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: American Standard
Facility Address: 240 Princeton Avenue, Hamilton Township, NJ 08619
Facility EPA ID #: NJD002366441

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.

   Justification:

SWMUs / AOCs
1. Area 1 landfill (closed RCRA Regulated Unit with a post-closure permit)
2. Area 2 landfill/Glaze Area
3. Area 3 settling basins (closed RCRA Regulated Unit with a post-closure permit)
4. Area 4 canal (closed RCRA Regulated Unit with a post-closure permit)

There is soil contamination at every SWMU/AOC, but measures were taken to address this contamination as part of the RCRA Closure and Post-Closure Plan. Engineering and institutional controls were employed at all four areas according to the plan, and each of those areas closed with approval. The waste related contaminants have not migrated into the groundwater.

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).

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	___	Waste metals have not migrated into groundwater.
Air (indoors)[2]	___	X	___	Indoor air is not contaminated.
Surface Soil (e.g., <2 ft)	X	___	___	See below and references 2, 3, 4, 5, 6, and 8
Surface Water	___	X	___	Surface water is not contaminated.
Sediment	___	X	___	Contaminated sediments were excavated.
Subsurf. Soil (e.g., >2 ft)	X	___	___	See below and references 2, 3, 4, 5, 6, and 8
Air (outdoors)	___	X	___	All contaminants are capped.

_____ 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.

Rationale and Reference(s):_ Barium contaminated clay spoils created as a waste from the production of glazes for the ceramic plumbing fixtures were disposed of in all four areas. Sampling of those spoils wastes and the adjacent soils was first conducted in 1988. Barium and lead were both found exceeding NJDEP's Residential Soil Cleanup Criteria. A lead glaze/frit material was also found adjacent to Area 2 exceeding the standards. From 1990 to 1993 closure of all four areas was completed. All of the hazardous spoils and soils were either excavated or stabilized with a calcium sulfate slurry in Areas 2, 3, and 4. The excavated hazardous soils were consolidated into the Area 1 landfill. American Standard performed extensive post-excavation sampling to fully delineate any remaining contamination. NJDEP approved delineation of the soils to the NJDEP Non-Residential Soil Cleanup Criteria for lead and approved a site-specific barium cleanup level of 27,200 ppm. However, residual soil contamination above NJDEP's Residential Soil Cleanup Criteria still remians in all three areas.

American Standard initiated quarterly groundwater monitoring in 1982 as part of a hydrogeological investigation to determine impacts from the four waste disposal areas. Over the years both the number of monitoring parameters and the sampling frequency required have been reduced. Based on a review of the ongoing post-closure groundwater monitoring data, barium, the primary waste constituent, has never been found above New Jersey's Ground Water Quality Standards. Of the remaining waste related metals identified, only one was found at levels exceeding New Jersey's Ground Water Quality Standards. Lead exceeded the standards on a couple of occasions in Areas 2 and 3, however, it was determined that the elevated levels of lead were due to problems associated with the sampling techniques and ever since those problems were corrected, in 1997, lead has not been found exceeding standards.

Footnotes:

[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.

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[3]
Soil (surface, e.g., <2 ft)	no	no	no	no	no	no	no
Soil (subsurface e.g., >2 ft)				no			no

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

Rationale and Reference(s): The soil exceeding Residential Standards in Areas 2, 3, and 4 were capped with a minimum of one foot of clean fill and six inches of topsoil. American Standard also filed Declarations of Environmental Restrictions (DERs) for each. Post-excavation sampling showed that Area 3 had a few locations where lead contamination also exceeded NJ's Non-Residential Soil Cleanup Criteria. To address this problem, American Standard covered those locations of Area 3 with a concrete cap and placed permanent markers over the contaminated subsurface soils. These items are included in the DER for that area. The hazardous soils consolidated in Area 1 were compacted and an approved containment cap was constructed. A fence was also constructed around the Area 1 landfill, and a DER was filed for that area as well. Both the lead and barium have been determined to be immobile. Neither contaminant has been found impacting adjacent or underlying soils or groundwater. The post-closure groundwater monitoring program assures the effectiveness of the closures and the lack of mobility of the remaining contamination. There is a perimeter security fence around the facility to restrict unauthorized access. The documentation of the contaminated soils in each area on the property deed records restricts the disturbance of the cover materials

and the soils.

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

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 American Standard facility, EPA ID #NJD00236641, located at 240 Princeton Avene, Hamilton Township, NJ 08619 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: original signed by **Date**: 08/24/00
Elizabeth Butler, Project Manager
RCRA Programs Branch
EPA Region 2

original signed by **Date**: 08/25/00
Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Approved by: original signed by **Date**: 09/01/00
Raymond Basso, Chief
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EPA Region 2

Locations where References may be found:

The references may be found at EPA Region 2 in New York or at NJDEP in Trenton.

Contact telephone and e-mail numbers

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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.

References Used To Make This Determination

1) Closure Certification Area 1 Landfill, dated January 28, 1991

2) ECRA Phase II Sampling and Soil Cleanup Report, dated July 1991

3) Request for Modification to NJPDES-Discharge to Groundwater Permit, dated August 27, 1991

4) Pollutant Pathway Analysis, dated November 1991

5) NJPDES DGW Permit NJ0076155 letter with lead delineation results for Area 3 and closure activities update, dated December 17, 1992

6) Lead Delineation - Area 3, dated April 14, 1993

7) RCRA Closure Certification Areas 2, 3, and 4, dated October 20, 1993

8) Request for Modification to NJPDES-DGW Permit NJ0076155, dated July 31, 1996

9) Declarations of Environmental Restrictions for Area 1 (dated March 21, 1991), Area 2 (dated April 29, 1992), Area 3 (dated November 11, 1993), and Area 4 (dated November 11, 1993)

Attachments truncated, see facility file (MSS, 06/13/02)