DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **Mount Joy Wire Corporation (Formerly National-Standard Company)**
Facility Address: **1000 East Main Street, Mount Joy, PA 17552**
Facility EPA ID #: **PAD003023371**

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?

   X 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).

Facility Background

The National-Standard Company's former Mount Joy facility is located in Mount Joy, Lancaster County, Pennsylvania. The facility was sold to Mount Joy Wire Corporation in 1991. The site covers approximately 27 acres.

The facility is an active manufacturer of steel and speciality plated wires. The process of making wire uses acidic, alkaline and other caustic or corrosive liquids. The process involves drawing, heat-treating, cleaning, descaling, plating and finishing of wire. Rinse waters from the chemical processing were(are) treated at their permitted onsite wastewater treatment plant. If the treatment plant could not keep pace with the incoming flow or the filter area was down, rinse waters were directed into a hypalon lined concrete impoundment, which was constructed in 1978/1979 to provide temporary storage of process wastes. The rinse waters contained hydrochloric acid, nitric acid, alkali cleaners, zinc phosphate and sodium borate. Lime slurry was pumped to the surface impoundment on occasion, which precipitated the metals to their respective hydroxide sludges (i.e., Cadmium, Chromium, Lead, Nickel, Zinc, Copper and Iron). Effluent from the onsite wastewater treatment plant is discharged to Little Chickies Creek. The effluent is monitored by Mount Joy Wire Corporation per National Pollutant Discharge Elimination System (NPDES) Permit No. PA 0042781.

In 1984, the surface impoundment was drained, and a visual inspection revealed holes in the hypalon liner and separation of the liner at its connection to the outfall pipe. Repairs and upgrades were made to the liner, and the impoundment was returned to service.

In 1988, waste entry into the surface impoundment ceased and closure commenced. National Standard completed the closure of the surface impoundment in July 1990. National Standard closed the surface impoundment after waste materials, concrete liner, hypalon liner, and contaminated subsoils were removed. National Standard did not obtain a clean closure certification from the Pennsylvania Department of Environmental of Environmental Protection (PADEP) because some contaminants were left in place. National Standard capped the area in accordance with RCRA standards. Since National-Standard did not achieve "clean closure" of the surface impoundment, it is being regulated as a "hazardous waste disposal unit."

National-Standard still retains responsibility for the closed surface impoundment and the monitoring of onsite groundwater monitoring wells, but is not in charge of the day-to-day activities at the manufacturing facility. Spills have been documented onsite by the present owner, Mount Joy Wire Corporation, after the closure of National-Standard's former surface impoundment.

On January 13, 1992, the PADEP determined that the former hazardous waste surface impoundment had been closed in accordance with the closure portion of the approved closure/post closure plan. A post-closure permit for the former National-Standard facility has not yet been finalized.

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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Boron, Chloride, Manganese, Sodium, and Sulfate above health-based screening levels
Air (indoors)[2]		X		Not applicable for former impoundment area since it is located outside and capped. The indoor air at Mount Joy Wire Corporation is regulated by Occupational Safety and Health Administration (OSHA)
Surface Soil (e.g.,<2 ft)		X		No for National-Standard's former impoundment area,
Surface Water		X		Not Applicable for the impoundment area since it is capped. The facility discharge is regulated by NPDES Permit No. PA0042781
Sediment		X		Not Applicable for the impoundment area since it is capped,
Subsurface Soil(e.g.,>2 ft)	X			Boron, Chloride, Cyanide, Iron, Lead, Manganese, Sodium, Sulfate in the vicinity of the National Standard's former surface impoundment area since some contamination was left in place prior to closure.
Air (outdoors)		X		Not applicable for the impoundment area since it is capped. The outdoor air is regulated by Air Quality Title V Permit #36-05072

____ 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.

X 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.

[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 Department 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 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 contaminates) does not present unacceptable risks.

Current Human Exposures under Control

Groundwater

The property is directly underlain by carbonate rock of the Stonehenge and Epler Formations, both of the Ordovician Age. These carbonate rocks are prone to dissolution especially along primary bedding planes and secondary fracture openings. Bedrock dips toward the north and has an east-west trending strike. The most prominent feature of the bedrock is it's cleavage, which has a strike between N40-60 degrees W, and dips approximately 25 degrees to the northeast. Depth to bedrock across the site is highly irregular, varying between 0 and 46 feet. The overall groundwater flow direction in the area is from the Northeast to the Southwest towards the Little Chickies Creek; however the direction of groundwater flow may vary somewhat below the facility due to the fractures. Groundwater is not used by Mount Joy Wire for consumption or process water. They use water from the local public water supply.

Groundwater monitoring began at the former National Standard facility in October 1983, and currently continues via ten on-site monitoring wells: WQMP-1,WQMP-2, WQMP-3 WQMP-4A, WQMP-6,WQMP-7, WQMP-8C, WLMP-1, WLMP-2, and WLMP-3. See Department of Environmental Protection Waste Management Program, March 16-17, 2004 Comprehensive Groundwater Monitoring Evaluation for Year 2004 (CME-2004) for complete analytical results. National-Standard has been recovering groundwater onsite since 1985 utilizing pump and treat technology. The current groundwater recovery system presently consists of well WQMP-4A being pumped on a cyclical schedule (two-week-on, two-week-off mode) and WQMP-6 being pumped continuously The WQMP wells are sampled quarterly and the WLMP wells are sampled annually. Sampling parameters include: Dissolved Boron, Dissolved Iron, Dissolved Lead, Dissolved Manganese, Dissolved Sodium, Chloride, Nitrates, Sulfates, pH, Specific Conductivity, Turbidity, and Depth to Groundwater.

WQMP-6 and WQMP-4A had been off-line and had not been sampled since the Second Quarter of 1997 and December 2003 respectively, until March 18, 2004,due to malfunctioning pumps/obstruction in the wellbores. Extraction wells WQMP-4 and WQMP-6 were brought back on-line on March 18, 2004 with newly installed dedicated submersible pumps, and the groundwater remediation system is now fully operational.

Historically, Chloride, Iron, Lead, Manganese, Nitrates, Sodium and Sulfate exceeded Primary/secondary Maximum Containment Levels (MCL's) onsite. After the implementation of the groundwater recovery system and closure of the surface impoundment, the overall groundwater quality improved significantly, with some contaminant levels dropping below regulatory levels. The groundwater is contaminated above the EPA Drinking Water Maximum Contaminant Levels (MCLs) for several chemicals. The chemicals were also screened against the Region 3 Risk-Based Concentrations (RBCs) for tap water. The concentrations exceeding the MCLs for extraction wells WQMP-4A and WQMP-6 are given below (12/15/04 data).

Well	Contaminant	Groundwater Concentration (ppb)	MCL (ppb)	RBC (PPB)
WQMP-4A	Sodium	35,600	20,000*	–
WQMP-6	Sodium	191,000	20,000*	–
	Manganese; dissolved	880	50**	730
	Chloride	486,000	250,000**	–

* Health Advisory for individuals on a 500 mg/day restricted sodium diet
** Secondary Drinking Water Regulations; guidelines regarding cosmetic or aesthetics effects of drinking water

Current Human Exposures under Control

Air (Indoors)

National Standard's former surface impoundment is located outside of the manufacturing facility. The impoundment was capped after the removal of waste materials, liner materials and contaminated soils, and it has no direct effect on indoor air quality. The indoor air, at the present-day Mount Joy Wire Corporation facility, is regulated by OSHA.

SURFACE SOIL (e.g. < 2 feet):

Since the former National-Standard surface impoundment was capped after the removal of waste materials, liner materials and contaminated soils, it will have no direct effect on subsurface soil (e.g. < 2 feet). The former surface impoundment is entirely contained on the National Standard property and therefore it does not impact surface soils on adjacent farmland in close vicinity of the site.

A number of accidental releases or spills took place at the facility. When possible, the spills were contained and disposed of, or directed to the surface impoundment for capture. The majority of spills contained acid or corrosive solution and were the result of human error or piping failure. The two most recent spills that were documented, were both acids that came in contact with the ground. The first was a hydrochloric acid spill on January 23, 1997 that resulted in acid coming in contact with the ground surface. The area was neutralized and the soil removed and placed in six fifty-five gallon drums for proper disposal. The spill/excavation site was backfilled with stone. PADEP response information indicates that an investigator found no violation, and the acid was controlled with no problems. The second spill happened on February 28, 2000. The report mentions that a float broke off a pump, spilling acids into a cement area that ate through the cement and went onto the ground. PADEP response information indicates that an investigator found no violation, and the acid was controlled with no problems.

SURFACE WATER/SEDIMENT:

National-Standard's former surface impoundment was capped after the removal of the waste materials, liner materials and contaminated soils; therefore the potential for surface water infiltration has been eliminated or reduced significantly.

The onsite surface waters/storm waters have daily and monthly maximum limits established in Mount Joy Wire Corporation's NPDES Permit No. 0042781. Outfall 001 is the main discharge of the treated rinse water/pumped groundwater from extraction well WQMP-4A and WQMP-6. Frequency of sampling for Outfall 001 varies for numerous parameters ranging from daily/weekly to quarterly/annually. Outfall 002 (Southeast of building) drains 3 acres of building roof and the parking lot into a drainage swale. Outfall 003 (West of building) drains 1.5 acres of parking lot into a drainage swale. Outfall 004 (east of building) drains 0.5 acres of parking into a drainage swale Outfall 100 (which is located on the East bank of the little Chickies Creek, on the South side of Route 230 bridge, about 3,100 feet from the facility) is permitted for an emergency discharge of noncontact cooling water.

The surface impoundment has no direct effect on sediment since it was capped after the removal of waste materials, liner materials, and contaminated soils. However, it may have an indirect effect because the contaminated groundwater from the extraction wells, WQMP-4A and WQMP-6 is processed along with rinse waters from the present day manufacturing activities at the onsite wastewater treatment plant. The effluent is then monitored and discharged through their NPDES Permit. These discharges are above Region III RBC tap water levels, but below their allowable, permitted NPDES levels.

Current Human Exposures under Control

SUBSURFACE2 SOIL (e.g. > 2 feet):

Contamination is possible in the onsite subsurface soils (e.g. >.2 feet) in the vicinity of National-Standard's former surface impoundment because some contamination was left in place. It is not considered a potential exposure pathway because the former surface impoundment is capped/fenced in and located entirely on the National-Standard property. Access to the impoundment area by trespassers and facility workers is not a potential problem. It is expected that any workers involved with further site characterization, remediation or construction will be properly trained and equipped to prevent potential exposures to contaminated soil or groundwater. PADEP has determined that the former hazardous waste surface impoundment had been closed in accordance with the closure portion of the facility's approved closure/post closure plan.

The potential for the migration of contamination from the former impoundment subsurface soils via surface water infiltration has been eliminated due to the cap.

AIR (outdoors):

National-Standard's former surface impoundment was capped after the removal of waste materials, liner materials and contaminated soils. The impoundment presently has no direct effect on outdoor air. The outdoor air quality is monitored at the facility via Air Quality permit - AQ title V #36-05072.

References:

Department of Environmental Protection Waste Management Program, March 16-17, 2004 Comprehensive Groundwater Monitoring Evaluation for Year 2004 (CME-2004)
Department of Environmental Protection Waste Management Program, April 2003 Environmental Indicator Inspection Report for National Standard
Department of Environmental Protection Water Management Program, June 14, 2001, NPDES Permit No. 0042781
Department of Environmental Protection Water Management Program, August 29, 2002, Water Protection Report
Department of Environmental Protection Waste Management Program, June 7, 2001 Comprehensive Groundwater Monitoring Evaluation for Year 2001 (CME-2001)
Department of Environmental Protection Water Management Program, January 1998, Preparedness, Prevention and Contingency Plan and Spill Prevention Control and Counter Measures Plan.
RE Wright Associates, January 1985 Report of Groundwater Quality
Department of Environmental Protection NPDES Exceedence reports

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

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food
Groundwater	No	No	No	No	No	No	No
~~Air (indoors)~~							
~~Soil (surface, e.g., <2 ft)~~							
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	No
~~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.

_X_ 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. (Uncertainties are summarized below)

[3] Indirect Pathway receptor (e.g. vegetables, fruits, crops, meat and diary products, fish, shellfish, etc)

Rationale and Reference(s):

GROUNDWATER

A. RESIDENTIAL WELLS:

Seven offsite neighboring wells within a 0.25 mile radius (from the facility) were sampled on April 2, 1984. The offsite groundwater sampling was conducted to determine if the former surface impoundment area might be having a local impact on neighboring wells. All the offsite wells revealed concentrations of Nitrates which were believed to be related to the agricultural use of chemical and organic fertilizers in the area. The 1984 sampling also reveled high levels of Iron, Manganese, Sodium and Chloride in well # 003 (Shirk RV Sales). Iron and Chloride are SMCL's which are levels based on taste, color, and odor. Sodium is found on the Drinking Water Advisory Table, and accordingly, individuals on a Sodium restricted diet should limit their intake of foods high in Sodium.

On June 7, 2001, two of the closest offsite wells, #001 and #005 were resampled by PADEP. Private well #005 located at 194 Newcomer Road is approximately 2000 feet to the Southwest and downgradient of the facility. Private well 001 located at 1058 Main Street is approximately 1000 feet to the Southeast and sidegradient of the facility. Two parameters (Nitrates and/or Manganese were noted to exceed MCLs at these offsite locations. Both wells detected Nitrates above an MCL of 10 mg/l, whereas all onsite facility wells were below MCL. Downgradient well (#005) revealed Nitrates at 12.6 mg/l and sidegradient well (#001) revealed Nitrates at 11.95 mg/l. This is not uncommon as both wells are located on farms and surrounded by agricultural land. The sidegradient well (#001) was nondetect for Manganese (<0.01mg/l), however the downgradient well #005 revealed Dissolved and Total Manganese at 0.174 mg/l and 0.18 mg/l. Sidegradient well #001 was non-detect for Manganese (<0.01 mg/l), however the downgradient well (#005) revealed Dissolved and Total Manganese at 0.174 mg/l and 0.18 mg/l, respectively which exceeds the secondary MCL of 0.05 mg/l. Manganese levels are based on taste, odor, and color and the EPA Region III RBC table indicates a tapwater health-based concentration limit of 730 ug/l, which is higher than the current levels both on and off-site, so it does not appear that there are any health concerns associated with the Manganese in the groundwater. Other parameters of concern, such as Zinc, Boron, Sodium, Sulfate and Chloride were not found at elevated levels. The two offsite wells, did not appear to be affected by the groundwater migrating from the facility

B. WORKERS:

Groundwater is not used by Mount Joy Wire for consumption or process water. They use water from the public water supply. Field technicians do have the potential of being in contact with the contaminated groundwater during the quarterly sampling of onsite groundwater monitoring wells. However, since they wear protective clothing/gloves during each groundwater sampling event, the likelihood of exposure is minimized.

REFERENCES:

Department of Environmental Protection Waste Management Program, March 16-17, 2004 Comprehensive Groundwater Monitoring Evaluation for Year 2004 (CME-2004)
Department of Environmental Protection Waste Management Program, April 2003 Environmental Indicator Inspection Report for National Standard
Department of Environmental Protection Water Management Program, June 14, 2001, NPDES Permit No. 0042781
Department of Environmental Protection Water Management Program, August 29, 2002, Water Protection Report
Department of Environmental Protection Waste Management Program, June 7, 2001 Comprehensive Groundwater Monitoring Evaluation for Year 2001 (CME-2001)
Department of Environmental Protection Water Management Program, January 1998, Preparedness, Prevention and Contingency Plan and Spill Prevention Control and Counter Measures Plan.
RE Wright Associates, January 1985 Report of Groundwater Quality
Department of Environmental Protection NPDES Exceedence reports

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" levels 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 no expected to be "significant"

_____ If unknown (for any complete pathway) - skip to #6 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.

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):
Not applicable

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):

_X_ 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 **Mount Joy Wire Corporation (Formerly National-Standard Company)**facility, EPA ID # **PAD003023371**, located at **1000 East Main Street, Mount Joy, PA** 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 /s/ Date 3/31/05
Grant Dufficy
RCRA Project Manager

Supervisor /s/ Date 3/31/05
Paul Gotthold
PA Operations Branch Chief
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Locations where References may be found:

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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.