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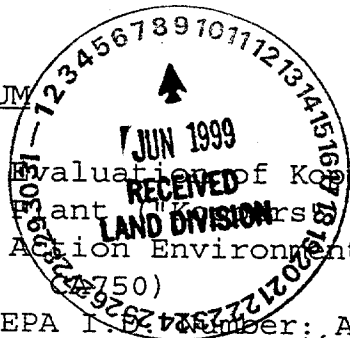
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9/30/98*

4WD-RCRA

SEP 30 1998

MEMORANDUM



SUBJECT: Evaluation of Koppers Industries, Inc. Woodward Coke Plant's status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)

EPA Identifier: ALD

FROM: Anna Torgrimson
Senior Enforcement Specialist

at 9/30/98

THRU: Jeffrey T. Pallas, Chief
South Enforcement and Compliance Section

9/30/98

TO: Jewell Grubbs, Chief
RCRA Enforcement and Compliance Branch

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of Koppers status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

- 1) Human Exposures Controlled Determination (CA725),
- 2) Groundwater Releases Controlled Determination (CA750).

Concurrence by the RCRA Enforcement and Compliance Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above. See Memorandum Attachment 1 for more specific information of the RCRIS definitions for CA725 and CA750.

II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY AND REFERENCE DOCUMENTS

This particular evaluation is the first evaluation performed by EPA for Koppers Woodward Coke. The evaluation, and associated interpretations and conclusions on contamination, exposures and contaminant migration at the facility, is based on information obtained from the following documents:

Final RCRA Facility Investigation Work Plan Addendum, RFI Phase II, dated April 21, 1995.

Draft Phase I and II RCRA Facility Investigation and Groundwater Quality Assessment Report, Volume I, dated March 6, 1997.

III. FACILITY SUMMARY

The Koppers Woodward Coke Plant is located in Dolomite, Alabama on the southern outskirts of Birmingham. Koppers operated as a by-products coke plant to produce coke from the carbonization, or destructive distillation of coal under anaerobic conditions.

Various grades of bituminous coal, principally from Appalachian sources, was brought to the facility stockpile in railroad cars and trucks. As needed, the coal was pulverized in either the breeze crusher, rod mill or hammer mill. The crushed and sized coal was transferred via conveyor belts to coal blending to make the appropriate mixture. The coal was then transferred again via conveyor to either the north or south top houses located on top of the coke ovens. From the top houses, the coal was transferred to the charging lorries and then was directly loaded into the tops of the ovens.

After the coke ovens' heating cycles were complete, the product coke was "pushed" by ram into quench cars. The quench cars quickly transported the loads of hot coke to one of the two quench towers where contact and non-contact cooling water was used to perform the quenching process. The contact cooling water was collected in the quench tower sump and recirculated into the process. Water losses resulting from evaporation were replenished using industrial water. At one time, particulate

matter released from the pushing operation was cleaned in Venturi scrubbers in the gas cleaning cars. The cleaning cars have since been replaced with a duct system and baghouse. After the coke was quenched, it was taken to the coke wharf sump, a partially subterranean unit on the east side of the coke ovens. The coke was then crushed, screened and shipped to customers via railcar or truck. The purified coke was sold to iron and steel producing companies as a clean-burning, high-temperature fuel.

Coke oven gases that are not condensed in the collecting main passed through the primary cooler. Condensate from the primary cooler flowed to a light tar collection tank. The coke oven gases continue to an electrostatic precipitator that removes droplets of tar that were entrained in the coke oven gas. The precipitator also discharged to the light tar collection tank. After the precipitator, the coke oven gas traveled through a sulfuric acid saturator in which the oven gas was scrubbed with sulfuric acid. The sulfuric acid reacts with ammonia in the coke oven gas and ammonia vapors from the ammonia still to produce ammonium sulfate. After drying, the ammonium sulfate crystals were stored and sold to agricultural chemical companies. The ammonia-free coke oven gas then entered the final cooler. The purpose of the contact coolers was to remove naphthalene from the coke oven gas. Upon removal, the naphthalene was mixed with process tar and then transported, via pipeline, to the adjacent KII Woodward Tar facility.

After the final cooler, the coke oven gas continued to the light oil scrubbers. The light oil scrubbers remove light oil, which contains benzene, toluene, ethylbenzene and xylene (BTEX) from the coke oven gas by contacting the gas with a petroleum-based wash oil in which light oil has a high solubility. The light oil was separated from the wash oil by distillation. The light oils were condensed and stored in the light oil storage tank. Emulsified oils were processed through the light oil rectifier from which intermediate light oil was recovered. The light oils and intermediate light oils were not separated into individual BTEX fractions. The light and intermediate oil mixture was then sold to petroleum companies. The distillation bottoms consisted of wash oils and wash oil sludge. Periodically, the sludge was removed and added to the coal charger. Water from the light oil plant was directed to the wastewater treatment plant; the wash oil was reused.

Generalized land uses surrounding the facility largely consist of industrial and commercial. The facility is bordered on the east by Vulcan Materials, Inc.; A & K Railroad Materials; Cottingham Asphalt Plant, the Koppers Industries Inc; Woodward Tar facility and railroad tracks. The J. B. Hunt Transport, Inc. trucking operation is located on the north side of the facility. Various commercial and industrial operations are located on the northwest side of the facility past a narrow strip of undeveloped land. The area west of the facility is undeveloped land and commercial operations. Further to the west are residential areas. South of the facility is undeveloped land, industrial areas and a tract currently under development as an industrial site.

Koppers Coke operated as a Small Quantity Generator (SQG) of hazardous waste and is also regulated as a land disposal facility. Beazer Inc., a previous owner, is responsible for addressing environmental issues at the plant and is currently pursuing a permit for post-closure care of land disposal units at the Woodward Coke Plant.

It should be noted that the Koppers Woodward Coke Plant ceased operations in early 1998. The facility description contained herein outlines Koppers' operations as they were at the time of plant closing.

IV. CONCLUSION FOR CA725:

RECOMMENDATION OPTION 4: CA725 IN More information needed.

As more fully explained in Memorandum Attachment 2, because there is not enough relevant information available to make a determination as to whether human exposures are controlled, it is recommended that CA725 IN be entered into RCRIS.

V. CONCLUSION FOR CA750:

RECOMMENDATION OPTION 3: CA750 NO;

Releases to groundwater have occurred, and all groundwater releases at the facility are not controlled.

Based on data contained in the documents referenced in Section II and summarized in the groundwater portion of Memo Attachment 2, releases from SWMUs and/or AOCs have contaminated groundwater at concentrations above relevant action levels.

Although the groundwater is contaminated above relevant action levels, control measures have not been implemented. Because all groundwater contamination at or emanating from the facility is not controlled, it is recommended that CA750 NO be entered.

VI. SUMMARY OF FOLLOW-UP ACTIONS

In order to address the groundwater, surface water and soils that have not been fully characterized at Koppers Woodward Coke Plant, further investigation will be conducted at the Facility in the course of finalizing the Draft RFI and Groundwater Quality Assessment Report. Any necessary actions needed to control groundwater contamination will be considered once the groundwater characterization is complete.

Attachments

MEMO ATTACHMENT 1

A. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date [i.e., human exposures are controlled as of this date].
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) NO Facility does not meet definition [i.e., human exposures are not controlled as of this date].
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a

facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

**B. GROUNDWATER RELEASES CONTROLLED
DETERMINATION (CA750)**

There are five (5) status codes listed under CA750:

- 1) YE Yes, applicable as of this date [i.e., groundwater releases are controlled as of this date].
- 2) NA Previous determination no longer applicable as of this date.
- 3) NR No releases to groundwater.
- 4) NO Facility does not meet definition [i.e., groundwater releases are not controlled as of this date].
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

MEMO ATTACHMENT 2

MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

A. GROUNDWATER

OPTION 5: A decision on human exposures to contamination cannot be made because there is insufficient information on groundwater quality at the entire facility.

Information on the presence or absence of groundwater contamination is insufficient or lacking for those areas beyond the facility boundary. These areas offsite correspond to locations where groundwater contamination could be present given near-by SWMUs, questionable facility operations, etc.

Elevated levels of hazardous constituents in groundwater have been detected onsite. For example, LNAPL is present beneath most of the Light Oil Recovery Area. Traces of apparent free product were noted in the upper bedrock on the east side of this area. Constituents of concern include benzene, ethylbenzene, styrene, toluene and xylenes. The groundwater pH is low (2-3 su) and elevated levels of arsenic and mercury have also been detected. In the Ammonia Still/Coal Tar Processing area, dominant constituents of concern are polyaromatic hydrocarbons (PAHs), but elevated levels of ammonia have also been reported. Low pHs, metals, including chromium, and VOCs have been found at elevated levels in groundwater at the Laboratory Septic Tank System.

Based on the hydrogeology of the site, there is a potential that constituents of concern have migrated offsite. Although monitoring wells have been installed offsite, they are not sufficient to conclusively determine whether offsite groundwater contamination exists.

Because of the uncertainty regarding the presence or absence of groundwater contamination at questionable areas of the facility, an opinion on plausible human exposures to groundwater contamination is not possible at this time.

A. SURFACE WATER

OPTION 5: A decision on human exposures to contamination cannot be made because there is insufficient information on surface water quality at the entire facility.

Information on the presence or absence of surface water contamination is insufficient or lacking at certain areas of the facility. These areas of the facility correspond to locations where surface water contamination could be present given near-by SWMUs, facility operations, land use or preliminary data.

There is data to indicate that surface waters in Opossum Creek, located adjacent to the facility, potentially contain elevated levels of hazardous constituents above action levels. However, the nature and extent of possible contamination in the Creek and vicinity have not been fully delineated.

Because of the uncertainty regarding the presence or absence of surface water at the facility, an opinion on plausible human exposures to surface water contamination is not possible at this time.

B. SOIL

OPTION 5: A decision on human exposures to contamination cannot be made because there is insufficient information on soil quality at the entire facility

Information on the presence or absence of soil contamination is insufficient or lacking in certain areas of the facility. These areas of the facility correspond to locations where soil contamination could be present given near-by SWMUs, questionable facility operations, preliminary data, etc.

There is data to indicate that sediments and soils in Opossum Creek, located adjacent to the facility, potentially contain elevated levels of hazardous constituents above action levels. However, the nature and extent of possible contamination in the Creek and vicinity have not been fully delineated.

Because of the uncertainty regarding the presence or absence of soil contamination at questionable areas of the facility, an opinion on plausible human exposures to soil contamination is not possible at this time.

C. AIR

OPTION 1: Air is reasonably expected not to be contaminated.

Releases to air from soil, groundwater and/or surface water contaminated by SWMUs and/or AOCs at the facility is not known to be occurring at concentrations above relevant action levels.

Therefore, there is no human exposure to contamination via an air route.

Because of the uncertainty regarding the presence or absence of soil contamination at questionable areas of the facility, an opinion on plausible human exposures to soil contamination is not possible at this time.

C. AIR

OPTION 1: Air is reasonably expected not to be contaminated.

Releases to air from soil, groundwater and/or surface water contaminated by SWMUs and/or AOCs at the facility is not known to be occurring at concentrations above relevant action levels.

Therefore, there is no human exposure to contamination via an air route.

TORGRIMSON/jh:4WD-RCRA:8579:09/29/98:a:KOP2EI

at 9/30/98
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