

These piles are located around the perimeter and partly in the former foundation of this building. The piles consist of soil and miscellaneous debris including material that was likely dumped illegally from an offsite source. The source of these piles has not been well documented and therefore the AOC should be investigated pursuant to N.J.A.C.7:26E-2.1(c)2 for areas where contaminants are unknown or not well documented. Since formaldehyde and asbestos have been detected in other areas at this site samples from this AOC should be analyzed for these in addition to the unknown parameters. To date no investigation has been conducted in this area. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 25, Lagoons.

Historic Sanborn maps for the subject property (1938 and 1950) depict a wastewater agitator tank (AOC 17) located on the subject property to the west of the Bleach House Building. A circular and square basin was located west of the wastewater agitator tank. The circular structure was a second wastewater agitator tank. The square structure was a 70' x 72' reinforced concrete settling tank. These basins, however, were not located on the subject property, they were located on the adjacent property to the west that is currently occupied by residential dwellings.

The Department does not require any additional work for this AOC.

AOC 26, Waste Piping.

Investigation conducted by EWMA has not uncovered any additional information regarding this issue. Extensive test pit and excavation activities performed at the subject property (including the wastewater agitation tank) did not identify the presence of any such piping.

EWMA has proposed that in the event any piping is discovered during the course of this investigation, it will be investigated in accordance with Departmental requirements.

AOC 27 - Gasoline Filling Station.

The location of this AOC has not been confirmed and no investigation has been conducted. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 28 - Process Vessels.

During the excavation of the building demolition debris from AOC 16, two cast iron structures were discovered. The structures were designated as "vessels" because one of the structures contained some type of mechanical equipment (i.e. gear wheels and rods).

The vessels were open at the top and were filled with the same type of building demolition debris that was encountered throughout the excavation. No elevated PID readings were recorded. Based on these observations, it was obvious that the vessels were placed in this area in conjunction with the building demolition debris fill material.

The debris and soil within, and immediately adjacent, to these vessels was removed and staged on site on 6 mil. plastic sheeting. Waste classification samples were obtained and analyzed, a total of 44.89 tons was transported to the Clean Earth facility in New Castle, Delaware.

EWMA has proposed to conduct additional investigation and sampling in order to confirm that the presence of these vessels did not adversely impact the underlying soil.

AOC 29 - Loading & Unloading Areas.

Loading areas were associated with AOC 8 (Mercerizing Building), AOC 9 (Chlorine Building) and AOC 10 (Bleach House). A 6' x 21'8" loading platform was located on the south side of Building #3 (Storage Building to the northeast of AOC 10). Two loading platforms were located along the east wall of AOC 10. Each platform had an 8' x 35' canopy. Four loading areas were located along the east wall of AOC 8. A 16' x 42' addition was located at the southern corner and a 39' x 28' addition was located at the northern corner. Loading canopies were associated with each of these additions. Two other additions, measuring 20' x 60' and 42' x 53', were located in the middle of the building. A loading canopy was associated with one of these additions.

EWMA reported that the aerial review and historic 1962 site maps indicate that the ground surface adjacent to all loading and unloading areas was covered with either asphalt or concrete. Therefore, due to the presence of impermeable surface cover at these locations, the absence of records documenting spills, and the current absence of discoloration in these areas, no further action is warranted for this AOC.

The Department is requiring these loading and unloading areas be further evaluated since contamination exceeding the Department's cleanup criteria has been identified in other paved areas of the site. Furthermore, the absence of staining is not adequate to evaluate potential historic discharges. Therefore, the investigation recommended in the Department's 12/17/03 letter should be completed. If neighboring AOCs are adjacent or overlap this AOC then there is the potential that sample locations may be shared possibly reducing the total number of samples necessary.

AOC 30 - Boiler Room

The historic 1951 site map submitted indicates the boiler room is located in the northern portion of AOC 9 (Chlorine Building). The map also depicts a 20,000-gallon fuel oil tank (AOC 38) located to the north of this room.

The boiler room was dismantled and demolished by the current property owner. The property owner did not note any concerns (i.e. stained soils) during the demolition activities. It is anticipated that the investigation of AOC 38 will be adequate to evaluate

any potential discharge at this AOC and the need for further investigation will be evaluated as part of the review of AOC 38. The Department has approved Boswell Engineering's workplan for further investigation of AOC 38 will also address this area.

AOC 31 - Raw Materials Storage Building.

This 50' x 100' building was located off the northeast corner of the former Bleach House building and was constructed in 1939. This building was utilized for storage and had a 6' x 21'8" loading platform that was located on the south side of the building. The building was a one-story brick building with a 4" reinforced concrete floor.

No use is given for this building on the 1951 historic site map. The appraisal records indicate a dry sprinkler system was associated with this building and the building had electricity. The appraisal records also indicated that the building did not have any plumbing or heating and that Coats & Clark utilized the building for storage. Since this building was not heated, it is highly unlikely that this building could have been utilized for the storage of anything other than dry goods that could tolerate temperature extremes (i.e. thread and yard). The use of this building to store hazardous substances is not likely, since these materials require a temperature-controlled atmosphere.

A 1951 map indicates this structure was utilized by SGA as an experimental glass shop and to store corrugated cartons. Records regarding the exact nature of the experimental glass shop are not available; however, it is surmised that these operations would have consisted of the design and fabrication (through the bending and joining of glass parts) of glassware. There is no indication that this building was ever heated during SGA's tenure of operations. Therefore, it is unlikely that hazardous substances were stored at this location. Furthermore, the location of all process operations involving hazardous substances was identified in the deposition transcript of George Sterris as occurring in the main building.

Based upon the Department's review of the APAR and Boswell's Site Investigation Workplan submissions it is the Department's understanding that this building was used to store yarn, finished glass products and possibly dry chemicals. The debris from demolition of this building (AOC 13) is located immediately above the former foundation of the building. It is anticipated that the investigation of AOC 13 will be adequate to evaluate any potential discharge at this AOC and the need for further investigation will be evaluated as part of the review of AOC 13. The Department has approved Boswell Engineering's workplan for further investigation of AOC 13 will also address this area.

AOC 32 - Building Southwest of Mercerizing Building.

A small building, located to the south of the Mercerizing Building was constructed between 1954 and 1961. Documentation by EWMA noted that the building does not appear on the 1951 site map, but is depicted on the 1962 historic site map and the 1977 Sanborn map. The only details provided on the map relating to this building are construction in nature (i.e. 1 story, concrete). The building did not have a loading dock and was fronted by two trees and the asphalt drive. A Departmental site visit in October 7, 1982 depicts this building as a garage.

Due to the limited amount of information available concerning this AOC, the Department will require this AOC be investigated as an area of unknown contamination and analyzed pursuant to N.J.A.C.7: 26E-2.1(c) 2 plus site specific parameters including asbestos and formaldehyde. Sample analysis requirements can be reduced if the use and operations in the building can be confirmed. Also, if the extent of neighboring AOCs has been confirmed and they are adjacent or overlap this AOC then there is the potential that sample locations may be shared. This may reduce the number of samples needed.

AOC 33 - 1,000-gallon Gasoline UST.

Leo Realty removed this UST however; the required investigation was not conducted. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 34 - Sump Pit.

The 1951 historic site map references a sump pit located in the basement of the Mercerizing Building. However, there are no specific details (construction, dimension) available regarding this AOC. Sampling has been performed within the footprint of the Mercerizing Building. Three (3) test pits were performed with samples collected. Results were below nonresidential direct contact soil cleanup criteria (NRDCSCC). Sampling of monitoring well # 5 depicted no results above the groundwater quality standards. The Department rejected the sampling data from monitoring well #5.

The Department remains concerned about this AOC since there is no documentation concerning the sump construction, dimension or use. With the current data, the Department can not confirm whether the limited sample and analysis previously conducted in the Mercerizing Building is adequate to evaluate this AOC. It is unclear whether this AOC had a solid base and was pumped out or a perforated base that discharged to the ground. It is also unclear what type of materials, if any, were in or discharged to this AOC. Information provided during the deposition of a former plant manager Mr. Sterris referred to two covered pits that were used in the washing of glass products.

The Department will require that this AOC be further evaluated.

AOC 35 – Caustic Tanks

Two caustic tanks are noted on the 1951 historic site map in the area of an open concrete platform. Information provided by a former plant manager, Mr. George Sterris, indicates that four caustic tanks were located in the basement of the Mercerizing Building. Historic maps provided in the APRA indicate that the 8,000-gallon and 10,000 gallon caustic tanks were located on an open platform outside the building not in the basement.

SGA cut holes in the sides of the caustic tanks located in the basement and utilized them to store glassware and other supplies. Since it appears these tanks were located inside the building, which had a concrete floor, and these structures had previously been altered, cleaned and used for glassware storage further investigation will not be required.

The Department will require the tanks formerly located on the platform to be investigated pursuant to the Technical Requirements for Site Remediation. If neighboring AOCs are adjacent or overlap this AOC then there is the potential that sample locations may be shared possibly reducing the total number of samples necessary.

AOC 36 - Vault

The 1951 historic site map references a vault in the corner of AOC 8 (Mercerizing Building). The vault appears to have been located on the first floor of the building. Based upon the era of this map, the vault is believed to have been used to store sensitive documents.

Since the vault is located on the first floor with a basement beneath, no additional investigation is needed for this AOC.

AOC 37- Storage Building 7 Dye Storage and Matching Room

A dye storage and matching room was located in the Mercerizing Building (AOC 8). After the thread had been processed, dye-fast testing would have been performed to see how well the thread would absorb dye. This testing would have involved the small-scale use of dyes. This room had a concrete floor. The room was removed as part of the building demolition activities conducted by the current property owner.

The Department remains concerned that based upon a observation and limited sampling conducted at the Mercerizing Building (AOC 8) that this is not adequate to address this AOC. Therefore, additional sampling is required to further evaluate and characterize this AOC.

AOC 38 - 20,000-gallon "Fuel" UST.

Leo Realty removed this UST however; the required investigation was not conducted. The type of heating oil stored in this tank has not been documented and therefore samples collected in this area should be analyzed pursuant to N.J.A.C.7:26E-2.1 Table 2-1 for areas of #2 and #4 & #6 heating oils and pH. The Department has approved Boswell Engineering's workplan for further investigation in this area.

AOC 39 - Open Pipe Discharge

One open pipe discharge was identified. This pipe conveyed cooling water and boiler blowdown. During a 1984 investigation of the subject property by the Department, it was discovered that cooling water and boiler blowdown were being discharged to the ground surface. Upon notification of this violation, SGA reportedly contracted a plumber and the discharge was tied into the sanitary sewer.

The pipe, which terminated at the bank of the Third River and identified as part of NUS's July 26, 1988 site investigation, is believed to have been the cooling water and boiler blowdown discharge. The pipe terminated at the bank of the Third River. Sediment samples were subsequently collected from this location and in a February 26, 2001 letter, the Department agreed that no further sampling was required from this location.

AOC 40 – Pole Mounted Transformers

EWMA noted the presence of pole mounted electric transformers on the 1962 historic site map. A pole with transformers was located to the north of AOC 9 (Chlorine Building). These structures do not exist on site, nor were they noted in the June 1992 Phase I Environmental Site Assessment Report prepared by HEM for the current property owner.

An inspection of this area by EWMA revealed no visible evidence of ground surface discoloration. However staining is not always conclusive when evaluating potential historic discharges. Therefore, the investigation recommended in the Department's 12/17/03 letter should be completed.

AOC 41 – Buried Asbestos Area

During the January 22, 2002 remedial activities in AOC 20 (Broken Glass Area), asbestos-like material was encountered in the vicinity of sample location BGE-1A. Approximately three loads of dirt impacted with this material was excavated. The material ranged in thickness from approximately 2-4" and was located approximately 1.5-2' below surface grade.

A sample was collected and submitted to EMSL Analytical, Inc. of Westmont, New Jersey. The sample was analyzed for asbestos, via EPA Method 600/R-93/116 using polarized light microscopy (PLM). The sample contained 45% chrysotile and 10% crocidolite asbestos.

Initial remedial activities were conducted in this area pursuant to the NJDEP's July 18, 2002 approval letter. On September 23, 2002, EWMA submitted a project status letter to the NJDEP for this AOC. The report outlined additional actions to complete the horizontal and vertical extent of the impacted area through the installation of test pits and the collection of soil samples. The scope of work proposed by EWMA was approved by the NJDEP in their September 25, 2002 letter. This work will be completed as proposed and approved in conjunction with the activities outlined in EWMA's June 11, 2003 Remedial Investigation Workplan. The Department agrees with EWMA that further investigation is warranted for this AOC.