



ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

POST OFFICE BOX 301463 ♦ 1751 CONG. W. L. DICKINSON DRIVE 36109-2608
MONTGOMERY, ALABAMA 36130-1463
(334) 271-7700

JAMES W. WARR
DIRECTOR

FOB JAMES, JR.
GOVERNOR

MEMORANDUM

August 5, 1998

To: Wm. Gerald Hardy, Chief *WGH*
Hazardous Waste Branch *8/6/98*
Land Division

Through: Stephen A. Cobb, Chief *SAC*
Industrial Facilities Section
Hazardous Waste Branch
Land Division

From: Jim Grassiano *JG*
Industrial Facilities Section
Hazardous Waste Branch
Land Division

Subject: Evaluation of Status Under the RCRIS Corrective Action
Environmental Indicator Event Codes (CA725 and CA750)
Alabama Plating Company, Vincent, Shelby County Alabama
EPA ID Number: ALD 004 022 448

Facsimiles: (334)
Administration: 271-7950
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Education/Outreach: 213-4399

I. PURPOSE OF MEMO

This memo presents an evaluation of Alabama Plating Company's (APC's) status regarding 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).

The application of these event codes at APC adheres to the event code definitions found in the Data Element Dictionary for RCRIS.

Concurrence by the Hazardous Waste 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.

II. 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.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) NO Facility does not meet definition.
- 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 EPA 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.

This particular CA725 evaluation is the first evaluation performed by ADEM for APC. This EI memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility.

The memo also discusses offsite contamination emanating from the entire facility rather than from individual areas or releases. After presenting an evaluation of environmental media, assumptions are then made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures. Following the independent media by media examination, a final recommendation is offered for the proper CA725 status code for APC.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents:

- Closure/Post-Closure Plan (First Submittal), April 26, 1985
- Groundwater Quality Assessment Plan (First Submittal), April 26, 1985
- May 21, 1985 Letter from Mr. Kenneth Layton/Guardian Systems to EPA Region IV
- February 21, 1986 Memorandum from David Hagan/ADEM to Bernard Cox/ADEM Summarizing a Field Operations Inspection
- February 26, 1986 Letter from Mr. Kenneth Layton /Engineers and Environmental Consultants to Ms. Glenda Dean/ADEM presenting a Proposed Action and Implementation Schedule
- Daily Log for Removal of Waste Sludge: Southeastern Industrial Service Company, March 1986
- Revised Groundwater Quality Assessment Plan, April 1986
- Closure/Post-Closure Plan (Second Submittal), August 1986 (Revised January 1987 and April 1987)
- July 3, 1986 Letter from EPA (establishing July 18, 1986 VSI)
- Interim RFA Report, September 12, 1986
- December 12, 1986 Letter from Ms. Glenda Dean/ADEM to Mr. Marvin Rowe/APC requiring follow-up corrective action upon completion of sludge removal from Creek
- ADEM Approval of Closure Plan, March 30, 1987
- Closure Plan Modification Proposal, June 7, 1988

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- Certification of Closure, January 8, 1990
- Dye Tracing Investigation, Prepared by Layton Environmental Engineering (Layton), July 14, 1993
- January 1995 Corrective Action Plan
- RFI Workplan, February 1995
- May 12, 1995 Notice of Violation (summarizing several post-closure permit, corrective action, and RFI related issues)
- August 2, 1995 Memorandum from Kathleen Keller/ADEM providing review of APC's Dye Tracer study
- January 5, 1996 Letter from Allen McLemore/Layton to Ms. Kathy Keller/ADEM summarizing result of Phase I and Phase II Dye Trace Study Results
- January 29, 1996 Letter from Mr. John A. Poole/ADEM to Mr. Marvin Rowe, Jr./APC identifying areas of noncompliance and a Summarizing a January 25, 1996 meeting.
- February 15, 1996 Letter from Mr. Allen McLemore/Layton to Mr. John A. Poole/ADEM regarding January 25, 1996 Meeting and updating ADEM on APC's efforts to modify its permit and comply with permit conditions.
- February 16, 1996 Letter from Mr. Thomas Brown/Harris & Brown to Mr. John A. Poole/ADEM
- February 28, 1996 Memorandum from Ms. Kathy Keller/ADEM regarding review of Layton's February 15, 1996 letter
- February 29, 1996 revised Permit Modification Request
- March 21, 1996 Memorandum from Ms. Kathy Keller/ADEM to Mr. Steve Jenkins/ADEM regarding Groundwater Branch review of January 5, 1996 Preliminary Phase I and Phase II Dye Trace Study Results
- April 29, 1996 Letter requesting Fee for Modification of Post Closure Permit

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- May 22, 1996 Letter from Ms. Rebecca Patty/ADEM to Mr. Thomas H. Brown/Harris & Brown regarding the Department's second request for Permit Modification Fee
- September 19, 1996 Memorandum and Checklist. RCRA Compliance Branch Chief referral to Office of the General Council for Civil Litigation
- November 15, 1996 Trip Report Memorandum from Mr. Clethes Stallworth/ADEM to Mr. Dave Davis/ADEM
- December 4, 1996 Denial of Permit Modification for Corrective Action
- Review of Annual Groundwater Monitoring Report, March 11, 1997 (hand-written memorandum to File)
- April 2, 1997 NOD on RFI Workplan
- June 9, 1998 Letter from EPA to Mr. Thomas Brown/Harris & Brown regarding delinquent payment of a civil penalty
- July 9, 1998 Compliance Inspection Trip Report
- July 10, 1998 Emergency Referral Memorandum

III. FACILITY SUMMARY

APC is a former metal plating facility and is permitted to conduct post-closure care for three surface impoundments that were closed-in-place as a landfill. The facility is located in the city of Vincent, Shelby County, Alabama. The site has been estimated by GPS to be located at 33° 23' 55.92281" North Latitude and 86° 24' 18.32824" West Longitude. A Post-Closure Permit (Permit Number ALD 004 022 448) was issued to APC on November 17, 1994. The Post-Closure permit also addresses eight Solid Waste Management Units, five of which require a RCRA Facility Investigation (RFI).

APC's operations have historically consisted of hot-dip galvanizing and electroplating of zinc, cadmium, and copper on steel, along with associated cleaning and rinsing operations. Pickling of steel and chromate dip operations were also conducted. With zinc plating, chromium is used as a chelating agent. Cyanide is generated in plating of zinc and cadmium. Wastewater from the plating operation was reportedly chemically treated and routed to a filter press (and/or two sand filter beds - files are unclear on this matter) before being released to the pond system. By the mid-1980s, it is believed that production processes included only hot-dip galvanizing.

A February 21, 1986 Memorandum describes observations of the three impoundments, as they existed at that time. One was designated a Sludge Drying Bed; one was called the Settling Lagoon; and one was called the "Old Lagoon". For some time, AWIC permitted the NPDES discharge from one of the lagoons. The Department's files indicate that: (1) Treatment facility performance was poor; and (2) Hazardous waste (approximately 174 cubic yards of sludge) was discharged to a nearby creek via outfall DSN001 in the mid-1980s, in violation of APC's NPDES permit. The sludge discharge occurred as a result of several events and conditions. First, ADEM's Hazardous Waste Branch prohibited continued use of the impoundments for hazardous waste management. In response, APC simply discharged wastewater directly to the creek, effectively removing the impoundments from the wastewater treatment train. Second, the filter press was not operational for some time and APC instead used a cone-bottom settling tank for liquid-solids separation. The sludge discharge line from the tank apparently plugged and the tank then eventually overflowed, which caused the discharge of untreated sludge to the surrounding wooded area and creek. An Administrative Order was issued in early 1986, requiring APC to remediate the sludge spill. It is reported that 51 truckloads of contaminated sludge were removed from the receiving waters in March 1986. Although the sludge was removed, it appears, based on the December 12, 1986 correspondence, that ADEM required additional corrective action to remediate sediments from the contaminated watercourse.

At one time, APC also reportedly operated an unpermitted hazardous waste landfill. The landfill was reportedly used to construct the dike for the third surface impoundment which eventually became one of the closed regulated units. Approximately 10,000 cubic feet of wastewater treatment sludge (classified as listed waste F006-electroplating wastewater sludge) was disposed in the surface impoundments during the period of 1957 to 1982. It is believed that the sludge drying bed (with a capacity of 320 cubic feet of F006 sludge) and surface impoundments remained in operation until about 1984 or early 1985.

APC submitted a Closure Plan to ADEM in April, 1985. The Closure Plan was eventually approved by ADEM on March 30, 1987. Closure of the impoundments began in late 1987 and was initially completed in March 1988. Notices of Violation were issued by ADEM on September 25, 1987 and April 12, 1988 for failure to complete closure in accordance with the approved closure design and schedule. A Closure Plan modification was approved on June 22, 1988 (regarding substitution of a gravel trench for the cap system in lieu of a perforated pipe system). Final cap construction was completed on August 15, 1988. The Certification of Closure was submitted to ADEM on January 8, 1990.

ADEM then determined that closure certification was improperly conducted. A follow-up investigation ensued and eventually the closure was re-certified according to Department requirements on August 3, 1992.

The Post-Closure permit issued in 1994 required post-closure care and corrective action (per permit condition II.C.1.c). APC submitted a proposed Corrective Action Plan in January 1995. The proposed corrective action included the use of interceptor trenches to capture and recover contaminated groundwater from the closed impoundments. While ADEM found the plan generally acceptable, APC's consultant (the author of the CAP) stated at a January 25, 1996 meeting that the plan could not be implemented due to technical limitations (i.e., the possibility of sinkhole development). Meanwhile, APC had submitted a request for a minor permit modification in January, 1995 to address financial assurance obligations. The request for permit modification was found to be unacceptable by the Department and the request was withdrawn via a November 9, 1995 letter from ADEM. As a result, APC remained in violation of financial assurance provisions of its post-closure permit.

On January 29, 1996 ADEM issued a Meeting Minutes Memorandum documenting a January 25, 1996 meeting with APC. At the meeting, permit conditions were reviewed and ADEM stated it would provide APC an opportunity to revise its permit modification to properly address financial assurance requirements and also to incorporate several other activities into the permit modification request (including the Corrective Action Plan, which not only required revisions but also was never originally submitted in the form of a permit modification request). The revised Permit Modification Request was to be submitted on or before February 29, 1996. On February 29, 1996, APC stated (via a letter from its attorney) that it was concerned about implementing corrective action because of the risks of sinkhole development.

Sometime later in 1996, APC submitted a permit modification request which included an Alternate Concentration Limit (ACL) petition for cadmium. On October 30, 1996, at the request of ADEM, the Department of Public Health (DPH) reviewed the revised permit modification request and noted several inadequacies. DPH review included the Corrective Action Plan, Groundwater Quality Assessment Report, and the Dye Tracer Study Final Report. DPH concluded that alternate cleanup levels were not appropriate at this site because of the potential for contamination to affect off-site drinking water wells. Several technical inadequacies were also noted with the dye tracer investigation. Finally, on December 4, 1996 the Department issued a Denial of Permit Modification.

An RFA effort was undertaken by EPA with the Visual Site Inspection (VSI) occurring on July 18, 1986. An Interim RFA Report was prepared by Ebasco Services, Inc., under contract to EPA, and was submitted on September 12, 1986. An RFI Workplan was submitted to ADEM in February 1995. ADEM then issued an NOD on the document on April 2, 1997. No further action regarding the RFI process has occurred since this date, based on review of the Department's files.

Per documented discussions with Mr. Marvin Rowe of APC, APC suspended all hot-dip galvanizing and subsequently dismissed all employees in October 1996. A recent facility inspection was conducted in June 1998. In the inspector's opinion, it appears that the facility has been abandoned and is presently in a state of disrepair, as documented in a July 9, 1998 Compliance Inspection Trip Report.

On June 9, 1998 EPA Region 4 submitted a letter to APC informing its attorney that APC has not fully complied with a Consent Order issued in 1985.

In addition to RCRA activities, certain assessment and investigative actions have occurred under CERCLA, including a Preliminary Assessment and Site Assessment. Recent inspections by ADEM's Compliance Branch and Site Assessment Unit indicate the possibility that the site is abandoned. Also based on these inspections, there are concerns regarding the presence of hazardous waste piles and containers that may be impacting the site (through stormwater runoff and possible container leakage). These materials have the potential to affect local neighborhoods and contaminate nearby potable water wells. As a result, in order to alleviate human health concerns, ADEM's Site Assessment Unit has submitted a referral to EPA regarding emergency removal of these hazardous and/or potentially hazardous materials.

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

Based on data contained in the documents referenced in Section II, the following conclusions are reached:

Groundwater is contaminated onsite and off-site and some plausible human exposures are not controlled.

Based upon review of the Department's files, it appears that releases from SWMUs have contaminated groundwater at concentrations above relevant action levels. Cadmium has been detected in MW-20 at levels up to 0.93 mg/l, far exceeding the MCL of 0.005 mg/l. Nickel has been detected in MW-12 at 0.51 mg/l, above the MCL of 0.1 mg/L.

Zinc concentrations in MW-2 have typically been reported by ADEM to be in the range of 500 to 1000 mg/L with a high of 1,490 mg/L, above the SMCL of 5 mg/L. Mercury, nickel, chromium and particularly cadmium, have been reported above MCLs in most of the 21 monitoring wells that have been installed and monitored on-site.

Review of the most recent (March 11, 1997) annual groundwater monitoring report indicates that cadmium was detected in the deep well (MW-21) As a result, the Groundwater Branch responded (in its review of the most recent Annual Monitoring Report) that the vertical extent of contamination is no longer believed to be defined.

APC is required by ADEM to continuously monitor all springs, public water wells, and a select number of private wells using passive dye receptors to establish migration pathway(s) of the dye and all potential receptors that may be interconnected with the facility. APC has not undertaken any of these activities. (See August 2, 1995 Memo from Kathleen Keller/ADEM).

ADEM has required APC to implement a Corrective Action Plan (CAP) for active groundwater remediation. Layton Environmental (APC's consultant) has maintained that the extent of active groundwater remediation should be minimized because Layton believes there is a significant danger of sinkhole development resulting from groundwater drawdown. A CAP was submitted that recommended no remedial actions be taken at the facility due to such reported site conditions. The Department rejected this approach and has stated that it will require APC to submit an acceptable CAP for review and approval. At this time, there remains no approved CAP for this facility.

In addition to the observed and documented groundwater contamination, there are plausible human exposures to this contamination. For example, there are two private water wells located within ½ mile of the closed impoundments, one of which belongs to Mr. Rowe. Based on review comments issued on the Phase II dye trace study, it does not appear that a proper private and public water well survey was conducted, as requested by the Department. As a result of the above discussion, plausible human exposure to contaminated groundwater is not controlled.

Surface water is contaminated off-site and some plausible off-site human exposures are not controlled.

Releases from SWMUs have contaminated surface water at concentrations above relevant action levels. Several of the above mentioned references cite the history of a sludge spill and perhaps repeated discharge of sludge to the flood plain of Spring Creek.

Furthermore, the dye study was never properly conducted to monitor the nearby creek and surface springs to evaluate if the former impoundments are impacting these surface waters.

There are plausible human exposures to this contamination. For example, fish and aquatic organisms could affect the human consumption food chain. Also, it is plausible that there could be dermal exposure from surface water contact during recreation activities. These plausible exposures are not currently controlled.

Soil is contaminated onsite and off-site and some plausible off-site human exposures are not controlled.

Soil at the facility is contaminated at concentrations above relevant action levels. The subsurface area of the closed impoundments may be contaminated; however, these areas are capped and exposure would be unlikely. But there exists additional surface soil contamination, possibly in the form of dewatered sludge piles. In addition, the RFI was never conducted to fully define surface and subsurface soil contamination at various SWMUs as well as at off-site areas. Thus the off-site and on-site areas are subject to plausible human exposure (dermal and oral impact routes are feasible).

Overall, the extent of contamination from other SWMUs and AOCs is not known at this time because the RFA/RFI process has not progressed to the point where this is sufficiently defined.

Air is not reasonably expected to be contaminated

Releases to air from soil, groundwater and/or surface water contaminated by SWMUs and/or AOCs at the facility are not known to be occurring at concentrations above relevant action levels. Therefore, there is no human exposure to contamination via an air route.

V. STATUS CODE RECOMMENDATION FOR CA725:

Based on the preceding media by media evaluation, off-site human exposure is not completely controlled for groundwater, surface water and soil. Thus it is recommended that **CA 725 NO** be entered into RCRIS.

VI. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

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

- 1) YE Yes, applicable 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.
- 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 CA750. No facility in Region 4 should carry a NA status code.

This evaluation for CA750 is the first formal evaluation performed for APC. Please note that CA750 is based on the adequate control of **all** contaminated groundwater at the facility.