

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: Sims Metal Management (formerly Sierra Recycling/Old Dominion Wood Preservers)

Facility Address: 1177 Hosier Road, Suffolk, VA 23435

Facility EPA ID #: VAD980918221

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 #8 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			Metals; arsenic, chromium and lead.
Air (indoors) ²		X		No record of contamination.
Surface Soil (e.g., <2 ft)	X			Metals; arsenic, chromium and lead.
Surface Water		X		No record of contamination.
Sediment	X			Metals; arsenic, chromium and lead.
Subsurf. Soil (e.g., >2 ft)	X			Metals; arsenic, chromium and lead.
Air (outdoors)		X		No record of contamination.

- 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):

General Facility Information:

The subject property, which is 10-acres in size, is zoned as M-2 (heavy industrial) and located at 1177 Hosier Road, Suffolk, Virginia, approximately two (2) miles south of downtown Suffolk, Virginia. The first industrial use of the site was by Old Dominion Wood Preservers (Old Dominion) which operated from January 1984 up to June 1990. Old Dominion treated wood with a chromated copper arsenate (CCA) solution and/or with a fire retardant solution of ammonium phosphate. Sierra Recycling, Inc. (dba Virginia Soils Reclamation, Inc.) acquired the site in 1993 and received and biologically treated petroleum contaminated soils until the mid-1990s. Reportedly, a rubber shredding operation leased a portion of the site in the mid-1990s; however, no documentation to confirm such operation has been found. In early 2006, Sims Metal Management purchased the site and currently operates a scrap and iron metals recycling facility.

Soil and Groundwater Contamination

-Former Wood Treating Tank Area:

Based on historical investigations and soil sampling at the subject site, chromium contamination currently exists in the Former Wood Treating Tank Area (WTTA). The WTTA was determined to be a Hazardous Waste Management Unit (HWMU) by Virginia’s Department of Environmental Quality (VADEQ) in March 1992 because wood treating chemicals and sludges were left in aboveground storage tanks located in the Former Wood Treatment Shed (Bldg. 10) after Old Dominion ceased operation in June 1990. Old Dominion, under the direction of VADEQ, removed the wood treating chemicals and sludges from the tanks in the WTTA and properly disposed of such material. In March 1994, Sierra Recycling entered into a Consent Order with VADEQ and accepted responsibility for the RCRA closure of the WTTA. A review of the sampling locations and analytical data submitted as part of the “Sierra Recycling HWMU Closure, Final Closure Report, Volume 1 of 4,” revised on September 13, 1998, shows that elevated concentrations of arsenic, chromium and lead were detected in the concrete drip pad and underlying subsurface soils, in addition to adjacent, exterior subsurface soils at the WTTA. Closure activities included excavation and disposal of contaminated concrete and soils in the vicinity of the WTTA, with excavated areas being backfilled with compacted clean fill to grade. In addition to excavation and disposal of contaminated concrete and soil, Sierra Recycling performed a statistical analysis and risk-based closure assessment in 1998. The statistical analysis concluded that approximately 0.05 acres (45 by 45 feet in size) of exterior

subsurface soils (55-60" below ground surface) located to the south and west of the WTTA contained chromium contamination above background concentrations.

Stormwater Collection/Conveyance Points and Outfalls:

Historically, treated lumber and remediated soils were staged in uncovered areas of the site where stormwater may have come into contact with these materials. The site is bordered by an earthen berm and stormwater historically discharged through two outfalls (001 and 002) located along the western border of the site. Stormwater was conveyed to these outfalls along a series of shallow ditches located inside of the berm and encompassing the site. During a Phase I RCRA Facility Investigation (RFI) conducted in 2006, areas of standing water were observed along the stormwater conveyance system where grading and drainage was minimal. To evaluate the presence and extent of contamination (if any), sediment, soil and groundwater samples were collected along the stormwater conveyance system which included ditches, low-lying areas where surface water appeared to collect, and outfall locations. Arsenic was detected in sediment sample S-3 (17.0 mg/kg) above EPA Region 3's Risk Based Concentration (RBC) of 1.91 mg/kg for industrial use, in addition to groundwater at well W-3 (0.04 mg/L) above EPA's MCL (0.01 mg/L). Well W-3 is located in a low-lying area in the northwestern corner of the site topographically downgradient of a former treated wood storage area.

Former Treated Lumber Storage Areas:

During Old Dominion's wood treatment operations, treated lumber was stored in uncovered areas located along the southern half and northwestern portion of the site. As part of the Phase I RFI conducted in 2006, various shallow soil and shallow groundwater samples were collected throughout the Former Treated Lumber Storage Areas. RCRA metals were detected in both soil and groundwater samples. Arsenic was detected in groundwater at well W-3 (0.04 mg/L) above EPA's MCL. Well W-3 is located in a low-lying area in the northwestern corner of the site topographically downgradient of a former treated wood storage area.

Former Wood Treatment Process Areas

The Former Wood Treatment Process Areas operated by Old Dominion were performed within the Western Metal Building (Bldg. #2), the Former Wood Treatment Shed (Bldg. #10), and the Former Kiln Shed (Bldg. #17). Chemicals, such as CCA, utilized during the wood treatment operations were stored in aboveground storage tanks (ASTs) located within the Former Wood Treatment Shed and applied to untreated lumber in the Western Metal Building and the Former Kiln Shed. As a result of the 2006 Phase I RFI, arsenic was detected above EPA Region 3's RBC (0.0000446 mg/L) and the MCL (0.01 mg/L) at monitoring wells W-9 (0.04 mg/L) and W-11 (0.02 mg/L); chromium was detected above EPA Region 3's RBC (0.01095 mg/L) and MCL (0.1 mg/L) at monitoring wells W-5/MW-4 (0.07 mg/L) and W-11 (0.13 mg/L); and, lead was also detected in monitoring well W-11 (0.06 mg/L) above the MCL (0.015 mg/L).

Former Soil Bioremediation Process Areas

The soil bioremediation operations conducted by Sierra Recycling were conducted within the Western (Bldg. #2) and Eastern (Bldg. #3) Metal Buildings, Former Microbe generator, and Former Leachate Recovery Shed. Petroleum contaminated soils were first staged in the Western Metal Building and then transferred to the Eastern Metal Building to be biologically remediated. In the Eastern Metal Building, chemicals which were applied to the petroleum contaminated soils, were recovered through a trench and subsurface recovery vault, and then pumped (via aboveground piping) into the leachate recovery tank. During the 2006 Phase I RFI, arsenic was detected at monitoring wells W-9 (0.04 mg/L) and W-11 (0.02 mg/L) at concentrations greater than EPA Region 3's RBC (0.0000446 mg/L) and MCL (0.01 mg/L). Chromium was detected above EPA Region 3's RBC (0.01095 mg/L) and MCL (0.1 mg/L) in monitoring wells W-5/MW-4 (0.07 mg/L) and W-11 (0.13 mg/L). Lead was also detected in monitoring well W-11 (0.06 mg/L) above the MCL (0.015 mg/L).

Septic Drain Field

The site has operated a permitted septic drain field located along the western property boundary and northwest of the Western Metal Building. Chromium (0.03 mg/L) was the only RCRA Metal detected (monitoring well W-6) above EPA Region 3's RBC for tap water and MCL during the 2006 Phase I RFI.

Additional Groundwater Investigation

As a result of the 2006 Phase I RFI, it was recommended that additional groundwater samples be collected from monitoring wells W-3, W-9, and W-11 because these wells exhibited exceedances of EPA's MCLs for arsenic, chromium and/or lead. During a site inspection on January 26, 2009, Sims personnel could not locate W-3 and the polyvinyl chloride (PVC) casing associated with W-9 was damaged. Therefore, wells W-3 and W-9 were replaced with the same construction details as the original wells. The two new wells are referred to as wells W-3R and W-9R. Well W-3R is located approximately two feet east of the original well W-3 surveyed location and well W-9R is located approximately ten feet south of the

original well W-9. Both well W-3R and W-9R were sampled for arsenic. Arsenic was not detected above the reporting limit of 0.01 mg/L in W-3R; however, arsenic was detected at 0.122 mg/L in W-9R, which exceeds EPA's MCL. Well W-11 was sampled for arsenic, chromium and lead, with detections of 0.015, 0.200 and 0.069 mg/L, respectively. Arsenic and chromium exceeded EPA's MCL and EPA Region 3's Regional Screening Levels (RSL) for tap water, and lead exceeded the EPA MCL.

References:

- (1) Groundwater Monitoring Report for Sims Metal Management, March 2010.
- (2) Phase I RCRA Facility Investigation Workplan for Sims Hugo Neu, December 2006.
- (3) Final Closure Report for Sierra Recycling Facility, August 2004.
- (4) Statistical Analysis and Risk-Based Closure Assessment for Sierra Recycling Facility, December 1998.
- (5) Sierra Recycling HWMU Closure, Final Closure Report, Volume 1 of 4, September 1998.
- (6) Sierra Recycling File Review/Action Items Memorandum from Mark Campbell to Maria Nold, Lora Fly and Lisa Lillis, August 2001.

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.

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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

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

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	No	No	No	No	No	No	No
Air (indoors)	--	--	--	--	--	--	--
Soil (surface, e.g., <2 ft)	--	--	--	--	--	--	--
Surface Water	--	--	--	--	--	--	--
Sediment	No	No	No	No	No	No	No
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.

Rationale and Reference(s):

EPA has determined that potential exposure pathways between contaminated media and human receptors at the Former WTTA are not complete based on the fact that this area was closed in accordance with the Closure, Contingent Closure, and Contingent Post-Closure Plans (“The Closure Plan”) submitted by Sierra in 1995. Closure activities included a risk-based closure assessment and excavation and disposal of contaminated concrete and soils in the vicinity of the WTTA. Excavated areas were backfilled with compacted clean fill to grade. On August 26, 2004, VADEQ conducted a closure inspection to determine whether the Facility complied with all applicable items included in the Closure Plan. Based on the closure plan, Professional Engineer’s Certification submitted to VADEQ on September 10, 2004, and the VADEQ site inspection, the State considered the WTTA to be closed in accordance with 9 VAC 20-80-360E.5. September 10, 2004 is the Date of Final Closure for the WTTA.

With respect to sediment sample S-3, which exceeded the relevant industrial risk-based screening criteria for arsenic, in addition to wells W-3, W-9, and W-11 which exhibited exceedances of EPA's MCLs for arsenic, chromium and/or lead, EPA found these exceedances to be very limited. Furthermore, shallow groundwater is not used on or adjacent to the site for potable purposes, and the current and future land use for the site is commercial/industrial (zoned M-2). Therefore, EPA has determined that that potential exposure pathways between contaminated media and human receptors at these area are not complete and do not pose a potential for harm to human health.

References:

- (1) Groundwater Monitoring Report for Sims Metal Management, March 2010.
- (2) Phase I RCRA Facility Investigation Workplan for Sims Hugo Neu, December 2006.
- (3) Final Closure Report for Sierra Recycling Facility, August 2004.
- (4) Statistical Analysis and Risk-Based Closure Assessment for Sierra Recycling Facility, December 1998.
- (5) Sierra Recycling HWMU Closure, Final Closure Report, Volume 1 of 4, September 1998.
- (6) Sierra Recycling File Review/Action Items Memorandum from Mark Campbell to Maria Nold, Lora Fly and Lisa Lillis, August 2001.

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):

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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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):

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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 (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 Sims Hugo Neu facility, EPA ID # VAD980918221, located at 1177 Hosier Road, Suffolk, Virginia, under current and reasonably expected conditions. This determination will be re-evaluated if 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) --- s --- Date 9/1/2010
(print) Jeanna R. Henry
(title) Remedial Project Manager

Supervisor (signature) --- s --- Date 9/1/2010
(print) Luis Pizarro
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