

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

NOV - 7 2012

Facility Name: World Resources Company
Facility Address: 170 Walnut Lane, Pottsville, Pennsylvania 17901
Facility EPA ID #: PAD981038227

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

If yes – check here and continue with #2 below.

If no – re-evaluate existing data, or

If data are not available skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

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

Definition of “Current Human Exposures Under Control” EI

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

Relationship of EI to Final Remedies

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

Duration / Applicability of EI Determinations

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

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

| | <u>Yes</u> | <u>No</u> | <u>?</u> | <u>Rationale/Key Contaminants</u> |
|----------------------------|------------|-----------|----------|--|
| Groundwater | | X | | There have been no known or reported releases of chemicals to groundwater and no reported remedial actions for groundwater conducted at the facility. Shallow and deep groundwater is sampled and analyzed for metals by the facility. For the deep groundwater used for DI columns, several heavy metals are analyzed; none have been detected. For the shallow groundwater used for voluntary monitoring, metals are analyzed; arsenic, lead and manganese (total phase) have been detected above PADEP’s used aquifer MSCs; concentrations thought to be due to the local geology |
| Air (indoors) ² | | X | | There are no known or reported releases of volatile constituents at the facility that have not been remediated. |
| Surface Soil (e.g., <2 ft) | | X | | There have been no reported or suspected releases, spills, or leaks at the facility. However, a small quantity of F006 waste material was tracked across the gravel parking lot within the facility’s receiving; the area was remediated. |
| Surface Water | | X | | There have been no known or reported releases to groundwater or to the on-site storm water collection system which consists of storm water inlets located throughout the parking areas, roof drains, and downspouts. The facility does not operate under a NPDES permit. |

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

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

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| | | |
|-----------------------------|---|--|
| Sediment | X | There have been no known or reported releases to groundwater or to the on-site storm water collection system which consists of storm water inlets located throughout the parking areas, roof drains, and downspouts. The facility does not operate under a NPDES permit. |
| Subsurf. Soil (e.g., >2 ft) | X | There have been no reported or suspected releases, spills, or leaks at the facility. Soil was excavated and stockpiled during the 10,000-gallon UST removal. Based on the sampling results and field screening, it was determined that the stockpiled soil could be reused as backfill material for the tank excavation. |
| Air (outdoors) | X | The facility currently operates under SOOP 54-00062 for air emissions associated with their recycling process. Emissions in excess of permit limits are not anticipated under normal operating scenarios. |

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

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

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

Rationale and Reference(s):

The World Resources Company facility (WRC or facility), a recycler of metal bearing sludges generated primarily by the metal finishing and electroplating industries, is located in Pottsville, Norwegian Township, Schuylkill County, Pennsylvania. The approximately 9-acre site is situated on two parcels of land among mixed commercial and undeveloped wooded property along Walnut Lane. The facility consists of several buildings (processing [containment building or process facility], laboratory, offices, storage, and supply), parking areas, and a truck turning area. The facility processing building, also known as the containment building, is approximately 28,000 square feet and houses the production/process areas and associated equipment that include a wastewater treatment system. The on-site laboratory, located adjacent to the north side of the containment building, performs analysis of waste material prior to receipt of the materials. The administrative and office buildings are located adjacent to the northeast corner of the processing building and contain a reception area, administrative offices, and conference rooms. The storage building is located on the east side of the parking area. The supply building is located adjacent to the southeast corner of the processing building and contains uniforms and general supplies.

The truck parking area extends outside of the bermed receiving area. The bermed parking and receiving areas are washed down with water periodically during the day and the wash water is sent through the on-site wastewater treatment system for process before being delivered to the Minersville Sewage Treatment Plant (MSTP). Other than the buildings and parking lot, the majority of the property is unused land that is forested or covered by grass. The facility is situated on the northeast quadrant of the property and is bordered by Walnut Lane to the north. There are five existing monitoring wells located onsite (four shallow and one deep).

Surrounding land uses include mixed commercial and residential neighborhoods and undeveloped land. Two commercial buildings are located east and northeast of the facility. The building to the east-northeast is occupied by MBC contract

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manufacturing/warehousing. The building to the northeast is occupied by the Republican Herald newspaper operations. Residential areas are located further east (across Township Highway 626A) and southeast of the facility. Residential areas are also located to the north, northwest, and southwest beyond the undeveloped forested land. Commercial/industrial properties and a coal refuse reprocessing facility are located approximately three quarters of a mile southwest of the facility in the town of Mar Lin.

Operations

Laboratory - The on-site laboratory performs analysis of waste material prior to receipt of the materials. If the waste materials can be accepted, then a trial shipment is delivered to the facility. The laboratory manager inspects each shipment for conformance with the waste analysis plan (WAP). Any waste materials that deviate from the WAP are not accepted and are sent directly back to the generator. Liquids generated in the laboratory during sample preparation and analyses are discarded via the sinks. The sinks drain to a 30 gallon sump and then to the on-site wastewater treatment system.

Fumes generated in the laboratory hoods are sent through either the wet scrubber or the activated carbon scrubber and then to the atmosphere under the State Only Operating Permit (SOOP). The on-site laboratory analyzes the quarterly groundwater samples they collect voluntarily from the existing onsite monitoring wells. They also analyzed random soil samples collected at the facility.

Waste Receiving - The waste receiving area consists of a container unloading area and three receiving, inspection and sampling receptacles (RISRs). A tire wash station is also located in the receiving area within the bermed asphalt truck parking area. It consists of rows of six-inch high concrete berms covered by steel grates. The rows are sloped toward a catch basin that drains to a concrete sump. The water captured in the sump is pumped back to the on-site wastewater treatment system via an underground pipeline which is triple cased and situated inside of a liner.

The facility primarily processes solid materials, received either in bulk or in drums/totes. When received in bulk, the solid materials are stored in the RISRs which consist of a sealed concrete floor divided into two separate bins. The solid materials are typically 30% solids. When the recycling process is complete, the materials are 60% to 70% solids. The recycled material is sold and shipped to smelters to be used as a substitute for virgin ore in the smelting process. The facility uses five flat bed trailers to move recycled products to the rail station.

When the facility receives dry solids that are too dusty (low moisture materials generally received in drums or totes), they are placed in the compounding unit and mixed with mineral oil and/or other compatible materials with higher moisture content prior to sending the material through the recycling process. The materials are then sent through the compounding process, which is generally a cyclonic action. An operator selects a final particle size, and the large-sized initial materials are whittled down and dewatered until the final particle size is reached. The final product is then deposited directly from the compounding machine into cubic yard polyethylene totes and moved to the final shipment area. The liquids removed from the materials during the process are sent to the on-site wastewater treatment system for treatment.

The facility also recycles non-hazardous wastes that are metallurgically compatible with its production process. Occasionally, the facility receives liquids from cleanout of plating baths. The liquids are unloaded and sent through the on-site wastewater treatment system. The remaining solids are put through the recycling process.

One of the facility's permitted dust collectors is located in the receiving area. The air is passed through a high-efficiency particulate air (HEPA) filter and then the particulates removed by the filter are sent through the recycling process.

Production/Process Area (Containment Building) - The production areas and equipment comprise a product loading area, a waste receiving area, a wastewater treatment system, one compounding unit, two thermal concentration units, four process water tanks, and three product storage areas. The production areas and equipment are completely enclosed within a structure designed so that operations and control of material are completely shielded from wind and weather.

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The outputs from WRC include metal concentrate product and process wastewater. The metal concentrate product contains the recyclable material/solids present in the incoming materials, including flux reagents utilized in the smelting process and high concentrations of gold, silver, palladium, copper, nickel, tin, and other elements. WRC's concentrate product is an internationally traded commercial product purchased by foreign and domestic primary metal producers.

The on-site wastewater treatment system consists of two 5,000-gallon leach tanks, four 5,000-gallon precipitation tanks, two filter presses, and a polishing filter. The process water is sent to the leach tanks, then through the first filter press, to the four precipitation tanks, through the second filter press, and finally through the polishing filter. The treated water is held in a 5,000-gallon holding tank prior to disposal. The wastewater is analyzed by the on-site laboratory throughout the process and after it is passed through the polishing filter (at which point the particles are approximately 2 microns in size), prior to discharging to a tanker truck for disposal at MSTP. Two tanker trucks are stored on-site to transfer process wastewater to MSTP. The on-site wastewater treatment system is situated within a bermed area that consists of an epoxy sealed concrete floor and an 8-inch high concrete berm which are lined with XR-5 geomembrane. A separate tank is used to contain the laboratory sink water. There are also three tanks that contain scrubber makeup and return water, and two transfer tanks. A 12,000-gallon tank is used for excess process water storage. The headspace in the precipitation reactors is vented to a second permitted scrubber system that includes two packed tower scrubbers. The second horizontal unit was recently added. Two larger tanks collect rainwater from the roof and the collection areas outside (pumped from the truck containment areas). The water is then sent through the on-site wastewater treatment system.

The facility sanitary sewage discharges to a septic system/sand mound located in the northern corner of the property.

Based on the June 2011 site visit observations and interviews with facility personnel, no floor drains are located within the facility. The concrete floor of the containment building is sealed and a portion of it is lined.

Permits

In 1983, WRC began operations at the facility after encountering opposition by both local residents and Norwegian Township supervisors. These local concerns were reviewed by the Pennsylvania Department of Environmental Protection (PADEP), but ultimately PADEP granted WRC permission to operate. However, WRC, PADEP, and the United States Environmental Protection Agency (USEPA) continued discussions/disputes over the operating status of the facility with respect to WRC's requirement to submit a Part A Hazardous Waste Permit Application. The facility was not issued a hazardous waste identification (ID) number, nor did it have interim status or permit facility status, because it was considered a hazardous waste recycling facility. During the first several years of operation, WRC operated under Pennsylvania ID No. PAR000540004, but in January 1983, WRC was issued USEPA ID No. PAD981038227. Currently, the permit allows for the production of non-ferrous and precious metal concentrate products from the recycling of residual and hazardous electroplating wastewater treatment sludges F006 and F019 residuals and solutions, D002, D004-D010, F007-F009.

One existing waste storage area was identified on the February 12, 1993 Part A Hazardous Waste Permit Application (i.e., Waste Storage Pile 1/Product Receiving Area located inside the northwest corner of the building). However, following WRC's submittal Part B of the Hazardous Waste Permit Application and comments from PADEP, WRC indicated that the following waste management units were applicable to the facility: material receiving (1, 2, and 3), concentration, reactor tanks, filter pressing, blending/compounding, shredding/grinding, and product loading. These waste management units are all located within the containment building. WRC considers the containment building to be one continuous hazardous waste management unit (HWMU) consisting of multiple waste management processes.

There have been no reported spills or releases to the ground surface except for an incident in which a minimal amount of F006 waste was tracked off the facility's lined receiving receptacle by the tires of a delivery transport vehicle. The facility promptly removed the contaminated material, collected samples, and paved the area and installed a tire wash station to prevent future incidents. No other investigations or remedial actions have been recorded. However, local residents have periodically filed complaints with PADEP over malodors allegedly originating from the WRC facility.

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PADEP continues to follow-up on these complaints and to monitor both the waste recycling and air emissions activities from the facility.

WRC maintains SOOP 54-00062 for air emissions from the metal concentration process.

Ownership

The property was initially owned by the Greater Pottsville Industrial Development Corporation. According to historical aerial photographs, the property was used as farmland prior to 1972. In 1974, the property was developed by the Oliver Organization, which constructed a steel warehouse with adjoining offices. The facility was subsequently operated by Argo, which performed steel fabrication. In 1980, Argo ceased operation and all equipment was removed.

WRC leased the property in 1982 and began constructing a recycling facility, which began operations in late 1983.

Waste Types and Quantities

According to the December 23, 1982 Notification of Hazardous Waste Activity, the facility handled the following hazardous wastes:

- F006 - Wastewater treatment sludges from electroplating operations
- F007 - Spent cyanide plating bath solutions from electroplating operations
- F008 - Plating bath residues from the bottom of plating bath from electroplating operations using cyanides
- F009 - Spent stripping and cleaning bath solutions from electroplating operations using cyanides

On February 12, 1993, WRC submitted a Part A Hazardous Waste Permit Application. The application indicated that up to 34,000 tons of F006 waste were stored at the facility. To meet the customers contractual specifications, WRC utilizes hydrometallurgical processing (which includes leaching and precipitation), thermal concentration/evaporation at low temperatures (300 to 500 degrees Fahrenheit [F]), and blending and compounding.

According to information provided in the April 16, 2001 WAP prepared by WRC for the USEPA, the hazardous wastes received at the facility for recycling were classified by the following waste codes:

- F006 - Wastewater treatment sludges from electroplating operations
- F007 - Spent cyanide plating bath solutions from electroplating operations
- F008 - Plating bath residues from the bottom of plating bath from electroplating operations using cyanides
- F009 - Spent stripping and cleaning bath solutions from electroplating operations using cyanides
- F019 - Wastewater treatment sludges from the chemical conversion coating of aluminum
- D006 - Cadmium toxicity characteristic hazardous waste
- D007 - Chromium toxicity characteristic hazardous waste
- D008 - Lead toxicity characteristic hazardous waste
- D009 - Mercury toxicity characteristic hazardous waste
- D010 - Selenium toxicity characteristic hazardous waste
- D011 - Silver toxicity characteristic hazardous waste

The 2001 WAP also reported that approximately 434 tons and 40,000 gallons of waste were stored throughout the containment building.

On October 27, 2009, PADEP approved the application for a Class II modification of the October 1, 2001 treatment, storage, and disposal facility (TSDF) permit No. PAD981038227. The modification stated that in addition to the hazardous wastes listed in the 2001 TSDF permit, the facility would accept corrosivity characteristic hazardous waste (USEPA Hazardous Waste Code D002).

On November 4, 2010, WRC submitted a TSDF Operating Permit Renewal Application to PADEP for the renewal of Permit No. PAD981038227. The March 21, 2012 issued permit allows for the continued production of non-ferrous and

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precious metal concentrate products from the recycling of residual and hazardous electroplating wastewater treatment sludges F006 and F019 residuals and solutions, D002, D004-D010, F007-F009.

Available records indicate that WRC receives hazardous waste material (primarily F006) from both foreign and domestic firms. Numerous available documents indicate that WRC had been providing PADEP with notices of when they had been receiving shipments originating from a foreign entity, as per conditions set forth under their current permit.

Residual waste in the form of polyethylene plastic truck liners, intermediate bulk containers (IBC) and polyethylene liners for the IBCs are disposed of in accordance with Pennsylvania regulations and/or are sent off site for recycling.

Process Wastewater

WRC's process wastewater has been delisted in accordance with a delisting agreement with PADEP dated February 1, 1984. The water is delivered via tanker truck to the MSTP. Shipments are monitored by WRC and MSTP to insure compliance with the delisting requirements and other criteria required by MSTP. WRC has maintained a contract for discharge of treated process wastewater with MSTP from 1984 to present.

On March 13, 1998, PADEP issued a co-product determination concurrence letter for the outgoing metal concentrates produced by the facility. The co-product concurrence required that the material must be transferred in good faith as a commodity in trade for use on a regular basis or to be used by the manufacturer or producer on a regular basis.

On May 1, 1999, PADEP promulgated new hazardous waste regulations and deleted from the definition section the term "co-product". Under the new regulations, PADEP provided for a co-product transition process where a company producing material as co-product shall submit by May 1, 2001, a formal notification to exempt the material as solid waste. On May 11, 1999, the facility submitted to PADEP its formal notification of exemption for the outgoing metal concentrates.

On December 17, 2001, the facility submitted a request to PADEP for a variance from classification as a solid waste for the outgoing metal concentrates as materials that have been reclaimed but must be reclaimed further before recovery is completed. This variance request was submitted to PADEP as a condition of the Hazardous Waste Storage and Processing Permit.

On February 6, 2002, PADEP granted a variance to the facility stating that the outgoing metal concentrates produced by the facility, meeting the standards specified under the prior co-product determination concurrence, are determined not to be a solid waste.

Air

The facility currently operates under a SOOP for various emission units associated with the metal concentration process (e.g., evaporation/thermal concentration). WRC's process incorporates hydrometallurgical and pyrometallurgical processes. All hydrometallurgical process tanks were maintained under a slight negative pressure and vented through a packed tower scrubber under PADEP Air Quality Permit No. 54-00062. The steam exhaust output from the two thermal concentration units (pyrometallurgical process) exits through a Heil/Xerxes venturi particulate scrubber and two packed tower scrubbers operating under PADEP Air Quality Permit No. 54-00062.

The following table details the permits, issue dates, renewal information, and applicable inspections for the various plan approvals and operating permits issued at the facility throughout its operating history:

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| Plan Approval/ Operating Permit No. | Applicable Units | Issued | Modifications/Extensions |
|---|---|-----------------------------|--|
| Plan Approvals | | | |
| 54-313-57A | Metals Concentration Process/ Packed Tower | July 10, 1997 | Modification: March 20, 1998 Extension: June 22, 1998 |
| 54-339-016 | Two Hydrometallurgical precipitate concentrators | | Modification: February 2, 1990 |
| 54-339-16A | No. 2 fuel oil fired thermal concentrators and evaporators | Applied on April 3, 1993 | Modification: July 2, 1993 |
| 54-339-16B | Three Thermal Concentrators | July 10, 1997 | |
| 54-339-16C | | | Extension: August 13, 2002 |

| Operating Permits | Applicable Units | Issued | Modifications/Extensions |
|----------------------|---|--|--------------------------------------|
| 54-313-057 | Metals Concentration Process/ Packed Tower Cleaning Device | Issued: May 16, 1986 Renewed: July 9, 1988 June 25, 1991 June 23, 1992 June 23, 1993 July 1, 1993 | |
| 54-313-57A | Metals Extraction Process/ Packed Tower Scrubber Solution Change May 12, 1997 | May 21, 1999 | |
| 54-339-016 | Two Hydrometallurgical precipitate concentrators | Issued: December 20, 1989 Renewed: July 9, 1990 June 25, 1991 June 25, 1992 July 1, 1993 | Modification: May 12, 1997 |
| 54-339-16A | Three No. 2 fuel oil fired thermal concentrators and evaporators | April 21, 1994 | Request to modify: August 9, 2001 |
| 54-339-16B | Three Thermal Concentrators Venturi Jet Packed Tower Scrubbers | May 21, 1999 | |
| 54-339-16C | Metals reclamation Process/APV Concentrator | Issued: November 21, 2002 Renewed: | |

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|--|---|---|---|
| State Only Operating Permit (SOOP) 54-00062 | <ul style="list-style-type: none"> • Hydrometallurgical Extraction Process • Thermal Concentrating Unit 2 • APV Fluid Bed Processor • Hydrometallurgical wet Scrubber • Venturi 1 and 2 • Dual Pact Tower 1 • Hydrometallurgical Stack • Thermal Concentrator Stack | Issued: September 29, 2005 Renewed: September 13, 2011 | Replaces 54-313-57A and 54-339-16C Expired: September 30, 2010 (Renewal Application submitted on 2/9/2010) Approval granted on September 13, 2011. |
|--|---|---|---|

NPDES

No National Pollutant Discharge Elimination System (NPDES) or storm water permits are associated with WRC. WRC's April 3, 2000 response to PADEP comments of WRC's Hazardous Waste Recycling Permit Application stated the following, "Based on the activities conducted at WRC facilities, neither Pennsylvania nor Federal Regulations specify the requirement for a NPDES or Storm Water permit". Wastewater at the facility is shipped to MSTP for final treatment.

SWMUs

After some debate between PADEP and WRC, the facility's containment building was considered to be a HWMU containing several waste recycling process areas.

As part of WRC's submittal Part B of the Hazardous Waste Permit Application discussed earlier, PADEP had returned comments in a letter (dated December 6, 1999) regarding the units used to manage the waste during the recycling process. Those comments indicated the following units were applicable to the facility:

| Industrial Unit | Industrial System | Type of Activity |
|----------------------------------|----------------------|----------------------------------|
| Leach and Precipitation Reactors | Hydrometallurgical | Treatment Tanks |
| Thermal Concentration | Pyrometallurgical | Physical Treatment |
| Mixing | Compounding/Blending | Physical Treatment |
| Filter Presses | Filtering/Dewatering | Physical Treatment |
| RISRs 1,2 and 3 | Unloading | RISR within containment building |
| Containment Building | Containment | Containment Building |

As specified by PADEP, WRC has delineated and described the aspects of the treatment method WRC employs. The table below is one similar to that provided above by PADEP, and was configured to show that the HWMU is a containment building and that this unit has various process aspects. These aspects are listed with their analogous function and activity. As the regulations do not further breakdown a unit as to the method employed, the Code T94 properly identifies the WRC HWMU.

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| Treatment (HWMU) | Process (Code T94) | Recycling Activity |
|--------------------------|--------------------------------|---------------------------|
| Containment Building | Containment Building/Recycling | Containment Building |
| Material Receiving 1,2,3 | Unloading | Inspection/Sampling |
| Concentration | Dehydration Process | Physical Treatment |
| Reactor Tanks | Hydrometallurgical | Treatment in Tanks |
| Filter Pressing | Filtering/Dewatering | Physical Treatment |
| Blending/Compounding | Product Formulating | Physical Treatment |
| Shredding/Grinding | Resizing | Physical Treatment |
| Product Loading | Loading | Product Shipment |

There are three RISRs, six hydrometallurgical process tanks, two filter presses, four process water tanks, one shredding unit, one compounding unit, and two concentrating units.

On January 16, 2004, the permit was modified to add the shredder/grinder unit to the process.

Storage Tanks

On April 24, 1984, PADEP notified Norwegian Township that WRC requested permission to install processing tanks at the facility and asked the Township to respond if it had any concerns. On June 25, 1984, PADEP notified the Township that WRC was approved to install the processing tanks. Interim proof of tank registration was sent to WRC on December 4, 1990.

On August 7, 1995, WRC provided the required 30 day notice to PADEP to remove one 10,000-gallon steel, underground storage tank (UST) that was used for storage of No. 2 fuel oil (heating oil). The tank was located near the loading docks located west of the process building. Per the Tanks Registration form, the UST was removed on September 22, 1995. The UST closure report, dated October 2, 1995, indicated that the UST was in extremely good condition with no rust or pitting. The soil removed from the excavation was stockpiled and field screened for petroleum. Four confirmatory samples were collected and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX). The analytical results indicated that xylenes were detected at a concentration of 0.012 milligram per kilogram (mg/kg) in a soil sample collected from the bottom of the tank excavation. This concentration is well below the PADEP Land Recycling Program (Act 2) used aquifer, non-residential soil to groundwater medium-specific concentration (MSC) for total xylenes (990 mg/kg). The other soil samples were reportedly non-detect for BTEX and thus the excavation was backfilled with the stockpiled soil.

In a telephone conversation with PADEP on February 5, 1996, WRC discussed installing a 2,000-gallon diesel fuel aboveground storage tank (AST). The new AST was installed between the process building (east side) and the southern office on October 20, 1993 and was used to store No. 2 fuel oil. The tank had a double-walled steel construction; piping was bare steel and copper. The AST was equipped with spill prevention and overfill prevention. On February 9, 1996, PADEP acknowledged receipt of the Tanks Registration form of the 2,000-gallon fuel oil tank from WRC. This tank was removed on November 22, 2002 and replaced with a 300-gallon, double-walled, fuel AST. The 300-gallon AST is in a sealed concrete spill-containment area located adjacent a loading dock located west of the process building.

The registered tanks identified at the facility are as follows:

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| ABOVEGROUND TANKS | | | | | |
|--------------------------|------------------|-----------------------|-----------------|----------------------------------|------------------------------|
| Tank ID | Installed | Size (gallons) | Contents | Current Status | Secondary Containment |
| 001B | November 2002 | 300 | No. 2 fuel oil | Active | yes |
| 001A | October 20, 1993 | 2,000 | No. 2 fuel oil | Removed November 22, 2002 | yes |
| UNDERGROUND TANKS | | | | | |
| Tank ID | Installed | Size (gallons) | Contents | Current Status | Secondary Containment |
| 001 | April 1, 1986 | 10,000 | No. 2 fuel oil | Removed September 22, 1995 | unknown |

AOCs

Based on the records reviewed, interviews, and site visit observations, no AOCs were identified at the facility. All facility processes are contained within the containment building which has a bermed, sealed, and lined concrete floor. No releases have reportedly occurred at the facility.

Investigations and Remedial Actions

Phase I Environmental Site Assessment (ESA), 1988

According to the May 10, 2001 PPC Plan, a Phase I ESA was conducted on the property in 1988 by Versar, Inc. (Versar) prior to WRC's purchase of the property. The findings and conclusions of the ESA were not provided by WRC for this EI due to legal reasons. However the report states that five monitoring wells (four shallow and one deep) were installed in March 1988. Although not required by regulation, these five monitoring wells are used for continued routine groundwater monitoring conducted by WRC. Groundwater is sampled for purgeable organics, potential metal contaminants, and USEPA groundwater quality parameters. Boring logs (completed by Versar) indicated the borings were advanced to depths ranging from 38 to 52 feet. Logs indicated a reddish brown, light brown weathered shale was present through the upper four feet; layers of light brown, orange and tan very fine grained shale to siltstone, silty loam, highly weathered shale, and poorly cemented sandstone were encountered to the end of the borings. Evidence of moisture and little water were detected at a depths ranging from 6 to 50 feet. Monitoring wells were constructed of 4-inch diameter polyvinyl chloride (PVC) screen (ranging in length from 15 to 25 feet) and casing.

Mobile Analytical Services Sampling and Analyses, 1995 - 2000

PADEP, in conjunction with the Mobile Analytical Services of the Bureau of Laboratories performed on-site chemical analysis of metals in samples of the facility's incoming recyclable materials and outgoing concentrate products. On-board instrumentation screened for the following metals: arsenic, antimony, barium, beryllium, cadmium, chromium, copper, nickel, lead, selenium, and zinc. The analyses performed for metals in the samples were total metals and Toxicity Characteristic Leaching Procedure (TCLP). The aforementioned sampling events were conducted by the Mobile Analytical Unit on July 17 and 18, 1995; June 12, 1996; September 9, 1997; August 18 and 19, 1999 and July 10 and 11, 2000.

Wastewater Sampling, 1997 and 2000

Available records indicated that WRC and PADEP conducted split sampling of wastewater in September 1997 and July 2000.

F006 Cleanup, 1998

A May 1, 1998 inspection and associated August 21, 1998 notice of violation (NOV) reported that a minimal amount of recyclable F006 material (below the reportable quantity) was tracked off the facility's lined receiving receptacle by the

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tires of a delivery transport vehicle. As a result, WRC removed the top 2 to 3 inches of gravel from the area and placed it within the containment area for decontamination. Samples were collected both prior to and after removal of the gravel under the observation of PADEP personnel and were analyzed for TCLP and total metals by both PADEP and an independent laboratory. TCLP and total metal concentrations were not reported above regulatory limits. A penalty was not assessed and no further action was taken by PADEP. To prevent future tracking of waste material, WRC installed a bermed tire wash station and paved the facility truck entrance driveway with asphalt. The April 27, 1999 inspection observed the use of a newly installed tire wash and expanded truck unloading area, which is currently in use.

Groundwater Sampling and Analyses, 2010

During the June 2011 site visit, the facility provided the May 24, 2010 and November 28, 2010 groundwater sampling results of monitoring wells W-1, W-2D, W2S (dry), W-3, and W-4. Groundwater samples were analyzed for total and dissolved metals and other inorganics. No results were reported greater than the non-use aquifers, non-residential MSCs for the two sampling events. For the May 24, 2010 sampling event, the monitoring well groundwater results also were compared to the results for a sample of the City of Pottsville potable water supply.

No other known releases have occurred at the facility resulting in investigations or remedial actions.

Groundwater: The Llewellyn Formation, which comprises the bedrock at the facility, is not a reliable source of water. Local well drillers cite the groundwater quality as poor due to impacts from past and current mining activities in the area and water yields from wells are only sufficient for low volume users.

Information obtained from the Pennsylvania Department of Conservation and Natural Resources (DCNR) Groundwater Information System (PaGWIS) accessed on August 30, 2011 indicates that two groundwater wells are located within a 0.5 mile radius of the facility. One domestic open hole well, reported to be 325 feet in depth and drilled in 1965, is located approximately 0.3 miles north of the facility. A closed-loop geothermal well, reported to be 300 feet deep and drilled in 2008, is located approximately 0.42 miles north of the facility. The production well maintained by the facility was not listed in the PaGWIS database. No other potable wells have been identified near the facility.

The City of Pottsville, including residential, commercial, industrial and municipal users, receives drinking water from the Schuylkill County Municipal Authority (SCMA). SCMA provides service to approximately 34,000 customers in the City of Pottsville, surrounding communities and the facility. The City of Pottsville is provided water by two of SCMA's three water filtration plants. The Broad Mountain facility draws water from the Wolf Creek, Eisenhuth, Pine Run, and Kauffman reservoirs, while the Indian Run facility utilizes the Indian Run reservoir. All of these reservoirs are located south of City of Pottsville.

There have been no known or reported releases of chemicals to groundwater and no reported remedial actions for groundwater conducted at the facility.

Potable water at the facility is provided by SCMA and the surrounding residences are connected to the public water supply.

The facility maintains one production well; however, the groundwater at the facility is not used for human consumption. This production well was installed in March 1974, is steel cased, 300 feet deep, and has a pump set at 200 feet below ground surface (bgs). It is used solely by the laboratory for use in the deionized (DI) columns, thus exposure to groundwater from the production well is limited to laboratory workers. Water from this well is reportedly monitored on a monthly basis for several heavy metals, none of which have been detected. All other water used on-site is via the public water supplier.

The facility also has five relatively shallow (less than 50 feet deep) monitoring wells on-site which they voluntarily sample quarterly.

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During the June 2011 site visit, the facility provided the May 24, 2010 and November 28, 2010 groundwater sampling results of monitoring wells W-1, W-2D, W2S (dry), W-3, and W-4. According to the November 28, 2010 summary table, static groundwater levels ranged from 27 feet bgs (PAF-W4) to 43 feet bgs (PAF-W3) during the November 2010 sampling event. The November 28, 2010 monitoring well water levels indicate groundwater is flowing toward the west. Groundwater samples were analyzed for total and dissolved metals and other inorganics. No results were reported greater than the non-use aquifers, non-residential MSCs (used for comparison by the facility) for the two sampling events. For the EI report, the results were compared to the PADEP MSCs updated on January 8, 2011. Arsenic-total (0.017 parts per million [ppm]) was detected in W-1 above the used aquifers, total dissolved solids (TDS) less than/equal to 2,500 ppm MSCs (0.01 ppm for residential and non-residential) in November 2010. Arsenic-dissolved for the sample (0.002 ppm) was below the MSCs. Arsenic was below the detection limit of 0.001 ppm in the monitoring wells and the City of Pottsville potable water in May 2010. Lead-total (0.013 ppm) was detected in W-4 above the used aquifer, TDS less than/equal 2,500 ppm MSCs (0.005 ppm for residential and non-residential) during May 2010. Lead-total (0.005 ppm) was detected in W-2D and W-4 in November 2010. Lead-total (0.023 ppm) was detected in W-3 in November 2010. Lead-dissolved was below the detection limit of 0.001 ppm for these wells. Manganese (0.448 and 0.407) was detected above the used aquifer, TDS less than/equal 2,500 ppm MSCs (0.3 ppm for residential and non-residential) in W-4 for both total and dissolved constituents, respectively, in May 2010. Manganese was not analyzed in November 2010. Mercury was not detected during the two sampling events; however, the reporting limit of 0.0034 ppm is above the used aquifer, TDS less than/equal 2,500 ppm residential and non-residential MSCs of 0.002 ppm. Nitrate (25.6 ppm and 22.4 ppm) was detected in W-4 above the used aquifer, TDS less than/equal 2,500 ppm residential and non-residential MSCs (10 ppm) during the two sampling events, respectively.

Although several metals (arsenic, lead and manganese) were detected above the used aquifers MSCs in the total phase in the shallow groundwater, only manganese at W-4 was detected above the MSC in the dissolved phase. Nitrate was detected above the MSC only at W-4. As the shallow water is sampled and analyzed by the facility, exposure to groundwater water is limited to laboratory workers.

It is unknown if groundwater quality is the result of facility operations, or more likely due to the geology of the area and/or past uses of the property (e.g., farmland). As there have been no known releases to groundwater at the facility and the neighboring residences are connected to the public water supply, it is concluded that no exposure pathway controls are relevant for the groundwater exposure pathway.

Air: The facility is located in a mixed residential/commercial area of Pottsville, Pennsylvania. The City of Pottsville had an estimated population of 15,549 in 2000, according to the US Census Bureau (www.factfinder.census.gov, accessed August 26, 2011). The facility currently operates under a SOOP 54-00062 for air emissions associated with their recycling process. Emissions in excess of permit limits are not anticipated under normal operating scenarios.

There are no known or reported releases at the facility that have not been remediated. Therefore, it is not expected that soil or groundwater have been contaminated by the operations conducted at the facility that would create a vapor intrusion issue into the on-site building. There are no other inhabited structures within 100 feet of the facility. Accordingly, it is concluded that controls are not necessary for the vapor intrusion exposure pathway.

Surface Water: The-site area has a dendritic drainage pattern and has topography of deep stream valleys and steep ridges. The facility property slopes gently to the southwest and therefore surface runoff is expected to be towards the southwest. A relatively flat surface across the facility property precludes any significant site runoff. The facility sanitary sewage discharges to a septic system/sand mound located in the northern corner of the property.

The facility is located near the headwater of an unnamed creek located approximately 400 feet to the southeast of the facility. The creek discharges into the West Branch of the Schuylkill River approximately one mile southwest of the facility. Based on information obtained from PADEP eMapPA (accessed March 21, 2011), the segment is designated as a

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cold water fishery, but is not stocked with trout. The stream is listed on the integrated list as an attaining segment supporting aquatic life, but as a non-attaining segment impaired for fish consumption due to an unknown source of polychlorinated biphenyls (PCBs). Based on PADEP eMapPA, the Total Maximum Daily Load (TMDL) associated with this segment include: PCBs (associated with the Schuylkill River) and metals (associated with the Upper Schuylkill River and West Branch of the Schuylkill River). According to the National Wetlands Inventory (NWI), no wetlands are present on the property. However, wetlands are present just across the southern property boundary.

The facility does not operate under a NPDES permit and wastewater generated at the facility is treated on-site, and then shipped via tanker truck to MSTP for final disposal. There have been no known or reported releases to the on-site storm water collection system which consists of storm water inlets located throughout the parking areas, roof drains, and downspouts. According to facility personnel, the roof drains underneath the exhaust scrubber on the containment building are directed to the on-site wastewater treatment system. The remaining roof drains on the containment building can be switched between discharge to the on-site wastewater treatment system or to the ground surface on the southern portion of the property. The downspouts on the office buildings and storm drains in the parking lot discharge to the southern portion of the property. Storm water runoff at the facility does not directly discharge to the unnamed tributary.

There are no known or reported releases to groundwater at the facility. Results for groundwater samples collected by WRC from their on-site monitoring wells have shown metals (arsenic, lead, and manganese) are present in groundwater above the used-aquifers, residential and non-residential MSCs in the total phase. These metals were not detected in the dissolved phase with the exception of manganese that was detected above the MSCs at W-4. Nitrate was also detected above the MSCs at W-4. It is unknown if the groundwater quality is the result of facility operations, or more likely due to the geology of the area and/or past uses of the property (e.g., farmland). Therefore, it is concluded that no controls are relevant for the surface water/sediment exposure pathway.

Soil: The facility is situated within the Anthracite Uplands Section of the Ridge and Valley Physiographic Province. The entire facility property is underlain by a Watson Series soil, which is a very deep, moderately well drained silt loam to gravelly clay loam formed in pre-Wisconsin glacial till derived from sandstone, siltstone, and shale. These soils have a slow permeability, a moderately low to moderately high available water capacity, and a pH range of very strongly acid to strongly acid.

There have been no reported or suspected releases, spills, or leaks at the facility. However, two instances of soil sampling and remediation reportedly occurred at the facility as described below.

In September 1995, soil was excavated and stockpiled during the 10,000-gallon UST removal. Soil samples were collected from the tank excavation and were analyzed for BTEX. The soil sample collected from the bottom of the tank excavation exhibited a xylenes concentration of 0.012 mg/kg while the other three soil samples were non-detect for BTEX contamination. Based on the sampling results and field screening, it was determined that the stockpiled soil could be reused as backfill material for the tank excavation.

In May 1998, PADEP observed that a small quantity of F006 waste material was tracked across the gravel parking lot within the facility's receiving area. In response to this occurrence, WRC removed the top 2 to 3 inches of gravel from the area and placed it within the containment area for decontamination. Samples were collected both prior to and after removal of the gravel and were analyzed for TCLP and total metals. Results of the sample analysis indicated that none of the samples exceeded regulatory limits for TCLP or total metals. Therefore, no residual soil contamination was detected. WRC implemented immediate corrective action to prevent future tracking of material by installing a bermed tire wash station and paving the facility truck entrance driveway with asphalt.

Access to the truck turning and receiving areas at the facility is restricted by a security fence all process-related operations and waste storage areas are located inside of the containment building. Based on observations made during the site visit, approximately 30 percent of the property consists of impermeable surfaces (i.e., the building and paved areas), which act

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as a cap for contaminated soil, if any exists. The remaining 70 percent of the property is grass-covered and wooded and is outside of the processing areas. No intrusive soil work is conducted at the facility on any regular basis. Therefore, it is concluded that no exposure pathway or release controls are relevant for the soil exposure pathway.

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

Summary Exposure Pathway Evaluation Table

| Contaminated Media | Potential <u>Human Receptors</u> (Under Current Conditions) | | | | | | |
|-------------------------------|---|----------------|-----------------|---------------------|--------------------|-------------------|--------------------------|
| | <u>Residents</u> | <u>Workers</u> | <u>Day-Care</u> | <u>Construction</u> | <u>Trespassers</u> | <u>Recreation</u> | <u>Food</u> ³ |
| Groundwater | | | | | | | |
| Air (indoors) | | | | | | | |
| Soil (surface, e.g., <2 ft. | | | | | | | |
| Surface Water | | | | | | | |
| Sediment | | | | | | | |
| Soil (subsurface e.g., >2 ft. | | | | | | | |
| Air (outdoors) | | | | | | | |

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

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

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

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

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

Rationale and Reference(s):

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

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

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

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

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

Rationale and Reference(s):

Groundwater: Although several metals (arsenic, lead and manganese) were detected above the used aquifers MSCs in the total phase in the shallow groundwater, only manganese at W-4 was detected above the MSC in the dissolved phase. Nitrate was detected above the MSC only at W-4. The use of proper PPE by the laboratory workers during sampling and analyses eliminates the exposure pathway.

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

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

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

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

Rationale and Reference(s):

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

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

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the Information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the World Resources Company facility, EPA ID # PAD981038227, located at 170 Walnut Lane, Pottsville, Pennsylvania 17901 under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

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

IN - More information is needed to make a determination.

Completed by (signature) [Signature] Date 11/20/12
(print) Tracey L. Mink
(title) Solid Waste Supervisor

Supervisor (signature) [Signature] Date 11/20/12
(print) JEFF SPANDE, P.E.
(title) Env Engineer Manager
(EPA Region or State) Pa

Locations where References may be found:

USEPA Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
North East Regional Office
2 Public Square
Wilkes-Barre, PA 18701

Paul Buttrick
EPA R3 4/30/13

Contact telephone and e-mail numbers
(signature) _____
(print) _____
(title) _____

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

Facility Name:
EPA ID#
City/State

World Resources Company
PAD981038227
Pottsville, Pennsylvania 17901

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