

**EPA Superfund  
Record of Decision:**

**METROPOLITAN MIRROR AND GLASS CO., INC.  
EPA ID: PAD982366957  
OU 01  
FRACKVILLE, PA  
09/30/1998**

RECORD OF DECISION  
METROPOLITAN MIRROR AND GLASS SITE  
SCHUYLKILL COUNTY, PENNSYLVANIA

DECLARATION

SITE NAME AND LOCATION

Metropolitan Mirror and Glass Superfund Site  
Frackville, Schuylkill County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Metropolitan Mirror and Glass Site in Frackville, Schuylkill County, Pennsylvania, developed and chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9601 - 9675 and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. This decision is based on the Administrative Record file for this Site.

The Commonwealth of Pennsylvania Department of Environmental Protection ("PADEP") has indicated agreement with the No Action remedy for this Site.

ASSESSMENT OF THE SITE

The Metropolitan Mirror and Glass Site is approximately 12.5 acres and is located at the intersection of Industrial Park Road and Altamount Boulevard in Frackville, Schuylkill County, Pennsylvania. Five areas of concern (AOCs) were identified during the Site Inspection and investigated during the Remedial Investigation at the Metropolitan Mirror and Glass Site. Three of the AOCs (AOC-1, lead contaminated soil, AOC-2, existing lagoons and AOC-3, dredge spoil area) were cleaned up during a removal action that took place during the latter part of the Remedial Investigation. The removal of the contaminated soil, sediment and sludge from these areas eliminated the exposure pathways that were associated with these areas. The remaining contamination at the Site is a result of non-site related inorganic contaminants in the groundwater. These contaminants include manganese, iron and arsenic, all of which were not identified as being used in the mirror manufacturing process. Manganese, iron and arsenic are naturally occurring and common constituents of the rock types underlying the Site, particularly coal-bearing units.

The inorganic contaminants mentioned above exist in selected monitoring wells on the Site property. A potential non-cancer risk has been identified in selected on-site monitoring wells for future Site workers or residents from non-site related contaminants. The groundwater at the Site is currently not used as a potable drinking water source.

DESCRIPTION OF THE REMEDY

The alternative EPA has selected for this Site is "No Action". Under this alternative, EPA requires no action beyond the removal action that took place at the Site in the spring and summer of 1997. It has been determined that contaminants in groundwater and sediment are not Site related. There is no cost associated with the No Action alternative. In accordance with CERCLA § 121 (c) EPA will review the Site every five years to assure that this remedial action continues to be protective of human health and the environment.

This Record of Decision does not address the municipal wells at the Pennsylvania-American Water Company (previously known as the Keystone Water Company) which are not a part of the Site.

EPA has determined that its response at this Site is complete and no action is necessary at this site. Therefore, the Site now qualifies for inclusion on the Construction Completion List.

STATUTORY DETERMINATIONS

Pursuant to duly delegated authority, I hereby determine, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, that the selected remedy is protective of human health and the environment. Although no action beyond the removal action of 1997 will be taken, the Site will be reviewed

within five years in accordance with Section 121 (c) of CERCLA, 42 U.S.C. § 9621 (c), to ensure that human health and the environment continue to be adequately protected.

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RECORD OF DECISION  
METROPOLITAN MIRROR AND GLASS  
FRACKVILLE, SCHUYLKILL COUNTY, PENNSYLVANIA

DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION

The Metropolitan Mirror and Glass Site (the "Site") is located at the intersection of Industrial Park Road and Altamont Boulevard in Frackville, Schuylkill County, Pennsylvania (see Figure One, Site Location Map). The Site property covers approximately 12.5 acres, with the Pennsylvania Power and Light power and gas right-of-way forming the eastern boundary, Interstate I-81 and Stony Creek bordering the Site on the south, Altamont Boulevard on the west and other industrial park businesses to the north. Development on the property includes a single-story manufacturing building (currently occupied), a small pump house, a water tower, a small building connected to the manufacturing building and a water-supply well located inside the pump house. The water supply well is used as a production well and not as a potable supply well. A parking lot is along the south wall of the manufacturing building (see Figure Two, Site Layout). The area surrounding the Site is a mixture of commercial and residential areas.

II. SITE HISTORY AND ENFORCEMENT ACTIVITY

Between 1959 and 1982, Metropolitan Mirror and Glass Company manufactured mirrors at the Site. The manufacturing was a five-stage assembly-line process. The process used silver and copper solutions, paint strippers, paint thinners, and other solvents. The five stages of the manufacturing process included cleaning and polishing, preparing and sensitizing, silvering, stabilization and protection, and cleaning. Liquid waste generated from the silvering process entered four settling lagoons located on the Site. Prior to 1969 wastewater was sent to two former lagoons located near the western end of the Site. These lagoons were backfilled in the late 1960's and may have been covered over during the construction of State Route I-81. From at least 1969 until 1982, the wastewater was discharged to two other lagoons located on the Site, due east of the former lagoons. These lagoons were used to settle suspended solids and, when filled, the supernatant was discharged to Stoney Creek. The normal operating volume of each lagoon was 330,000 gallons. During at least one occasion, the sludge that accumulated in these lagoons was scraped out and placed along the edge of the lagoons.

In 1982 Metropolitan Mirror and Glass declared bankruptcy and the property was acquired by the National Patent Development Corporation ("NPDC"). NPDC owned the Site from 1982 to 1987 and no industrial manufacturing is known to have occurred at the Site during this time. Since 1987 the property has been occupied by the St. Jude Polymer Company, which recycles plastic bottles. Pursuant to an agreement dated April, 1987, St. Jude Polymer Company agreed to purchase the Site from NPDC on an installment sale basis.

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In 1987 attention was called to the Metropolitan Mirror and Glass Site when contamination was found in the Frackville water supply. Tetrachloroethene was found in the Keystone Water Company wells (presently known as the Pennsylvania-American Water Company) which supply water to the borough of Frackville. An investigation to find the source of the contamination was undertaken by the Pennsylvania Department of Environmental Protection (PADEP). As a result of this investigation, the Metropolitan Mirror and Glass Site was identified as a potential source of contamination.

Between 1988 and 1990 EPA conducted a Preliminary Assessment, Screening Site Inspection and Listing Site Inspection at the Site. Subsequently, the Site was placed on the National Priorities List ("NPL") on October 14, 1992. Between 1995 and 1998, a Remedial Investigation/Feasibility Study "RI/FS") was conducted by an EPA contractor. The RI/FS was conducted to identify the types, quantities and locations of contaminants and to develop ways of addressing the contamination problems. The RI included a risk assessment that determined which contaminants, if any, posed a risk to human health or the environment. The RI divided the Site into Areas of Concern ("AOCs") according to geographic features and suspected waste handling activities. The AOCs identified during the RI include:

\* AOC 1 - North Building Area

\* AOC 2 - Existing Lagoons

- \* AOC 3 - Lagoon Dredge Disposal Area

- \* AOC 4 - Former Lagoons

- \* AOC 5 - South Parking Area

In March, 1997 EPA issued an Action Memorandum which stated that an emergency removal action needed to be taken at the Site. The Action Memorandum was based on data generated during the Remedial Investigation. This data indicated that AOC-1, AOC-2, and AOC-3 posed a significant endangerment to human health and the environment. Silver concentrations in soil samples collected in the lagoon dredge disposal area (AOC-3) and in the soil and sediment samples collected in the existing two lagoons (AOC-2), exceeded the EPA Region III Removal Action Levels ("RAL"). The contaminated soil and sediment in these areas posed an ecological threat to Stony Creek if the lagoons were to be breached or if further development of the property were to occur. There was also a threat of contamination, or further contamination, of the shallow groundwater system that moves through and just below this area. The elevated lead levels found in the soil at the north building area also presented an inhalation hazard to workers at the facility.

Between May 1997 and August 1997, a Removal Action for AOCs 1, 2 and 3 was implemented. The lead contaminated soils located behind the manufacturing building (AOC-1) were excavated and taken off-site for proper disposal. The area was then backfilled with clean soils. The existing lagoons (AOC-2) were drained of any standing liquids and the sludge was then scraped out to the bedrock. The lagoons were then re-contoured into the shape of a small pond and the bottom covered with clean shale. The re-contoured lagoons subsequently filled with groundwater and remain on the Site property. The lagoon dredge spoil area (AOC-3) was excavated and covered with clean fill. The excavated sludge from the lagoons and dredge spoil area was taken off-site for proper disposal. Post-excavation sampling was performed at all three areas discussed above and the results indicated that no contaminants with concentrations above EPA acceptable criteria remain in these areas.

The RI conducted at the Site also focused on the shallow and deep groundwater, surface water and sediments, AOC-4 (former lagoon area soils) and AOC-5 (south parking lot soils). The RI included the following tasks:

- \* Samples of surface water and sediment from 20 locations in Stony Creek, the wetlands and drainage ditches
- \* A jurisdictional wetlands delineation to determine the extent of wetlands on the Site
- \* A soils investigation including 31 soils borings in and around the Areas of Concern
- \* A groundwater investigation including the rehabilitation and sampling of 5 existing monitoring wells and the installation and sampling of 8 overburden and bedrock monitoring wells. Aquifer slug testing was also performed in selected overburden and bedrock wells to provide site-specific data on the horizontal hydraulic conductivity of the shallow groundwater system.

### III HIGHLIGHTS OF COMMUNITY PARTICIPATION

A draft Community Relations Plan for the Metropolitan Mirror and Glass Site was prepared in March, 1998. This document lists contacts and interested parties throughout government and the local community. It also establishes communication procedures to ensure timely dissemination of pertinent information. The Remedial Investigation Report; the Feasibility Study and the Proposed Plan for the Site were released to the public as part of the Administrative Record on June 16, 1998, in accordance with Sections 113(k)(2)(B), 117(a), and 121(f)(1)(G) of CERCLA, 42 U.S.C. §§ 9613 (k)(2)(B), 9617(a), and 9621(f)(1)(G). These and other related documents form the Administrative Record for the Site, which is located at the U.S. EPA Region III Office, 1650 Arch Street, Philadelphia, Pennsylvania, 19103; and at the Site Repository: West Mahanoy Township Building in Shenandoah, Pennsylvania.

A public meeting was held on June 30, 1998 to discuss the results of the RI/FS and the preferred alternative as presented in the Proposed Plan for the Site. Notice of the Proposed Plan and public meeting was published in a local newspaper of general circulation: The Pottsville Republican and Evening Herald (June 16th, 1998); and the Standard-Speaker (June 16th, 1998). Additionally, copies of the Proposed Plan were mailed to residences in the vicinity of the Site and to other interested parties on the Site mailing list.

In accordance with 40 C.F.R. §§ 300.430(f)(3)(F), all significant comments on the Proposed Plan

which were expressed orally at the public meeting are addressed in the Responsiveness Summary which is attached as part of this Record of Decision ("ROD"). A copy of the transcript of the public meeting has been placed in the Administrative Record File. No other comments were received during the public comment period.

#### IV. SCOPE AND ROLE OF OPERABLE UNIT

As set forth above, EPA has addressed the Metropolitan Mirror and Glass Site as one operable unit with different areas of concern. The areas of concern include the North Building Area (AOC-1), Existing Lagoons (AOC-2), Lagoon Dredge Disposal Area (AOC-3), Former Lagoons (AOC-4) and the South Parking Area (AOC-5). The shallow and deep groundwater was also addressed during the RI to determine if the Site was a potential source of groundwater contamination of the Pennsylvania-American Water Company wells. The scope of this ROD is to address AOC-1, AOC-2, AOC-3, AOC-4, AOC-5 and the shallow and deep groundwater. No remedial action is required at AOC-1, AOC-2 and AOC-3 as a result of the removal action described above. Post-excavation sampling at these areas indicate that no Site-related contaminants at concentrations above EPA acceptable criteria remain in these areas. No remedial action is required with regard to AOC-4 and AOC-5 since sampling results for these areas indicate that no Site-related contaminants with concentrations above EPA acceptable criteria remain in these areas. No remedial action is required for the shallow and deep groundwater since sampling results indicate that no Site-related contaminants remain in the groundwater with concentrations above EPA acceptable criteria.

This ROD does not address the municipal wells at the Pennsylvania-American Water Company which are not a part of the Site.

#### V. SUMMARY OF SITE CHARACTERISTICS AND EXTENT OF CONTAMINATION

The Site is in the Valley and Ridge Physiographic Province of the Appalachian Highlands Division. The province is characterized by broadly folded and faulted sedimentary rocks that represent the Ordovician to Pennsylvanian periods of the Paleozoic Era. Elevations at the Site range from approximately 1,492 feet above mean sea level in the northern part of the Site to approximately 1,464 feet above sea level at Stony Creek along the southern property boundary. The principal ecological features at the Site are uplands, wetlands, Stony Creek and lagoons. The types of wetlands identified are emergent wetlands, scrub-shrub wetlands, and forested wetlands.

The Site is drained by three drainage ditches on the property which flow generally to the south, and discharge through the wetlands into Stony Creek. Stony Creek flows west along the southern property line until it discharges from the property through a culvert beneath I-81. Stony Creek continues south to join Mud Run approximately 700 feet south of the Site.

Drinking water supplies within a 4-mile radius of the Site are provided by two municipal water companies which use groundwater solely as their drinking water source. The Pennsylvanian American Water Company uses five wells which are located in the Borough of Frackville, approximately 1/4 to 3/4 mile west of the Site. The Morea Citizens Water Company uses one well which is located approximately 2 miles northeast of the Site. The two water companies are located in different drainage basins and supply different areas surrounding the Site. The nearest residential well identified in the vicinity of the Site is located approximately 1,250 feet north of the Site.

#### Soil Characteristics

Native soils near the Metropolitan Mirror and Glass Site typically are gently sloping to very steep, deep and moderately deep, stony loams, formed generally in residual and colluvial soil material. The thickness of the unconsolidated materials at the Site ranges from approximately 2 feet to 34 feet, according to subsurface investigations.

Soil underlying most of the Site is characterized by areas of artificial fill, and spoil material from historic manufacturing operations. The soil is classified as Urban land-Udults complex. This complex consists of developed areas and highly variable soil that has been modified by building activities.

Other soil underlying the Site includes Shelmadine in the southern part of the Site, adjacent to soil of the Buchanan series and the Hazleton-Clymer Association. The Shelmadine soil consists of very stony silt loam, described as nearly level to gently sloping, deep, very stony, poorly drained, occurring on toe slopes, along drainage ways, and in depressional areas.

The Buchanan soil at the Site is associated with Stony Creek. This soil is described as extremely

stony loam, gently sloping, deep, somewhat poorly to moderately well drained, occurring on foot slopes, along drainage ways, and in depressional areas.

Soil of the Hazleton-Clymer association is mapped as occurring along the southern property boundary. The soil is described as gently sloping, deep, extremely stony, well-drained soil, occurring on the tops of mountains and ridges.

## Geology

The Metropolitan Mirror and Glass Site is underlain by all three members of the Pennsylvanian-age Pottsville Group. The three formations in descending order with depth are: The Sharp Mountain Formation, the Schuylkill Formation, and the Tumbling Run Formation. The Pottsville Group is underlain by the Mauch Chunk Formation at a depth of approximately 1,000 feet below the Site. The Mauch Chunk Formation is reported to crop out in the area.

The Sharp Mountain Formation, which underlies the southern part of the Site, consists of fine-to very-coarse grained sandstone, shale, and siltstone that contains plant debris and coal. The formation has a maximum thickness of 315 feet.

The Schuylkill Formation, which underlies the majority of the Site, comprises conglomerate, sandstone, siltstone, and shale and contains four thin but distinct coal beds. The maximum thickness of the formation is 700 feet.

The Tumbling Run Formation underlies the northern part of the Site and consists of a poorly sorted sandstone, siltstone, conglomerate, and shale. The formation is reported to have six coal beds and a maximum thickness of approximately 600 feet.

## Hydrogeology

The shallow groundwater system at the Site is present in the overburden and the weathered bedrock. The overburden transmits water between grains in pore spaces (primary porosity) and the weathered bedrock transmits water primarily through open fractures (secondary porosity). Both the overburden and the weathered bedrock are interconnected and transmit groundwater readily when water is present. At some drilling locations little water appeared to be in the overburden.

Potentiometric contour maps for the shallow groundwater system indicate that the general flow direction is towards Stony Creek to the south. The shallow groundwater system appears to be discharging into Stony Creek.

The bedrock groundwater system is in the sandstone and conglomerate parts of the Pottsville Group and contains and transmits groundwater primarily through the secondary porosity produced by intense fracturing that occurred during the formation of the Valley and Ridge Province. Wells in shallow bedrock in the area generally produce from 5 to 150 gallons per minute (gpm), with average yields greater than 30 gpm.

Potentiometric contour maps for the deep bedrock system indicate the general direction of groundwater flow is towards Stony Creek to the south. Stony Creek is the likely discharge point for the bedrock groundwater system. The bedrock groundwater gradient is uniform toward the south across the Site, except around the pumphouse. The production well (PW-1) in the pump house is used to supply production water for operations at St. Jude Polymer. The pump draws down the water approximately 200 feet to the pump several times a day.

## Groundwater Investigation

### Background and Cross-Gradient Wells

Monitoring wells MW-1 and MW-8 are along the northern Site boundary, and were designated background wells. Monitoring wells MW-3 and MW-12 are onsite wells cross-gradient to the inferred direction of the groundwater flow. Wells MW-1 and MW-3 are screened in the bedrock aquifer, and the screens of MW-8 and MW-12 straddle the overburden and shallow bedrock. See figures 3 through 7 for the locations of the monitoring wells and the analytical results of the groundwater sampling.

Low concentrations of 1,1,1-trichloroethane were detected in samples collected at MW-1 and MW-8. Tetrachloroethene also was detected at low concentrations in MW-8. Volatile organic compounds ("VOCs") were not detected above the Maximum Contaminant Levels ("MCLs") in the background wells. Base neutral/acid extractable compounds ("BNAs") were not detected in

the background wells.

With the exception of acetone in MW-10, the highest concentration of VOCs detected during the RI were found in MW-12 and MW-3, with the tetrachloroethene levels at MW-12 being the only VOC detected above an MCL. Tetrachloroethene was detected in MW-12 at concentrations of 6.3 and 8.22 parts per billion (ppb) during separate sampling events. The highest concentrations of trichloroethene also were detected in MW-12, at a maximum concentration of 3.38 ppb. Low concentrations (less than 5ppb) of 1,1,1-trichloroethane were detected in MW-3.

Low concentrations of 13 metals were detected in the groundwater samples collected from MW 1 and MW-8. MCLs were not exceeded for metals in either of the background wells. Silver was detected at MW-8 in the dissolved phase only at concentrations of 0.0033 parts per million (ppm). Nineteen metals were detected in the groundwater samples collected from wells MW-3 and MW-12. Metals were not detected above MCLs in well MW-3. Arsenic, iron and manganese exceeded risk based levels in MW-12. Lead was also detected above its action level of 0.015 ppm in MW- 12. Silver was not detected in these wells.

#### AOC - 1: North Building Area Wells

VOCs were not detected in shallow groundwater from MW-6. 1,1,1-trichloroethane and 1,1-dichloroethene were detected in the bedrock monitoring well MW-2, below their corresponding MCLs. Low concentrations of up to seven VOCs, 1,1,-trichloroethane, carbon tetrachloride, cis-1,2-dichloroethene, tetrachloroethene, 1,1-dichloroethane, 1,1-dichloroethene and trichloroethene were detected in PW-1. VOCs were not detected above the MCLs in PW-I. BNAs were not detected in the monitoring wells or the production well at AOC-1.

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Sixteen metals were detected in the groundwater samples collected in AOC-1, with no exceedences of MCLs in dissolved samples. Manganese concentrations in MW-6 were above risk based levels. Silver was not detected in the monitoring wells or the production well at AOC-1.

#### AOC-2 and AOC-3: Wastewater Lagoons and Dredge Disposal Area Wells

Low concentrations of 3 VOCs (1,1,1 -trichloroethane, 1,1-DCA, and 1,1-dichloroethene) were detected in one or more of the wells in AOC-2 and AOC-3. VOCs were not detected above their corresponding MCLs. BNAs were not detected in monitoring wells in AOC-2 and AOC-3.

Fifteen metals were detected in the groundwater samples collected from MW-9, MW-9A, and MW-4. No metals exceeded MCLs in dissolved samples. Silver was not detected in the monitoring wells in AOC-2/and AOC-3.

#### AOC-4 Former Lagoon Wells

There were no VOCs or BNAs detected above MCLs in MW-10, although low concentrations of acetone, tetrachloroethene, toluene, and phenol were detected. The only detection of acetone in the onsite groundwater was found in MW-10 at a maximum concentration of 11.62 ppb.

Seventeen metals were detected in MW-10, all below their corresponding MCLs. Manganese was found in concentrations above risk based levels. The only downgradient detection of silver in the groundwater was found at MW-10 (0.0028 ppm) in an unfiltered sample.

#### AOC-5: South Parking Lot Wells

Low concentrations of 8 VOCs, including ethylbenzene, xylenes, tetrachloroethene, toluene, and trichloroethene, were detected in the overburden well MW-11. The only VOCs detected in the bedrock well MW-11A were low concentrations of xylenes. None of the VOCs were detected above their corresponding MCLs. Bis(2-ethylhexyl)phthalate only was detected at the Site in MW-11, at a concentration of 40 ppb, which exceeds the MCL of 6 ppb. Phenols were detected in MW-11A at 3ppb.

Seventeen metals were detected in the monitoring wells MW-11 and MW-11A, with all but antimony detected below their MCLs. The MCL for antimony (0.006 ppm) only was exceeded



in the dissolved phase at MW-11A, at a concentration of 0.0106 ppm. Manganese exceeded risk based levels in MW-11 and MW-11A.

#### Pennsylvania-American Water Supply Wells

The groundwater investigation (discussed above) for the shallow and bedrock groundwater systems at the Site indicates, the presence of low concentrations of VOCs. EPA determined that the low concentrations at which these VOCs were found strongly indicate that the Metropolitan Mirror and Glass Site is not the source of organic contamination of the Pennsylvania-American Water Supply Wells.

#### Surface Water and Sediment Investigation

VOCs and BNAs were not detected in the downstream surface-water samples collected in Stony Creek, or in the onsite wetlands and ditches. Surface water and sediment sampling locations and analytical results are presented in figures 8 and 9.

Fifteen metals were detected at low concentrations in the Stony Creek surface water samples. Of these, the ecological criteria for aluminum, iron, lead, and silver were exceeded. Iron and silver were detected above ecological criteria at SW-5 and SW-8; lead in SW-7 and SW-8; and aluminum only at SW-8. Except for silver, the composition and concentrations of inorganics in the Stony Creek surface water samples generally are similar to that of the background sample SW-4. Silver was detected in SW-5, which is near the lagoons, and in SW-8, the most downstream sampling location on the Site.

Twenty metals were detected in the surface water samples collected from the onsite wetlands and ditches. The corresponding ecological criteria for aluminum, cadmium, chromium, cobalt, copper, iron, lead, manganese, silver, and zinc were exceeded for one or more of the surface water samples collected in the wetlands or ditches. The highest concentrations and compositions of metals were detected in SW-13 and SW-11.

VOCs were not detected in the sediment samples from Stony Creek or in the onsite wetlands and ditches. Phthalates were detected in four downstream sediment samples at higher concentrations than the background sample SD-4. The ecological criteria for bis(2-ethylhexyl)phthalate 182.16 ppb was exceeded at each of the four downstream locations. The most downstream sampling location, SD-8, contained twelve BNAs compounds. Four BNAs were detected in the floodplain sample at SD-6. Dibenz(a,h)anthracene was detected in SD-8 at a concentration of 95 ppb, exceeding the ecological criteria of 63.4 ppb.

Thirteen BNAs were detected in wetland and ditch sediment samples collected on the Site. Twelve BNAs were detected at SD-9 in the wetlands near the septic tanks, with concentrations above the ecological criteria for bis(2-ethylhexyl)phthalate and dibenz(a,h)anthracene. Twelve BNAs were detected at SD-12 in a drainage ditch downstream from AOC-3, with concentrations above the ecological criteria for benzo(a)anthracene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, fluoranthene, phenanthrene, and pyrene. Bis(2-ethylhexyl)phthalate was detected at concentrations above the ecological criteria in all the wetlands and ditch sediment samples excluding SD-2.

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#### Soil Investigation

##### AOC-4: Former Wastewater Lagoons

Three borings (SB-26 through SB-28) were completed in AOC-4 to locate the former lagoons identified in aerial photographs and in historical data. During soil boring, a red sludge layer was observed at SB-28 at depths between approximately 6 to 8 feet below ground surface. Soil sampling locations and analytical results for AOC-4 and AOC-5 are presented in figures 10 and 11.

VOCS and BNAs were not detected above ecological criteria for the surface soil, did not present health risk from exposure to soil by potential receptors and did not exceed Site Soil Screening Levels for transfer to groundwater for all soil. Xylene was detected at a low concentration (8 ppb) in SB-26, at the 8 to 12 feet interval. 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene were detected in one or more soil samples.

Twenty metals were detected in the soil samples collected at AOC-4. The ecological criteria for aluminum, beryllium, chromium, copper, iron, lead, nickel, silver, and zinc were exceeded in one

or more surface soil sample collected in the former lagoon area. Chromium and silver were the only metals in the surface and subsurface soil detected above the Site Soil Screening Levels for transfer to groundwater (38.5ppm and 16.75 ppm) respectively. Chromium was detected in SB-26 at a concentration of 38.7 ppm, and at a concentration of 166 ppm in SB-28. Silver was detected at concentrations of 60.9 ppm in SB-26 and 107 ppm in SB-28. The elevated levels found in the surface sample from SB-28 was not reproduced in a duplicate sample, and is considered suspect. The concentration detected in SB-26 was found at only one sampling interval between 8 and 12 feet.

#### AOC-5: South Parking Lot

Two soil borings (SB-29 and SB-30) were completed downgradient of the septic and underground storage tanks in AOC-5. Soil samples were collected for analyses from the zero to 1 foot interval (surface soil) and the 8 to 12 foot interval.

Organics were not detected above the Site Soil Screening Level transfer to groundwater in the soil samples collected in AOC-5, and presented no human health risk from exposure to soil. VOCs were not detected in the soil samples collected at AOC-5. Chrysene, fluoranthene, phenanthrene, and pyrene were detected only in the surface soil sample at SB-30. Fluoranthene was detected at the ecological criteria concentration of 100 ppb in SB-30.

Twenty one metals were detected in the soil samples collected at AOC-5. Ecological criteria for aluminum, antimony, beryllium, chromium, copper, iron, lead, mercury, nickel, silver, and zinc were exceeded in one or both of the surface soil samples collected in AOC-5. Concentrations of lead and silver in SB-30 exceeded Site Soil Screening Levels for transfer to groundwater. These concentrations were only found in surface (0 to 1 foot) samples and are interpreted not to be a threat to groundwater. The metal concentrations did not present a human health risk from exposure to soil.

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#### VI. SUMMARY OF SITE RISKS

A Baseline Risk Assessment ("RA") is an analysis which estimates the potential risk to human health and the environment due to contamination of a site from hazardous substances assuming that no cleanup will take place. It involves assessing the toxicity, or degree of hazard, posed by hazardous substances which may be related to the Site, and describes the routes by which humans and environmental receptors could come into contact with these substances. Separate calculations are made for substances that cause cancer (carcinogens) and for those that cause non-carcinogenic health effects.

All chemicals that were detected on the Site were screened against conservative health risk-based screening concentrations. Chemicals whose concentrations exceeded screening concentrations were characterized as chemicals of potential concern and were carried through the risk assessment process. The risk assessment estimated the individual risk corresponding to the "reasonable maximum exposure". The reasonable maximum exposure is the highest exposure that is reasonably expected to occur at a site.

Potential risks to human health are identified for each chemical of potential concern by calculating the increased risk level for carcinogens and the hazard index for non-carcinogens. Potential carcinogenic risks are added together for each route of exposure and are identified by a risk level (e.g., a  $1.0 \times 10^{-6}$  risk level indicates one additional chance in 1,000,000 that an individual exposed under the conditions described in the risk assessment will develop cancer). EPA's acceptance levels of carcinogenic risk for Superfund cleanups ranges from 1 potential increased cancer case per 10,000 people exposed to 1 increased cancer case per 1 million people exposed. This translates to a risk range of  $1.0 \times 10^{-4}$  to  $1.0 \times 10^{-6}$ . If the risk exceeds  $1.0 \times 10^{-4}$ , EPA will generally take action to reduce the risk to within the acceptable risk range. The hazard index identifies the potential for the most sensitive individuals to be adversely affected by non-carcinogenic chemicals. If the hazard index for a specific target organ (e.g., the central nervous system or the liver) exceeds one (1.0), there may be concern for potential systemic effects. As a rule, the greater the value of the hazard index above 1.0, the greater the level of concern.

As part of the RI/FS conducted in 1997 for the Site, a Baseline RA was conducted to estimate the human health and environmental risks associated with the Site. The Baseline Risk Assessment, including all the formulas and calculations, can be found in the Remedial Investigation Report which is part of the Administrative Record for this Site. A summary of the results of the Baseline RA are presented below.

## Human-Health Risk Assessment

(1) The health risks, as referenced above, from exposure to soil, sediment, and surface water by potential receptors (trespassers, maintenance workers, or construction workers) at AOCs 4 and 5 were found to be within acceptable risk ranges. Therefore, these media are not considered to be of concern to human health at the Metropolitan Mirror and Glass Site.

(2) The health risks from the hypothetical exposure to groundwater from beneath the Site were characterized. Several exposure scenarios were considered where it was assumed that the groundwater might be a source of drinking water for an adult or child resident or a worker at the Site. It was assumed that the groundwater would be the sole source of drinking water for a resident and would provide one-half of the daily drinking water intake for a worker. Dermal and inhalation exposures to the groundwater by a potential resident were also considered.

### (A) Use of groundwater by a potential Site worker

The risks from the potable use of groundwater from the Site production well (PW-1) are well below EPA criteria, i.e., a Hazard Index of 0.4 and an increased cancer risk of  $3 \times 10^{-7}$ . The use of groundwater by a Site worker from either the shallow or bedrock aquifers would result in an increased cancer risk within EPA criteria, and a noncancer risk greater than one due to the presence of manganese. It should be noted that although the Site production well (PW-1) is located within the bedrock aquifer, this well did not contain high concentrations of manganese.

### (B) Use of groundwater by a potential resident

The increased cancer risk from the potential residential use of groundwater from the shallow aquifer is within acceptable EPA criteria. The noncancer risk is greater than one. For example, the noncancer Hazard Index was found to be 39.0 for a residential child exposure scenario. This risk is primarily due to the presence of manganese.

One "side-gradient" well (MW-12) in the shallow aquifer was characterized separately. The risk associated with potential residential use of this well is comparable to the risk associated with the shallow aquifer. Non-cancer and cancer risk drivers present in this well are arsenic, iron, and manganese. It should be noted that lead was found in this well during the first round of sampling at a concentration of 23 ppb (above the Action Level of 15 ppb), but was not detected during the following sampling round.

The increased cancer risk from the potential residential use of groundwater from the bedrock aquifer was also within EPA criteria. The noncancer risk would be greater than one due to the presence of antimony and manganese.

The inorganic contaminants found in groundwater at the Site have been determined to not be related to Site activities. These contaminants include manganese, iron and arsenic, all of which were not identified as being used in the mirror manufacturing process. Manganese, iron and arsenic are naturally occurring and common constituents of the rock types underlying the Site, particularly coal-bearing units.

## Ecological-Risk Screening Assessment

The results of the sediment and soil sampling indicate that the concentrations of some inorganic constituents including chromium, copper, arsenic, lead, and silver were high enough in some locations to pose an ecological risk to certain receptors at the Site. Most of these locations, where the concentrations were elevated and posed a risk, were cleaned-up during the removal action in 1997. The ecological risk identified at the other, more isolated, areas of the Site not cleaned-up during the removal action, were determined to be the result of elevated concentrations of contaminants not associated with the Site. There are no indications that these contaminants, including aluminum, arsenic, lead and mercury, in the soils have impacted the groundwater or areas downgradient of where they were found. These areas will be re-evaluated during the five-year review for the Site.

## VII. DESCRIPTION OF THE NO-ACTION ALTERNATIVE

In accordance with Section 300.430 of the National Contingency Plan ("NCP"), 40 CFR § 300.430, a comprehensive list of remedial response actions and representative technologies was identified and screened to determine whether they would be protective of human health and the environment.

The Feasibility Study Report discusses alternatives that were considered to address the contaminants identified in the groundwater and sediments and provides the supporting information leading to the remedy selection by EPA.

The alternative EPA has selected for the Site is "No Action". Under this alternative, EPA requires no action beyond the removal action that took place at the Site in the spring and summer of 1997. It has been determined that contaminants in groundwater and sediment are not Site-related. In accordance with CERCLA § 121 (c), EPA will review the Site every five years to assure that the remedy selected in this ROD continues to be protective of human health and the environment. There is no cost associated with the No Action alternative, except the minimal cost associated with the five year review.

#### VIII. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

In light of EPA's decision not to select a remedial action, the requirements of Section 121 of CERCLA, 42 U.S.C. §9621, including its Applicable or, Relevant and Appropriate Requirements provisions of CERCLA Section 121 (d)(2), 42 U.S.C. §9621 (d)(2), are not triggered; that section applies only in those cases where a remedial action is selected.

#### IX. BASIS FOR THE NO-ACTION ALTERNATIVE

The removal action that took place at the Site in 1997 addressed three areas of concern that contained Site-related contamination. The removal of the lagoons (AOC-2), dredge spoil area (AOC-3) and the contaminated soils located behind the manufacturing building (AOC-1) eliminated the exposure pathways that were associated with these areas. The remaining contamination at the Site is a result of non-site related inorganic contaminants in the groundwater. These contaminants include manganese, iron and arsenic, all of which were not identified as being used in the mirror manufacturing process. Manganese, iron and arsenic are naturally occurring and common constituents of the rock types underlying the Site, particularly coal-bearing units.

The inorganic contaminants mentioned above exist in selected monitoring wells on the Site property. As discussed in the Summary of Site Risks section, a potential non-cancer risk has been identified in selected on-site monitoring wells for future Site workers or residents. The groundwater at the Site is currently not used as a potable drinking water source.

The residents of Frackville and parts of West Mahanoy Township are served by a municipal water company with wells located 1/4 to 3/4 miles west of the Site.

#### X. FIVE YEAR REVIEW

EPA will review the Site every five years in accordance with CERCLA § 121 to assure continued protection of human health and the environment. EPA has the authority to revisit the No Action decision even if the Site is removed from the NPL. Prior to the five year review EPA will collect a round of groundwater samples from the monitoring wells to determine if the groundwater quality has not been impacted from sources that may exist beyond the Site boundaries.

#### XI. STATE ACCEPTANCE

The Pennsylvania Department of Environmental Protection ("PADEP") has agreed with the selection of No Action for this Site at all the Areas of Concern and the shallow and deep groundwater.

Appendix A

Responsiveness Summary  
for the Proposed Remedial Action Plan  
for the Metropolitan Mirror Superfund Site  
West Mahanoy Township  
Schuylkill County, Pennsylvania

Public Comment Period  
June 16, 1998 through July 15, 1998

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Responsiveness Summary  
Metropolitan Mirror Superfund Site  
West Mahanoy Township, Schuylkill County, Pennsylvania

The Responsiveness Summary is divided into the following sections:

- Overview: This section discusses evaluation criteria that the U.S. Environmental Protection Agency ("EPA") uses for determining the preferred remedial action alternative for a Superfund site.
- Background: This section provides a brief history of community relations activities conducted during remedial planning at the Metropolitan Mirror Superfund Site.
- Summary: This section provides a summary of commentors' major issues and concerns and EPA's responses to those issues and concerns. "Commentors" may include local homeowners, businesses, the municipality and potentially responsible parties ("PRP's").

#### Overview

On June 16, 1998, EPA published the Proposed Remedial Action Plan ("Proposed Plan") for the Metropolitan Mirror Superfund Site (the "Site"), located in West Mahanoy Township, Schuylkill County, Pennsylvania. The Proposed Plan outlines EPA's preferred remedial alternative for the site, giving consideration to the following nine evaluation criteria:

##### Threshold Criteria

- Overall protection of human health and the environment
- Compliance with federal, state and local environmental and health laws

##### Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of mobility, toxicity or volume of contaminants
- Short-term effectiveness
- Ability to implement
- Cost

##### Modifying Criteria

- State acceptance
- Community acceptance

After considering several alternatives, EPA determined that the emergency removal action conducted in 1997 sufficiently removed contamination from the Site. Because no further remedial action is necessary to protect human health and the environment at the Site, EPA recommends "No Action" in the Site's Proposed Plan.

#### Background

The Metropolitan Mirror Site is an industrial park in the southern part of West Mahanoy Township, Schuylkill County, Pennsylvania.

Between 1959 and 1982, Metropolitan Mirror and Glass Co. used the Site to operate a mirror manufacturing facility. Since 1987, the property has been occupied by the St. Jude Polymer Co. This company currently operates a plastic bottle recycling center that does not involve onsite disposal of wastes.

Contaminants were first discovered in a municipal well near the Site in 1987. As a result, the Pennsylvania Department of Environmental Protection ("PADEP") investigated the Site to determine the source of the contamination. PADEP identified the former Metropolitan Mirror and Glass facility and its four onsite settling lagoons (previously used for waste disposal) as potential sources of contamination.

In 1989, EPA inspected the Site. Contaminants detected in the lagoon areas and in the soils of a drum storage area included aluminum, lead and volatile organic compounds ("VOC"s). (VOCs

are man-made, carbon-based chemicals that vaporize when they come in contact with air.)

After inspecting and evaluating the Site, EPA suggested that it be added to the National Priorities List ("NPL"), EPA's list of the nation's most serious uncontrolled or abandoned hazardous waste sites. On October 14, 1992, the Site was officially added to the NPL and thereby became eligible for cleanup funds wider the Federal Superfund Program.

EPA determined that contamination in soil north of the manufacturing building as well as sludge and dredged materials in the lagoons posed a significant threat to human health and the environment. Between May and August 1997, an emergency removal action was conducted. The

contaminated soil, sludge and dredged materials were removed and properly disposed offsite. After the excavation, sampling was performed at previously contaminated areas. The sampling results indicated that these areas no longer posed a risk to human health or the environment.

EPA first initiated community relations activities for the Site in March, 1996. At that time, the public was invited to attend a public meeting to discuss the Agency's investigation of contamination at the Site. Seventeen residents and officials attended a public meeting held on April 2, 1996. Attendees were provided information about the Remedial Investigation and Feasibility Study ("RI/FS") underway at the Site. In June 1998, EPA completed a Proposed Remedial Action Plan ("PRAP") and a PRAP Fact Sheet to inform the public of the results of the RI/FS. These documents provided a brief history of the Site, including the RI/FS, and discussed EPA's proposed plan to address the conditions revealed by the studies. The PRAP fact sheet was mailed to residents and officials on EPA's site-specific mailing list.

To obtain public input on the Proposed Plan, EPA held a public comment period from June 16, 1998 through July 15, 1998. On June 30, 1998, EPA held a public meeting at the Shenandoah Heights Police Station. At the meeting, EPA provided residents with information about the Site and the proposed cleanup alternatives. The public meeting also provided an opportunity for residents to ask questions about or comment on the site and EPA's proposed cleanup alternatives.

EPA announced the public meeting, the opening of the public comment period and the availability of the Proposed Plan in a public notice placed in the Pottsville Republican & Evening Herald and in the Hazelton Standard Speaker on June 16, 1998. A transcript of the meeting was made and will be added to the local information repository. The PRAP, along with other Site-related documents, remains available for public review at the West Mahanoy Township Building.

#### Summary of Commentors' Major Issues and Concerns

This section provides a summary of commentors' major issues and concerns and EPA's responses to those issues and concerns. Commentors may include local homeowners, businesses, the municipality and PRPs. Major issues and concerns about the Proposed Plan for the Site received during the public meeting on June 30, 1998 are grouped into the following categories:

- A. Source of Contamination
- B. Length of Cleanup
- C. Costs
- D. Remediation of Contaminated Soil
- E. Effects on Wildlife
- F. Current Site Owner - St. Jude Polymer
- G. Future of the Site

#### A. Source of Contamination

##### 1. Why did EPA get involved with the Metropolitan Mirror Site?

EPA Response: EPA first got involved with the Site after the Pennsylvania-American Water Company noticed the groundwater in its water supply wells was contaminated with tetrachloroethylene ("PCE"). The company sought assistance from the Pennsylvania Department of Environmental Protection (PADEP) who in turn sought help from EPA.

At first, the most likely source of contamination seemed to be the old Metropolitan Mirror plant. But, EPA took a number of samples and installed a number of wells and found only low concentrations of organic contaminants. It was determined that at these low concentrations, the organics found at the Site could not be the source of the PCE that was identified in the water supply wells located across town.

Even though EPA concluded that Metropolitan Mirror was not responsible for contaminating the Pennsylvania-American Water Company wells, EPA proceeded to clean up the Site's contaminated sludge and soil. that were left behind by the mirror manufacturing process. The cleanup was necessary because EPA determined that the contaminated sludge and soil contained levels of silver and other metals that posed a risk to human health and the environment.

2. Do you suspect any other locations as possible sources of the contamination?

EPA Response: EPA focused on the Metropolitan Mirror Site because it is on the National Priorities List ("NPL"). Accordingly, EPA's investigation and cleanup efforts were limited to this Site. PADEP, however, is looking at other possible sources of contamination of the Pennsylvania-American Water supply wells.

#### B. Length of Cleanup

1. Why did it take EPA ten years to clean up the lagoon?

EPA Response: Once a site is placed on the NPL, the investigation can be a lengthy project depending on the nature and extent of contamination. The EPA response at the Site was actually very timely. The Remedial Investigation field work began in early 1996 and lasted only 18 months, being completed in the summer of 1997. The cleanup of the lagoons and soils actually began during the last few months of the investigation and was completed in four months. The process of placing a Site on the NPL and making it eligible for cleanup took the most time at this Site.

#### C. Cost

1. What is the approximate cost of the cleanup?

EPA Response: The total cost of the cleanup is approximately \$2 million. The 1997 removal action cost about \$1 million; the cost of the Remedial Investigation/Feasibility Study is approximately \$1 million.

2. What happened to Metropolitan Mirror and how much of the cleanup has it paid for?

EPA Response: Metropolitan Mirror no longer exists, but its parent company, Metron Industries does. EPA will attempt to identify and recover costs from potentially responsible parties for the Site, to the extent viable parties exist.

3. Will EPA reimburse me for the cost of installing a new water filtering system at my house?

EPA Response: No, because EPA's investigations determined that the Site is not the source of water contamination in your area.

#### D. Remediation of Contaminated Soil

1. What did EPA do with contaminated soil?

EPA Response: The contaminated sludge and soil was mixed with ash to absorb the moisture and the remaining water was drained back into the lagoons where it was pumped out and sent for off-site treatment. Once dry, the sludge and soil was taken off-site for proper disposal at the Pine Grove landfill which is a permitted landfill located in Pine Grove, Pennsylvania.

2. Will the soil be burned or buried?

EPA Response: The sludge and soil was placed in a separate area within the Pine Grove landfill where it will remain buried.

3. What about the people, the wells and water reservoirs at Pine Grove -- will there be a problem down there?

EPA Response: The Pine Grove landfill is designed to accept wastes such as those found at the site. The landfill starts out by compacting a layer of soil, then putting an underlayment (like a soft rug) on top of it. On top of that, they put a heavy plastic coating that is about an eighth of an inch thick. Then 18 inches to three feet of sand is placed on top of that.

There is a system of pipes beneath the landfill that collects the leachate. (Leachate is a



contaminated liquid formed when precipitation (rain, snow) passes through a landfill and picks up contaminants from the waste.) All of the leachate that seeps to the bottom of the landfill is collected in a large concrete-lined tank. Any liquid from the tank is pumped out and taken to a sewage treatment plant where the leachate is treated.

Since the Pine Grove landfill is a permitted landfill it must meet certain requirements including monitoring of the leachate and groundwater. A groundwater monitoring system must be in place to insure that the waste in the landfill is not contaminating the local residential or municipal water supplies. These monitoring results are reported to the PADEP and/or EPA.

4. Why wasn't the soil remediated onsite?

EPA Response: EPA considered remediating the contaminated sludge and soil onsite, but decided against it because of the higher cost of that alternative. Also, the logistics of remediating the sludge and soil onsite would have been very difficult due to the size and location of the Site.

#### E. Effects on Wildlife

1. How has wildlife been affected by the Site contamination?

EPA Response: EPA performed an ecological survey during the wetlands delineation and found fox, deer, wild geese, frogs, turtles and snakes and fish in the creek. EPA pulled several hundred frogs out of the sludge and put them in the creek. After the contaminated sludge and water was removed from the lagoons a bed of shale was placed down on the lagoon bottom. At this time the pumping of the water in the lagoons was terminated. Once the pumping was stopped groundwater began to re-enter the lagoons and a pond was formed. Within a week, the frogs and their eggs were back in the pond.

#### F. Current Site Owner - St. Jude Polymer

1. Is it legal for St. Jude Polymer to store all those plastic bottles outside?

EPA Response: This issue would be best addressed by local laws, not federal laws and EPA. The federal government (and probably even the state government) cannot do anything about the housekeeping practices of St. Jude Polymer. A local ordinance should address the issue. The bottles are not a federally-regulated hazardous waste; therefore, there is nothing EPA can do about it.

2. What if St. Jude Polymer tries to extend its parking lot into the wetlands area?

EPA Response: St. Jude Polymer is not allowed to extend its parking lot into the wetlands area. These are federally-protected wetlands, which means no one is allowed to construct a building (or extend a parking lot) into the area. Although St. Jude Polymer owns and pays taxes on the land, the wetlands are still protected by federal laws.

#### G. Future of the Site

1. What are EPA's next steps for the Site?

EPA Response: Based on results of the remedial investigation, EPA determined that no further cleanup is needed beyond the removal action performed in 1997. This Record of Decision does not address the Pennsylvania-American Water Company municipal wells. EPA will return to the Site in two to three years to take groundwater samples to determine whether or not contamination at the Site has remained stable. In accordance with Section 121 of the Comprehensive Environmental Response Compensation and Liability Act, EPA will return five years after the cleanup to reevaluate the Site.