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JACOBS

TES IV

Site:
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Other:

Site: Kuhlman
ID #:
Break:
Other:

TES IV
CONTRACT #68-01-7351
WORK ASSIGNMENT #99

RCRA FACILITY ASSESSMENT
OF
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS
EPA I.D. NO. KSD006325013

JE JACOBS ENGINEERING GROUP INC.
ENVIRONMENTAL SYSTEMS DIVISION

IN ASSOCIATION WITH:
TETRA TECH
METCALF & EDDY
ICAIR LIFE SYSTEMS
KELLOGG CORPORATION
GEO/RESOURCE CONSULTANTS
BATTELLE PACIFIC NORTHWEST LABORATORIES
DEVELOPMENT PLANNING AND RESEARCH ASSOCIATES

U.S. ENVIRONMENTAL PROTECTION AGENCY

TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT #68-01-7351
WORK ASSIGNMENT #99

RCRA FACILITY ASSESSMENT
OF
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS
EPA I.D. NO. KSD006325013

PREPARED BY:
JACOBS ENGINEERING GROUP INC.
LAKEWOOD, COLORADO
PROJECT NUMBER: 05-A-00599

DRAFT: APRIL 1988
FINAL: JULY 1988

I-0718mm

JACOBS ENGINEERING GROUP INC.
ENVIRONMENTAL SYSTEMS DIVISION

12600 WEST COLFAX AVENUE, SUITE A300, LAKEWOOD, COLORADO 80215
TELEPHONE (303) 232-7093

July 15, 1988

RECEIVED
AUG 1 1988
RCOM SECTION

Ms. Marilyn J. Mattione
U.S. EPA Region VII
RCRA Compliance
726 Minnesota Avenue
Kansas City, KS 66101

Re: TES IV, Work Assignment No. 99
Kuhlman Diecasting - RFA

Dear Ms. Mattione:

Enclosed please find the final RFA report for the Kuhlman Diecasting facility. This report has incorporated comments made by EPA on June 9, 1988 and received by Jacobs on June 13, 1988. It is my understanding that these comments were discussed with Anne Harrington on several occasions.

I have reviewed the report and found that it addresses all of your comments with a few exceptions, which I presume were decided on between you and Anne.

Please review our revisions and contact me with any questions or concerns. If I can be of assistance, please feel free to call.

Sincerely,

Chris Williams
Work Assignment Manager

cc: S. Houser, Jacobs
D. Fletcher, Jacobs
P. Eager, EPA Region VII

Table of Contents

List of Figures

Table of Contents (Continued)

List of Tables

List of Appendices

1.0 INTRODUCTION

At the request of the United States Environmental Protection Agency, Region VII (EPA), Jacobs Engineering Group Inc. (Jacobs) was tasked to conduct a RCRA Facility Assessment (RFA) of Kuhlman Diecasting Company, Inc., Stanley, Kansas. The RFA is being conducted under the Technical Enforcement Support Contract Number 68-01-7351, Work Assignment 99 and is the first step of the RCRA Corrective Action Program promulgated under the Hazardous and Solid Waste Amendments (HSWA) of 1984.

This RFA consisted of a Preliminary Review (PR) of file data collected from EPA and the Kansas Department of Health and Environment (KDHE) files, a Visual Site Inspection (VSI) of the facility, and a Sampling Visit (SV) at the facility in order to fill remaining data gaps. The file data was obtained by Jacobs during the week of June 22, 1987 from a review of EPA and KDHE files. Jacobs personnel then performed the VSI on June 24, 1987 and conducted the SV the week of September 21, 1987. Volume 1 contains Appendices I-IV which include a summary of PR and VSI documents and activities. Transcribed logbook notes and documents obtained during the VSI are located in Appendix I. A summary of VSI activities and documents obtained during the VSI are located in Appendix I. Appendix II contains photographic documentation taken during the VSI. Analytical data of chemicals and waste products and a listing of chemicals used in Kuhlman's lab are contained in Appendix III. Documents obtained during the PR and referenced within the text are located in Appendix IV. Volume 2 contains Appendices V-IX which includes a summary of the activities that were conducted and the data that was obtained during the SV. Appendix V contains a copy of the site sampling plan followed during the SV. Logbook notes taken during the SV are located in Appendix VI. Appendix VII, Appendix VIII, and Appendix IX contain sample documentation, photographic documentation, and a site safety plan, respectively, from the SV. The EPA validated analytical results from the SV are located in Appendix X.

The purpose of the RFA was to identify all Solid Waste Management Units (SWMUs) in addition to other areas of concern and to determine if a potential for an environmental release exists, or if a release has occurred that will require further investigation. This report identifies those SWMUs and other areas of concern which may pose the greatest environmental threat.

The information presented in this report serves as a basis for determining the need for a RCRA Facility Investigation (RFI) that may be required to fully characterize the extent of releases from SWMUs and other areas of concern.

2.0 SITE BACKGROUND

2.1 Facility Location and Description

Kuhlman Diecasting Company, Inc., a manufacturer of zinc and aluminum diecastings, is located approximately 2.4 miles southeast of Stanley in Johnson County, Kansas (Figure 1). The area is characterized as a rural setting containing both industry and farmland.

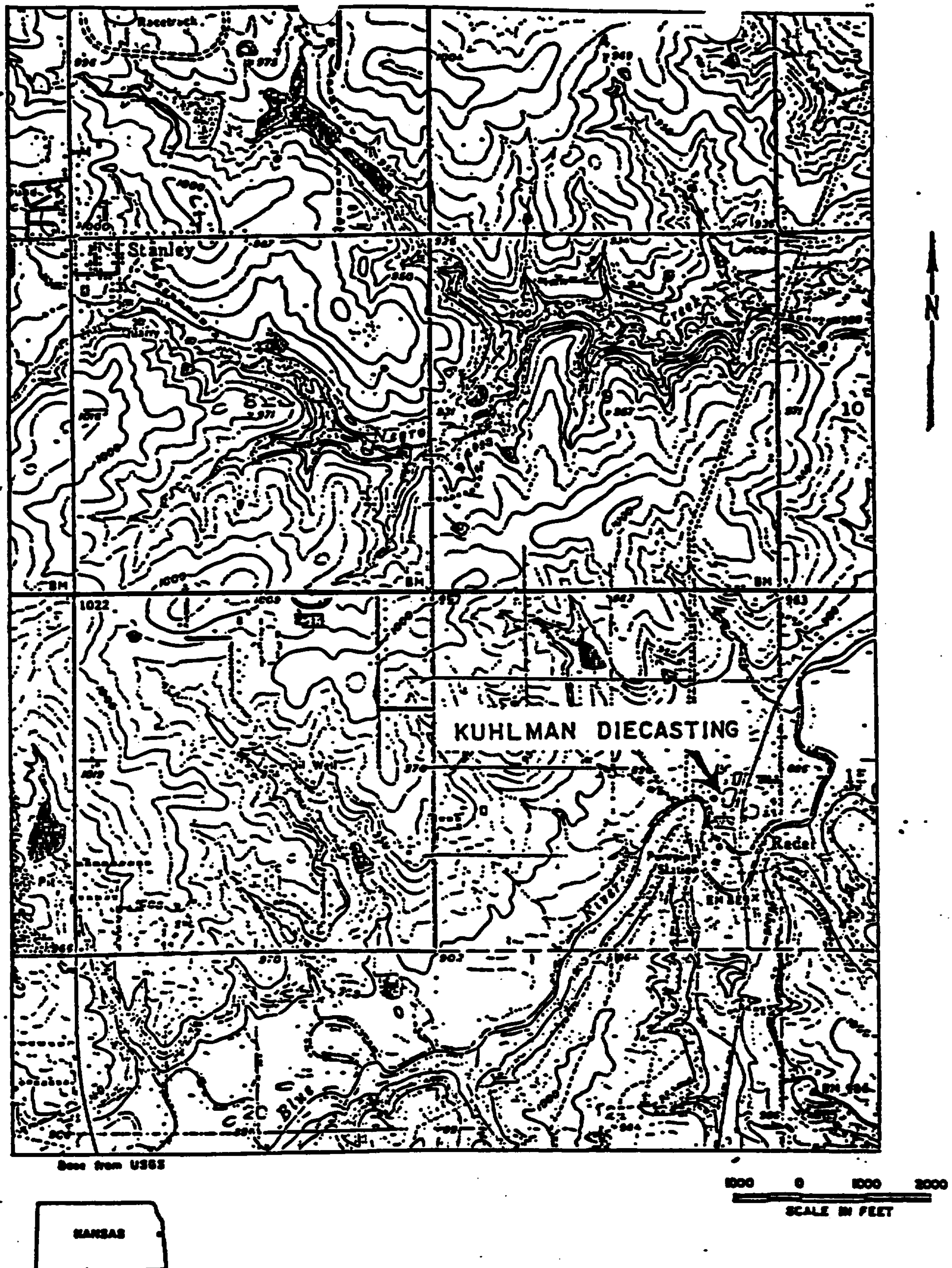


FIGURE 1
FACILITY LOCATION MAP

JACOBS ENGINEERING GROUP

Source: USGS 7.5' Topographic Sheet
Stilwell Quadrangle

The Kuhlman facility occupies approximately 39 acres in the east half of the southeast quarter, Section 16, Township 14 South, Range 25 East (Stilwell, Kansas 7 1/2 minute quadrangle). Located within a meander belt of the Blue River, the facility primarily consists of one main plant building, several abandoned, on-ground petroleum storage tanks that have been converted to warehouses, an NPDES permitted wastewater treatment system and outfall, two sewage lagoons (sanitary ponds), a sludge storage pond, two polishing ponds, and two raw water reservoirs (Figure 2). The property is bisected to the east in a north-south direction by the Missouri Pacific railroad line. An indicator post showing the location of a buried gas pipeline owned by ARCO Petroleum was observed north of the sludge lagoon during the VSI (Figure 2). Four underground petroleum product storage tanks were confirmed during the VSI and are located around the western end of the plant building (Figure 2).

Approximately 25 acres of the site have been flood-proofed by an earthen dike (including the railroad dike) surrounding the facility. The location and elevations of this dike is shown on the topographic site plan (Figure 3). According to the "Flood Boundary and Flood Map" of the Federal Insurance Administration, U.S. Department of Housing (Community - Panel Number 200159 0001 B, August 15, 1980), the 100-year flood elevation at the site is between 886 feet and 887 feet above MSL (Burns & McDonnell, 1983). This dike has a minimum top elevation of 893 feet, resulting in it being over 6 feet above the 100-year flood (Burns & McDonnell, 1983).

2.2 Site History

During the VSI, Mr. Furse, Engineering Services Manager for Kuhlman Diecasting, mentioned that prior to Kuhlman Diecasting Company's purchase of the property the site had contained an old pipeline pumping station owned by Sinclair Oil (Appendix I). The station contained a minimum of seven large (area of base approximately equal to 7,854 ft^2) on-ground petroleum storage tanks in addition to several smaller on-ground tanks (area of base approximately equal to 1,964 ft^2). A wheat company then took over the site; cleaned out all of the tanks; and used the site as a grain storage facility (Appendix I). A furniture manufacturing company by the name of Chrome and Merit Manufacturing then took over the site, and used the facility for plating of furniture parts (Appendix I).

On April 17, 1962, Kuhlman Diecasting purchased 49% of the stock of Chrome and Merit Manufacturing in Stanley, Kansas and moved the plant to Stanley in August, 1962. In November of 1964 Chrome and Merit Manufacturing was dissolved. Kuhlman's Kansas City plant was closed November 1, 1967 and all operations were moved to Stanley.

Since 1964, Kuhlman Diecasting has been engaged in the manufacturing of zinc and aluminum diecastings for a variety of commercial and industrial services including automotive, small appliances, and telecommunications. The Kuhlman operation employs an electroplating process that plates copper, nickel, and/or chromium on zinc, brass, aluminum, and plastic. For certain contracts some items are finished with paint applied in a spray booth. The facility operates on a 24-hour/day, 5 and 6 day/week basis and employs approximately 250 people (Catron, 1987).

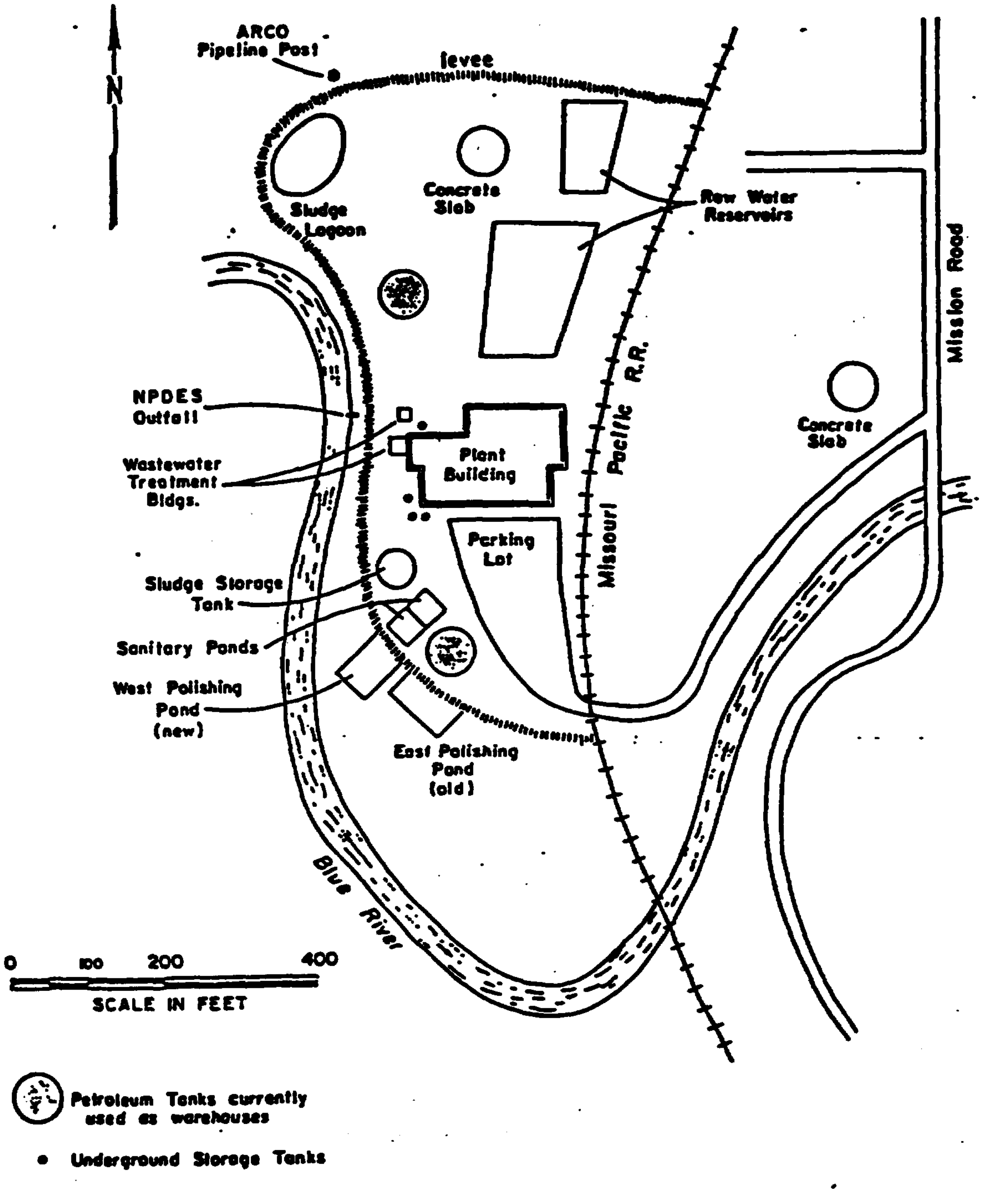


FIGURE 2

KUHLMAN DIECASTING FACILITY MAP

JACOBS ENGINEERING GROUP

(MODIFIED FROM ETI OF NORTH AMERICA, 1985)

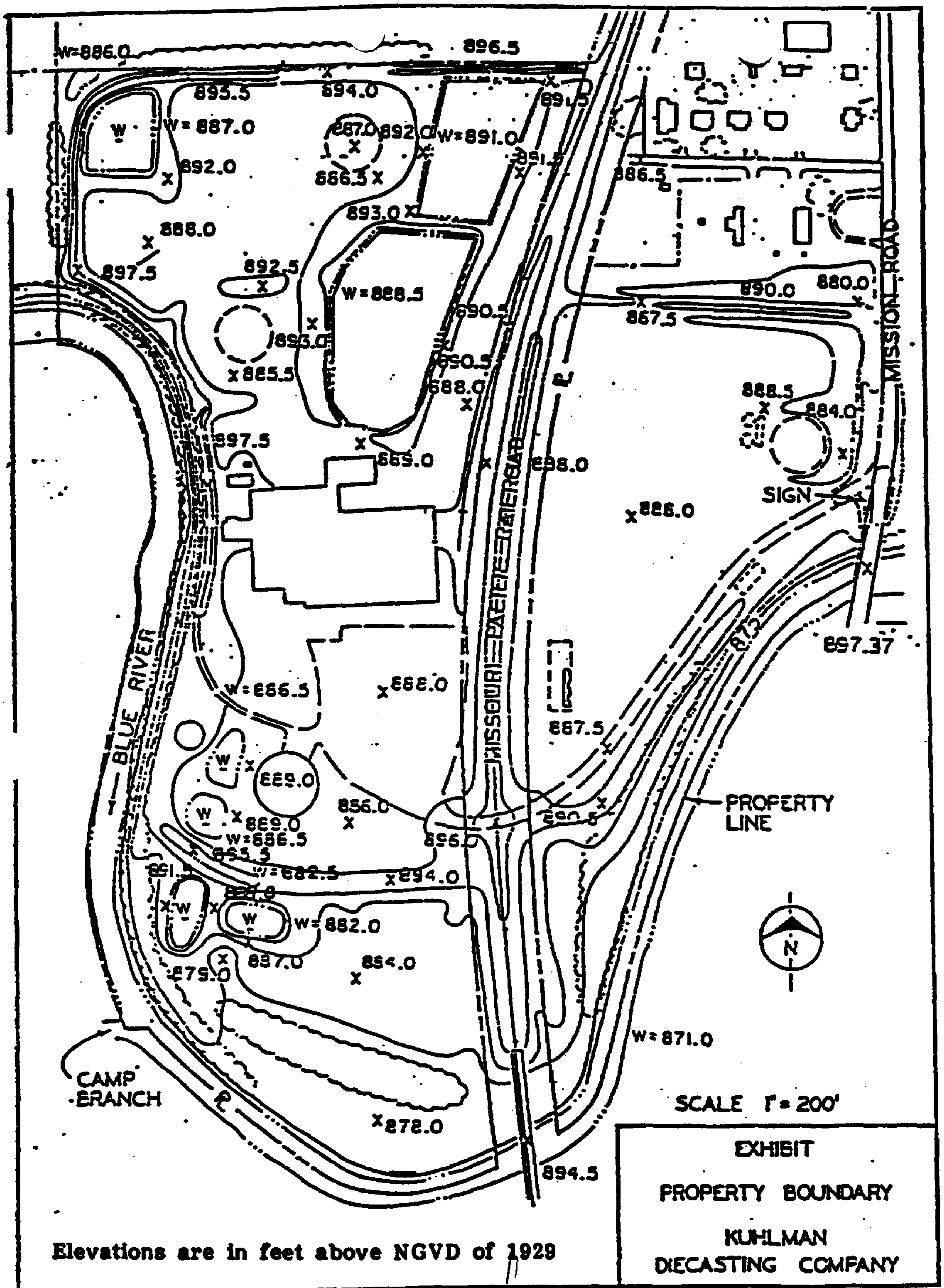


FIGURE 3

TOPOGRAPHIC MAP OF KUHLMAN DIECASTING FACILITY

(SOURCE: BURNS AND MCDONNELL, 1983)

2.3 Waste Management Practices

According to the RCRA Emergency/Contingency plan for Kuhlman (Catron, 1987), the wastes that were generated by Kuhlman Diecasting include wastewater treatment sludge (F006), toluene recovery still bottoms (F005), waste 1,1,1 trichloroethane (F002), copper-cyanide plating sludge (F008), and waste paint filters (D007). Kuhlman was notified by KDHE that they were considered a generator of D007 and F008 wastes on February 18, 1987. In the past the F002 waste was frequently referred to as F001 and D001 was occasionally used in reference to the solvents. Appendix III contains laboratory analyses on the above wastes and a list of chemicals used in the lab as of May 1987. The toluene (F005) is sent to McKesson Chemical Company in Kansas City, Missouri for recycling and/or disposal while the wastewater treatment sludge is sent to USPCI, Lone Mountain, Oklahoma. During the VSI, Mr. Furse mentioned that Kuhlman had discontinued use of the 1,1,1 trichloroethane. According to PRC (1986), 1,1,1-trichloroethane was used as a vapor degreaser and the resultant waste solvent filled less than 2 drums/year. During the VSI, Alfred Furse mentioned that 1,1,1 trichloroethane was used to clean parts in the maintenance shop. In the past, 1,1,1 trichloroethane had also been sent to McKesson Chemical Company for recycling and/or disposal. According to Ms. Catron, the Environmental Control Coordinator for Kuhlman, (Hawkins*, November 1987), the plant currently uses kerosene instead of 1,1,1 trichloroethane. The paint filters are utilized in the paint booths to absorb paint overspray and have been sent (since April 1987) to United Solvent Service in Kansas City, Kansas (Hawkins, October 1987). From January 1986 to April 1987 the filters were disposed at Production Fuels in Haskell, Arkansas and prior to 1986, they were incinerated on site (Hawkins, October 1987). The spent solvents are generated from the cleaning of paint guns and from other cleanup activities. According to Ms. Connie Catron (Hawkins, November 1987), waste solvents (F005 and F002) went to McKesson from 1981 to 1987. There is no available record of solvent disposal prior to 1981 (Hawkins, November 1987).

Kuhlman has operated in the past three RCRA regulated units (surface impoundments - Figure 2) at the Stanley, Kansas facility: the sludge lagoon located in the northwest portion of the property, and two polishing ponds located on the southwest corner of the property (Jacobs, 1987). The following is a chronological description of Kuhlman Diecasting's wastewater treatment system and their disposal methods. The EPA, Region VII and KDHE did not begin to monitor this site until the early 1970's.

An EPA report dated November 1972 stated that discharge from the plating operation included cleaner baths, rinse baths, and acid baths [1]**. Kuhlman's wastewater treatment process at the time consisted of cyanide destruction by use of chlorine and caustic and chromium reduction through the addition of sulfuric acid and sulfur dioxide [1]. No specific treatment was provided for the removal of copper and nickel. After pretreatment these waste streams were discharged to a lagoon (east polishing pond), and from there were discharged into the Blue River [1]. According to this report, sanitary wastes were collected separately and passed through a small retention pond (only one of the sanitary ponds apparently was in

* Ms. Catron reverted to her maiden name of Hawkins in August 1987.

** Documents included with the report as attachments are found in Appendix IV and are cited in numeric order (1, 2, 3, ...) with an additional parenthetical reference. A corresponding number will be found on the lower right hand corner on each document in Appendix IV.

existence at that time) prior to being discharged with the other plant wastes [1]. All discharge operations began on April 30, 1962 [1].

In November of 1972, Kuhlman was near completion on a state approved abatement program which involved the construction of a multi-chambered mixing-settling basin in which the pH would be adjusted in order to precipitate the metals out as hydroxides [1]. The cyanide destruction unit was also being modernized at that time.

According to a memo dated September 25, 1973 to the files by Mr. H.A. Jazen (KDHE), Kuhlman Diecasting obtained an NPDES permit for its treatment facilities on April 27, 1972 and the new treatment plant went into operation approximately August 1973 [2].

The chromium wastes were still handled separately and combined with chlorine and sulphur dioxide [2]. There was a small reaction basin that provided an adjustment of pH to 3.0 and converted hexavalent chromium to trivalent chromium [2]. This flow then joined the other liquid chemical wastes. An improvised oil skimming device was also in place. The other liquid industrial wastes were collected into a sump from which they were pumped into a conventional water treatment plant where lime and alum were added for coagulation and settling. The liquid then discharged through a Parshall flume to an existing pond (east polishing pond - Figure 2) before discharge to the river. The pH of the discharge at the time of Mr. Janzen's inspection was 7.2. According to Mr. Janzen's report, as the liquid industrial waste left the wastewater treatment facility it was joined by the discharge from the sanitary waste stabilization ponds (sanitary ponds) before discharging to the (east) polishing pond [2]. The waste stabilization ponds (sanitary ponds) were two adjacent ponds that operated in series. The sludge from the settling basin (wastewater treatment system) flowed by gravity to a sump outside the building from where it was pumped to a steel storage tank. According to Mr. Janzen's report, when the sludge begins to accumulate, some method of decanting will be planned and the solids will be hauled to a landfill by a Mr. Defenbaugh [2]. The oil and grease skimmings primarily resulting from the diecasting machines (Appendix I) went to a tank truck which when full was used to spread the skimmings over the gravel surfaces as water-repellent cover for the parking lot and driveway areas. At the time of his inspection, Mr. Janzen also examined the Blue River which he found to be still quite muddy with a slight oily rainbow [2].

A September 30, 1974 letter to Mr. Paul Hamilton (Chief of Ecological Services, Fish and Wildlife Service) from Mr. Steven Rogers (sanitary engineer with KDHE) stated that the precipitated sludge was contracted out at that time to an unspecified sanitary landfill [3].

In a June 2, 1975 KDHE letter to Mr. Brumwell (Plant Manager, Kuhlman Diecasting), Patrick McCool (Sanitary Engineer, KDHE) described the process wastewater treatment system in the following detail [4].

> The cyanide process wastewater (pH of 3.0 - 3.5) is oxidized to sodium carbonate and nitrogen gas by the addition of gaseous chlorine by a Wallace and Tierman Series A-741 chlorinator and sodium hydroxide. An in-line mixer follows the chlorinator; both an in-line mixer and a 180 gallon mixing tank follows the addition of sodium hydroxide.

The hexavalent chromium wastewater is reduced to the trivalent form by the addition of sulphur dioxide from a Wallace and Tierman Sulfanator. An in-line mixer follows the addition after which this wastewater, the cyanide wastewater, and the nickel and zinc wastewater combine in the primary mixing basin.

Sodium aluminate (flocculant), Nalco #2 polymer, and lime (to adjust the pH to around 9.0) are added to the combined process wastewater in a mixing basin to precipitate out the heavy metals. From the mixing basin the wastewater goes to a flocculation basin and then to a mechanically cleaned settling basin. The process wastewater treatment system has design capacity of 180 gpm and an operational capacity of slightly over 100 gpm.

The treated process effluent then combines with the sanitary effluent from a two-cell waste stabilization pond (sanitary ponds) and enters a shallow one-cell pond (east polishing pond) before being discharged to the Blue River via natural drainage.

Mr. Cook further stated that, though the effluent to the Blue River was clear, the stream bed was lined with a bluish to bluish-green precipitate [4].

A KDHE inspection report dated March 24, 1976 stated that the metal precipitate resulting from the wastewater treatment process is pumped to a sludge lagoon [5]. It further stated that the large single lagoon cell (east polishing pond) which received both the sanitary lagoon discharge and the precipitation/settling tank discharge, contained substantial quantities of metal precipitates which had not been captured in the settling tank [5]. Mr. Brumwell (Kuhlman) indicated during the KDHE inspection that some difficulties had been experienced with precipitation of the sludge at cooler water temperatures [5]. The report further noted that the skimmer system used to remove oil from the process wastewater was not totally effective [5].

In a July 13, 1976 letter to Mr. Brumwell from KDHE it was mentioned that Kuhlman's present wastewater treatment facility needed to be upgraded to achieve the more stringent 1977 effluent limitations [6]. KDHE recommended that Kuhlman engage the services of a consulting engineer to investigate and recommend changes to achieve these limitations and to submit to KDHE by August 6, 1976 a letter describing what actions have been and will be taken concerning this matter [6].

An October 1978 EPA inspection report stated that the sludge from the sedimentation basin in the wastewater treatment system was being disposed of in a single cell lagoon (sludge lagoon) while the supernatant from the sedimentation basin was discharged to an additional lagoon (west polishing pond) for polishing prior to discharge [7].

In a March 1980 Report of Compliance Monitoring Inspection, the metal precipitate was still being pumped to the sludge lagoon [8]. The effluent from the settling tanks was being monitored for pH and the flow was being measured via a Parshall flume and flow recorder. The effluent then flowed to a junction box where it combined with the effluent from the two-cell sanitary sewage lagoons. The combined effluent then went to a polishing pond (west) for additional settling and was then discharged to the Blue River. The west polishing pond contained some metal sludge precipitate that had not been removed in the settling tanks [8].

A KDHE memorandum dated November 1980 from Mr. Donald Carlson stated that Kuhlman began installing another mechanical line to their system in an effort to eliminate their hand plating operation [9]. Slop over and dragout from the tanks, when the parts were removed, created a very small but continual flow of high strength waste to the physical/chemical treatment plant [9]. The memorandum further stated that the plant sewers were designed to separate the chrome and cyanide waste streams and that the metal precipitate resulting from the wastewater treatment process was still being pumped to the sludge lagoon located on the north part of the plant property. In addition to the sludge in the pond, there was a petroleum storage tank located on the south end of the property adjacent to the domestic lagoon (sanitary ponds), which Kuhlman had used periodically to store sludge (Figure 2). The industrial lagoon (west polishing pond) received all of the treated process wastewater from the plant, cooling tower blowdown, boiler blow down, zeolite regenerate discharge, and stormwater runoff from the plant site [9]. The eastern most industrial pond had been abandoned for several years and was dry at the time of KDHE's visit [9].

A memorandum dated May 28, 1981 from Mr. Donald Carlson (KDHE) to the Kuhlman Diecasting Company, Inc. Permit File stated that since an October of 1980 visit, Kuhlman had installed a small sludge drying unit [10]. A small pump removed the accumulated sludge from the sedimentation basin and directed it to a small storage tank from which it was distributed onto a roll of filter paper [10]. This filter paper traveled along a framed screen to a point where it flowed under a heating unit with a fan [10]. Dewatered effluent was then directed back to the clarification basin while the sludge was dumped into a small container adjacent to the sludge filter [10]. The sludge and used filter paper were then shoveled into large cardboard containers with plastic liners. As Kuhlman was running out of the containers at the time of the KDHE visit, Mr. Brumwell (Kuhlman) stated that they would have to start directing some of this material to an oil storage tank (sludge storage tank) that currently contained some dried chemical sludge [10]. At this time they were using the west polishing pond. The east polishing pond was referred to as the auxiliary lagoon and was essentially empty at the time of the visit.

In an April 9, 1982 letter to Mr. Brumwell (Kuhlman), Mr. Paul Belt (KDHE) noted that a large metal tank was being used to store F006 material and that in order to prevent Kuhlman from being regulated as a treatment/storage/disposal facility (T/S/D) they would have to dispose of this material within 90 days upon receipt of this letter [11].

On August 29, 1982, Carl Bailey of EPA observed the dumping of a partially full 55-gallon drum containing a reddish brown liquid onto the ground at the northwest corner of the parking lot [12]. According to Mr. Meeker (Kuhlman), the liquid was a mixture of synthetic oil and water from the diecasting machine and approximately 55 gallons of this mixture was disposed of in this manner about every two months [12]. It is not known when the dumping began. Figure 4 delineates the overall waste treatment process in use in 1982. The waste water treatment sludge and used filter paper were still being stored in the petroleum tank at that time [12].

An April 11, 1984 RCRA Compliance Inspection by EPA stated that a 3 cubic foot filter press and continuous backwash filter for the wastewater treatment facility were received and installed in December 1983 [13].

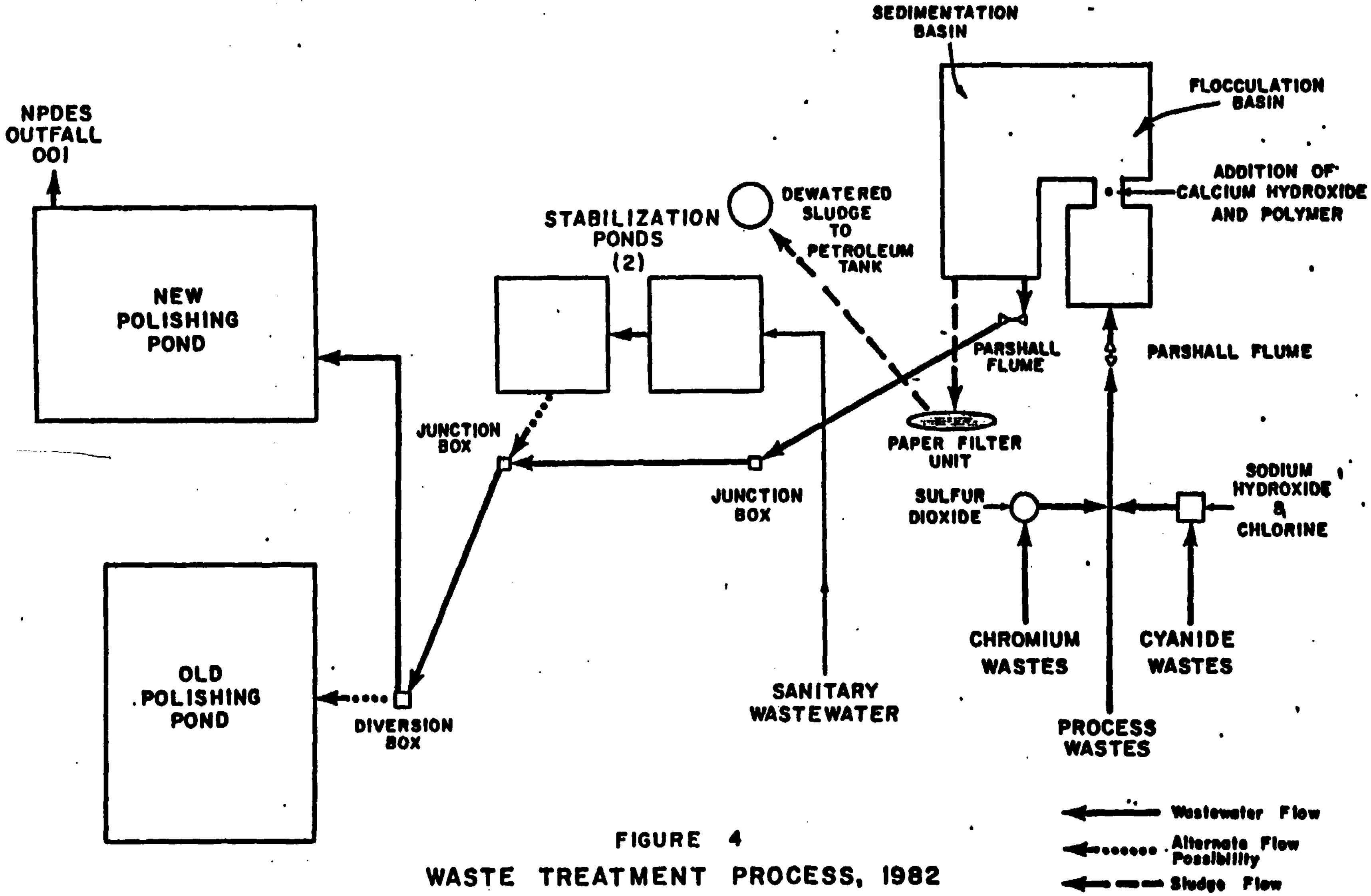


FIGURE 4

WASTE TREATMENT PROCESS, 1982

KUHLMAN DIECASTING COMPANY, INC.

(modified from Report of Compliance Monitoring Inspection, August 17-20, 1982)

JACOBS ENGINEERING GROUP

A July-August 1984 Compliance Monitoring Inspection report stated that the sanitary wastewater was kept separate from the process wastes and did not discharge from the lagoon system (sanitary ponds) because of modification to the piping system [14]. The process wastewater consisted primarily of plating bath and rinse water, but also included some boiler blowdown and cooling water from the diecasting operations. Figure 5 is a graphic portrayal of the overall waste treatment process in use in 1984. The chromium wastes were treated with sulfur dioxide to reduce hexavalent chromium to the trivalent form while the cyanide wastes were treated with caustic soda (sodium hydroxide) for pH adjustment and chlorine to oxidize the cyanide to cyanate. These waste streams were combined with the rest of the process wastewater just ahead of the Parshall flume at the inlet to the flocculation basin [14]. Hydrated lime (calcium hydroxide) and a polymer were added to the wastewater in the flocculation basin for pH control and precipitation of metals. The effluent then was filtered in a "Dynasand" single media, upflow filter. The Dynasand, a continuous-cleaning upflow sand filter, was installed to replace the two polishing ponds. The final effluent flowed by gravity to the NPDES permitted Outfall 001 which discharged to the Blue River [14].

In a July 9, 1986 EPA audit inspection it was observed that Kuhlman had replaced their sodium hydroxide and chlorine treatment of cyanide to cyanate to sodium hypochlorite [15].

A September 12, 1986 inspection by KDHE revealed two new revisions of the treatment process [16]. The revisions included top spraying of nickel dragouts and separate treatment of chromium-contaminated wastewater in an evaporator. According to the report, once these treatment methods are fully operational, the hydroxide precipitation treatment process will be needed to remove only copper and zinc.

On March 11, 1987 an order assessing an administrative penalty mentioned that Kuhlman Diecasting Company had been disposing of waste paint and paint thinner by dumping it on the ground outside of their paint booths, on the southwest corner of the plant [17]. In a letter dated May 13, 1987 to Jim Fisher (KDHE), Ms. Connie Catron (Kuhlman) stated that the paint contaminated soil behind the paint shop had been removed and put into drums and Kuhlman was currently awaiting permission for disposal of the soil at the Miami County Landfill [18]. According to Ms. Catron (Hawkins, October 1987), all visually contaminated soils was removed to a depth of approximately one foot.

2.4 Regulatory Compliance

2.4.1 Chronology

The following is a chronology of events pertaining to regulatory compliance of the activities at Kuhlman Diecasting and has been assembled through available records provided by the EPA, Kuhlman Diecasting, and KDHE.

May 14, 1975	KDHE inspected Kuhlman's wastewater treatment facility. Tests performed on a grab sample taken at the time of inspection indicated the effluent was within the permit limitations except for cyanide and hexavalent chromium [4].

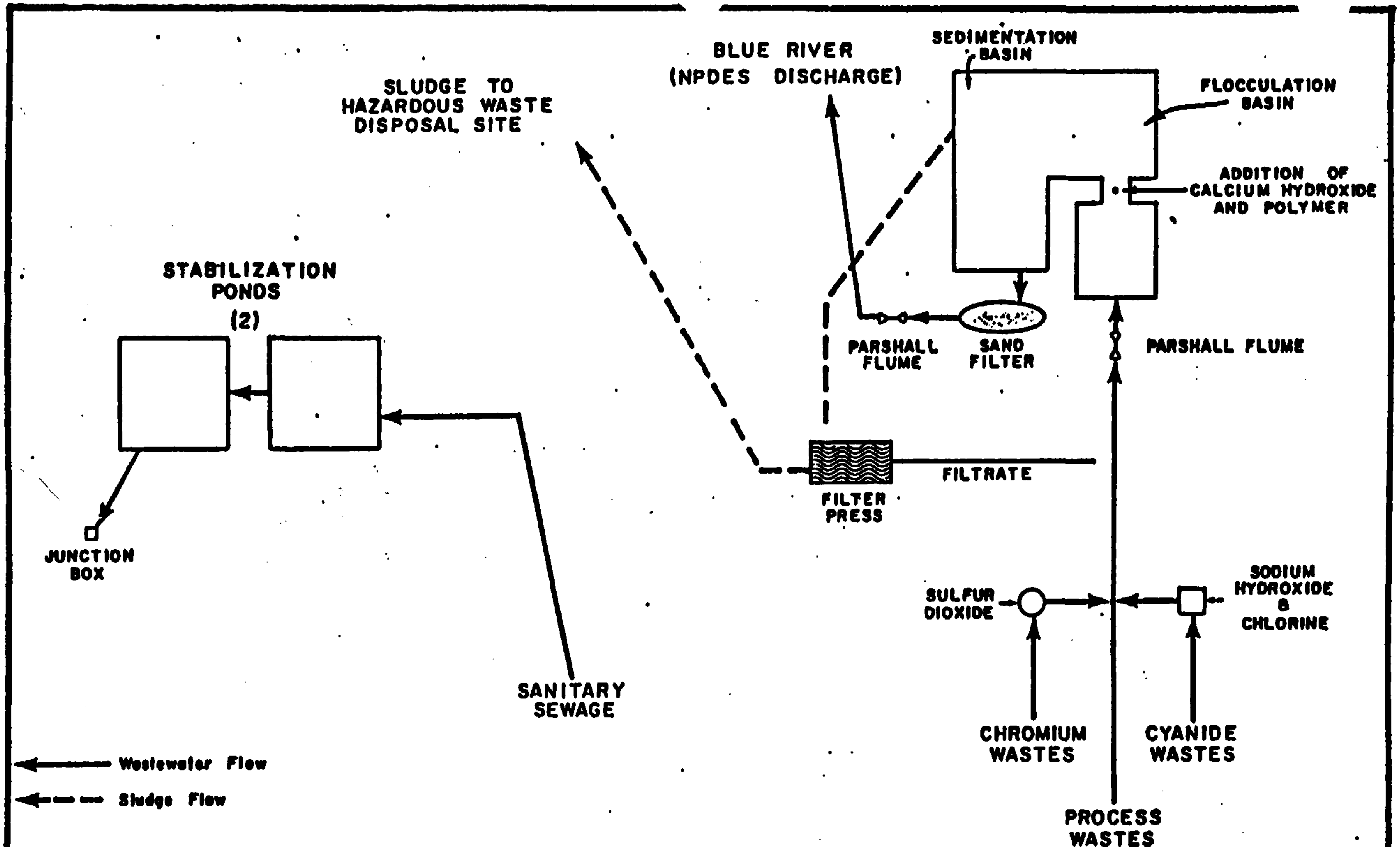


FIGURE 5

WASTE TREATMENT PROCESS, 1984
KUHLMAN DIECASTING COMPANY, INC.

JACOBS ENGINEERING GROUP

Source: [14].

pre-kuh8
slh

March 24, 1976	EPA conducted an NPDES permit inspection and found that compliance with the conditions of the NPDES permit was unacceptable [5].
May 14, 1976	KDHE conducted a Compliance inspection and found that Kuhlman's NPDES permit effluent was within interim effluent limitations except for nickel [6].
October 6, 1978	EPA conducted a compliance monitoring inspection. EPA found that during the monitoring period, pH, total chromium, total zinc, and total suspended solids NPDES permit effluent limitations were exceeded [7].
March 10-13, 1980	EPA conducted an NPDES Inspection at Kuhlman. The NPDES permit had expired on October 1, 1979 and had not been reissued. Kuhlman exceeded the NPDES permit effluent limitations for total suspended solids, copper, nickel, zinc, total chromium, and oil and grease [8].
March 26, 1980	KDHE report identified a sludge lagoon and the new and old polishing ponds (west and east, respectively) as presenting a potential groundwater hazard.
August 18, 1980	Kuhlman filed a Notification of Hazardous Waste Activity to the EPA as a generator of F006 waste which was disposed of in the sludge lagoon.
November 21, 1980	Kuhlman was issued an Administrative Order by the EPA Region VII as the Respondent was currently discharging pollutants without an NPDES permit (their NPDES permit had expired on October 2, 1979) and had committed effluent limitation violations during 1979 and 1980.
March 1981	Kuhlman ceased deposition of the wastewater treatment sludge in the unlined sludge lagoon.
April 8, 1981	Kuhlman filed a Part A Permit Application with EPA and a petition to have the wastewater treatment sludge from electroplating operations located in a storage tank (F006) delisted as a hazardous waste.
December 3, 1981	Kuhlman withdrew its petition to delist the wastewater treatment sludge.

January 15, 1982	KDHE conducted an inspection at the facility to determine whether Kuhlman produced hazardous waste as defined by RCRA and how that waste was handled. It was determined that the only process waste consisted of a sludge containing nickel from Kuhlman's electroplating operation. [11]
February 10, 1982	EPA rejected Kuhlman's Part A Permit Application for the reason that the application was not filed on or before November 19, 1980.
April 9, 1982	KDHE ordered Kuhlman to remove stored waste (sludge) in their petroleum tank in 90 days in order to prevent their company from being regulated as a treatment/storage/disposal facility. [11]
May 6, 1982	EPA conducted an inspection of the Kuhlman facility under authorization of RCRA. The inspection revealed several discrepancies which did not correlate with information present in the facility's Part A application. Specifically, the facility misrepresented storage and disposal practices of the wastewater treatment sludge, and failed to notify as a generator of F001 (halogenated solvents) and F005 (spent non-halogenated solvents, specifically toluene) wastes.
August, 1982	Kuhlman ceased discharge of the overflow wastewater to the unlined polishing ponds.
August 19-20, 1982	EPA conducted an inspection of the Kuhlman facility under authorization of RCRA [12]. Sludge sampling and a stream survey took place at that time. The inspection discovered areas of non-compliance noted in previous RCRA inspection (May 6, 1982) for which no corrective action had been undertaken.
January 13, 1983	EPA issued a "Complaint, Compliance Order and Notice of Opportunity for Hearing" resulting from previous facility inspections under RCRA with proposed penalties of $25,500. The Complaint and Compliance Order required Kuhlman to submit a Closure and Post Closure Plan for the regulated units and a groundwater monitoring plan adhering to the requirements of 40 CFR 265, Subpart F.

March 18, 1983	Environmental Specialists, Inc., a consultant to Kuhlman, submitted the "Remedial Action and Surface Impoundment Closure Plan" to the EPA, which included provisions for groundwater monitoring.
July 14, 1983	Environmental Specialists, Inc. provided EPA with revisions to the "Remedial Action and Surface Impoundment Closure Plan", which addressed groundwater monitoring.
October 18, 1983	Environmental Specialists, Inc. initiated installation of groundwater monitoring wells GM-1 through GM-4 in the vicinity of the regulated units.
November 4, 1983	Environmental Specialists, Inc. completed installation and development of groundwater monitoring wells GM-1 through GM-4.
November 7, 1983	EPA provided Kuhlman with approval of the "Remedial Action and Surface Impoundment Closure Plan".
November 10, 1983	EPA served Kuhlman with an "Initial Decision" of Administrative Law, Judge Thomas B. Yost, resulting from the issuance of the Complaint and Compliance Order for alleged violations of RCRA.
November 11, 1983	Environmental Specialists, Inc. collected the first groundwater samples from monitoring wells GM-1 through GM-4 in accordance with the "Remedial Action and Surface Impoundment Closure Plan".
November 18, 1983	Environmental Specialists, Inc. collected the second set of samples from groundwater monitoring wells GM-1 through GM-4 in accordance with the "Remedial Action and Surface Impoundment Closure Plan".
December 14, 1983	Kuhlman Diecasting began closure of the sludge lagoon.
January 1, 1984	Kuhlman completed initial removal of sludge and soil from the sludge lagoon.
January 5, 1984	Environmental Specialists, Inc. collected the third set of samples from groundwater monitoring wells GM-1 through GM-4 and analyzed for all parameters detailed in the "Remedial Action and Surface Impoundment Closure Plan".

January 6, 1984	Kuhlman removed the supernatant from the (east) polishing pond.
January 9, 1984	Kuhlman received permission from KDHE to close (east) polishing pond. Subsoil was sampled in and around the sludge lagoon.
March 2, 1984	ETI of North America, a consultant to Kuhlman, provided EPA with notification of statistical increases of nickel and total chromium, following statistical analysis of groundwater sample data previously collected by Environmental Specialist, Inc.
March 14, 1984	ETI of North America submitted the "Groundwater Assessment Plan" to the EPA.
April 11, 1984	EPA conducted an inspection of the Kuhlman facility under authorization of RCRA. [13] The cleanup activities on the sludge lagoon and the old (east) polishing pond had been completed pending a determination of acceptable levels of nickel and chromium in the soil. A total of about 1,983 cubic yards of material were shipped off-site from December 20, 1983 to January 30, 1984. Spent solvents were shipped by manifest within 90 days to McKesson Chemical Company in Kansas City, Missouri. Waste paint is being accumulated in drums on-site. In conjunction with the inspection, groundwater monitoring wells GM-1 through GM-4 were sampled in accordance with the "Remedial Action and Surface Impoundment Closure Plan" and the "Groundwater Assessment Plan". Samples were split with the EPA for comparative analysis. A distinct petroleum odor was detected during bailing of well GM-2 and an oil sheen was visible on the surface of the water samples collected from the above wells.
April 20, 1984	ETI of North America submitted the "Proposed Final Sludge Pond Closure Plan" to the EPA.
June 29, 1984	ETI of North America completed installation of the groundwater assessment monitoring wells GM-5 through GM-11, in accordance with the "Groundwater Assessment Plan".
July 24, 1984	ETI of North America collected the first set of samples from groundwater monitoring wells GM-5 through GM-11 in accordance with provisions established in the "Groundwater Assessment Plan".

July 30 to August 2, 1984	EPA conducted an NPDES Compliance Sampling Inspection at Kuhlman [14]. Kuhlman's effluent exceeded the allowable NPDES permit limitations for total chromium, total copper, total nickel, and pH on July 30 to 31, July 31 to August 1, and August 1 to August 2 and total zinc during July 30 to 31.
August 4, 1984	ETI of North America completed installation of groundwater monitoring assessment wells GM-12 through GM-17 in accordance with the "Groundwater Assessment Plan".
October 19, 1984	Groundwater monitoring wells GM-1 through GM-4 and GM-5 through GM-17 were sampled in accordance with the "Remedial Action and Surface Impoundment Closure Plan" and the "Groundwater Assessment Plan," respectively.
April 1, 1985	ETI of North America submitted to the EPA the "Report on Ground-Water Assessment Study," as provided in the "Groundwater Assessment Plan".
July 9, 1986	EPA conducted a performance audit inspection at Kuhlman [15]. An examination of the facility's sampling methods and locations was made and an inspection of the wastewater treatment facility was conducted. It was noted that Kuhlman exceeded their NPDES permit limitations during the last quarter for chromium, copper, and nickel.
October 1 to October 3, 1986	Jacobs, on behalf of EPA Region VII, performed a CME audit inspection of the Kuhlman facility. Groundwater monitoring wells GM-1 through GM-4 were sampled by ETI of North America in accordance with the "Remedial Action and Surface Impoundment Closure Plan" and groundwater samples were split with Jacobs.
November 12, 1986	Groundwater monitoring wells GM-5 through GM-17 were sampled in accordance with provisions established in the "Groundwater Assessment Plan".
November 19, 1986	Kuhlman was issued an Administrative Order based on numerous effluent violations noted in 1986.

March 11, 1987	Kuhlman was sent an Order Assessing an Administrative Penalty due to violations observed during a December 15, 1986 KDHE inspection which revealed illegal dumping of waste paint and paint thinner in addition to other violations.
June 24, 1987	Jacobs conducted a Visual Site Inspection (VSI) at Kuhlman Diecasting Co. in partial fulfillment of the RFA.
September 21-26, 1987	Jacobs conducted a Sampling Visit (SV) at Kuhlman Diecasting Co. in partial fulfillment of the RFA.

3.0 ENVIRONMENTAL SETTING

3.1 Climate

The National Weather Service at the Kansas City International Airport located approximately 23 miles from Stanley, states that precipitation for the area averages 35.16 inches per year. The average annual temperature is 54.1^{O}F with an average high of 63.7^{O}F and an average low of 44.4^{O}F. From March to November, the prevailing winds are to the southwest and from December to February the prevailing winds are to the northwest.

3.2 Soils/Land Use

According to the Soil Survey of Johnson County, Kansas, the soil at the site belongs to the Chase series [8]. The Chase series consists of deep, somewhat poorly drained and moderately well drained, slowly permeable soils on low terraces which have been formed in loamy or clayey alluvium.

The surrounding land use is primarily agricultural. A turf farm lies directly east of the Kuhlman property. North, south, and west of the site the land is either used for agriculture, contains a few residences, or is undeveloped. Wells in Johnson County which tap alluvial materials are reported to yield 1 to 10 gpm, while the shale units in the area are reported to have very low permeabilities. According to the state water well records at KDHE, no domestic wells have been installed in either Section 16 or neighboring Section 15 to the east since 1975. KDHE did not begin acquiring well records until 1975. According to KDHE, the majority of homes in Stanley are supplied with water from Johnson County Rural Water District #2.

3.3 Geology/Hydrogeology

Kuhlman Diecasting is regionally situated on the northwesterly dipping eastern limb of the Forest City basin, a pre-Pennsylvanian age structural syncline which developed during renewed motion along pre-existent structural components (Lee, 1954).

Based on information in a Burns and McDonnell report (Jacobs, 1987), the bedrock underlying the facility is located approximately 865 feet above mean sea level or 20 feet below ground surface. The bedrock consists of medium-gray to dark

greenish gray, argillaceous shale of the Wea Shale member, Cherryvale Formation which belongs to the uppermost strata of the Pennsylvanian aged Kansas City Group (Figure 6). The Cherryvale Formation consists of the following members, in descending order: Quivera Shale (2 to 11 feet thick), Westerville Limestone (approximately 6 feet thick), Wea Shale (25 to 35 feet thick), Block Limestone (0.5 foot thick) and Fontana Shale (8 to 12 feet thick). The Cherryvale Formation is underlain by the Winterset Limestone (approximately 30 feet thick), and the Stark Shale (3 to 4 feet thick), members of the Dennis Limestone.

Kuhlman constructed 4 monitoring wells in October 1983, and installed an additional 13 wells when the facility went into assessment monitoring in May 1984 (Table 1). The Comprehensive Monitoring Evaluation of Kuhlman Diecasting Company (Jacobs, 1987) contains a detailed discussion on the well construction and an evaluation of Kuhlman's groundwater monitoring program. The borehole logs from the majority of the wells at Kuhlman suggest that the bedrock immediately beneath the site belongs to the Wea Shale member. Borehole data from GM-8 and GM-13, however, indicate that the bedrock strata beneath the central and northern portion of the site consists of limestone, indicating that an erosional remnant may exist beneath this portion of the site (Jacobs, 1987).

The bedrock beneath the site is blanketed by floodplain sediments (alluvium) of the Blue River fluvial system. Distribution of alluvium across the site is very heterogeneous. Alluvium near the west portion of the site exhibits depositional influence from the Blue River with coarser grained deposits occurring at or near the base of the alluvium, whereas the finer grained materials of the alluvium near the eastern portion of the site displays deposition in a lower energy setting (Jacobs, 1987). The boring logs indicate that the alluvium consists predominantly of silty clay, underlain by silty sand and gravelly clay which occurs at or near the base of the alluvium. However, along the central and eastern portions of the site, the alluvium consists almost entirely of silty clay which rests on the underlying bedrock stratum, where hydraulic communication reportedly exists (Jacobs, 1987). The Report on Groundwater Assessment Study (ETI, 1985) states that the alluvial sediments within the vicinity of monitoring well GM-8 are in hydraulic communication with the underlying limestone bedrock. Stratigraphic and/or hydrogeologic cross sections have not been constructed by the facility (Jacobs, 1987).

According to ETI (1985), groundwater in the vicinity of the sludge storage lagoon flows toward the southwest, and from the vicinity of the polishing ponds toward the south and the Blue River. However, the direction of groundwater flow in the alluvium may be locally affected by the alignment of the sediments, as permeability appears to be higher in the direction in which the materials were deposited (Jacobs, 1987). Groundwater elevations and a water-level contour map presented by Kuhlman for October 1984 indicate a groundwater mound occurring beneath the water reservoir (Figure 7). An ETI report (1985) indicates that groundwater flow in the alluvium occurs in a radial pattern from the water reservoir, with groundwater flow to the west and to the east. During the RFA field investigation, it was discovered that the locations of the monitoring well pairs 8 and 9 and 10 and 11 (Figure 7) were misrepresented. The two monitoring well pair locations had been reversed (Figure 8). The existence of the mound is, therefore, in doubt. In addition, according to Jacobs (1987), monitoring wells GM-1 through GM-17 have not been surveyed to the nearest 0.01 foot by a registered, professional surveyor (registered in the State of Kansas). Datum elevations for

KANSAS CITY GROUP UPPER PENNSYLVANIAN (MISSOURIAN STAGE) EASTERN KANSAS					
FORMATION			MEMBER	LITHOLOGY	THICKNESS (FEET)
KANSAS CITY GROUP	LINN SUBGROUP	DRUM LIMESTONE	Corbin City Limestone	Gry Lmst	50
			Dewey Limestone	Blue-gry Lmst	2-15
		CHERRYVALE SHALE	Quivira Shale	Grn Shl	2-11
			Westerville Limestone	Lmst	1-19
			Wea Shale	Blk Shl	15-35
			Block Limestone	Blue-gry Lmst	0.5-8
			Fontana Shale	Green-gry Shl	5-25
	BRONSON SUBGROUP	DENNIS LIMESTONE	Winterset Limestone	Gry Lmst	0-60
			Stark Shale	Blk Shl	3
			Canville Limestone	Gry Lmst	0-8

FIGURE 6 – STRATIGRAPHY OF THE KANSAS CITY GROUP (PENNSYLVANIAN)

(After Jewett and others, 1968)

Table 1

Well Specifications

Well No.	Approximate Ground Surface Elevations	Total Depth Of Well[1*]	Screened Interval[1*]	Filter Pack Interval[1*]
GM- 1	886.00	29.5[2*]	24' @ (5.0 - 29.5')	5.0 - 29.5
GM- 2	888.00	29.5[2*]	18.5'@ (11.0 - 29.5')	10.0 - 29.5
GM- 3	884.00	19.5	16.5'@ (3.0 - 19.5')	3.0 - 19.5
GM- 4	884.00	19.5	16.5'@ (3.0 - 19.5')	3.0 - 19.5
Phase I				
GM- 5) cluster	879.20	17.5[2*]	10.0'@ (7.5 - 17.5')	7.5 - 17.5
GM- 6)	879.20	10.0	5.0'@ (5.0 - 10.0')	5.0 - 10.0
GM- 7	884.53	22.5[2*]	15.0'@ (7.5 - 22.5')	7.5 - 22.5
GM- 8) cluster	890.10	30.0[2*]	10.0'@ (20.0 - 30.0')	20.0 - 30.0
GM- 9)	890.10	20.0	10.0'@ (10.0 - 20.0')	10.0 - 20.0
GM-10) cluster	888.33	32.5[2*]	10.0'@ (22.5 - 32.5')	22.5 - 32.5
GM-11)	888.33	20.0	10.0'@ (10.0 - 20.0')	10.5 - 20.0
Phase II				
GM-12	885.80	25.0	10.0'@ (15.0 - 25.0')	15.0 - 25.0
GM-13	885.03	27.5[2*]	10.0'@ (17.5 - 27.5')	10.5 - 27.5
GM-14	885.90	23.5[2*]	10.0'@ (13.5 - 23.5')	10.0 - 23.5
GM-15) cluster	888.20	25.0	10.0'@ (15.0 - 25.0')	10.0 - 25.0
GM-16)	888.20	15.0	10.0'@ (5.0 - 15.0')	5.0 - 15.0
GM-17	885.20	25.0	10.0'@ (15.0 - 25.0')	10.0 - 25.0

1* Below Ground Surface
2* Completed at Top of Apparent Bedrock

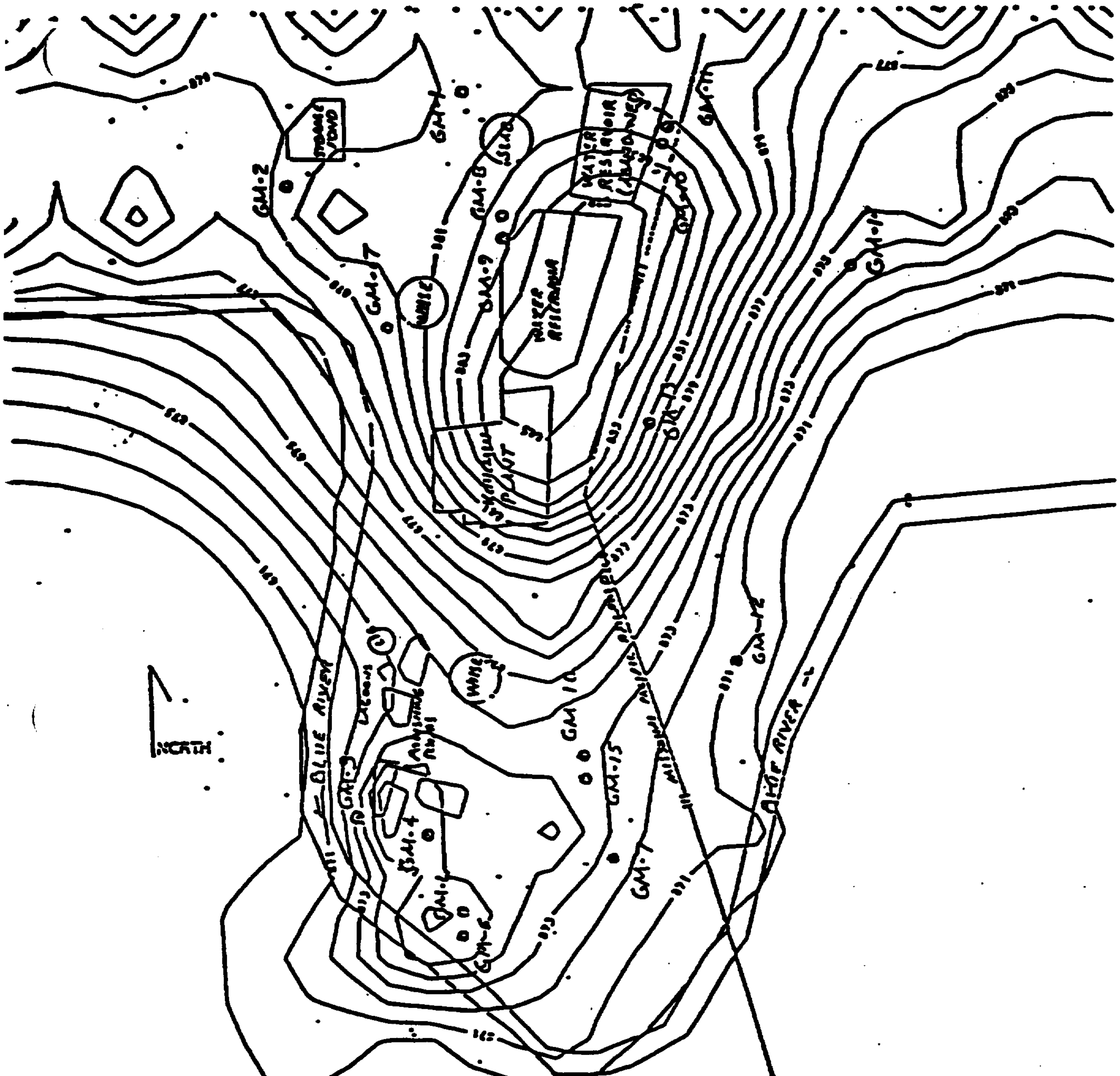


FIGURE 7 - MODELED WATER-TABLE SURFACE, MID-OCTOBER, 1984

NOTE: Not to scale

(After ETI of North America, 1985)

Table 2

Permeability From Piezometers at Kuhlman Diecasting

Well No.	Hydraulic *Conductivity (cm/sec)	Test Section (Feet)	Total Well Depth (Feet)
GM-5	1.89 x 10E-3	7.5 - 17.5	17.5
GM-6	8.70 x 10E-5	5.0 - 10.0	10.0
GM-7	1.10 x 10E-3	7.5 - 22.5	22.5
GM-8	2.37 x 10E-3	20.0 - 30.0	30.0
GM-9	7.70 x 10E-5	10.0 - 20.0	20.0
GM-10	4.59 x 10E-3	22.5 - 32.5	32.5
GM-11	1.01 x 10E-6	10.0 - 20.0	20.0

* Governed by Hvorslev equation: $K = [(d^2 \ln(2mL/D))/8L(t1 - t2)][\ln(h1/h2)]$

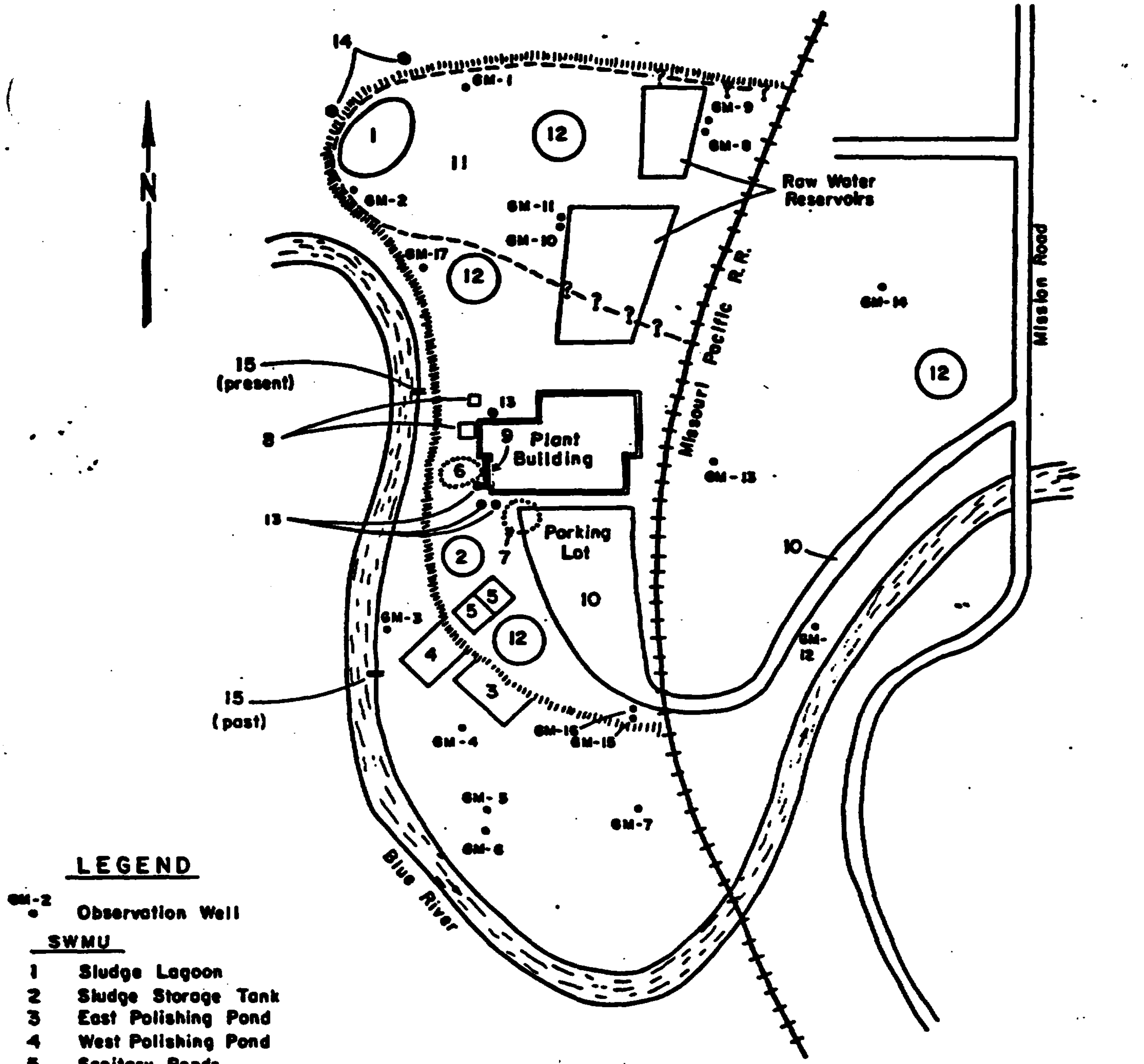
Where:

K = hydraulic conductivity in cm/sec
t = time in seconds
L = length of piezometer of filter section in cm
d = diameter of casing stand pipe in cm
m = transformation ratio

m = (Kh/Kv)
Kh = horizontal hydraulic conductivity
Kv = vertical hydraulic conductivity

D = diameter of the piezometer or intake section in cm.
h = head in cm referenced from top of casing

(after ETI, 1985)



LEGEND

GM-2 • Observation Well

SWMU

1 Sludge Lagoon
2 Sludge Storage Tank
3 East Polishing Pond
4 West Polishing Pond
5 Sanitary Ponds
6 Approximate area of paint / paint thinner disposal
7 Approximate area of oil / water disposal
8 Wastewater treatment system
9 Waste drum storage area
10 Parking lot and entrance road

Other Areas of Concern

11 Area of wells containing elevated (> 2.0 ppm) H N U concentrations
12 Past petroleum storage tanks
13 Underground storage tanks
14 Arco pipeline post
15 NPDES outfall

0 100 200 400
SCALE IN FEET

FIGURE 8

SWMU and Areas of Concern Location Map

KUHLMAN DIECASTING

JACOBS ENGINEERING GROUP

monitoring wells GM-1 through GM-4 were established by interpretation from approximate U.S. Geodetic Survey Datum. Monitoring wells GM-5 through GM-17 have been given elevations to the nearest 0.01 foot, but no evidence of a survey by a registered professional engineer or surveyor could be provided (Jacobs, 1987). In addition, the monitoring well elevations do not correlate well to the surveyed elevations in Figure 3.

Slug tests were performed on seven wells and piezometer nests, and yielded an average hydraulic conductivity of approximately 10^{-4} cm/sec or 0.28 feet/day (Jacobs, 1987). Measured values ranged from 1.01×10^{-6} cm/sec to 4.59×10^{-3} cm/sec or 0.003 to 13 feet/day (Table 2). The hydraulic conductivity of the deeper alluvial sediments was reportedly higher than that of the shallower alluvial sediments. Based on the hydraulic conductivity difference, the facility has interpreted the alluvial or water table aquifer to be under semi-confined conditions. Field data and test dates were not available to Jacobs during the CME to verify the hydraulic conductivity values presented by the facility. Additional physical characteristics and hydraulic parameters such as storage, transmissivity, specific capacity, grain size and hydraulic connection with the underlying aquifer system have not been evaluated by the facility (Jacobs, 1987).

According to Jacobs (1987), site specific information presented by the facility, regarding the identification of the uppermost aquifer (in relation to the water-bearing interval of the alluvium which is monitored at the site) and uppermost aquitard, is inadequate. The information presented by the facility addresses only the monitored alluvial sediments which may or may not be in communication with the underlying bedrock strata. Identification of the extent of communication between the monitored alluvium and underlying bedrock shales and limestone has not been determined. In addition, the available information does not allow for a full assessment of the effects of seasonal fluctuation, artificially induced groundwater variations, and communication between the alluvial sediments and underlying bedrock strata.

3.4 Groundwater Quality

Although Kuhlman has collected a series of groundwater samples (Table 3), they have not adhered to a schedule which would take into consideration any seasonal variations and effects on analytical results. Prior to collection of the October/November 1986 samples, Kuhlman had not collected samples since October 1984. In addition to the sampling schedule, Kuhlman has not analyzed for metals in a consistent manner (i.e. total vs. dissolved). Without an adequate upgradient or background well for comparison, it cannot be determined which metals analysis (total vs. dissolved) should be used. Inconsistencies in reporting for dissolved and total metals also makes the evaluation of trends in the data over time difficult.

According to Jacobs (1987), Kuhlman states that samples collected from wells GM-1 through GM-4 were collected primarily for RCRA compliance whereas samples from GM-5 through GM-17 were collected primarily for purposes of groundwater assessment. As can be seen from Table 3, analysis of different parameters for different wells has led to data gaps in the information. In addition, filtration of samples and the changing of laboratories may also affect a comparison. Kuhlman changed laboratories from General Testing Labs Inc. of Kansas City, Missouri to Langston Labs, Inc. of Leawood, Kansas after the January 5, 1984 sample event. It is unknown whether analytical methods for the same parameters are the same between each lab or how this may impact the data (Jacobs, 1987).

T 3

SUMMARY OF ANALYTICAL DATA FROM
KUHLMAN DIECASTING
IN mg/l EXCEPT AS NOTED

Well #	pH[5]	SC[4]	TDS	Cr[2]	Ni[2]	Fe[2]	Mn[2]	Cd[2]	TOC	TOX	CN
GM-1											
11/11/83	---	---	---	0.049	<0.025	---	---	0.0046	---	---	---
11/18/83	---	---	---	0.070	<0.025	---	---	0.0040	---	---	---
01/05/84	6.50	653	---	0.119	0.169	---	---	0.0064	15.3	<0.005	<0.020
04/11/84[1]	6.95	---	410	<0.010	0.043	26.2	6.80	---	13.4	0.013	0.009
10/19/84[1]	6.80	650	538	0.020	0.130	28.5	6.65	---	4.4	0.063	<0.001
10/02/86[3]	6.83	508	382	<0.020	<0.020	---	---	---	3.4	0.077	---
GM-2											
11/11/83	---	---	---	0.021	<0.025	---	---	0.0024	---	---	---
11/18/83	---	---	---	0.075	<0.025	---	---	0.0037	---	---	---
01/05/84	6.78	533	---	0.091	0.091	---	---	0.0114	30.3	<0.005	<0.020
04/11/84[1]	6.85	---	287	<0.010	0.095	19.65	7.35	---	12.7	0.018	0.008
10/19/84[1]	6.60	550	435	0.020	0.095	50.00	7.15	---	6.7	0.400	<0.00
10/02/86[3]	6.65	382	293	<0.020	<0.020	---	---	---	10.5	0.096	---
GM-3											
11/11/83	---	---	---	0.029	<0.025	---	---	0.0039	---	---	---
11/18/83	---	---	---	0.265	0.125	---	---	0.0037	---	---	---
01/05/84	7.16	994	---	0.191	0.150	---	---	0.0057	26.5	<0.005	<0.020
04/11/84[1]	7.45	---	858	0.018	0.140	12.3	7.00	---	10.3	0.027	0.006
10/19/84[1]	7.10	1450	1090	0.075	0.111	33.5	8.05	---	5.6	0.037	<0.001
10/02/86[3]	7.10	1658	1150	<0.020	<0.020	---	---	---	4.7	0.075	---
GM-4											
11/11/83	---	---	---	0.035	<0.025	---	---	0.0031	---	---	---
11/18/83	---	---	---	0.169	0.113	---	---	0.0042	---	---	---
01/05/84	7.36	909	---	0.116	0.194	---	---	0.0073	10.90	<0.005	<0.02
04/11/84[1]	7.40	---	722	0.111	0.140	33.5	4.85	---	13.05	0.029	<0.001
10/19/84[1]	7.10	1190	954	0.120	0.170	35.5	7.85	---	5.40	0.039	<0.001
10/02/86[3]	7.05	1000	709	<0.020	<0.020	---	---	---	5.00	0.071	---
GM-5											
07/24/84[1]	7.00	1150	960	0.550	1.1	128.0	6.3	---	---	---	---
10/22/84	7.40	1050	940	<0.010	0.030	2.7	3.8	---	---	---	---
11/12/86[3]	7.10	1370	---	<0.001	0.135	---	---	---	---	---	---
GM-6											
07/24/84[1]	7.00	1100	920	0.400	0.490	184.00	12.0	---	---	---	---
10/22/84	7.40	1150	980	<0.010	0.030	0.70	4.2	---	---	---	---
11/12/86	7.10	1180	---	0.001	0.155	---	---	---	---	---	---

TABLE (con't)

SUMMARY OF ANALYTICAL DATA FROM
KUHLMAN DIECASTING
IN mg/l EXCEPT AS NOTED

Well #	pH[5]	SC[4]	TDS	Cr[2]	Ni[2]	Fe[2]	Mn[2]	Cd[2]	TOC	TOX	CN
GM-7											
07/24/84[1]	7.10	750	632	0.660	1.00	138.00	5.9	---	---	---	---
10/22/84	7.20	710	610	<0.010	0.030	0.110	3.5	---	---	---	---
11/12/86[3]	7.10	620	---	<0.001	0.075	---	---	---	---	---	---
GM-8											
07/24/84[1]	7.20	455	416	0.380	0.760	306.	24.0	---	---	---	---
10/22/84	7.30	440	390	<0.010	<0.010	0.50	4.8	---	---	---	---
11/12/86[3]	7.60	410	---	<0.001	0.053	---	---	---	---	---	---
GM-9											
07/24/84[1]	6.90	420	560	0.110	0.100	37.00	5.2	---	---	---	---
10/22/84	7.10	360	303	<0.010	<0.010	0.660	4.4	---	---	---	
11/12/86[3]	6.80	530	---	<0.001	0.050	---	---	---	---	---	--
GM-10											
07/24/84[1]	7.10	600	576	0.460	0.890	376.	36.0	---	---	---	---
10/22/84	7.10	550	450	<0.010	<0.020	0.180	4.8	---	---	---	---
11/12/86[3]	7.10	340	---	<0.001	0.048	---	---	---	---	---	---
GM-11											
10/22/84	7.10	850	650	<0.010	<0.010	1.9	8.5	---	---	---	---
11/12/86[3]	7.00	1607	---	<0.001	0.030	---	---	---	---	---	---
GM-12											
10/22/84	7.00	650	550	<0.010	0.020	1.6	2.5	---	---	---	---
11/12/86[3]	6.90	510	---	<0.001	0.055	---	---	---	---	---	---
GM-13											
10/22/84	6.90	750	545	<0.010	0.020	1.8	4.0	---	---	---	---
11/12/86[3]	6.70	610	---	<0.001	0.070	---	---	---	---	---	---
GM-14											
10/22/84	7.00	600	510	<0.010	0.020	4.4	3.8	---	---	---	---
11/12/86[3]	6.80	530	---	<0.001	0.065	---	---	---	---	---	---
GM-15											
10/22/84	7.10	650	575	<0.010	0.020	2.7	1.3	---	---	---	---
11/12/86[3]	6.90	550	---	<0.001	0.055	---	---	---	---	---	---
GM-16											
10/22/84	7.20	520	465	<0.010	<0.010	2.3	0.360	---	---	---	---
11/12/86[3]	7.00	490	---	<0.001	0.055	---	---	---	---	---	---

TABLE [illegible] n't)

SUMMARY OF ANALYTICAL DATA FROM
KUHLMAN DIECASTING
IN mg/l EXCEPT AS NOTED

Well #	pH[5]	SC[4]	TDS	Cr[2]	Ni[2]	Fe[2]	Mn[2]	Cd[2]	TOC	TOX	CN
GM-17											
10/22/84	7.80	850	650	<0.010	<0.010	7.8	3.4	---	---	---	---
11/12/86[3]	6.80	590	---	<0.001	0.060	---	---	---	---	---	---

1) Not stated whether analysis is for total or dissolved metals i.e. Cr, Ni, Fe, Mn.
2) Total Metals except where noted.
3) Chain of custody indicates that all analytes may be filtered.
4) In umhos/cm
5) Standard units.
6) All reported data are either mean values for duplicate or quadruplicate samples, or they may be a single analysis.
7) Suspected recording error

General observations which were made by Jacobs (1987) from Table 3 are as follows:

The pH values range from 6.5 to 7.8 standard units in all wells. No variations or trends are seen in these data.

Specific conductance ranges from 360 to 1,658 umhos/cm in all wells with the high of 1,658 recorded in GM-3. All specific conductance values at or above 1,000 umhos/cm are seen in wells GM-3, 4, 5, and 6 in the vicinity of the polishing ponds.

Total dissolved solids range from 303 to 1,150 mg/l. As would be expected, the high value of 1,150 mg/l was seen at GM-3 which also exhibited the high value of specific conductance.

Chromium values vary from <0.010 to 0.660 mg/l. The high value of 0.660 mg/l was seen in GM-7 during the July 24, 1984 event. Other high values for chromium were also seen (GM-5 through GM-10) during this event, but these concentrations dropped to the detection limit during the next sampling events consistently. The consistently highest chromium concentrations are seen in wells GM-3 and GM-4 in the vicinity of the polishing ponds. These concentrations are for total chromium and exceed the maximum concentration limits as stated in 40 CFR 265 Appendix III. No data from the October 2 or November 12, 1986, could be used to confirm or deny these values because analysis was for dissolved chromium. Concentrations of chromium have dropped in wells GM-1 and GM-2 from the January 1984 event to the April 1984 event. This drop could not be explained although inconsistencies in analysis for dissolved vs. total chromium and a change in laboratories may be a factor.

Nickel concentrations vary from <0.010 to 1.1 mg/l. The high value of 1.1 mg/l was seen at GM-5 during the July 24, 1984, sampling event. As mentioned previously for chromium, nickel concentrations in wells GM-5 through GM-10 were all high during this event and dropped off considerably during the next event. The highest concentrations of nickel were also seen in wells GM-3 and GM-4 in the vicinity of the polishing ponds, although lesser concentrations were seen in the area of the sludge lagoon. It cannot be determined how elevated these nickel concentrations are without adequate background wells. The presumably dissolved nickel concentrations for the November 12, 1986, sampling event for wells GM-5 through GM-17 were considerably higher than the total nickel concentrations reported for the previous event (October 22, 1984). This variation cannot be explained.

The water quality parameters of iron and manganese show significant variations at each well through time. The significance of these variations cannot be determined without a background well.

Cadmium levels were only analyzed in wells GM-1 through GM-4 for the first three sample events. All concentrations for total cadmium were below the maximum concentration limit per 40 CFR 265, Appendix III.

Total organic carbon (TOC) was analyzed at wells GM-1 through GM-4 at the last four sampling events. Values range from 3.4 to 30.3 mg/l with the high of 30.3 mg/l detected in GM-2 on January 5, 1984. All wells show a gradual decrease in concentrations for all four sample periods. During the October 1986 sample event, the high 10.5 mg/l was detected at GM-2. During Jacobs split sampling of this well a noticeable hydrocarbon sheen and odor was documented (Jacobs, 1987).

Total organic halogen (TOX) was analyzed at wells GM-1 through GM-4 at the same frequency as TOC. Values ranged from <0.005 to 0.40 mg/l. The high of 0.40 was found at well GM-2. A notable difference in concentrations was observed between the January 5, 1984 sampling event and the April 11, 1984, event. This difference may be attributed to the change of laboratories and may also reflect a change in methodologies although this could not be confirmed.

Cyanide was sampled for at GM-1 through GM-4 from January 5, 1984, to October 19, 1984. Cyanide was only detected in wells GM-1, 2, and 3 during the October 19, 1984 sampling event at concentrations only slightly above the detectable limit.

Jacobs (1987) encountered numerous problems in their review of the available groundwater data. In reviewing the adequacy of the installation and placement of assessment wells the following problem areas were noted.

- Of the thirteen additional wells, which included four two-well clusters, it appears that very few wells are located close enough to the regulated units to define the horizontal extent of nickel and chromium contamination in the groundwater.

- Based on the field observations by Jacobs, monitoring well GM-3 has been completely submerged by waters of the Blue River during flooding. Due to the proximity of the well to the Blue River and the stage of recent flooding, it was estimated the Blue River crested the top of the protective casing of the monitoring well by approximately 4.0 feet. Given the condition of the PVC cap and the well casing, it is suspected that the integrity of the uppermost aquifer could have been jeopardized.

- The vertical extent of nickel and chromium contamination has not been determined. Of the four well clusters, only two (GM-5, 6 and GM-15, 16) may be located close enough to the regulated unit (polishing ponds) to detect contamination, but screen lengths in each cluster may not be discrete enough to define the vertical extent of contaminants. No well clusters have been situated in proximity to the sludge lagoon which would define the possible vertical extent of contamination.

- Based on past information presented by Kuhlman, a south/southwest component of flow from the sludge lagoon may exist. No assessment wells were located in this area.

- The installation of assessment wells did not consider the possibility of communication between bedrock and the overlying sediments. It is possible that bedrock may provide pathways for contaminant migration.

- The facility had not identified the background groundwater quality of the uppermost aquifer beneath the site as required by 40 CFR 265.91(a) (1), and, therefore, a comparison of background water quality against downgradient wells cannot be made.

In addition, Kuhlman's past performance was difficult for Jacobs (1987) to interpret due to the following factors.

There appear to be data gaps in the information which were probably a result of Kuhlman's sampling of wells GM-1 through GM-4 differently from GM-5 through GM-17 (i.e., different parameters and schedules).

A change in laboratories on the April 11, 1984, may have an affect on the consistency of the data (i.e., analytical methodologies, sample preparation, etc).

The recording of metals in total vs. dissolved concentrations is not consistent between sampling events. Without a background well it cannot be determined if Kuhlman should be sampling for dissolved or total metals.

In addition, without a background well, it is hard to interpret the significance of possible elevated levels of parameters such as chromium, nickel, iron, manganese, TOC, TOX, etc.

From the data presented, it would appear that nickel and chromium may be affecting water quality in the vicinity of the polishing ponds and possibly the sludge lagoons. Based on background information obtained at the site, other waste constituents that may exist within the groundwater include copper and zinc (Jacobs, 1987).

3.5 Surface Water

The Blue River is a 41 mile long river that begins in southeast Johnson County, Kansas and meanders north through Kansas City, Missouri before joining the Missouri River. The Blue River receives drainage from 164 square miles in Kansas, and 119 square miles in Missouri. Based on Figure 7 and the CME conducted by Jacobs in 1987, the groundwater flows in a radial fashion to the Blue River at Kuhlman.

The greatest influence on the upper Blue River caused by man is probably agricultural non-point source runoff. The only industrial discharges of significance in this reach is the Kuhlman Diecasting Company, which is located 3.9 miles downstream from the headwaters (Fairless and Blomgren, 1982).

On August 17-19, 1982, samples of periphyton, crayfish, sunfish, minnows, and water were collected within the upper reach of the Blue River and analyzed for toxic metals and organics (Fairless and Blomgren, 1982). Most of the organic toxicants detected in the upper Blue River biota were widely distributed pesticides, probably the result of runoff throughout the basin. According to Fairless and Blomgren (1982), the presence of PCBs, PAHs, and phenol at one or two sites were indicative of local contamination. The report stated that based on the kinds of toxicants found and on where they were detected, the presence of the organic toxicants do not appear to be the result of Kuhlman activities or operations.

The plant currently receives water from Johnson County Water District No. 2 via a 4-inch diameter PVC pipe which crosses the plant ground. When the plant first began operating it obtained both its potable and process water from the Blue River. The water was obtained from behind a low level dam in the Blue River and stored in the raw water reservoirs (Figure 2). Alum and/or lime was then added to the water in their water treatment plant and the water was then directed to a settling basin for clarification and finally chlorinated prior to use. After being hooked up to the Johnson County Water District, Kuhlman continued until the early 1980's to use the Blue River water as their process water supply. This practice has since been discontinued due to economic reasons. The river is being used for irrigation purposes, however. According to the Water Rights Division of KDHE, Mr. Melvin Briggs (Stanley resident) has three irrigation intakes on the Blue River just downstream from Kuhlman Diecasting Co. (Section 15) which he is currently using to irrigate a total of 165 acres in Section 15. His total permitted allotment for the three intakes is 2,800 gpm.

4.0 SOLID WASTE MANAGEMENT UNITS (SWMUs) AND OTHER POTENTIAL AREAS OF CONCERN

The HSWA Section 3004 corrective action provision focuses on investigating releases from solid waste management units (SWMUs) which includes both active and inactive units containing hazardous and/or solid wastes.

Ten SWMUs were identified at the Kuhlman facility in addition to four potential areas of concern (Figure 8). Of the ten SWMUs, three are regulated under RCRA and are undergoing closure. The regulated units comprise the sludge lagoon (storage pond) located in the northwest portion of the property and two polishing ponds located on the southwest corner of the property. Additional SWMUs are: 1) a petroleum storage tank used to store dewatered sludge; 2) two sanitary ponds used to hold sewage; 3) an area of paint/paint thinner disposal; 4) area of oil/water disposal; 5) the wastewater treatment system; 6) the waste drum storage area; and 7) the parking lot and entrance road areas where oil and grease skimmings were applied.

As a result of petroleum contamination observed in several wells and soil samples on site Jacobs identified potential areas of concern which include: the area of wells containing elevated HNU readings; past on-ground petroleum storage tanks; underground storage tanks, and the ARCO pipeline (Figure 8). An additional area of concern is the NPDES outfall which is associated with the wastewater treatment system.

The SWMUs and potential areas of concern identified from reports, letters and other information during the PR and verified during the VSI and the SV are presented in Table 4. Figure 9 presents locations of each sample taken by Jacobs during the SV. A description of the sampling methodologies and the QA/QC procedures that were followed are located in Appendix V.

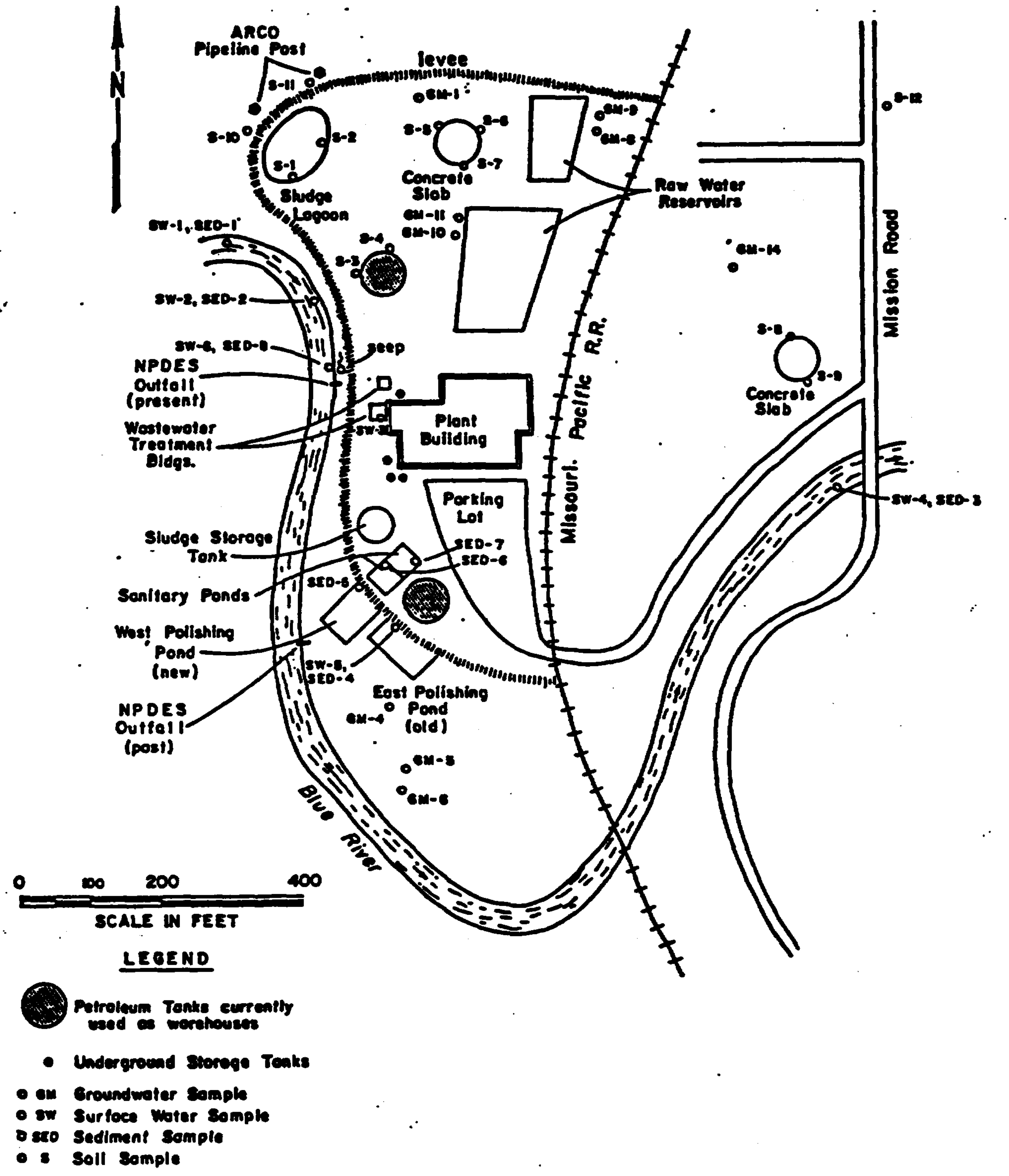


FIGURE 9

SAMPLE LOCATION MAP

KUHLMAN DIECASTING FACILITY

JACOBS ENGINEERING GROUP

SWMU and Areas .. Concern Summary

SWMU or Area of Concern*	Unit Type	Waste Type	Period Of Operation	Status
1) Sludge lagoon	surface impoundment	electroplating sludge waste (F006)	1972-1981	undergoing closure under RCRA
2) East polishing pond	surface impoundment	metal waste stream	1964- ?	undergoing closure under RCRA
3) West polishing pond	surface impoundment	metal waste stream	1976-1982	undergoing closure under RCRA
4) Sludge storage tank	on-ground tank	electroplating sludge waste (F006)	1973, 1981-1983	cleaned out
5) Sanitary ponds	surface impoundment	sewage	1964 to present	in use
6) Paint/paint thinner disposal	land treatment	paint/paint thinner	? - 1987	all visibly contaminated soil removed
7) Oil/water disposal	land treatment	Houghton oil and water	? - 1982	inactive
8) Wastewater treatment system	wastewater treatment system with surface impoundment	electroplating waste	1973 to present	in use
9) Drum Storage Area	container storage	waste products	? to present	in use
10) Parking lot and entrance road	land treatment	oil and grease skimmings	? - 1985	inactive

Tab... (cont. ...)

SWMU and Area ... oncern Summary

SWMU or Area of Concern*	Unit Type	Waste Type	Period Of Operation	Status
11) Petroleum contamination	a) elevated HNU reading	petroleum product	N/A	N/A
	b) petroleum storage tanks	petroleum product	unknown	tanks have been cleaned out
	c) underground storage tanks	petroleum product	unknown	tanks will be removed
	d) ARCO pipeline	petroleum product	?-present	in use
12) NPDES discharge		metals through NPDES discharge	1964 to present	in use

* See Figure 8.

4.1 Sludge Lagoon

4.1.1 Unit Characteristics

Kuhlman has an earthen, unlined surface impoundment constructed in 1972 to receive unfiltered wastewater treatment sludge (F006) from their newly constructed wastewater treatment plant. [19] The sludge lagoon was a cut and fill operation where a bulldozer pushed earth from the center of the lagoon area outward to form the berm on two sides while the river levee formed the other two lagoon walls. [19] According to Jacobs (1987), the sludge lagoon occupied an area of approximately 110 feet by 125 feet and appeared to occupy a site that previously contained a petroleum storage tank. Kuhlman stopped using the sludge lagoon in March 1981 when they installed their first sludge drying unit.

Closure activities on the sludge pond began on December 14, 1983 [21]. Clean-up of the lagoon was accomplished by dewatering, sending the liquid to the wastewater treatment plant, and mixing the remaining sludge and soil with fly ash (Jacobs, 1987). The sludge, soil, and fly ash mixture was shipped via truck under manifest to the U.S. Pollution Control, Inc. (USPCI) Lone Mtn. Surface Disposal Site (EPA ID No. 0K0065438376) located in Waynoka, Oklahoma. [13] The removal was completed on January 3, 1984.

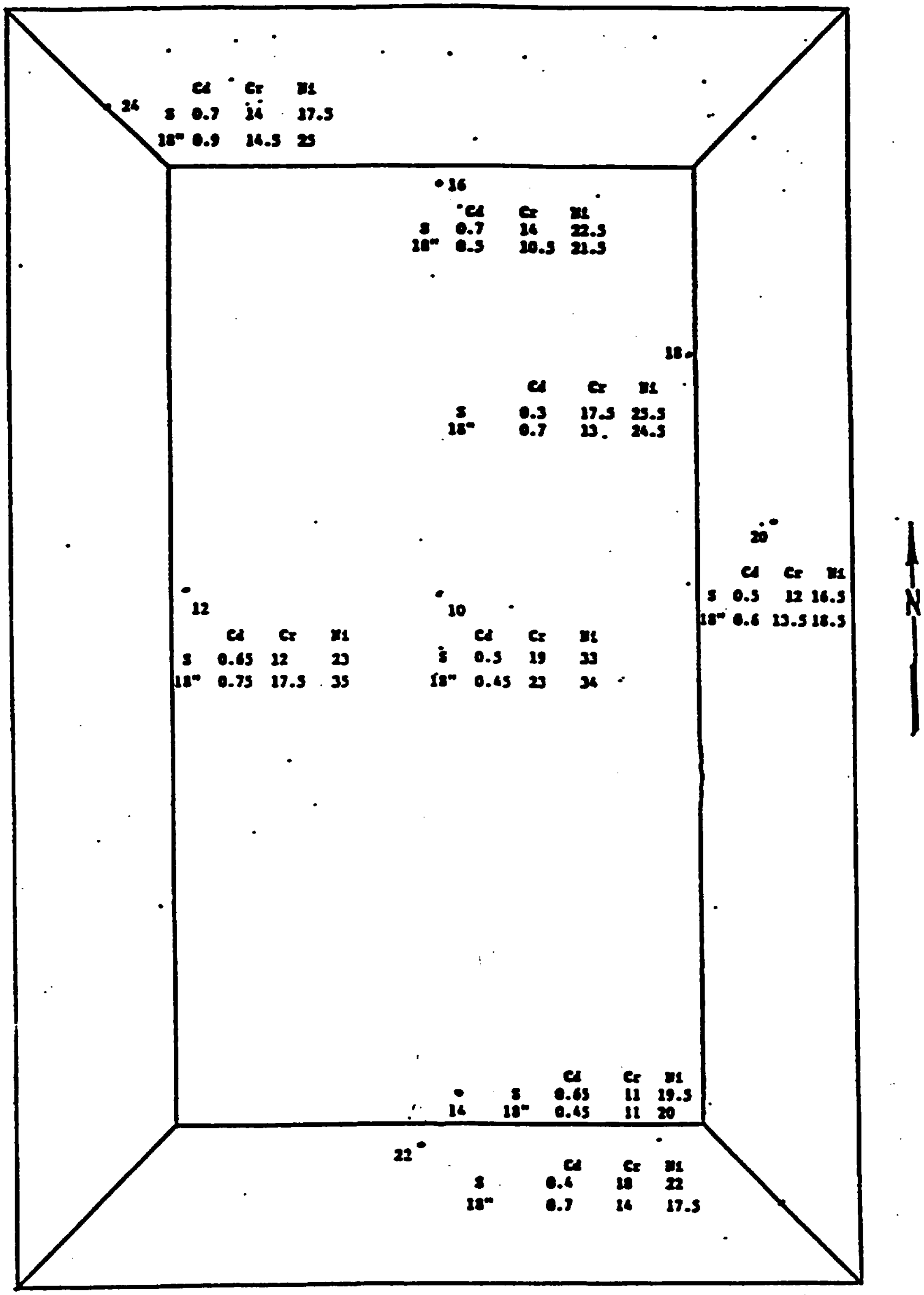
An April 23rd, 1987 letter to Mr. Phillip Meeker (Kuhlman) from Mr. Michael Sanderson (EPA) stated that there was groundwater contamination at the facility and therefore the surface impoundments cannot meet the clean closure requirements of 40 CFR 265.228(b) because contaminated subsoil (groundwater) remains in place. [23] Since clean closure could not be accomplished, EPA required the surface impoundments be capped in accordance with the requirements of 40 CFR 265.310 and post-closure groundwater monitoring per 40 CFR 265.310 be performed. [23] A proposed cap design and a post-closure plan was requested to be submitted by June 15, 1987. [23]

On June 15, 1987, Mr. Randall Overton submitted a copy of the proposed closure plan. The VSI was conducted on June 24, 1987 and the sludge lagoon was observed to contain a significant amount of water (Appendix II, Photograph 20). The sludge lagoon was dry during the SV that was conducted September 21-26, 1987 reflecting the effects of seasonal influence.

4.1.2 Waste Characteristics

On January 4, 1984, ESI sampled the soil at eight locations in the excavated sludge storage pond and the surrounding levee at the Kuhlman Diecasting facility in Stanley, Kansas. [22] Figure 10 provides a graphic display of the analytical data. [22] The units were not listed in the report supplied by ESI but, based on the content of the text, are assumed to be mg/kg. [22] Appendix III contains an analysis of a sample of filter sludge that was received at the lab on May 6, 1987. The data shows the sludge contained 29 mg/kg barium, 1.0 mg/kg cadmium, 36 mg/kg lead, 0.1876 mg/kg mercury, 3500 mg/kg total chromium, 33 mg/kg total cyanide, and 0.97 mg/kg total sulfide. Nickel was not included in this analysis.

Figure 10- SLUDG POND, FEBRUARY 1984 SAMPLE RES S



LEGEND

SOURCE: [22]

N = Nickel

Cr = Chromium

Cd = Cadmium

S = Surface Sample

.12 = Sample Location

NOT DRAWN TO SCALE

As can be seen from Figure 10, the soil samples obtained by ESI were only analyzed for nickel, chromium and cadmium.

4.1.3 Release Pathways/Potential for Release

The potential migratory pathways for the metal precipitate was through the unlined sludge lagoon to the underlying soil. When the sludge lagoon was being utilized to store the unfiltered sludge (metal precipitate), the liquid draining from the sludge probably carried the metals downward at a greater rate. According to wells GM-2 and GM-1 (Figure 9), the water table is within six feet of land surface (Jacobs, 1987). The metal migration, therefore, did not have to travel far before intersecting the water table. The sludge lagoon is also located in the same area where a petroleum tank once stood. During the sampling visit of the CME, Jacobs personnel observed a petroleum odor and a sheen on the water surface at monitoring wells GM-1 and GM-2 (Jacobs, 1987).

The lagoon is surrounded by bermed walls and a levee between the sludge lagoon and the Blue River. There is no direct outlet from the sludge lagoon to the Blue River. Observations of the levee walls during the VSI revealed trees and other vegetation which might have affected the integrity of the levee and allowed for seepage to occur. The sludge lagoon is in close proximity to the Blue River. Available information, though inadequate to completely characterize the direction of groundwater flow, indicates that groundwater would move from the lagoon toward the river. There is a strong potential for metal migration from the pond via groundwater to the Blue River.

There is no data to support an air release from the sludge lagoon. An HNU reading of the lagoon taken during the VSI registered the background level of 0.0 ppm (Appendix I). The lagoon contained a significant amount of water during the VSI (Appendix II, Photograph 20) and during removal activities, supernatant had to be pumped out and sent through Kuhlman's wastewater treatment plant. If the sludge lagoon had been dry in the past the prevailing wind might have carried some contaminated soil over the bermed walls toward the Blue River.

4.1.4 Documented/Suspected Contaminant Releases

As shown by Figure 10, only cadmium, chromium, and nickel were analyzed during Kuhlman's soil sampling phase. During the SV, composite soil samples were taken from 1' to 6' below land surface to determine if the sludge contained metals, solvents or other wastes generated by the facility at that time. Soil sample S-12 (Table 5) is a background soil sample taken adjacent to the turf farm located to the east of the facility. The wells in the vicinity of the lagoon were also sampled at this time and analyzed for the same parameters to determine the extent of the groundwater contamination.

tab-e
sth

TABLE 5
SOIL SAMPLE ANALYSES

Volatiles
(ug/kg)

	S-1	S-2	S-3	S-4	S-5	S-30	S-6	S-7	S-8	S-9	S-10	S-11	S-12
Methylene Chloride	4.00N	4.00N	3.00N	U	U	2.00N	U	U	U	U	U	U	4.00N
Acetone	U	U	U	U	U	U	U	140.00J	U	U	U	U	U
Toluene	U	U	U	U	U	U	U	U	U	U	3.00N	2.00N	2.00N

Semi-Volatiles
(ug/kg)

	S-1	S-2	S-3	S-4	S-5	S-30	S-6	S-7	S-8	S-9	S-10	S-11	S-12
Phenanthrene	U	U	200.00N	U	U	150.00N	U	U	300.00N	230.00N	U	U	U
Fluoranthene	U	U	260.00N	U	U	140.00N	U	89.00N	660.00N	390.00N	480.00N	U	U
Pyrene	U	U	200.00N	U	U	130.00N	U	U	550.00N	320.00N	430.00N	U	U
Benzo(a)anthracene	U	U	220.00N	U	U	U	U	U	200.00N	150.00N	300.00N	U	U
Bis(2-ethylhexyl) phthalate	U	790.00N	320.00N	340.00N	200.00N	600.00	550.00N	U	U	130.00N	270.00N	U	U
Chrysene	U	U	300.0N	U	U	U	U	U	300.00N	210.00N	370.00N	U	U
Benzo(b)fluoranthene	U	U	350.00N	U	U	U	U	U	470.00N	240.00N	320.00N	U	U
Benzo(a)pyrene	U	U	190.00N	U	U	U	U	U	270.00N	120.00N	130.00N	U	U
Indeno(1,2,3-CD)pyrene	U	U	U	U	U	U	U	U	190.00N	U	U	U	U
Benzo(g,h,i)perylene	U	U	140.00N	U	U	U	U	U	230.00N	U	U	U	U

Data Qualification Codes

U - Compound was not detected.

N - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

tab-e
alb

TABLE 5 (continued)
SOIL SAMPLE ANALYSES

Total Metals
(mg/kg)

	S-1	S-2	S-3	S-4	S-5	S-5D	S-6	S-7	S-8	S-9	S-10	S-11	S-12
Aluminum	16000.0	15000.0	15000.0	13000.0	14000.0	13000.0	16000.0	17000.0	15000.0	14000.0	13000.0	18000.0	18000.0
Arsenic	3.2J	3.0J	5.2J	3.0J	3.4J	4.6J	4.9J	5.3J	3.6J	4.9J	2.7J	4.7J	3.7J
Barium	220.0	230.0	160.0	160.0	170.0	160.0	190.0	180.0	140.0	150.0	140.0	190.0	200.0
Cadmium	2.5	2.4	2.3N	2.0	2.6	2.3	2.3	2.8	2.4	2.1	1.7	3.2	2.4
Calcium	6300.0	9900.0	3800.0	3400.0	4200.0	5000.0	7400.0	5300.0	4400.0	U	14000.0	4900.0	5600.0
Chromium	96.0	33.0	17.0	15.0	16.0	15.0	18.0	52.0	17.0	16.0	16.0	22.0	21.0
Cobalt	9.0N	8.0N	8.3N	8.0N	9.1N	9.8N	10.0N	10.0N	8.5N	9.3N	8.4N	11.0N	8.3N
Copper	57.0	U	U	U	U	U	U	46.0	U	U	U	U	U
Iron	19000.0	17000.0	18000.0	17000.0	18000.0	17000.0	20000.0	20000.0	18000.0	17000.0	15000.0	21000.0	21000.0
Lead	U	U	U	17.0J	U	18.0J	U	28.0J	48.0J	U	U	U	U
Magnesium	2900.0	2800.0	2500.0	2400.0	2700.0	2500.0	3000.0	2900.0	2500.0	2500.0	2200.0	3000.0	2800.0
Manganese	600.0	500.0	430.0	590.0	670.0	730.0	720.0	610.0	530.0	540.0	490.0	760.0	560.0
Mercury	U	U	.12	.12	.30	U	1.0	U	.12	.12	.11	.12	.21
Nickel	130.0	43.0	23.0	22.0	23.0	23.0	25.0	25.0	20.0	21.0	18.0	20.0	27.0
Potassium	2200.0	1700.0	2000.0	1700.0	2000.0	1800.0	2200.0	2300.0	2100.0	2100.0	1900.0	2300.0	2300.0
Silver	U	U	U	U	U	U	U	U	1.0N	U	U	U	U
Vanadium	30.0	20.0	28.0	22.0	25.0	23.0	28.0	30.0	28.0	25.0	26.0	30.0	28.0
Zinc	91.0	83.0	64.0	60.0	64.0	66.0	72.0	92.0	96.0	64.0	64.0	68.0	69.0
Cyanide	U	U	U	U	.34N	U	U	U	U	U	U	U	U

Data Qualification Codes

U - Compound was not detected.

N - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

Table 5 contains the results of the soil analyses from the sampling visit. The soil sample taken at S-1 (Photograph 21, Appendix VIII) in the sludge lagoon contained the highest amount of chromium (96.0 mg/kg), copper (57.0 mg/kg), and nickel (130.0 mg/kg) and the third highest amount of zinc (91.0 mg/kg) in Table 5. The chromium, cadmium, and nickel values for soil samples S-1 and S-2 (Photograph 22, Appendix VIII) exceeded the sludge lagoon values in Figure 10. Soil boring S-7, located approximately 350 feet east of the lagoon, also showed similar elevated waste characteristics as the sludge lagoon. The relationship between the lagoon and these contaminated soils is unknown. Soil sample S-7 (Photograph 8, Appendix VIII) taken adjacent to the northernmost concrete slab contained the second highest cadmium (2.8 mg/kg), chromium (52.0 mg/kg), copper (46.0 mg/kg), lead (28.0 mg/kg J) and zinc (92.0 mg/kg) content and the highest arsenic (5.3 mg/kg J) content. The background soil sample S-12 contained 2.4 mg/kg cadmium, 21.0 mg/kg chromium, 69.0 mg/kg zinc. PAHs, copper, and lead were not detected. Polycyclic aromatic hydrocarbons (PAHs) were not found in soil samples S-1 or S-2. Soil sample S-7 contained only a minor amount of the PAH fluoranthene (89.0 kg/kg M) and is discussed further in Section 5.1. Methylene chloride, acetone, toluene and bis(2-ethylhexyl) phthalate were qualitatively identified in some field blanks and/or trip blanks. This indicates that sampling conditions, collection activities, containers, equipment, transportation, storage conditions and/or the analytical process may have contributed to the presence of these compounds in samples.

Table 6 contains the results of groundwater analyses for the wells located in the northern half of the site. Well construction details are located in Table 1. At the time of the SV, the depth to the water table from land surface was: 3.82' in GM-1; 10.46' in GM-2; 4.39' in GM-11; 4.59' in GM-10; 5.96' in GM-8; 6.01' in GM-9; and 2.97' in GM-14. Monitoring wells GM-1, GM-10 and GM-11 were resampled and the second set of analyses are located in Table 6. The VOA samples from the original set of samples from GM-1, GM-10, and GM-11, were collected from the top of the bailer. This procedure was inconsistent with the sampling methods used for the rest of the wells and was not in accordance with the EPA Technical Enforcement Guidance Document (EPA, 1986). The wells were, therefore, resampled and the VOAs were collected from the bottom of the bailer. As a result of the additional removal of over three well volumes of water, the amount of suspended sediment in the wells was greatly reduced and a more representative sample from the aquifer was obtained.

Table 6 has been divided into dissolved metals and total metals. In several cases, in Tables 6, 8, and 9, the accompanying total metal analyses were not detected. In addition, with the exception of dissolved arsenic, silver, and sodium, there is poor correlation between the dissolved metal content in GM-11 and the duplicate sample GM-11D. In the case of dissolved metals, in order to minimize field discrepancies, a large groundwater sample was obtained from GM-11, filtered, and then split to form GM-11 and GM-11D. In addition, the U.S. EPA Drinking Water Standards and the U.S. EPA Ambient Water Quality Criteria for Human Health are based on total metals only. Therefore, unless otherwise noted, the total metal content will be discussed. Except for the total chromium content in GM-1 and the zinc content in GM-11 (Table 6), the groundwater samples taken from the

monitoring wells GM-1, GM-11, and GM-10 (Photographs 9 and 10, Appendix VIII) showed little evidence of metal contamination. Monitoring well GM-9, however, had substantial metal contamination. The sample from GM-9 exceeded the U.S. EPA Drinking Water Standard of 1000 kg/l for barium, the U.S. EPA Drinking Water Standard of 10 kg/l for cadmium, and the U.S. EPA Drinking Water Standard of 50 kg/l for chromium [40 CFR 265 Appendix III]. Monitoring well GM-9 was bailed dry prior to sampling. Due to a problem with the GM-2 casing, Jacobs was unable to obtain a groundwater sample from that well. The Total Organic Carbon (TOC) values (Appendix X) ranged from less than 5 mg/l (GM-10, GM-11) to 98 mg/l (GM-9). The TOC values for GM-8 and GM-1 were not detected. The TOC detection limit for all of the samples was 2.0 mg/l. The Total Organic Halogen (TOX) values (Appendix X) were not detected (GM-1, GM-11D, and GM-9), 0.008 (GM-11), 0.028 (GM-14), 0.0029 (GM-10), and 0.078 mg/l (GM-8). The TOX detection limit for all of the samples was 0.005 mg/l. The HNU readings taken from the wells during the SV included background (GM-1, GM-10, and GM-11), 70 ppm (GM-8), and 90 ppm (GM-9). PAH contamination is discussed in Section 5.1.

Surface water (Table 9) and sediment (Table 7) samples were taken in the Blue River in the vicinity of the sludge lagoon (SW-1, SED-1, SW-2, SED-2- Figure 9) in order to determine the affect of the lagoon and the petroleum contamination on the river. Sample SW-1 and SED-1 were taken across from the property fence line while samples SW-2 and SED-2 were taken across from the petroleum tank used as a warehouse. Total organic carbon (TOC) was 39 mg/l at SW-2 (an increase of 1 mg/l over SW-1) and 59000 mg/kg in SED-2 versus 310000 mg/kg in SED-1 and appeared to be decreasing downstream to less than 5 mg/l at SW-4 and 20000 mg/kg in SED-3. Sample SW-2 contained the only total chromium (36.0 μg/l) and total nickel (15.0 μg/l) values. The SW-2 nickel value exceeds the U.S. EPA Ambient Water Quality Criteria for Human Health for consumption of fish and drinking water (13.4 μg/l). While samples SW-1 and SED-1 were obtained September 25, 1987 and SW-2 and SED-2 were obtained September 26, 1987 there was no precipitation event between sampling dates that would have qualitatively affected the data.

4.1.5 Recommendations/Conclusions

Soil sample S-7 predominantly contained the second highest metal concentrations in Table 5. It is recommended that the source of this soil contamination be investigated in further detail as the relationship to the sludge lagoon or other plating waste disposal activities is unknown.

TABLE 6

GROUNDWATER ANALYSES

Dissolved Metals
(ug/l)

	GM-1	GM-11	GM-11D	GM-10	GM-8	GM-9	GM-14
Arsenic	17.0	16.0	16.0	U	59.0	29.0	32.0
Barium	470.0	94.0M	493.0	107.0M	406.0	331.0	436.0
Calcium	100000.0	38000.0	87900.0	61000.0	76800.0	123000.0	84700.0
Chromium	U	U	11.0	U	U	U	U
Iron	U	U	1820.0	U	10000.0	3230.0	20500.0
Magnesium	9460.0	U	8500.0	6690.0	7900.0	19900.0	10300.0
Manganese	5580.0	2750.0	4980.0	2330.0	4680.0	13600.0	4960.0
Silver	U	U	U	U	U	U	8.2M
Sodium	U	U	U	U	U	35700.0	U
Zinc	U	150.0	67.0	32.0	120.0	22.0	U

Total Metals
(ug/l)

	GM-1	GM-11	GM-11D	GM-10	GM-8	GM-9	GM-14
Aluminum	4300.0	U	U	U	U	120000.0	U
Barium	U	U	U	U	U	2400.0	U
Beryllium	U	U	U	U	U	9.7	U
Cadmium	U	U	U	U	U	45.0	U
Calcium	100000.0	39000.0	39000.0	60000.0	78000.0	300000.0	85000.0
Chromium	9.5M	U	U	U	U	150.0	U
Cobalt	U	U	U	U	U	88.0	U
Copper	U	U	U	U	U	250.0	U
Iron	5400.0	4300.0	4200.0	U	11000.0	160000.0	22000.0
Magnesium	9700.0	U	U	U	7900.0	52000.0	10000.0
Manganese	5700.0	2900.0	3000.0	2400.0	4800.0	22000.0	4900.0
Mercury	U	U	U	U	U	U	2.7
Nickel	U	U	U	U	U	230.0	U
Potassium	U	U	U	U	U	15000.0	U
Sodium	U	U	U	U	U	37000.0	U
Vanadium	14.0M	U	U	U	U	290.0	U
Zinc	U	490.0	470.0	U	160.0	950.0	U

Data Qualification Codes

U - Compound was not detected.

M - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

As the wells have not been surveyed (Jacobs, 1987), the direction of groundwater flow is in question. It is recommended that the wells be surveyed in by a licensed surveyor and gradient relationship across the site be re-evaluated in order to evaluate potential sources in this area. It is further recommended that additional wells be installed in the alluvium and in the bedrock aquifers: 1) east of GM-8 and GM-9 to verify that the metal contamination is not moving off-site, 2) north of the site in order to provide background information, and 3) adjacent to the SWMU to provide adequate monitoring of the SWMU and to replace GM-2. In addition to the constituents Kuhlman has analyzed for in the past, it is recommended that all future groundwater samples be analyzed for zinc, copper, hexavalent chromium, arsenic, barium, and mercury.

4.2 Polishing Ponds (East and West)

4.2.1 Unit Characteristics

The polishing ponds are both located in the southwestern quarter of the site (Figure 8). According to Jacobs (1987), each rectangularly shaped pond is approximately 50 feet by 100 feet in dimension. The depth of the ponds are unknown. Both ponds received the supernatant from the wastewater treatment plant and the overflow from the sanitary sewage lagoons. The polishing ponds allowed for additional precipitation of metals that the wastewater contained prior to discharge to the Blue River.

On January 6, 1984 Kuhlman began removal of the supernatant from the (east) polishing pond and treating it in their wastewater treatment plant. From January 10 through January 25, 1984, Kuhlman completed stabilization of the sludge with fly ash and removal operations [20]. This mixture was then also shipped via truck under manifest to the U.S. Pollution Control, Inc. (USPCI) Lone Mountain Surface Disposal Site (EPA ID No. 0K0065438376) in Waynolea, Oklahoma [13].

Due to the amount of sludge that was discovered in the east polishing pond, a 21 cubic foot filter press was obtained to process the sludge from the west polishing pond before mixing it with fly ash. This, therefore, reduced the amount of fly ash that was needed. The supernatant was first removed and treated in their wastewater treatment plant and the filter began operating on March 20, 1984. Excavation of the sediments and soils from the polishing ponds was completed in May, 1984 as outlined in the Closure and Post-Closure Plan (Jacobs, 1987).

According to a letter dated April 23, 1987 to Mr. Phillip Meeker (Kuhlman) from Mr. Michael Sanderson (EPA), the east and west polishing ponds were considered to be RCRA regulated units since both ponds received hazardous waste after July 26, 1982 [22]. The letter further stated that there is groundwater contamination at the facility and therefore, the surface impoundments cannot meet the clean closure requirements of 40 CFR 265.228(b) because contaminated subsoil (groundwater) remains in place [22]. Since clean closure cannot be accomplished, EPA requires the surface impoundments be capped in accordance with the requirements of 40 CFR 265.310 and post-closure groundwater monitoring per 40 CFR 265.310 be performed [22]. A proposed cap design and a post-closure plan should be submitted by June 15, 1987 [22].

On June 15, 1987, Mr. Randall Overton submitted a copy of the proposed closure plan. The VSI, conducted on June 24, 1987, revealed drainage entering the east polishing pond from the junction box located above the east polishing pond (Appendix II, Photographs 14 and 15). Both the east (Appendix II, Photograph 16) and the west (Appendix II, Photograph 17) polishing ponds contained a significant amount of water.

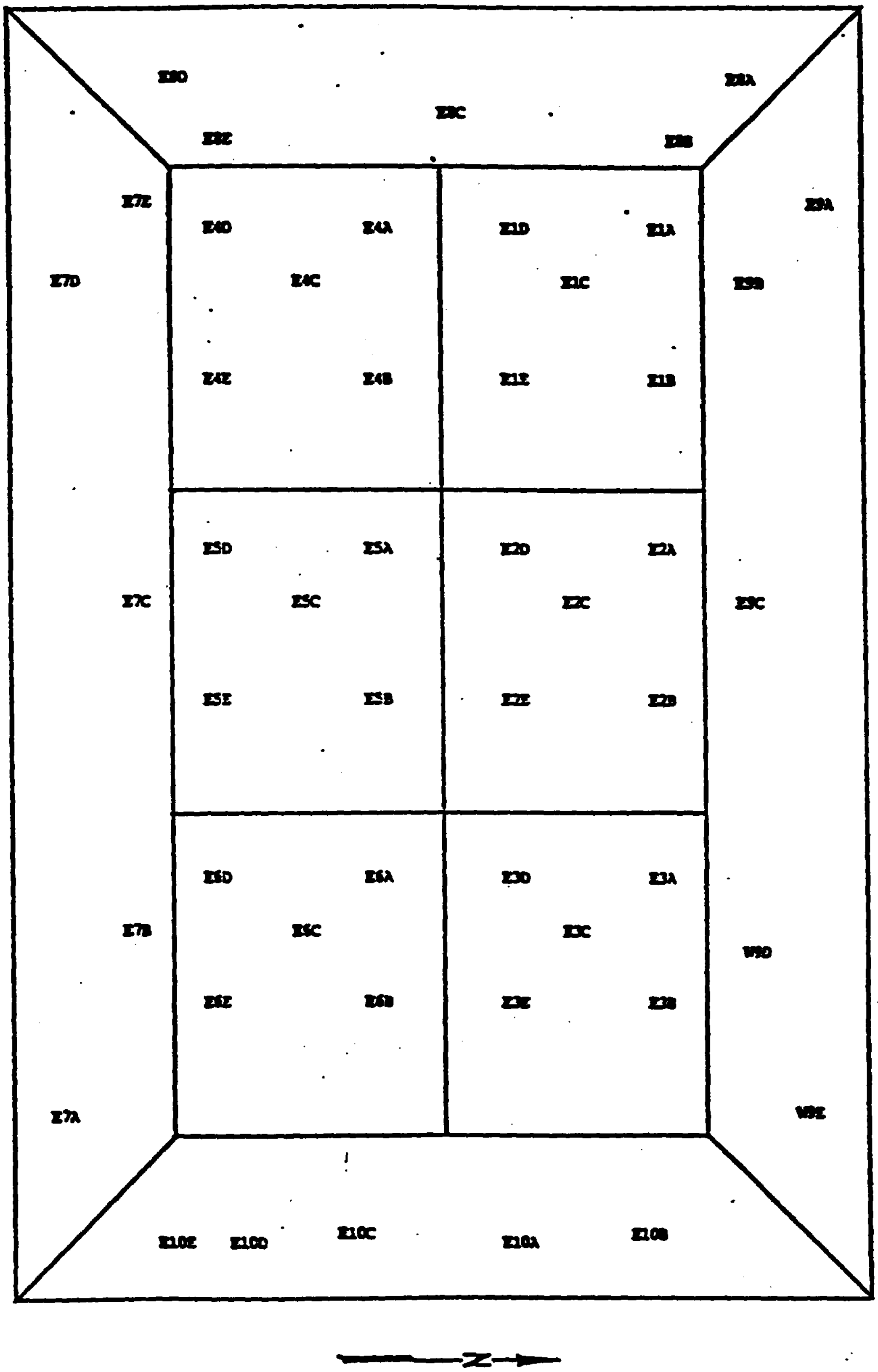
4.2.2 Waste Characteristics

Both polishing ponds received the treated effluent from the wastewater treatment plant. After the ponds were excavated, ETI sampled the remaining sediment. The east and west polishing ponds were sampled according to established grid patterns (Figure 11 and Figure 13, respectively) on October 2-5, 1984 [23]. Figure 12 (east pond) and Figure 14 (west pond) portray the sample results with depth for each grid. Each sample was taken from the surface (S) over the grid area and composited, at 18 inches over the grid area and composited, and at 36 inches over the grid area and composited. As described in Section 4.1.2, the filter sludge contained barium, cadmium, lead, mercury, chromium, cyanide, and sulfide. NPDES permit effluent violations in the past included exceeding the acceptable limits for chromium, hexavalent chromium, cyanide, zinc, total suspended solids, and oil and grease (Section 2.4.1). These violations provide an indication of the type of effluent that was sent to the polishing ponds. The soil samples taken by ETI were only analyzed for cadmium, chromium, and nickel.

4.2.3 Release Pathways/Potential for Release

One potential migratory pathway for the metal precipitate was through the unlined polishing ponds to the underlying soil. As evidenced from the ETI sampling (Figures 12 and 14), there is still a significant concentration of metals in the soil. At the time of the VSI the ponds were full of water (Appendix II, Photographs 16 and 17). According to water level measurements taken from monitoring wells GM-4, GM-5, and GM-6 during July and October 1984 (ETI of North America, 1985), the water table is within six feet of surface. Previous groundwater sampling by the facility has shown that the contents in the ponds have leached into the alluvial aquifer. Analytical data from 1983 and 1984 showed monitoring well GM-4 had a range of 35-169 ppb chromium and <25 to 194 ppb nickel. In addition, in 1984, monitoring wells GM-5 and GM-6 had a range of <10 to 550 ppb and <10 to 400 ppb chromium and 30-1100 ppb and 30-490 ppb nickel, respectively (ETI of North America, 1985).

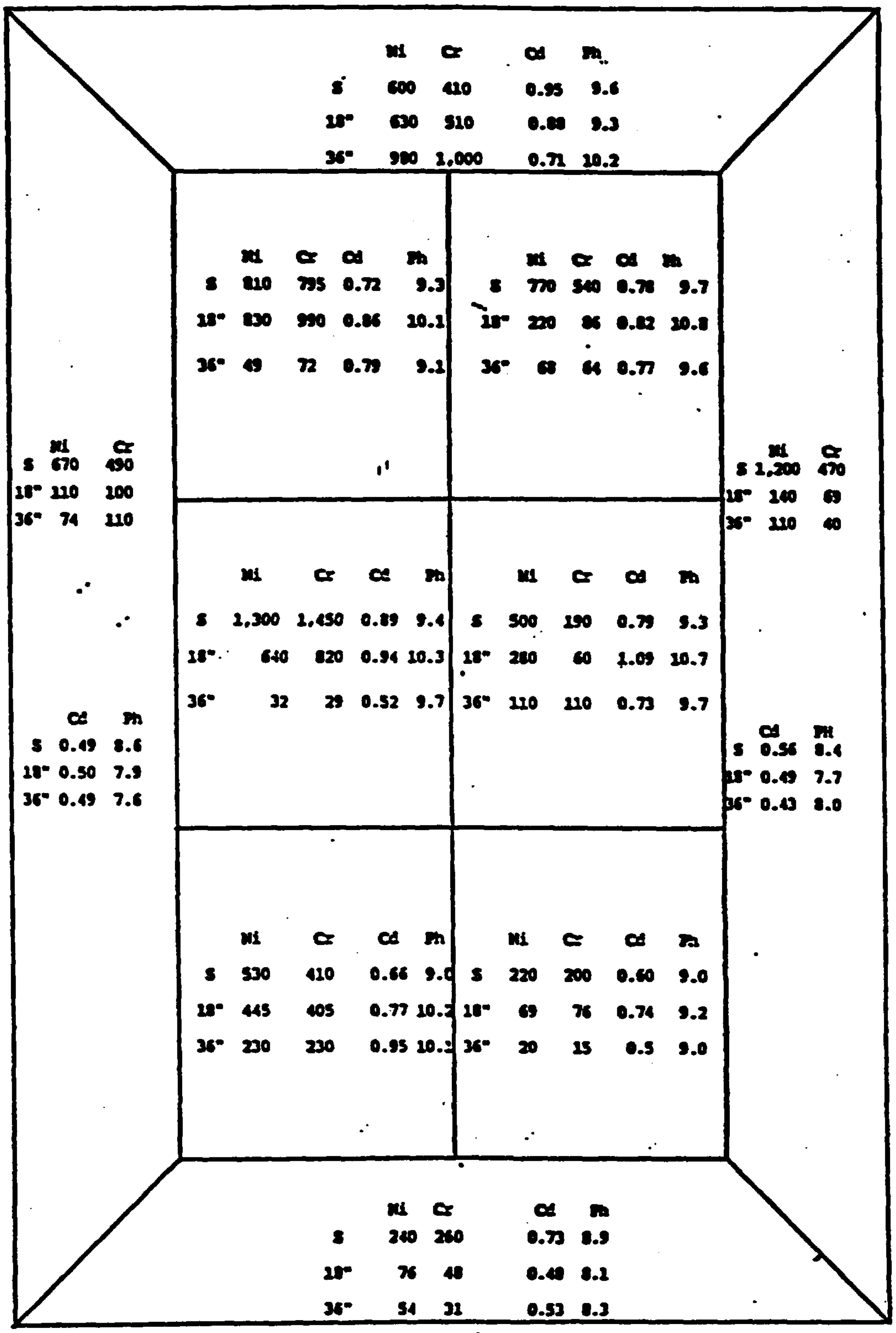
Figure 11 - EAST POND, SAMPLE GRID LOCATIONS March,1984



NOT DRAWN TO SCALE

SOURCE: [24]

Figure 12 - EAST POND, MARCH 1984 SAMPLE RESULTS (mg/Kg)



LEGEND

N →

SOURCE: [24]

NOT DRAWN TO SCALE

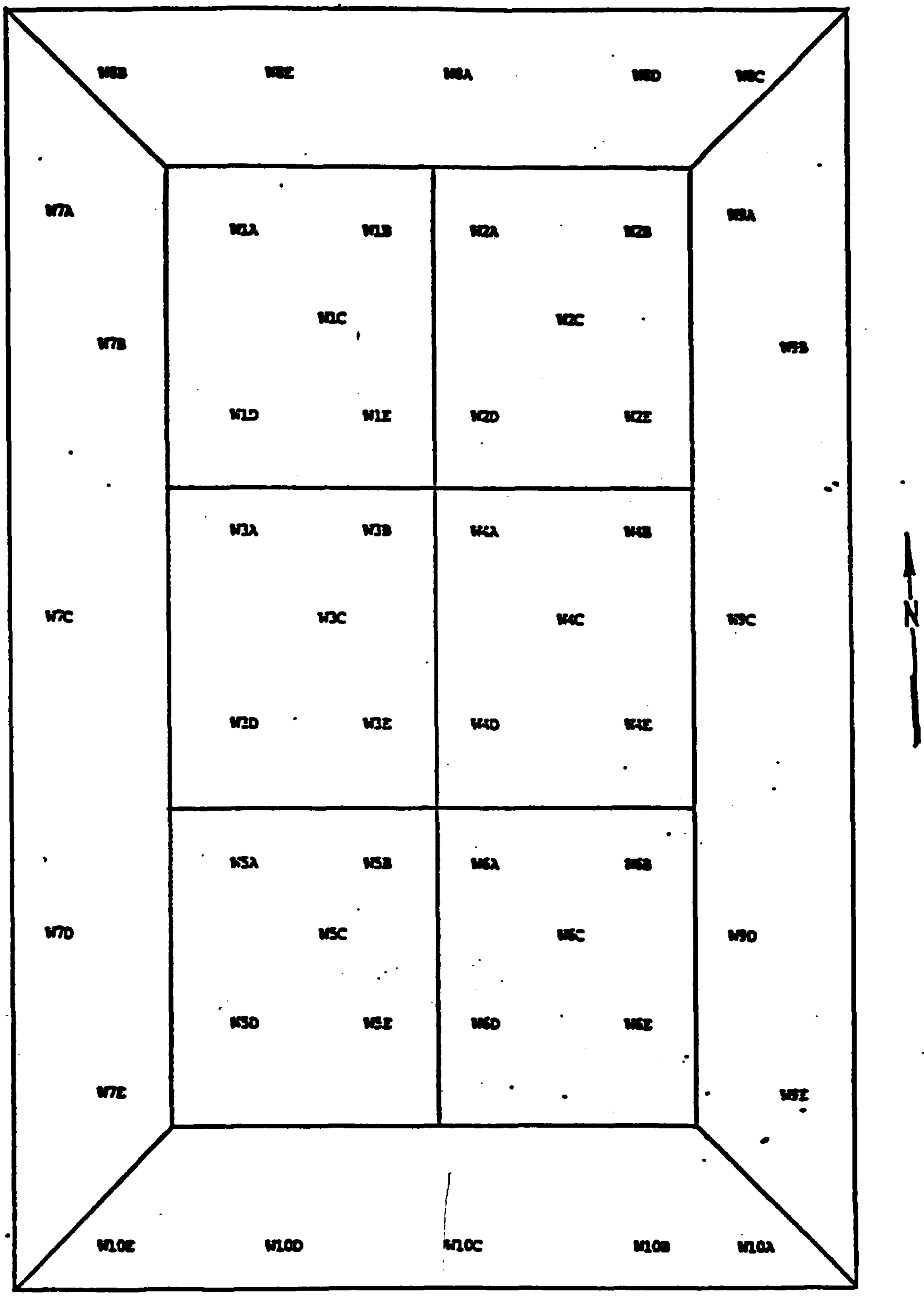
N = Nickel

Cr = Chromium

Cd = Cadmium

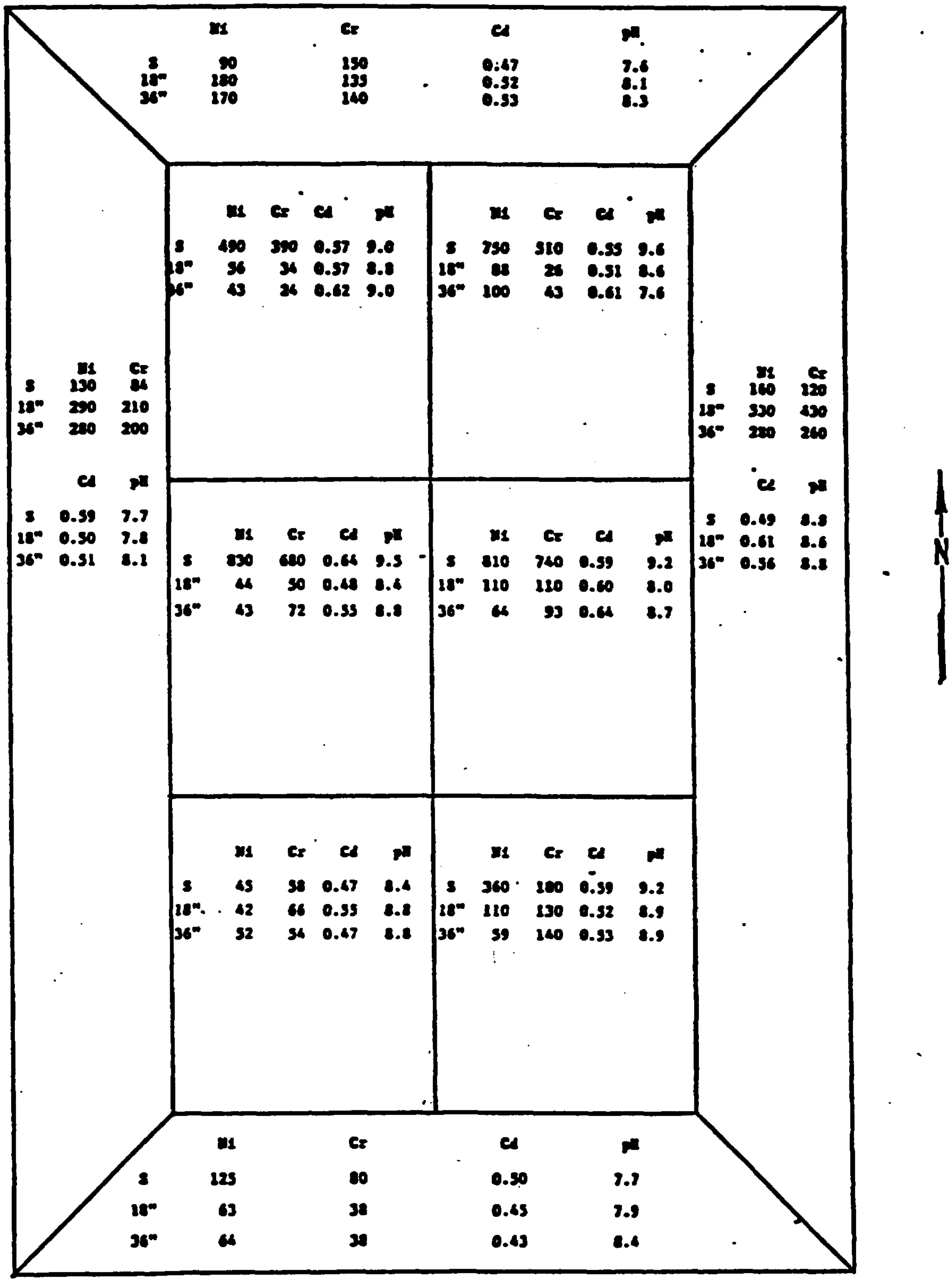
S = Surface Sample

Figure 13 - WEST POND, SAMPLE GRID LOCATIONS March, 1984



NOT DRAWN TO SCALE
SOURCE: [24]

Figure 14- WEST PO[illegible], MARCH 1984 SAMPLE RESULTS ([illegible]g)



<u>LEGEND</u>

N = Nickel
Cr = Chromium
Cd = Cadmium
S = Surface Sample

NOT DRAWN TO SCALE
SOURCE: [24]

In addition, as the polishing ponds are in close proximity to the Blue River and, based on the direction of groundwater flow (Figure 7), there is a strong potential for metal migration via the groundwater to the Blue River. The Blue River had in the past also received direct discharge from the ponds via the NPDES outfall.

There is currently no data to support an air release of contaminants from either pond. HNU readings taken just above the water surface during the VSI of both ponds registered 0.0 ppm (background) above the east polishing pond and 0.2 ppm above the west polishing pond.

4.2.4 Documented/Suspected Contaminant Releases

Despite the ponds undergoing closure in 1984 and the modification to the piping system of the sanitary sewage outlet (Section 2.3), liquid was observed during the VSI to be draining into the east polishing pond. During the SV, the liquid was sampled in addition to the sediment under the outfall in the east polishing pond to see if the pond is still being utilized. The sediment in the west polishing pond was also sampled at that time. The sediment in both ponds was analyzed for cyanide and/or other wastes that were generated by the facility at that time (Table 7). The wells south of the ponds were also sampled at this time and analyzed for the same parameters in order to determine the extent of the groundwater contamination (Table 8). The analytical results of the SW-5 outfall sample were invalidated for quality control reasons and will not be discussed further. When the SED-4 and SED-4D (duplicate) samples taken from the east polishing pond (Figure 9) were analyzed, they were found to have higher cadmium (2.8 and 2.2 mg/kg, respectively) values than those reported in Figure 12. The background soil sample (S-12, Table 5) contained 2.4 mg/kg of cadmium. However, the chromium and nickel values of SED-4 and SED-4D to those in Figure 12 were similar. Of all the sediment analyses listed in Table 7, SED-4 and the duplicate sample had the highest values of barium, arsenic, cadmium, nickel, and vanadium and the second highest values for zinc, potassium, copper, and chromium. The sediment sample SED-5 (Photographs 17 and 18, Appendix VIII) was taken from the northwest corner of the west polishing pond. The SED-5 nickel, chromium, and cadmium values were less than or within the same range as those in Figure 14. When compared to all of the sediment analyses in Table 7, the SED-5 sample contained the highest cyanide (0.96 mg/kg M), the second highest mercury (1.4 mg/kg), the third highest zinc (1000 mg/kg), and the fourth highest copper (240 mg/kg) values. The background soil sample (S-12) did not detect cyanide or copper and contained only 0.21 mg/kg of mercury and 1.9 mg/kg of zinc.

Monitoring wells GM-4, GM-5 and GM-6 are located south of the polishing ponds with screen intervals ranging from 3 - 19.5 feet below land surface (GM-4), 7.5 - 17.5 feet below land surface (GM-5), and 5 - 10 feet below land surface (GM-6). The water levels recorded during the SV ranged from 5.87 feet below land surface (GM-4) to 6.35 feet below land surface (GM-5 and GM-6). As evidenced from the water level information, the direction of groundwater flow is south toward the Blue River (Figure 7).

tab=d

SEDIM ANALYSES

Total Metals
(mg/kg)

	SED-1	SED-2	SED-8	SED-3	SED-4	SED-4D	SED-5	SED-6	SED-7
Aluminum	15000.0	14000.0	9400.0	15000.0	16000.0	15000.0	11000.0	15000.0	2100.0
Arsenic	3.4J	U	2.5J	4.8J	6.6J	6.0J	U	U	U
Barium	200.0	190.0	88.0	210.0	410.0	350.0	150.0	124.0M	230.0M
Cadmium	1.9	U	U	2.2M	2.8	2.2	U	U	U
Calcium	5700.0	22000.0	7500.0	29000.0	26000.0	34000.0	18000.0	9100.0	9200.0
Chromium	19.0	22.0	730.0	24.0	690.0	380.0	95.0	380.0	250.0
Cobalt	7.2M	8.9M	5.6M	8.9M	10.0M	8.5M	8.0M	U	U
Copper	U	U	610.0	U	490.0	340.0	240.0	130.0	200.0
Iron	15000.0	17000.0	12000.0	19000.0	17000.0	16000.0	15000.0	16000.0	3400.0
Lead	U	U	U	19.0J	33.0J	40.0J	31.0J	72.0J	54.0J
Magnesium	2400.0	2600.0	1800.0	2700.0	3900.0	3800.0	2800.0	3900.0	U
Manganese	320.0	380.0	270.0	660.0	480.0	340.0	280.0	220.0	37.0
Mercury	U	.32	.12	.34	.24	.44	1.4	8.2	U
Nickel	20.0	25.0	690.0	24.0	1200.0	770.0	250.0	290.0	130.0M
Potassium	1900.0	1700.0M	1500.0	1700.0M	2000.0	2100.0	1600.0M	2600.0M	U
Sodium	U	U	U	U	U	U	U	U	7800.0
Vanadium	30.0	30.0	18.0	32.0	38.0	33.0	20.0M	29.0M	U
Zinc	62.0	150.0	430.0	80.0	950.0	1400.0	1000.0	690.0	7600.0
Cyanide	U	U	.44M	U	U	U	.96M	U	U

Data Qualification Codes

U - Compound was not detected.

M - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

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TABLE 8

GROUNDWATER ANALYSES

Dissolved Metals
(ug/l)

	GM-4	GM-5	GM-6
Arsenic	U	U	9.8M
Barium	231.0	132.0M	118.0M
Calcium	125000.0	137000.0	139000.0
Iron	U	3140.0	2750.0
Magnesium	U	9130.0	9660.0
Manganese	5080.0	3540.0	4370.0
Nickel	12.0M	U	U
Potassium	U	U	5020.0
Silver	U	U	8.0M
Sodium	112000.0	99600.0	106000.0
Vanadium	U	U	9.0M
Zinc	21.0	U	U

Total Metals
(ug/l)

	GM-4	GM-5	GM-6
Aluminum	39000.0	49000.0	31000.0
Barium	760.0	830.0	U
Cadmium	9.6	17.0	6.7
Calcium	150000.0	160000.0	150000.0
Chromium	110.0	96.0	42.0
Cobalt	24.0M	22.0M	U
Iron	48000.0	80000.0	42000.0
Magnesium	13000.0	18000.0	13000.0
Manganese	8000.0	4800.0	4900.0
Nickel	100.0	180.0	57.0
Potassium	6600.0	10000.0	8300.0
Sodium	96000.0	95000.0	96000.0
Vanadium	96.0	130.0	72.0
Zinc	220.0	280.0	130.0

Data Qualification Codes

U - Compound was not detected.

M - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

The water analysis from GM-5 had the highest concentration of total metals with the exception of chromium, cobalt, manganese, and sodium. The third highest total organic halogen (TOX) value was found in the sample from monitoring well GM-6. The total chromium content in GM-4 and GM-5 exceeds the U.S. EPA Drinking Water Standard of 0.05 ppm (50 μg/l) [40 CFR 265 Appendix III]. The total nickel content in all three wells greatly exceeds the U.S. EPA Ambient Water Quality Criteria for Human Health for the consumption of fish and drinking water (13.4 μg/l).

4.2.5 Recommendations/Conclusions

The potential pathway of contamination into bedrock must be investigated. In addition to the constituents Kuhlman analyzed for in the past, it is recommended that all future groundwater samples be analyzed for zinc, copper, barium, mercury, hexavalent chromium, and cyanide. It is also recommended that the source of the outfall effluent be determined and the junction box and associated piping be removed upon closure of the polishing ponds.

4.3 Sludge Storage Tank

4.3.1 Unit Characteristics

A petroleum storage tank was used to store metal plating sludge resulting from the wastewater treatment plant in 1973 and from 1981 to 1983. On May 10th, 1983, Kuhlman began the removal of the dewatered metal plating sludge that was stored in the petroleum storage tank located north of the sanitary sewage lagoons (Figure 8). The sludge was manually placed in multilayer cloth/plastic bags with a one cubic yard capacity [24]. After the sludge was removed from the tank, the floors and walls were rinsed to gather up any additional sludge and the rinsate was recycled through the wastewater treatment plant [24]. During a site investigation conducted by PRC (1986), Mr. Meeker stated that the tank was used to store machinery. The tank was closed during the VSI.

4.3.2 Waste Characteristics

As stated previously, an analysis of the filter sludge is located in Appendix III. The sludge sample contained 29 ppm barium, 1.0 ppm cadmium, 36 ppm lead, 0.1876 ppm mercury, 3500 ppm total chromium, 33 ppm total cyanide and 0.97 ppm total sulfide. Nickel, copper, and zinc were not included in this analysis.

4.3.3 Release Pathways/Potential for Release

The petroleum storage tank is a self-contained unit and as a result, there does not appear to have been any potential for migration of the sludge to the soil, groundwater, surface water, or air. An HNU measurement of the filtered sludge (filter cake-Appendix I) was 0.4 ppm taken during the VSI.

4.3.4 Recommendations/Conclusions

It is recommended that Kuhlman evaluate the potential for contaminated soils adjacent and underlying the storage tank. This recommendation is made based on soil contamination found adjacent to a past petroleum storage tank (S-7) which exhibited plating waste characteristics. At this time it is unknown if plating wastes were managed near S-7, but the potential does exist that a release of contaminants may have occurred from the sludge storage tank in the past.

4.4 Sanitary Ponds

4.4.1 Unit Characteristics

The unlined sanitary lagoons (two) have been used since the plant began operation in the early 1960s. The lagoons are located in close proximity to two petroleum tanks and are south of the facility building (Figure 8).

4.4.2 Waste Characteristics

The lagoons were built to treat domestic sewage waste. During the VSI, Jacobs asked if there were blueprints available for review in order to verify that the sanitary lagoons only received sewage wastes. Ms. Catron (Kuhlman), was not aware of any blueprints and was unable to locate any during the VSI. There was also no available record in the PR to indicate that the lagoons had ever been sampled.

4.4.3 Release Pathways/Potential for Release

The lagoons are unlined. It is expected that the underlying soils and groundwater have been affected by the constituents of the sanitary lagoons as well as the surface water due to the direction of groundwater flow (Figure 7). There is no data to support an air release of contaminants from the lagoon. HNU readings taken just above the north and south lagoon surface during the VSI (Appendix I) are 0.1 ppm and 0.0 ppm, respectively.

4.4.4 Documented/Suspected Contaminant Releases

During the SV, the sediment was sampled in the vicinity of the discharge pipes to both lagoons in order to verify that the lagoons only received sewage wastes. Sludge samples (Table 7) SED-7 (Photograph 20, Appendix VIII) and SED-6 (Photograph 19, Appendix VIII) were taken from the north and south sanitary sewage lagoons (Figure 9), respectively. Sample SED-7 had the highest TOC content (160000 mg/kg) with SED-6 having the second highest TOC content (104000 mg/kg) of all the sediment samples. The background soil sample S-12 had a TOC of 10700 mg/kg. Both sediment samples had abnormally high copper, chromium, nickel, and zinc values which are commonly attributed to plating wastes. Sample SED-7 had the highest zinc concentration (7600 mg/kg) in Table 7. The background soil sample S-12 only had 69.0 mg/kg of zinc. In addition, 1,4 dichlorobenzene and 2-methylphenol was found in both lagoons while a minor amount of phenol was found in SED-6.

4.4.5 Recommendations/Conclusions

Based on the high concentrations of metals in the sediments of the sewage lagoons, it is recommended that the sludges and surface water in the sanitary ponds be representatively sampled in order to provide a more detailed characterization of the waste contaminants in the ponds. If the characterization shows a predominance of metals then it is recommended that the potential migration pathways from the sewage lagoons be investigated. These include soils underlying the lagoons and groundwater.

4.5 Paint/Paint Thinner Disposal Area

4.5.1 Unit Characteristics

As stated in Section 2.3, Kuhlman Diecasting had been disposing of waste paint and paint thinner by dumping it on the ground outside of the paint booth, on the southwest corner of the plant. Ms. Catron (Kuhlman) did not know how long this practice had been in effect. All of the visually contaminated soil was removed by Kuhlman in 1987 [18]. The contaminated soil (approximately 6 cubic yards) was put in 22 drums [18] and the excavated area was then filled with clean soil (Hawkins, November 1987). Based on an analysis of the contaminated soil [26], the drums were accepted for disposal at the Miami County Landfill in May, 1987. No contaminated soil was observed outside the paint shop area during the VSI. According to Mr. Meeker, the paint and paint thinner dumping was not authorized by the facility and it was not known how long it took place (Hawkins, November 1987).

4.5.2 Waste Characteristics

An order assessing an administrative penalty dated March 11, 1987 stated that waste paint and paint thinner was being disposed on the ground. Appendix II contains an analysis of the paint filters which should approximate the paint components. According to Ms. Catron (Hawkins, November 1987), the paint thinner used at Kuhlman consisted of toluene and xylene from Solvent Supply Company and a blend from Sherwin Williams.

4.5.3 Release Pathways/Potential for Releases

The soil was contaminated by the paint/paint thinner deposition. The contaminated soil has been removed [18]. There is no data to support a release of contaminants to the groundwater, surface water, or air.

4.5.4 Recommendations/Conclusions

KDHE has documented the release of the paint and paint thinner material on the ground. All visually contaminated soil was removed to a depth of approximately one foot by Kuhlman and, based on an analysis of the contaminated soil [26], the drums were sent to a local landfill. As it is a documented release, it does not warrant sampling under the RFA. It is recommended, however, that the facility sample the soil with depth to determine if their cleanup was sufficient and that a potential for future releases is minimal.

4.6 Oil/Water Disposal Area

4.6.1 Unit Characteristics

Kuhlman was observed disposing of a drum containing synthetic oil and water in the northwest corner of the parking lot (Figure 8) in 1982 [12]. It is not known how long the dumping of oil took place in the northwest corner of the parking lot or if that was the only location that Kuhlman personnel dumped the oil. At the time of the VSI, there was no evidence of stressed vegetation or stained soil showing the location of this dumping (Appendix II, Photograph 4). According to an August 19-20, 1982 report of RCRA compliance inspection at Kuhlman, Mr. Meeker indicated that approximately 55 gallons of this synthetic oil and water mixture were accumulated and disposed in this manner about every two months [12]. However, in a recent phone conversation with Ms. Catron (Hawkins, November 1987), Mr. Meeker informed her that: the dumping was unauthorized by the facility; only one drum was disposed in this manner; and the contaminated soil was removed. Mr. Meeker had further stated that the emulsified oil normally went through the wastewater treatment plant (Hawkins, November 1987).

4.6.2 Waste Characteristics

Appendix III contains a 1982 analysis of the Houghton oil used by the facility to lubricate the diecasting machines at that time. The oil contained ethylene glycol (30-40%), alkanolamine soap (<5%), corrosion inhibitor (<1%), high molecular weight polyethylene glycol ether (10-20%), alkamolamine (<1%), dye (<1%), and water (40-50%). An analysis of oil and grease located in Appendix III shows that in addition to the halogens found, there was also 5.2 ppm of lead.

4.6.3 Release Pathways/Potential for Releases

The soil was contaminated in the northwest corner of the parking lot by synthetic oil deposition. According to Mr. Meeker, the contaminated soil has been removed (Hawkins, November 1987). There is no data to support a release of contaminants to the groundwater, surface water, or air.

4.6.4 Recommendations/Conclusions

KDHE documented the synthetic oil and water disposal [12]. Only one drum was observed being disposed of in this manner. Mr. Meeker has stated that the contaminated soil was removed. It is not known however where the contaminated soil was sent. As it is a documented release, it did not warrant sampling under the RFA. It is recommended, however, that the facility sample the soil with depth to determine if their cleanup was sufficient.

4.7 Wastewater Treatment System

4.7.1 Unit Characteristics

Kuhlman Diecasting has discharged wastewater effluent to the Blue River from 1964 to the present. Their wastewater treatment facility went into operation approximately August 1973. A description of the wastewater treatment process and the improvements that were made to the wastewater treatment plant through time is contained in Section 2.3. Photographs 7 through 9 (Appendix II) show the outdoor settling basin of the treatment process. As presented in the photographs 8 and 9, there was only six inches of freeboard in the settling tank and that there is a crack in the SE corner of the settling tank. The wastewater treatment system has been defined as a SWMU as it treats the plating waste effluent, removes the metal precipitate, and utilizes several settling basins.

4.7.2 Waste Characteristics

As noted in Section 2.4, Kuhlman had a pattern of noncompliance with the conditions and limitations of the NPDES permit. The effluent is normally sampled via an ISCO sampler that is set up to intercept the effluent as it leaves the wastewater treatment plan. Kuhlman has exceeded the NPDES effluent limitations for cyanide, chromium, hexavalent chromium, nickel, copper, zinc, total suspended solids, and oil and grease in the past (Section 2.1.4).

4.7.3 Release Pathways/Potential for Release

The repeated pattern of noncompliance has provided the migratory pathway for the metals to the surface water and sediment in the Blue River and to potential ingestion by organisms in addition to irrigation intakes downstream (Section 5.2). As evidenced in Figure 7, the groundwater is generally radial and flowing to the Blue River (Jacobs, 1987). There is no data to support that groundwater is being affected by a release from the wastewater treatment plant. In addition, there is no evidence to support an air release of contaminants.

4.7.4 Documented/Suspected Contaminant Releases

Currently there is no documentation on releases from the wastewater treatment system components to the groundwater at this time. The potential does exist for a release to the groundwater and hence to the surface water from cracks in the settling basins, drains, or underground piping associated with the wastewater treatment plant. In addition, due to a lack of cover, there is a potential of overtopping during heavy precipitation events from the settling basin located outside and north of the wastewater treatment plant. During the SV, the wastewater effluent (SW-3) was sampled just prior to the NPDES outfall and a seep (SW-6) and adjacent sediment (SED-8) were sampled approximately 20-30 feet north of the outfall entering the Blue River (Figure 9, Tables 7 and 9). The seep (Photograph 14, Appendix VIII) was seen bubbling from a small inlet that was approximately two feet long and approximately one-half foot wide at the mouth. The sediment at the point of exit to the Blue River was discolored and the sediment sample SED-8 was obtained at the location of the flag. The seep sample SW-6 was obtained to the right of the flag prior to entry to the Blue River. The effluent from the wastewater treatment system which discharges to the Blue River through the NPDES outfall has had documented releases through its noncompliance with the NPDES permit. This is addressed in further detail in Section 5.2.

Sample SED-8 (Photograph 14, Appendix VIII), taken at the base of this seep, appears to reflect the influence of plating wastes. The sample (SED-8) contains the highest chromium (730 mg/kg) and copper (610 mg/kg) values, the second highest cyanide value (.44 mg/kg M), the third highest nickel (690.0 mg/kg) value, and the sixth highest zinc value (430.0 mg/kg) in Table 7. The sediment sample results are also substantially higher than the background soil sample S-12 (Table 5). Surface water sample SW-6 (Photograph 13, Appendix VIII) was taken from the seep and also contains the highest total chromium (580.0 kg/l) and total copper (1400 kg/l) values in addition to the highest total zinc (900 kg/l), total magnesium (10000.0 kg/l), total sodium (380,000.0 kg/l), and total cyanide (35 kg/l) and the second highest total nickel (200.0 kg/l) value of all the surface water samples. When compared to SW-6, SW-3 (outfall sample) had exceeded SW-6 only in total calcium, potassium, and nickel concentrations. The highest value of TOX for the water samples collected by Jacobs were found in the NPDES effluent sample SW-3 (1.83 mg/l) and in the seep sample SW-6 (.512 mg/l). The seep represents the presence of a release of hazardous constituents from the facility but it's origin cannot be documented at this point in time.

4.7.5 Recommendations/Conclusions

It is recommended that the origin of the seep be investigated and the source be remediated, if possible. In addition, it is recommended that the nature of the discharge (volume, concentration vs time, etc.) and the effect of the discharge on the surface water and sediments be investigated. Based on the constituents in the seep, it is recommended that an inspection be conducted on the structural integrity of the concrete liners. In addition, all underground piping leading to and from the wastewater treatment system should also be inspected.

tab-c
sth

TABLE 9
SURFACE WATER ANALYSIS

Dissolved Metals
(ug/l)

	SW-1	SW-2	SW-6	SW-3	SW-4	SW-4D
Barium	U	135.0M	U	143.0M	158.0M	154.0M
Calcium	54600.0	65700.0	34400.0	67300.0	72200.0	71600.0
Chromium	327.0	39.0	490.0	U	U	U
Copper	U	U	749.0	U	U	U
Lead	U	U	U	U	U	85.4
Magnesium	7420.0	8730.0	10000.0	8610.0	10200.0	10100.0
Manganese	U	490.0	U	482.0	526.0	465.0
Nickel	152.0	18.0M	140.0	U	U	U
Potassium	7920.0	66600.0	U	U	9300.0	9460.0
Selenium	U	U	U	U	U	3.6M
Silver	9.6M	U	U	U	7.8M	U
Sodium	192000.0	U	453000.0	U	39900.0	39300.0
Zinc	32.0	22.0	160.0	U	23.0	U

Total Metals
(ug/l)

	SW-1	SW-2	SW-6	SW-3	SW-4	SW-4D
Calcium	67000.0	66000.0	34000.0	55000.0	70000.0	70000.0
Chromium	U	36.0	580.0	430.0	U	U
Copper	U	U	1400.0	1300.0	U	U
Magnesium	8500.0	8700.0	10000.0	7400.0	9600.0	9600.0
Manganese	540.0	520.0	U	U	710.0	660.0
Nickel	U	15.0M	200.0	430.0	U	U
Potassium	3200.0M	6600.0	13000.0	15000.0	7800.0	7800.0
Sodium	U	U	380000.0	160000.0	36000.0	37000.0
Zinc	U	U	900.0	330.0	U	U
Cyanide	U	U	35.0	U	U	11.0J

Data Qualification Codes

U - Compound was not detected.

M - Compound was qualitatively identified; however, quantitative value is less than contract required detection limits (CLP data); or value is less than limit of quantitation (EPA data).

J - Compound was qualitatively identified; however, compound failed to meet all QA criteria and, therefore, is only an estimated value.

4.8 Drum Storage Area

4.8.1 Unit Characteristics

During the VSI, several drum storage areas were observed adjacent to the western exterior wall (Figure 8) of the plant building (Photograph 3, Appendix II) and in the grass located southwest of the western wall (Photograph 4, Appendix II). The drums in Photograph 3 were located directly on a concrete pad that did not have a berm surrounding it. As a generator, the drum storage area is limited to 90 day storage (PRC Engineering, 1986). The drums that are stacked on their sides in the parking lot in Photograph 4 were empty according to Ms. Catron. The drums located directly on the grass (Photograph 4) appeared to contain some liquid during the VSI.

4.8.2 Waste Characteristics

The drums located on the concrete contained primarily toluene waste solvent generated from the adjacent paint shop (Appendix I). It is not known what was contained in the drums on the grass.

4.8.3 Release Pathways/Potential for Releases

There was no evidence during the VSI of stressed vegetation or contaminated soil around the drum accumulation areas. There is no data to support a release of contaminants to the groundwater, surface water, or air.

4.8.4 Recommendations/Conclusions

There is no evidence of a release. However, it is recommended that the drum storage area in the grass be examined for releases through sampling after the drums have been removed. If a release has occurred, appropriate corrective action should be implemented. It is recommended that the facility create a larger waste drum storage area on a concrete pad with an appropriate containment system. It is further recommended that the drums be stored on pallets to enable a periodic examination for leaks.

4.9 Parking Lot and Entrance Road

4.9.1 Unit Characteristics

Oil and grease skimmings from the wastewater treatment plant were spread via a tank truck over the gravel and dirt surfaces as a water-repellent cover for the parking lot and driveway areas [2]. This procedure was discontinued about two years ago (Appendix I). Currently, the accumulated oily waste is containerized and hauled off-site by Morocco Energy.

4.9.2 Waste Characteristics

A Houghton 419 lubricating oil is used in the diecasting machines. Until recently, the drains under the diecasting machines went directly to the wastewater treatment plant. The drains have since been diverted and the waste oil is being directly containerized. According to Mr. Furse (Appendix

I), 30 gal/day of oil/water residue is generated. At the time of the SV, the oil/water residue was processed through the wastewater's treatment plant.

Appendix III contains a 1982 generic formula for the Houghton oil used by the facility. The oil contained ethylene glycol (30-40%), alkanolamine soap (<5%), corrosion inhibitor (<1%), high molecular weight polyethylene glycol ether (10-20%), alkamolamine (<1%), dye (<1%), and water (40-50%). Appendix III also contains a 1987 analysis of oil and grease which shows that in addition to the halogens there was also 5.2 ppm of lead. Zinc, nickel or copper were not analyzed for at that time. In order to determine that the oil and grease resulted from the lube oil, the lube oil should be analyzed.

4.9.3 Release Pathways/Potential for Release

The parking lot and entrance road were sprayed by a tanker truck with oil and grease skimmings. It is not known how long this practice continued nor how much oil and grease skimmings were sprayed over time. There is no data to support a release of contaminants to the groundwater, surface water, or air.

4.9.4 Recommendations/Conclusions

KDHE documented the spraying of parking lot and entrance road [2]. As it is a documented release, it did not warrant sampling under the RFA. It is recommended that the facility sample the soils with depth in the parking lot, entrance roads and the sides of the entrance roads to determine if the contaminated soil poses a threat to the ground or surface water in the area.

5.0 OTHER POTENTIAL AREAS OF CONCERN

5.1 Potential Petroleum Source

5.1.1 Unit Characteristics

During the monitoring well installation program and subsequent groundwater sampling occurrences, it was noted by Kuhlman's consultants that soil and groundwater samples yielded petroleum odors and sheen, indicating an influence on the groundwater by previous operations at the facility (Jacobs, 1987). A noticeable sheen and odor were documented by Jacobs (1987) while obtaining a split sample from monitoring wells GM-2 and GM-1. In addition, HNU readings taken of wells GM-2, GM-1, GM-10, and GM-11 during the VSI had readings ranging from 20-220 ppm (Appendix I). The HNU readings, however, may not have located all potentially contaminated areas as non-volatile, semi-volatile, or volatile fractions at depth may not be detected by the HNU meter. Figure 8 outlines the area of wells containing elevated HNU readings (>2.0 ppm). There is currently no evidence documenting petroleum contamination south of the plant. However, during the SV, a petroleum sheen was observed on the Blue River in the vicinity of the Mission Road bridge which is located south of the entrance to the site.

As stated previously, Kuhlman occupies an area that was previously an oil storage and transfer station. Potential source locations of the petroleum contamination would, therefore, include the on-ground petroleum tanks, the

ARCO pipeline, and the underground storage tanks (Figure 8, 11b-11d). During the VSI, it was mentioned that the underground storage tanks will be removed in the near future and that KDHE will be providing oversight and will obtain samples at the time of removal (Appendix I). At the time of this report, information on the underground storage tank removal was unavailable.

5.1.2 Waste Characteristics

No information was currently available on the type of petroleum products that were stored in the petroleum storage tanks or what the pipeline was used for through time. Lab analyses on samples taken from two of the underground storage tanks are located in Appendix III. Both samples contained a predominance of halogens. The tank located next to the wall (Appendix III) contained silver (13.4 ppm) while the tank located behind the boiler room (Appendix III) contained barium (22 ppm), cadmium (0.39 ppm), and chromium (8 ppm).

5.1.3 Release Pathways/Potential for Release

As noted previously, Kuhlman's consultants had observed petroleum contaminated soil and water during their installation of the monitoring wells (Jacobs, 1987). A petroleum sheen had been observed on a water sample taken from monitoring wells GM-2 and GM-1 (Jacobs, 1987) and an area of potential petroleum contamination had been outlined based on high HNU readings taken from wells during the VSI (Figure 8). An oil sheen has also been noted in the past on the Blue River [2]. According to Mr. Brumwell (Kuhlman), he had seen petroleum "product" seep out of the ground following rainstorms in which there was significant runoff from the plant site [9]. The runoff, according to Mr. Brumwell, discharged through Kuhlman's industrial treatment lagoon to the river [9]. In addition, a petroleum sheen was observed during the SV on the Blue River in the vicinity of the Mission Road bridge (Section 5.1.1). The potential migratory pathways for the petroleum contamination therefore includes the soil, groundwater, and surface water. As the petroleum contamination is predominantly below land surface, there is no evidence to support an air release of contaminants.

5.1.4 Documented/Suspected Contaminant Releases

During the SV, soil sampling and groundwater sampling was done in the area of high HNU readings outlined in Figure 8 in order to identify the constituents in the contaminated area and to attempt to locate the source. During the SV, the wells that contained HNU readings above background (Appendix VI) were MW-8 (70 ppm), MW-9 (90 ppm), MW-2 (5.2 ppm), and MW-14 (1.4 ppm). Based on the analytical results from the SV, none of the PAHs analyzed for were detected in the groundwater samples. However, the groundwater samples were not analyzed for all potential organic contaminants. The groundwater samples collected during the site visit did not exhibit the oil phase visibly documented during the CME and, in addition, the HNU readings had changed significantly from the VSI. Therefore, the petroleum contamination might not have been completely characterized during this sampling event.

The semi-volatile section of Table 5 shows evidence of polycyclic aromatic hydrocarbon (PAH) contamination in soil samples S-3, S-8, S-9, S-7 and S-10 (Photograph 11, Appendix VIII). PAH contamination was not detected in the background soil sample S-12. With the exception of Bis (2-ethylhexyl) phthalate, all the other constituents are Pahs. The soil sample S-3 (Figure 9) was taken next to a weld which may have contained a historical break in the on-ground petroleum storage tank that has since been converted to a warehouse. The sample from S-3 had the highest TOC value for the soils. Soil samples S-8 (Photograph 7, Appendix VIII) and S-9 (Photograph 6, Appendix VIII) were taken from around the concrete slab that has since been removed near the intersection of entrance road and Mission Road. Soil sample S-8 contained the highest lead (48.0 mg/kg J) value as well as containing predominantly the highest PAH values. Soil sample S-10 was taken adjacent to the ARCO pipeline that crosses Kuhlman's property to the northwest. The highest HNU reading for the soils was 70 ppm and was taken from S-10 at a depth of 3 feet. Soil sample S-7 located adjacent to the northern most concrete slab contained only a minor amount of the PAH fluoranthene (89.0 kg/kg M). Only a few Pahs were found in S-5D which is a duplicate of sample S-5.

5.1.5 Recommendations/Conclusions

None of the PAHs analyzed for were detected in the groundwater samples. However, the groundwater samples were not analyzed for all potential organic contaminants. Petroleum contamination has been observed on-site in the past in both soil, groundwater (Jacobs, 1987) and surface water [2] [4]. The HNU readings changed substantially, however, from the VSI to the SV. Therefore, at this time, the petroleum contamination is not completely understood based on results from this sampling event. It is recommended that additional sampling be done to determine how seasonal changes might affect the petroleum contamination on-site.

5.2 NPDES Outfall

5.2.1 Unit Characteristics

As discussed in Section 4.7.1, Kuhlman Diecasting has discharged wastewater effluent through an NPDES outfall to the Blue River from 1964 to the present. From 1964 until 1982 the Blue River received the effluent in the vicinity of the Camp Branch tributary from the polishing ponds as shown in Figure 8 - NPDES Outfall (past). From 1982 to the present, the Blue River has received the effluent due west from the wastewater treatment facility as shown in Figure 8 - NPDES Outfall (present). Photograph 10 (Appendix II) shows the current NPDES permitted discharge pipe and the discoloration of the rocks below. A July 5, 1984 report entitled "Blue River Cu and Zn Analytical Results" show metal contamination in the vicinity of the polishing ponds [25].

5.2.2 Waste Characteristics

As noted in Section 2.4, Kuhlman had a pattern of noncompliance with the conditions and limitations of the NPDES permit. Kuhlman has exceeded the NPDES effluent limitations in the past for cyanide, chromium, hexavalent chromium, nickel, copper, zinc, total suspended solids and oil and grease (Section 2.1.4).

5.2.3 Release Pathways/Potential for Release

The NPDES permit has provided the migratory pathway for the metals to the surface water and sediment in the Blue River and to potential ingestion by organisms in addition to irrigation intakes downstream. As evidenced in Figure 7, the groundwater is generally radial and flowing to the Blue River (Jacobs, 1987). There is no data to support that groundwater is being affected by the surface water contamination. There is no evidence to support an air release of contaminants from the surface water. The closest receptors are the irrigation intakes just downstream from Kuhlman Diecasting Co. (Section 3.5).

5.2.4 Documented/Suspected Contaminant Releases

During the SV, the surface water (Table 9) and sediment (Table 7) in the Blue River was sampled upstream and downstream of the facility in order to determine the affect Kuhlman has had on the Blue River. In addition, as mentioned in Section 4.7.4, the wastewater effluent was sampled just prior to the NPDES outfall and a seep and adjacent sediment were sampled that were discovered just north of the outfall entering the Blue River (Figure 9). The highest values of TOX, of all the water samples, were found in the NPDES effluent sample SW-3 (1.83 mg/l) and in the seep sample SW-6 (.512 mg/l) The downstream sediment sample (SED-3, Photograph 1, Appendix VIII) had the highest total metal concentrations of the three Blue River sediment samples (SED-1, SED-2, and SED-3; Table 7) with the exception of nickel, potassium, and zinc. The surface water samples that were taken close to midstream are SW-1, SW-2 (Photograph 2, Appendix VIII), SW-4, and SW-4D (duplicate). Calcium, magnesium, manganese, potassium, sodium, and cyanide appeared to have increased in concentration downstream. When compared to the existing NPDES permit limitations [27], SW-3 (outfall sample) had exceeded the daily maximum for copper (500 kg/l) and had exceeded SW-6 only in calcium, potassium, and nickel concentrations.

5.2.5 Recommendations/Conclusions

The daily maximum for copper was exceeded during the SV. It is not known how frequently the NPDES permit limits are exceeded. It is, therefore, recommended that a reevaluation of the wastewater treatment system be conducted to determine where further improvements may be made.

6.0 CONCLUSION

Kuhlman Diecasting has operated their electroplating facility in Stanley, Kansas since the early 1960's. During the course of their operations, they deposited their hazardous waste in several SWMUs on site (Table 4, Figure 8). In addition to disposing their hazardous waste in SWMUs, they also discharged their treated effluent through an NPDES outfall (Table 4, Figure 8). Petroleum contamination has also been observed on-site and may result from past operation when the site was occupied by a petroleum transfer station. To determine the exact nature and extent of contamination on site it is recommended that further investigations be conducted by the facility. The installation of additional wells in both the alluvial aquifer and bedrock aquifer in order to locate all migratory pathways are recommended. In addition, it is recommended that Kuhlman analyze for a wider range of contaminants that have been associated with the site. All wells should be surveyed in by a licensed surveyor. It is also recommended that the source of the seep be investigated and eliminated. In addition, several recommendations of soil sampling have been made to verify the extent of contamination and to determine the need for additional corrective measures at the site.

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63

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TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITE

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RCRA FACILITY ASSESSMENT
OF
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

APPENDICES I - IV
VOLUME 1

Appendix I

Visual Site Inspection

Kuhlman Diecasting Facility

KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

VISUAL SITE INSPECTION
TRANSCRIBED LOGBOOK NOTES
OF

Anne Harrington, Hydrogeologist
Byron Kesner, Environmental Scientist
Jacobs Engineering Group Inc.

Facility Description

Facility:	Kuhlman Diecasting Company Stanley, Kansas
EPA Identification Number:	KSD006325013
Date of Inspection:	June 24, 1987
EPA Representatives:	Marilyn Mattione Bill Pedicino
Jacobs Representatives:	Anne Harrington, Hydrogeologist Byron Kesner, Environmental Scientist
Facility Representative:	Connie Catron, Environmental Control Officer Alfred Furse, Engineering Services Manager Phil Meeker, General Manager

Jacobs representatives, Anne Harrington, Hydrogeologist and Byron Kesner, Environmental Scientist met with EPA officials, Marilyn Mattione and Bill Pedicino at the Region VII office on June 24, 1987 at 0815. The Jacobs and EPA personnel then drove to the Kuhlman site in Stanley, Kansas and we arrived at the facility at 0930.*

The group checked in at the front desk and were met by Connie Catron, Environmental Control Coordinator and Alfred Furse, Engineering Services Manager for Kuhlman. EPA credentials were presented to Ms. Catron upon arrival and consent to enter the facility and to perform the inspection was obtained.

WALK-THROUGH TOUR OF KUHLMAN DIECASTING FACILITY

At 0940, due to the heat buildup in the facility, it was decided by Mr. Pedicino to begin the walk-through portion of the VSI, immediately. This first part of the walkthrough encompassed all of the production and processing areas of the facility and was conducted by Ms. Catron and Mr. Furse.

Electroplating Processes

- Utilization of an iron phosphate process
- Alkaline cleaner kept in the first dip tank
- Water rinse
- Iron phosphate (used in coating steel)
- Chromate conversion coating-pretreatment with dicromate (used as a pretreatment for aluminum and zinc)
- Water rinse
- Final seal rinse

The actual processing depends on the type of metal. With each metal the process varies slightly. The facility utilizes city water.

All overflows on the rinse tanks lead to the waste treatment area for treatment before discharge.

The chromate tank is constructed with a double overflow which takes the waste as a segregated waste to a chromium reduction treatment system (e.g., $Cr^{+6} \longrightarrow Cr^{+3}$). The reduction process utilizes sodium metabisulfite and silver dioxide.

Painting Department

All parts coming through the above process area are dried on line, and painted with an electrostatic spray gun (e.g., the paint particulates are charged negatively, and the part to be painted is grounded). The painted part then goes into an oven room for baking in a gas fired oven and curing in an infrared curing oven. All steel, zinc, and aluminum parts are coated.

* Approximate time (on a 24-hour clock) is indicated throughout this report. Time at which a specific phase of the visual site inspection or a specific event occurred is denoted in the text of this report as: xxxx.

Toluene waste is the primary hazardous waste generated in this area. Toluene is used to cleanup primarily the paint spray gun. Used toluene is squirted into a bucket, distilled in a still and reused. Still bottoms are sent to United Solvent Services. Toluene waste is stored outside of this area and against the building, on a concrete pad. The concrete is not bermed to control spillage or leaks from running onto the soil.

Electroplating Process

1026, one portion of the plating room is not operational. The electroplating process at Kuhlman include:

- An alkaline cleaner followed by an acid cleaner
- Copper cyanide plating bath
- Acid copper plating (sulfuric acid)
- Nickel plating
- Chrome plating
- Each step includes a water rinse step in between

The electroplating process is designed as a loop of tanks with a conveyor system for transporting parts between the tanks. At the top of the loop is the copper cyanide plating bath. Between each of the baths is a rinse and one or more cleaner baths. At the bottom of the loop is the nickel plating bath. The chromium plating bath is at one side half way in-between the copper and nickel baths.

All drains and overflows in the electroplating department drain to the wastewater treatment system.

All parts going through the plating process go through an emulsion cleaner and subsequent spray wash-alkaline cleaner between plating process applications.

Copper cyanide plating solution will last several years. As much as possible, Kuhlman regenerates the plating bath with additions of new solution rather than empty and change the bath tanks. The plating bath is expensive. Copper cyanide plating bath which can no longer be used is drummed for collection by Cyanokem in Detroit, Michigan [(313) 933-1850].

All cyanide plating chemicals are stored separately from other chemicals (especially acids). These chemicals are stored in the vicinity of the copper cyanide plating bath tanks. Caustic potash (90% flakes) were stored near the drums containing 100 lbs. of copper cyanide. Nitric acid, sulfuric acid, chromic acid, liquid nickel chloride, and other corrosive chemical storage are toward the nickel plating bath end of the loop. There was a noticeable seepage of water in and around this area; reportedly from heavy rainfall over the last several weeks. These chemicals were stored adjacent to emergency holding tanks.

Nitric acid tank sludges were in open but plastic sealed drums labeled as hazardous waste. One drum had a faded label with an accumulation start date of May 11, 1987. Nickel salts drums were also accumulating in the same general area. The nickel salts will eventually be transferred to the sludge gondola for disposal.

Machine and Cooling Oils

According to Mr. Furse, Houghton 419 oil is used to operate the diecasting machinery. All run-off is collected in the sump for treatment prior to release. According to Mr. Furse, 30 gal/day of oil/water residue is generated.

The oil is water soluble and biodegradable. All oily waters are processed through the wastewater treatment plant. Approximately 1 1/2 years of accumulated oily waste has been collected in drums (as a result of, and prior to the establishment of the wastewater treatment system), for eventual off-site disposal. Morocco Energy is scheduled to pick up this accumulated oily waste today. The total of approximately 100 drums of the oil/water waste will be loaded by pump truck for off-site disposal. The drums that contained the oily wastewater will be washed out and then will be crushed and hauled away, according to Mr. Furse. Ms. Catron said that the washwater will be sent through the wastewater treatment system. The treatment facility capacity is equipped to treat up to 30 gallons per day of oily wastewater without it adversely affecting the treatment system.

Before the oil/water mixture was drummed (approximately two years ago) it was spread onto the dirt road areas of the facility for dust suppression. This procedure was discontinued about two years ago. Neither Mr. Furse or Ms. Catron knew when Kuhlman began spreading the mixture over the dirt road areas.

Only non-contact cooling waters come into direct contact with the diecasting equipment.

Sludge Filter Press

Sludge from the hydroxide precipitation of Cr^{+3} and Ni metal waste is pumped into the filter press from the wastewater settling tanks. Analysis performed on the resultant green filter press cake has been taken on several occasions. These analyses have been consistent over time. A copy was requested for review. The filter press cake is collected in a gondola of approximately 21 cubic yards capacity. This material is labeled as a RCRA hazardous waste and shipped off-site to the USPCI Landfill in Oklahoma.

Hazardous Waste Accumulation Areas

A total of three hazardous waste accumulation areas are active at this site:

o The cyanide storage area
o The nitric acid storage area
o The paint shop storage area where waste toluene is stored

Although three areas were reported, five accumulation areas were observed. A fourth area for the storage of nickel stripper corrosive waste is located near the filter press. There is also a separate storage for waste nickel salts. These last two areas will be discontinued in the near future.

A separate area for the storage of plating solutions was also visited. This area is used for the storage of extra holding tanks to be used on a contingency basis. The extra holding tanks are stored away from the production areas, and are kept for emergency and/or unexpected instances where solutions must be pumped out of the active bath line. The tanks did contain small amounts of sludge bottoms. These sludge bottoms are scheduled to be vacuumed out of the holding tanks and sent to the wastewater treatment facility.

Wastewater Treatment

The wastewater treatment processes consists of both segregated and nonsegragated waste streams. Segregated waste streams consist of cyanide waste, chromium waste, and nickel waste. The segregated waste streams each go to a specific treatment process area.

- o Chromium reduction (Cr^{+6} ---> Cr^{+3}) utilizes hydrogen sulfide and sodium metabisulfite
- o Copper cyanide chlorination with calcium hypochlorite
- o Nickel precipitation (caustic treatment which raises the pH enabling the nickel to precipitate out).

A drain brings in all other nonsegregated wastewaters into the treatment area.

All waste waters which have been treated are mixed in an in-ground mixing tank. In this tank, the first polymer treatment occurs. A second atonic ploymer and lime treatment occur in a second mixing tank.

The precipitated metals are given a chance to precipitate out into a sludge. The waste water goes to a metal precipitate settling tank outside of the wastewater treatment facility. This in-ground concrete lined tank was on the property prior to Kuhlman's ownership. It was refinished February 1, 1987 by checking the tank walls for soundness and sealing the walls. Freeboard of the tank is approximately 4-6 inches. This settling tank is regulated by the NPDES permit for the site.

A building to cover the settling pond is scheduled for construction in the very near future. This should control algal growth and protect from overflow due to adverse weather conditions. One portion of this area will need to be built up before the structure is built.

The precipitates which settle out from this process are then pumped to the filterpress, where they are pressed into a filter press cake. This is disposed of in the gondola mentioned above. The clarified water is pumped to a sand filterbed for a final filtration prior to NPDES discharge into the Blue River.

BRIEFING

At 1100, Jacobs and EPA personnel met with Mr. Meeker, Ms. Catron, and Mr. Furse and discussed the purpose of the RFA, the next phase (sampling visit) of the RFA, the site history and site layout, and obtained the MSDS sheets on the lubricants (Attachment 1), strippers (Attachment 2), and cleaners (Attachment 3) currently being used in their process.

Site History

Sinclair Oil is the original owner of the site. A wheat company then took over the site; cleaned out all of the tanks; and used the site as a grain storage facility. A furniture manufacturer then took over the site, and used the facility for plating of furniture parts. Kuhlman finally took this site over and expanded the site into a diecasting and electroplating company in the early 1960s. Sludge lagoon and polishing ponds used during

this early period have all since been closed and the hazardous constituents removed. Caps have not been installed on them as yet.

The site is called the "Redel Siting" based on its use as a railroad switching site.

Site Layout

Kuhlman owns approximately 40 acres within the Blue River meander. The only exception to this is the railroad right-of-way. Kuhlman also owns the LPG tanks and transfer truck. An Arco pipeline runs through the site.

A call will be made to this number to check the integrity of the pipeline.

The water reservoir north of the facility was never used for production water. The Blue River was originally used. By 1984, the site was connected to the Kansas City water supply.

Underground storage tanks are to be removed from the Kuhlman site as soon as Radium Petroleum empties the tanks (a total of 4 USTs are present: 3 contain oil; and 1 is empty). When the tanks are finally scheduled to be removed, Kansas Department of Health and Environment has requested to be on-site.

TOUR OF THE FACILITY GROUNDS

At 1330, Ms. Catron, EPA representatives, and Jacobs personnel began a tour of the facility grounds, SWMUs and monitoring wells. Ms. Harrington documented the site with photographs and Mr. Kesner took the following HNU readings.

Time	Subject	HNU* Reading ppm	Results
1415	Green filter cake	0.4	taken inside USPCI container
1416	Warehouse next to parking lot and sanitary lagoons	0.6	taken inside the warehouse
1420	Background air	0.3	
1422	Well GM-16	0.25	taken inside the well; no protective casing
1422	Well GM-15	0.2	taken inside the well; no protective casing
1424	Well GM-12	0.2	taken inside the well; no protective casing
1435	Concrete slab near entrance to property	0.2	taken at several locations at land surface around the slab

Time	Subject	HNU Reading ppm	Results
1442	Well GM-13	2.0	taken inside the well; no protective casing
1500	Outfall to east polishing pond	0.4	taken inside the box just above the liquid
1504	Well GM-4	0.0	taken inside the well which had protective casing but no lock
1515	Well GM-3	0.2	full of water between protective casing and well; not locked.
1520	West polishing pond	0.2	taken at the water surface
1523	East polishing pond	0.0	taken at the water surface
1525	South sanitary lagoon	0.0	covered with algae; taken at the water surface
1526	North sanitary lagoon	0.1	taken at the water surface
1538	Well GM-2	20.0	taken inside well; no well cap; had protective casing
1540	Well GM-10	200.0	taken inside well; no protective casing
1543	Well GM-11	50.0-100.0	taken inside well; no protective casing
1547	Well GM-1	220.0	taken inside well; no protective casing
1551	Sludge pond	0.0	taken at edge of sludge pond at water surface
1600	Well GM-17	0.0	taken inside well; no grout seal; well was loose in the ground; no protective casing
1620	Warehouse located NW of the facility buildings	0.2	taken inside
1705	NPDES discharge pipe	0.0	taken just above the flowing water

*HNU readings may not locate all potentially contaminated areas as non-volatile, semi-volatile or volatile fractions at depth may not be detected by an HNU meter.

Due to the poor map quality and dense vegetation, wells GM-5, GM-6, GM-7, GM-8, GM-9, and GM-14 could not be located. Stressed vegetation was only observed at the east polishing pond and the sludge lagoon and was probably due to a fluctuating water level. One of the ARCO pipeline location posts was found north of the sludge pond on Kuhlman's property. Notification on the pipeline post indicates Arco Pipeline, Independence, Kansas, (316) 331-3381 as the owner of the pipeline, and as the entity to call prior to digging or other activity around the pipeline.

Outbriefing

At 1645 Jacobs personnel met with Ms. Catron and Mr. Furse. EPA personnel had left the site at approximately 1600 hours.

1. Kuhlman was notified of a crack in one corner of the outside settling tank and limited freeboard of the NPDES tank.

2. All of the hazardous waste drum accumulation areas need more access and aisle space. It was suggested that drums should be put on pallets to facilitate transportation and inspection in and around them. Adequate aisle space between drums or rows of drums should also be provided.

3. It was determined that Randy Overton has sampled the groundwater monitoring wells for the month of May.

4. The inlet to the east polishing pond should be dry, however, there was some flow running into the pond. This is reported to be rainwater. Kuhlman is seeking money to cap the ponds as per the closure.

5. 1,1,1-trichloroethane use at the facility was discontinued. The only hazardous waste drummed on a regular basis is the toluene resulting from the paint shop operations.

ATTACHMENT 1

LUBRICANTS

OCT 20 1986

Material Safety Data Sheet
May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
#631-S EJECTEZE	

Section I

Manufacturer's Name: CANTON LUBRICANTS COMPANY	Emergency Telephone Number: 313/582-7580
Address (Number, Street, City, State, and ZIP Code): 13105 Prospect	Telephone Number for Information: 313/582-7580
Dearborn, Michigan 48126	Date Prepared: 9/4/86
	Signature of Preparer (optional)

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Contains no hazardous components				

Section III — Physical/Chemical Characteristics

Boiling Point	212 F	Specific Gravity (H_2O = 1)	1.1
Vapor Pressure (mm Hg.)	H_2O	Melting Point	not determined
Vapor Density (AIR = 1)	H_2O	Evaporation Rate (Butyl Acetate = 1)	much less than 1

Solubility in Water: Emulsifiable

Appearance and Odor: Bland Green Fluid

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
Emulsion - none	none		

Extinguishing Media: None

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

(Reproduce locally) OSHA 174, Sept. 1985

...tion V — Reactivity Data

...lity			
	Unstable		Conditions to Avoid
	Stable	XX	

...mpatibility (Materials to Avoid) Strong oxidizing agents

...rdous Decomposition or Byproducts Oxides of carbon.

...rdous ...merization			
	May Occur		Conditions to Avoid
	Will Not Occur	XXX	

...tion VI — Health Hazard Data

...e(s) of Entry: Inhalation? XX Skin? Ingestion?

...th Hazards (Acute and Chronic) None expected by nature of product. If inhaled, may cause slight irritation to respiratory system.

...inogenicity: None NTP? IARC Monographs? OSHA Regulated?

...s and Symptoms of Exposure See health hazards

...ical Conditions ...erally Aggravated by Exposure No data found

...rge... ...nd First Aid Procedures

...tion VII — Precautions for Safe Handling and Use

...s to Be Taken in Case Material Is Released or Spilled Absorb on inert material and dispose of as non-hazardous industrial waste.

...te Disposal Method As liquid non-hazardous industrial waste.

...autions to Be Taken in Handling and Storing Do not store above 140°F or below 40°F.

...er Precautions None

...tion VIII — Control Measures

...piratory Protection (Specify Type)

...ilation		
	Local Exhaust	Special
	Mechanical (General) XX	Other

...ective Gloves Neoprene | Eye Protection Safety glasses

...er ...ive Clothing or Equipment None

...ygienic Practices Wash thoroughly after using.

• USGPO 1986-491-529/45775

AMOCO

MATERIAL SAFETY
DATA SHEET

AMOCOOL SOLUBLE OIL

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601

EMERGENCY HEALTH INFORMATION: (800) 447-8735
EMERGENCY SPILL INFORMATION: (800) 424-9300
OTHER PRODUCT SAFETY INFORMATION: (312) 856-3907

IMPORTANT COMPONENTS: Solvent refined paraffinic petroleum oil, CAS No 64741-88-4; ACGIH for oil mist 5 mg/m3.
Petroleum sulfonate.
2-Butoxyethanol, CAS No. 111-76-2, ACGIH TLV (skin) 25 ppm (120 mg/m3), OSHA PEL 50 ppm (240 mg/m3).

WARNING STATEMENT: None required.

APPEARANCE AND ODOR: Light colored, oily liquid.

HEALTH HAZARD INFORMATION

EYE

EFFECT: No significant irritation expected.

FIRST AID: Flush eyes with plenty of water.

PROTECTION: None required; however, use of safety glasses is good industrial practice.

SKIN

EFFECT: None expected for single short-term exposures. Prolonged or repeated contact may produce some irritation.

FIRST AID: None required.

PROTECTION: Wear protective clothing and gloves if prolonged or repeated contact is likely.

INHALATION

EFFECT: None expected under normal conditions of use.

FIRST AID: None required.

PROTECTION: None required for normal conditions of use.

HEALTH HAZARD INFORMATION - CONTINUED

INGESTION

EFFECT: Expected to be relatively non-toxic.

FIRST AID: If a large amount is swallowed, induce vomiting. Get medical attention.

FIRE AND EXPLOSION INFORMATION

FLASHPOINT: Not applicable.

EXTINGUISHING MEDIA: Not applicable.

REACTIVITY INFORMATION

STABILITY: Stable.

CHEMICAL AND PHYSICAL PROPERTIES

SOLUBILITY IN WATER: Emulsifiable.

SPECIFIC GRAVITY (WATER = 1): 0.91

VISCOSITY: 300-600 SUS @ 100°F.

POUR POINT: 15°F Maximum.

STORAGE AND ENVIRONMENTAL PROTECTION

STORAGE REQUIREMENTS: No special requirements.

SPILLS AND LEAKS: Contain and remove by mechanical means.

WASTE DISPOSAL: Enclosed-controlled incineration or permitted landfill unless directed otherwise by applicable ordinances.

TOXICOLOGICAL INFORMATION

EYE: Maximum primary eye irritation score 15.3/110.0 (rabbits).

SKIN: Dermal LD50 greater than 5 g/kg (rabbits). A similar product produced a primary dermal irritation score of 4.4/8.0 (rabbits).

INHALATION: LC50 greater than 1.29 mg/liter (rats).

INGESTION: Acute oral LD50 greater than 10 g/kg (rats).

TOXICOLOGICAL INFORMATION - CONTINUED

This product contains 2-butoxyethanol. Repeated overexposure to 2-butoxyethanol may result in anemia. Overexposure to 2-butoxyethanol should not occur if the ACGIH TLV for oil mist is observed.

REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: Listed by ACGIH.

DOT PROPER SHIPPING NAME (BULK, LAND): Not regulated.

ISSUE INFORMATION

BY:

Stephen A. Elbert
Mgr., Product Safety & Toxicology

ISSUED: November 07, 1985
SUPERSEDES: January 02, 1985

OCT 21 1995

LA FRANCE MANUFACTURING COMPANY
10256 PAGE INDUSTRIAL BLVD
ST UIS, MISSOURI 63132

Material Safety Data Sheet # 802

Phone: 314-426-2565 Emergency Phone: 314-831-7221

SECTION 1 PRODUCT IDENTIFICATION

FRANLUBE 173LS DIE RELEASE AGENT

HMIS RATING

Health (See Section 5)	1
Flammability	0
Reactivity	0
Personal Protection	B

SECTION 2 INGREDIENTS

MATERIAL OR COMPONENT	%	CAS NUMBER	Mg/M3
Oils, vegetable	<10	68956-68-3	
Residual oil (petroleum), hydrotreated	<20	64742-57-0	(oil mist) 5
Paraffin waxes and hydrocarbon waxes, micro cryst.	<10	63231-60-7	
Ethanol, 2,2'-oxybis-	<10	111-46-6	
Ethanol, 2,2',2"-nitrilotris-	<10	102-71-6	
Poly(oxy-1,2-ethanediyl),a-(nonylphenyl)-w-hydroxy	<10	9016-45-9	
Water	<60	7732-18-5	
Ethanol, 2(hydroxymethylamine)-	trace	34375-28-5	5

SECTION 3 PHYSICAL DATA

BOILING POINT: 212 F
pH: 7.75 - 8.25
SPECIFIC GRAVITY (H2O=1): 0.99
VAPOR PRESSURE: approx = water
VAPOR DENSITY (AIR=1): approx = water
SOLUBILITY IN WATER BY WEIGHT: dispersible
% VOLATILES BY VOLUME: less than 60
EVAPORATION RATE (BUTYL ACETATE=1): less than 1
APPEARANCE AND ODOR: Pale yellow emulsion with mild odor

SECTION 4 FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD): None
AUTOIGNITION TEMPERATURE: NA
FLAMMABLE LIMITS AIR % BY VOLUME: - LOWER: NA UPPER: NA
EXTINGUISHING MEDIA: NA
SPECIAL FIRE FIGHTING PROCEDURES: NA
UNUSUAL FIRE AND EXPLOSION HAZARD: NA

SECTION 5 HEALTH HAZARD INFORMATION

ROUTES OF EXPOSURE: Inhalation, dermal, eye, ingestion

Effects of Overexposure

ACUTE: Possible skin and eye irritation

CHRONIC: None determined

Emergency and First Aid Procedures

EYES: Flush with large amounts of water for 15 minutes; refer to medical personnel.
SKIN: Wash with soap and water; wash contaminated clothing before reuse.
INHALATION: Remove to fresh air; call physician.
INGESTION: Induce vomiting; call physician immediately.
NOTE TO PHYSICIAN: None

SECTION 6 REACTIVITY DATA

STABILITY: Stable CONDITIONS TO AVOID: None
INCOMPATIBILITY: None
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide can be formed during combustion.
HAZARDOUS POLYMERIZATION: Will not occur CONDITIONS TO AVOID: None

SECTION 7 SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Small spills should be absorbed with absorbent material. Large spills should have area diked to prevent spreading; pump liquid into a salvage tank and absorb remaining material; shovel into container.

NEUTRALIZING CHEMICALS: None

WASTE DISPOSAL METHOD: Burn in incinerator or bury in closed containers in approved landfill.

SECTION 8 SPECIAL PROTECTION INFORMATION

ENTILATION REQUIREMENTS: General

Specific Personal Protective Equipment

YES: Safety goggles
LOVES: Chemical resistant
THER CLOTHING AND EQUIPMENT: As required to minimize skin contact

SECTION 9 TRANSPORTATION DATA

OT APPLICABLE

SECTION 10 SPECIAL PRECAUTIONS

TORAGE: Store under controlled temperatures---range 32 to 100 F.

IANDLING: Keep from freezing - Minimize skin contact - Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse - Properly dispose of contaminated eather articles, including shoes, that can not be decontaminated.

PREPARED BY: EDWARD A. KRUSZYNSKI, PRESIDENT
ADDRESS: 10256 PAGE INDUSTRIAL BLVD., ST. LOUIS, MO 63132
DATE: APRIL 29, 1986

COMPLIES WITH OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910.1000)

Summary of HMIS Ratings

I. HEALTH HAZARD RATING

0 MINIMAL HAZARD	No significant risk to health
1 SLIGHT HAZARD	Irritation or minor reversible injury possible
2 MODERATE HAZARD	Temporary or minor injury may occur
3 SERIOUS HAZARD	Major injury likely unless prompt action is taken and medical treatment is given
4 SEVERE HAZARD	Life-threatening, major or permanent damage may result from single or repeated exposures

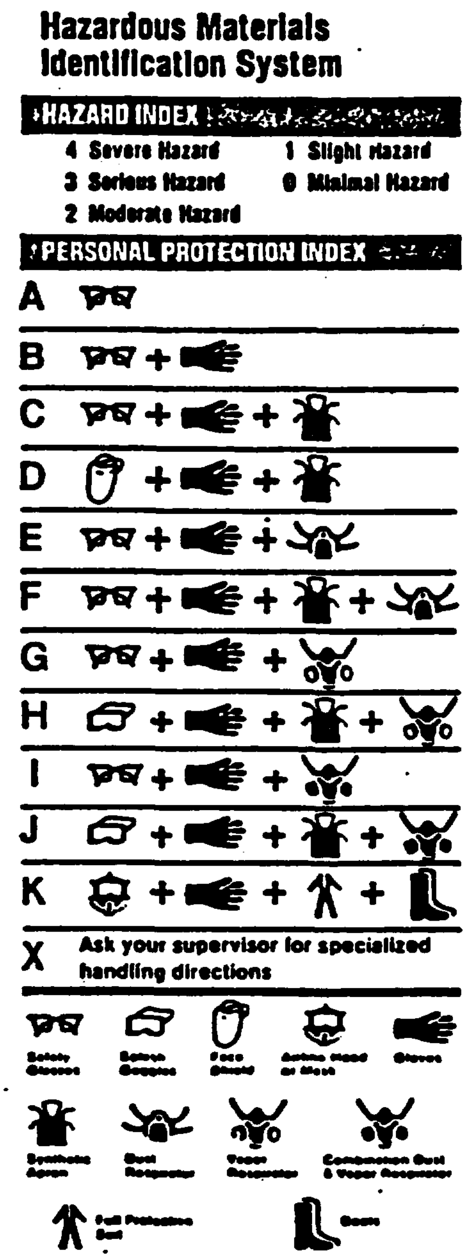
Note: Use of an asterisk (*) or other designation indicates that there may be chronic health effects present. See safety file on product.

II. FLAMMABILITY HAZARD RATING

0 MINIMAL HAZARD	Materials that are normally stable and will not burn unless heated
1 SLIGHT HAZARD	Materials that must be preheated before ignition will occur. Flammable liquids in this category will have flash points (the lowest temperature at which ignition will occur) at or above 220°F (NFPA Class IIIB)
2 MODERATE HAZARD	Material that must be moderately heated before ignition will occur, including liquids with flash points at or above 100°F and below 200°F (NFPA Class II & Class IIIA)
3 SERIOUS HAZARD	Materials capable of ignition under almost all normal temperature conditions, including flammable liquids with flash points below 73eF and boiling points above 100eF as well as liquids with flash points between 73eF and 100eF (NFPA Class 1B and 1C)
4 SEVERE HAZARD	Very flammable gases or very volatile flammable liquids with flash points below 73eF and boiling points below 100°F (NFPA Class 1A)

III. REACTIVITY HAZARD RATING

0 MINIMAL HAZARD	Materials that are normally stable, even under fire conditions, and will not react with water
1 SLIGHT HAZARD	Materials that are normally stable but can become unstable at high temperatures and pressures. These materials may react with water but they will not release energy violently
2 MODERATE HAZARD	Materials that in themselves, are normally unstable and will readily undergo violent chemical change but will not detonate. These materials may also react violently with water
3 SERIOUS HAZARD	Materials that are capable of detonation or explosive reaction but require a strong ignitiating source or must be heated under confinement before initiation; or materials that react explosively with water
4 SEVERE HAZARD	Materials that are readily capable of detonation or explosive decomposition at normal temperatures and pressures



This goes to Duane K.

CHEM-TREND INCORPORATED

MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE NO. 517-546-4520

SECTION I

PRODUCT NAME OR NUMBER: SAFETY-LUBE 8700

MANUFACTURER'S NAME: CHEM-TREND INCORPORATED
ADDRESS: 3205 E. Grand River, Howell, MI 48843

PROPER SHIPPING NAME(49 CFR 172.101): Not regulated
HAZARD CLASS(49 CFR 172.101): Not regulated
HAZARD ID NUMBER: Not applicable.

CHEMICAL FAMILY: Oil-in-water emulsion

SECTION II INGREDIENTS

Petroleum oil	5-10%	TLV*:	5mg/m3 (oil mist) (OSHA & ACGIH)
Hydrocarbon wax	2-5%		
Polymeric high pressure additive	5-10%		
Emulsifier blend	1-3%		
Water	Balance		

*TLV means Threshold Limit Value. " This refers to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect."

SECTION III TYPICAL PHYSICAL DATA NOT TO BE CONSIDERED SPECIFICATIONS

BOILING POINT (Initial):	~ water
SPECIFIC GRAVITY:	0.99
VAPOR PRESSURE (mm Hg):	~ water
VAPOR DENSITY (air=1):	~ water
EVAPORATION RATE (water=1):	~ 1
PERCENT VOLATILE BY WEIGHT:	75-85
SOLUBILITY IN WATER:	Miscible
pH:	Concentrate - 9.0-10.0 5% emulsion - 8.5-9.5
APPEARANCE AND ODOR:	Off-white opaque fluid; bland odor

MSDS NUMBER 662
REVISED 4/7/86

MONO-COAT, MONO-LUBE, SAFETY-COOL, SAFETY-LUBE and SAFETY-LUBE-SUPER are registered trademarks of CHEM-TREND INCORPORATED

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT(method used): None

FLAMMABLE LIMITS IN AIR, % BY VOLUME: Lower(lel) Upper(uel)
Not applicable

EXTINGUISHING MEDIA: Fire and heat may drive off water leaving chemical ingredients which may burn. Use foam, carbon dioxide or dry chemical.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus when fire fighting in a confined space.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

CONTAINER HANDLING: Do not cut or weld empty drums unless they are thoroughly cleaned.

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Not established for the product. See section II.

LISTED CARCINOGEN (NTP, IARC OR OSHA): This product does not contain any listed carcinogens.

ROUTES OF EXPOSURE AND ACUTE EFFECTS:

Skin Contact:	Concentrate may cause irritation but is not corrosive. Dilutions may cause the skin to dry out.
Eye Contact:	Concentrate may cause irritation, but is not corrosive. Dilutions may cause slight irritation.
Inhalation:	Mists of the concentrate and dilutions may cause respiratory irritation.
Ingestion:	No adverse effects expected. Do not ingest.

CHRONIC EFFECTS: A review of literature does not show obvious long-term hazard.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact:	Wash with soap and water. Launder contacted clothing before reuse
Eye Contact:	Flush with water for at least 15 minutes. Contact physician.
Inhalation:	If irritation occurs, move to fresh air.
Ingestion:	Contact physician.

Note: The same procedures should be followed for handling either the concentrate or the dilution.

MSDS NUMBER 662
REVISED 4/7/86

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SECTION VI REACTIVITY DATA

STABILITY: Stable
CONDITIONS TO AVOID: None known

INCOMPATIBILITY: Store away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrocarbon decomposition products at elevated temperatures.

HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: None known

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Small Spills: Soak up with absorbent material.
Large Spills: Dike area to prevent runoff, recover liquid, soak up remaining liquid with absorbent material

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations

RCRA HAZARDOUS WASTE DESIGNATION: This product does not fall under current EPA RCRA definitions of hazardous waste.

CERCLA (Superfund) REPORTABLE QUANTITY: This product does not contain any CERCLA regulated materials.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Good industrial hygiene practices recommend that engineering controls (such as local and/or mechanical ventilation) be used to reduce environmental concentrations to the permissible exposure level. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. If the use of a respirator is necessary use only a MSHA/NIOSH approved air supplied respirator or an air-purifying respirator.

PROTECTIVE GLOVES: Oil impervious gloves (such as Viton or nitrile) when handling the concentrate.

EYE PROTECTION: Safety glasses with side shields or chemical goggles

OTHER PROTECTIVE EQUIPMENT: Appropriate clothing to avoid skin contact

MSDS NUMBER 662
REVISED 4/7/86

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SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep drums and containers of concentrate closed when not in use. Allow to warm to room temperature before dilution.

Do not add any other additive ingredients to the concentrate.

OTHER PRECAUTIONS: None known

SECTION X OTHER HAZARD INFORMATION

PETROLEUM OIL

Using the terminology of the International Agency for Research on Cancer (IARC), the oil in this product is classified by the supplier as a "severely treated naphthenic." The supplier has stated that the oil does not require a carcinogen label as defined by OSHA 29 CFR 1910.1200.

APPROVAL

MSDS NUMBER 662
REVISED 4/7/86

ATTACHMENT 2

STRIPPERS

JUN 6 1986

MATERIAL SAFETY DATA SHEET

Oalsbury Laboratories, Inc.
100 Rockford Road
Charles City, Iowa 50616-9989

Emergency Phone Nos. 24 Hours:
Days: (515) 257-2422
Nights: (515) 257-3475 or 3486
Date: 3-25-86

SECTION 1 NAME & PRODUCT

Chemical Name, Trade Name & Synonyms:

* Salstrip® NCN Liquid

Formula of primary component(s) structural:

Ethylenediamine	Sodium Diethyldithiocarbamate
$H_2NC_2H_4NH_2$ / Molecular Wt. 60.10	$C_5H_{10}NNaS_2$ / Molecular Wt. 171.27

SECTION 2 INGREDIENTS

	%	PEL/TLV (units)
*Ethylenediamine [CAS 107-15-3]		8-hour TWA 10 ppm (ACGIH) (OSHA)
Sodium Diethyldithiocarbamate [CAS 148-18-5]		
Water		

Note: Percentage composition of ingredients is considered proprietary information. Information concerning the properties and health effects of the mixture is disclosed in the MSDS.

*Denotes hazardous chemical/mixture as defined by OSHA Hazard Communication Standard.

SECTION 3 PHYSICAL DATA

Melting Range:	Not Applicable
Vapor pressure (mmHg at 20°C):	Not determined
Vapor density (air = 1):	Not determined
Solubility in water:	Complete
Specific gravity:	0.9 - 1.1
Odor:	Ammonia-like
Appearance:	Colorless to slight yellow

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method):	Flammable Limits STP:
(Closed Cup) Not determined	Not determined Lower Upper

Extinguishing media:
Carbon dioxide or dry chemical for small fires. Foam or water for large fires.

Fire fighting protective equipment/procedure:
Where thermal decomposition of the material is likely, wear full protective clothing and a positive-pressure self-contained breathing apparatus.

Fire & explosion hazards:
Salstrip NCN Liquid is not considered to be a flammable liquid. Ethylenediamine, a primary component, is considered to be a DOT Flammable Liquid. When heated, the mixture may release ethylenediamine vapors, which could possibly form a flammable mixture with air. The lower and upper flammability limits of ethylenediamine in air are 5.8 and 11.0% by volume respectively.

Fire & explosion hazards - continued:

Thermal decomposition of Salstrip NCN Liquid will result in the release of potentially dangerous NO_x, SO_x and Na_2O vapors. Inhalation of such vapors should always be considered as potentially serious and persons so exposed should be kept under close observation.

NFPA Hazard Code - HEALTH / FLAMMABILITY / REACTIVITY / OTHER: 3 / 2 / 1 / -

SECTION 5 REACTIVITY DATA

Stability (conditions to avoid):
Stable. Avoid open flames or other high temperature sources which might cause thermal decomposition.

Incompatibility (materials to avoid):
Strong acids and oxidizers. Contact with mixture can result in a violent reaction.

Hazardous decomposition products:
Thermal decomposition will result in the release of NO_x, SO_x and Na_2O vapors.

Hazardous polymerization:
Will not occur.

SECTION 6 HEALTH HAZARD DATA

Eye contact:
Mixture is considered to be a severe eye irritant. May cause burns.

Skin contact:
Mixture is considered to be a severe skin irritant. May cause burns.

Skin absorption:
LD_{50}: 730 mg/kg (rabbit) via the skin absorption route of exposure for ethylenediamine. Mixture should be considered as a moderate toxic hazard via the skin absorption route of exposure in humans.

Ingestion:
LD_{50}: 1200 mg/kg (rat) ethylenediamine. LD_{50}: 1500 mg/kg (rat) sodium diethyldithiocarbamate via the ingestion route of exposure. Mixture should be considered a slight to moderate toxic hazard via the ingestion route of exposure in humans.

Inhalation:
8-hour TWA: 10 ppm (OSHA/ACGIH) for ethylenediamine. A TCLo of 200 ppm has been reported for human exposure to ethylenediamine. No TLV/PEL listing for sodium diethyldithiocarbamate. Mixture should be considered as a moderate toxic hazard via the inhalation route of exposure in humans.

Effects of overexposure:
Human Toxicity:
The mixture is to be considered a severe irritant to the eye and skin with corrosive damage potential. Mixture when diluted may be a skin sensitizer. Inhalation of the mixture's vapors is considered to be extremely irritating to the respiratory tract. The mixture should be considered as a moderately toxic hazard via ingestion, skin absorption and inhalation routes of exposure according to Sax definition.

Effects of overexposure - continued:

Experimental Toxicity

Ethylenediamine:

Skin - rabbit 450 mg open (moderate)

Skin - rabbit 10 mg/24 hour (severe)

Eye - rabbit 675 mg (severe)

LD_{50}: 730 mg/kg skin - rabbit

LD_{50}: 1200 mg/kg oral - rat

LC_{50}: 4000 ppm/8 hour inhalation - rat

Sodium diethyldithiocarbamate:

LD_{50}: 1500 mg/kg oral - rat (Coden DRFUD 46, 225, 81)

LD_{50}: 3350 mg/kg oral - rat (Coden FATOAO 28, 230, 65)

LD_{50}: 1500 mg/kg intraperitoneal - rat

Cytogenic analysis: 5200 mg/kg oral - rat

Carcinogenicity Evaluation According To:

1) International Agency for Research on Cancer (IARC): Indefinite for ingredient sodium diethyldithiocarbamate.
2) National Toxicology Program (NTP)/NCI Carcinogenesis bioassay completed: Negative results for ingredient sodium diethyldithiocarbamate.
3) 29 CFR Part 1910, Subpart Z (OSHA): No listing.

SECTION 7 FIRST AID

Eyes:

Immediately flush with flowing water continually for a minimum of 15 minutes. Consult medical personnel immediately for followup examination.

in:

Immediately and thoroughly rinse with water following skin contact for a minimum of 15 minutes. In the event irritation or a burn develops, consult medical personnel immediately.

Ingestion:

If the person is conscious, attempt to dilute the mixture by drinking water. Give at least one ounce of vinegar in an equal amount of water. Do not induce vomiting, the mixture pH is extremely basic. Seek medical attention immediately.

Inhalation:

Remove from exposure to fresh air. If breathing is difficult, utilize oxygen. Keep under observation and consult medical personnel immediately if an adverse reaction develops.

SECTION 8 HANDLING PRECAUTIONS

Ventilation:

Local ventilation is recommended in processes or during material handling where vapors could be released into the work environment.

Respiratory protection (specify type):

A NIOSH approved half-mask respirator with organic vapor cartridge is recommended. (Manufacturer utilizes an American Optical half-mask respirator with R51A organic vapor cartridge. Approved for respirator mixture up to 1000 ppm organic vapor by volume.)

n protection:
e protective clothing to minimize the possibility of skin contact. Selection of specific items such as gloves, aprons, or body coveralls will depend upon the operation. Following handling of the mixture, was potentially contacted skin areas with soap and water. Launder contaminated clothing prior to reuse.

Eye protection:
Use safety goggles. Where contact with mixture may be likely to occur, a face shield is advised.

SECTION 9 ENVIRONMENTAL AND DISPOSAL INFORMATION

Action to be taken for spills/releases:
Avoid discharge to natural waters. TLm 96: 10-100 ppm Aquatic toxicity rating for ethylenediamine. Collect and contain for salvage or disposal. Spilled mixture or neutralized spilled mixture can be absorbed in a commercial absorbent for disposal.

Disposal method:
Non-neutralized spilled mixture is considered a hazardous waste regulated by the US EPA Resource Conservation and Recovery Act with the designation D002 (corrosive). Dispose of spilled mixture and empty containers in accordance with all local, State and Federal regulations.

SECTION 10 ADDITIONAL INFORMATION

Special precautions to be taken in handling and storage:
Store in a cool, dry location.
Avoid contact with skin and eyes.
an be extremely irritating to the respiratory tract.

2-MSDS-8511

JUN 1 6 1986

MATERIAL SAFETY DATA SHEET

Sa'ıbury Laboratories, Inc.
2 Rockford Road
C. .es City, Iowa 50616-9989

Emergency Phone Nos. 24 Hours:
Days: (515) 257-2422
Nights: (515) 257-3475 or 3486
Date: 4-1-86

SECTION 1 NAME & PRODUCT

Chemical Name, Trade Name & Synonyms:

* Salstrip® NCN Powder

Formula of primary component(s) structural:

Proprietary. Specific chemical identity is being withheld as a trade secret. Information concerning the properties and effects of the material is disclosed in this MSDS.

SECTION 2 INGREDIENTS

	%	PEL/TLV (units)
Nitrated organic acid	100	None

*—Denotes hazardous chemical as defined by OSHA Hazard Communication Standard.

SECTION 3 PHYSICAL DATA

Melting Range:	135-139° C
Vapor pressure (mmHg at 20°C):	Not Applicable
Vapor density (air = 1):	Not Applicable
Solubility in water:	Soluble
Specific gravity:	No Date
Odor:	None
Appearance:	Off-white crystalline powder

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method):
(Open Cup) No data

Flammable Limits STP:
Not Applicable
Lower Upper

Extinguishing media:
Water, water fog, CO_2, dry chemical, foam.

Fire fighting protective equipment/procedure:
Where thermal decomposition of the material is likely, wear full protective clothing and a positive-pressure self-contained breathing apparatus.

Fire & explosion hazards:
Material will melt and char in the presence of open flames or other high temperature sources. Thermal decomposition will result in the release of potentially dangerous NO_x vapors. Inhalation of NO_x vapors is always potentially serious and persons so exposed should be kept under close observation for at least 48 hours.

HAZARD CODE – HEALTH / FLAMMABILITY / REACTIVITY / SPECIAL: 3 / 1 / 1 / –

SECTION 5 REACTIVITY DATA

Stability (conditions to avoid):
Stable. Avoid open flames or other high temperature sources which might cause thermal decomposition.

Incompatibility (materials to avoid):
Base. Grinding or mixing of the material in the presence of dry alkali (i.e. sodium hydroxide, potassium hydroxide) may cause autoignition.

Hazardous decomposition products:
Thermal decomposition will result in a release of NO_x vapors.

Hazardous polymerization:
Will not occur.

SECTION 6 HEALTH HAZARD DATA

Eye contact:
May cause eye irritation. (Source: Manufacturer's experience).

Skin contact:
May cause skin irritation. (Source: Manufacturer's experience).

Skin absorption:
No data from laboratory animal dermal absorption studies found. Manufacturer's experience with the material suggests absorption through the skin is not likely to occur.

Ingestion:
No data from laboratory animal ingestion studies or from manufacturer's experience found.

Inhalation:
No TLV or PEL published. No data from laboratory animal inhalation studies or manufacturer's experience to recommend a workplace exposure guideline.

Effects of overexposure:
Manufacturing experience has demonstrated the material to be an eye and skin irritant. Excessive inhalation of the material can result in respiratory irritation.

Experimental toxicity testing via the ingestion route has not been performed. The material has been approved for toxicity testing in the NTP Toxicology Research and Testing Program.

SECTION 7 FIRST AID

Eyes:
Immediately flush with flowing water continually for a minimum of 15 minutes. Consult medical personnel for followup examination.

Skin:
Thoroughly rinse with soap and water following skin contact. In the event irritation does develop, consult medical personnel immediately.

Ingestion:
If the person is conscious, attempt to dilute the substance by drinking water or milk. Discontinue if the person becomes nauseous. Seek medical attention immediately. Treat symptomatically, based upon the judgement of the physician in response to the reaction of the individual.

SECTION 7 FIRST AID (CONTINUED)

Inhalation:

Remove from exposure into fresh air. Consult medical personnel immediately if an adverse reaction develops.

SECTION 8 HANDLING PRECAUTIONS

Ventilation:

Local ventilation is recommended in processes or during material handling where dust could be released into the work environment.

Respiratory protection (specify type):

A NIOSH approved respirator for dust is recommended. Manufacturers utilize an A.O. R2090 dust respirator with R90 filter pads.

Skin protection:

Use protective clothing to minimize the possibility of skin contact. Selection of specific items such as gloves, aprons or body coveralls will depend upon the operation. Following handling of the material, wash potentially contacted skin areas with water and soap. Launder contaminated clothing prior to reuse.

Eye protection:

Use safety glasses. Where contact with material may be likely to occur, safety goggles are recommended.

SECTION 9 ENVIRONMENTAL AND DISPOSAL INFORMATION

Action to be taken for spills/releases:

Collect and contain for salvage or disposal. Dry methods of collections, such as shoveling, sweeping, vacuuming, are recommended. Utilize the appropriate personal protective equipment listed in Section 8.

posal method:

Spilled material is not considered to be a commercial product regulated by the US EPA Resource Conservation and Recovery Act. Dispose of spilled material and empty containers in accordance with all local, state and federal regulations.

SECTION 10 ADDITIONAL INFORMATION

Special precautions to be taken in handling and storage:

Store in a cool dry location.
Avoid contact with eyes or skin.

The information herein is given in good faith
but no warranty, expressed or implied, is made.
Contact SALSBURY LABORATORIES, INC., for further information.

ATTACHMENT 3

CLEANERS

MATERIAL SAFETY DATA SHEET

.../26/85 CODE 12220

SECTION 1

Manufacturer's Name MacDermid Incorporated	EMERGENCY TELEPHONE 203-575-5700
ADDRESS (Number, Street, City, State, Zip Code) 526 Huntingdon Avenue Waterbury, CT. 06708	MFSA EMERGENCY 24 HOU[R] HOTLINE: (Medical) (313) - 644 - 5626
CFR-49 - DOT Proper Shipping Name Corrosive Solid NOS (Sodium Metasilicate) Corrosive Material UN1759	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYM[S] Metex - 520 Spray Cleaner
CHEMICAL FAMILY	FORMULA Mixture

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVE & SOLVENTS	%	TLV (UNITS)	ALLOYS & METALLIC COATINGS	%	TLV (UNITS)
	N/A			N/A	
PIGMENTS	"		BASE METAL	"	
CATALYST	"		ALLOYS	"	
VEHICLE	"		METALLIC COATINGS	"	
SOLVENTS	"		FILLER METAL PLUS OR CORE FLUX	"	
ADDITIVES	"		OTHERS	"	
OTHERS	"				

[HA]ZARDOUS MIXTURES OR OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
[Sod]ium Metasilicate	<50	

SECTION III - PHYSICAL DATA

BOILING POINT (F)	N/A	SPECIFIC GRAVITY (H_2O = 1)	N/A
VAPOR PRESSURE (MM. HG.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR = 1)	N/A	EVAPORATION RATE (= 1)	N/A
SOLUBILITY IN WATER	120 grams/liter		

APPEARANCE AND ODOR
White granular powder

SECTION IV - FIRE AND EXPLOSION HAZARD DATE

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	~~LEL~~	~~UEL~~
None	N/A		

EXTINGUISHING MEDIA
N/A

SPECIAL FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus.

[UNUSU]AL FIRE AND EXPLOSION HAZARDS
None

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

Not established for product.

EFFECTS OF OVEREXPOSURE

Irritation to eyes, skin, and mucous membranes. Dust can cause slight irritation to eyes, mucous membranes.

EMERGENCY AND FIRST AID PROCEDURES

Eyes: Flush with water for 15 minutes. Contact physician.
Skin: Flush with water.
Internal: As for alkaline materials, give water. Contact physician.

SECTION VI - REACTIVITY DATA

UNSTABLE		CONDITIONS TO AVOID
STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

Strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS

Oxides of phosphorus and carbon

HAZARDOUS POLYMERIAZTION		CONDITIONS TO AVOID
MAY OCCUR		
WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - WEAR PROTECTIVE CLOTHING. NEVER DISCHARGE DIRECTLY INTO SEWERS OR WATERWAYS

Flush with water to chemical drain.

WASTE DISPOSAL METHOD - ALWAYS CHECK AND COMPLY WITH GOVERNMENT DISPOSAL REGULATIONS

Neutralize to pH 6.0 - 8.0 and discard. Contains phosphates and silicates. Consult local regulations before discarding. Contains biodegradable wetters.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)

Dust mask

VENTILATION		
	LOCAL EXHAUST: N/A	SPECIAL: N/A
	MECHANICAL (GENERAL): X	OTHER: N/A

PROTECTIVE GLOVES: Rubber

EYE PROTECTION: Face shield

OTHER PROTECTIVE EQUIPMENT

Protective clothing

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Store in dry area in closed containers.

OTHER PRECAUTIONS - AVOID EYE AND SKIN CONTACT. ALWAYS WASH CLOTHING BEFORE RE-USE

None

PREPARED BY: Cherrie Gillis DATE: 8/26/85

12207

MATERIAL SAFETY DATA SHEET

/18/84 CODE 10192

SECTION 1

..facture's Name Dermid Incorporated	EMERGENCY TELEPHONE 203-575-5700
RESS (Number, Street, City, State, Zip Code) 6 Huntingdon Avenue Waterbury, CT. 06720	MPSA EMERGENCY 24 HOUR HOTLINE: (313) - 644 - 5626
-49 - DOT Proper Shipping Name Corrosive Solid NOS (Sodium asilicate) UN1759	
EMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS Metex S 1702
MICAL FAMILY	FORMULA Mixture

SECTION II - HAZARDOUS INGREDIENTS

NTS, PRESERVATIVE	%	TLV (UNITS)	ALLOYS & METALLIC	%	TLV (UNITS)
OLVENTS	N/A		COATINGS	N/A	
GMENTS	"		BASE METAL	"	
ALYST	"		ALLOYS	"	
ICLE	"		METALLIC COATINGS	"	
LVENTS	"		FILLER METAL PLUS OR CORE FLUX	"	
ITIVES	"		OTHERS	"	
HERS	"				

HAZARDOUS MIXTURES OR OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
--Carbonates	60	*
Sodium Metasilicate	35	
*TLV not known		

SECTION III - PHYSICAL DATA

ILING POINT (F)	N/A	SPECIFIC GRAVITY (H_2O = 1)	N/A
POR PRESSURE (MM. HG.)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
OR DENSITY (AIR = 1)	N/A	EVAPORATION RATE (= 1)	N/A
LUBILITY IN WATER	Appreciable		

EARANCE AND ODOR
ite granular powder

SECTION IV = FIRE AND EXPLOSION HAZARD DATE

ASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL
Non flammable	N/A		

INGUISHING MEDIA
N/A

ECIAL FIRE FIGHTING PROCEDURES
N/A

USUAL FIRE AND EXPLOSION HAZARDS

SECTION V - HEALTH HAZARD DATA

SE LIMIT VALUE

es..blished for product. See Sectin II.

CTS OF OVEREXPOSURE

cause skin irritation.

GENCY AND FIRST AID PROCEDURES

s: Flush with water for 15 minutes. Contact doctor.

n: Flush with water.

ernal: Treat as for mild alkalis.

SECTION VI - REACTIVITY DATA

			CONDITIONS TO AVOID
ABLE			
LE		X	

PATIBILITY (MATERIALS TO AVOID)

ids

RDOUS DECOMPOSITION PRODUCTS

rbon Dioxide

RDOUS POLYMERIAZTION		CONDITIONS TO AVOID
OCCUR		
NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

S BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

op material with steel shovel. Flush remaining material to drain with water.

E DISPOSAL METHOD

utralize to pH 7.0 Consult local ordinances for disposal procedures.

SECTION VIII - SPECIAL PROTECTION INFORMATION

PIRATORY PROTECTION (SPECIFY TYPE)

Dust respirator

ILATION	LOCAL EXHAUST	SPECIAL
	X	N/A
	MECHANICAL (GENERAL)	OTHER
	N/A	N/A

TECTIVE GLOVES	EYE PROTECTION
Rubber	Face shield

R PROTECTIVE EQUIPMENT

Rubber apron

SECTION IX - SPECIAL PRECAUTIONS

AUTIONS TO BE TAKEN IN HANDLING AND STORING

re in dry area. Keep away from acids. Store in tightly closed containers.

R PRECAUTIONS

ARED BY: Cherrie D. Gillis DATE : 9/18/84

10192

UEC 12 '

MATERIAL SAFETY DATA SHEET

1/16/86 CODE 10206

SECTION 1

Manufacture's Name MacDermid Incorporated	EMERGENCY TELEPHONE 203-575-5700
ADDRESS (Number, Street, City, State, Zip Code) 526 Huntingdon Avenue Waterbury, CT. 06720	MFSA EMERGENCY 24 HOUR HOTLINE: (313) - 644 - 5626
CFR-49 - DOT Proper Shipping Name Sodium Hydroxide, Dry Solid, Mixture Corrosive Material, UN1823	
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYM Anodex 61-X
CHEMICAL FAMILY	FORMULA Mixture

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVE & SOLVENTS	%	TLV (UNITS)	ALLOYS & METALLIC COATINGS	%	TLV (UNITS)
	N/A			N/A	
PIGMENTS	"		BASE METAL	"	
CATALYST	"		ALLOYS	"	
VEHICLE	"		METALLIC COATINGS	"	
SOLVENTS	"		FILLER METAL PLUS OR CORE FLUX	"	
ADDITIVES	"		OTHERS	"	
OTHERS	"				

ZARDOUS MIXTURES OR OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
um Hydroxide (1310-73-2)	55	2mg/M

SECTION III - PHYSICAL DATA

BOILING POINT (F)	N/A	SPECIFIC GRAVITY (H_2O = 1)	N/A
VAPOR PRESSURE (MM. HG.)	"	PERCENT VOLATILE BY VOLUME (%)	"
VAPOR DENSITY (AIR = 1)	"	EVAPORATION RATE (= 1)	"
SOLUBILITY IN WATER	Appreciable		

APPEARANCE AND ODOR
White powder

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

		LEL	UEL
FLASH POINT (METHOD USED) N/A	FLAMMABLE LIMITS N/A		

EXTINGUISHING MEDIA
N/A

SPECIAL FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus.

UAL FIRE AND EXPLOSION HAZARDS
hermic reaction when brought in contact with water. Exothermic reaction when brought in contact with water.

SECTION V - HEALTH HAZARD DATA

HRESHOLD LIMIT VALUE
See Section II.

FFECTS OF OVEREXPOSURE-UNLESS OTHERWISE STATED, CHRONIC OR LONG-TERM HEALTH EFFECTS UNKNOWN:
Very irritating to eyes, nose, throat and skin and can burn eyes and skin.

MERGENCY AND FIRST AID PROCEDURES
Eyes: Flush with water for 15 minutes. Contact doctor.
Skin: Flush with water. Wash with vinegar.
Internal: As for caustic soda.

SECTION VI - REACTIVITY DATA

UNSTABLE		CONDITIONS TO AVOID
STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID)
Avoid contact with acid or acidic materials.

HAZARDOUS DECOMPOSITION PRODUCTS
Oxides of carbon.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
MAY OCCUR		
WI'' NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Flush with water to drian. Sweep up excess.

WASTE DISPOSAL METHOD
Neutralize to pH 6.0 to 8.0 and discard. Contains phosphates and silicates. Consult local regulations before discarding. Phosphates can be precipitated by lime.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
Dust mask

VENTILATION	LOCAL EXHAUST	SPECIAL
	N/A	N/A
	MECHANICAL (GENERAL)	OTHER
	X	N/A

PROTECTIVE GLOVES	EYE PROTECTION
Rubber	Face shield

OTHER PROTECTIVE EQUIPMENT
Rubber apron, rubber boots.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in dry area, in tightly closed containers.

R PRECAUTIONS
None

PREPARED BY: Cherrie D. Gillis DATE: 1/16/86

10206

MATERIAL SAFETY DATA SHEET

UDG 9/17/84 CODE 10351

SECTION 1

nfacture's Name Dermid Incorporated	EMERGENCY TELEPHONE 203-575-5700
RESS (Number, Street, City, State, Zip Code) Huntingdon Avenue Waterbury, CT. 06720	MPSA EMERGENCY 24 HOUR HOTLINE:
-49 - DOT Proper Shipping Name Sodium Hydroxide, Dry, Solid Mixture Corrosive Material UN1823	(313) - 644 - 5626
MICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS EN-1751
MICAL FAMILY Electrocleaner	FORMULA Mixture

SECTION II - HAZARDOUS INGREDIENTS

NTS, PRESERVATIVE	%	TLV (UNITS)	ALLOYS & METALLIC	%	TLV (UNITS)
SOLVENTS	N/A		COATINGS	N/A	
MENTS	"		BASE METAL	"	
ALYST	"		ALLOYS	"	
HICLE	"		METALLIC COATINGS	"	
VENTS	"		FILLER METAL PLUS OR CORE FLUX	"	
DITIVES	"		OTHERS	"	
ERS	"				

OUS MIXTURES OR OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
Sodium Hydroxide	19	$2mg/M^3$

SECTION III - PHYSICAL DATA

LING POINT (F)	N/A	SPECIFIC GRAVITY (H_2O = 1)	N/A
POR PRESSURE (MM. HG.)	"	PERCENT VOLATILE BY VOLUME (%)	"
POR DENSITY (AIR = 1)	"	EVAPORATION RATE (= 1)	"
LUBILITY IN WATER	Complete		
PEARANCE AND ODOR	Off white granular mixture		

SECTION IV = FIRE AND EXPLOSION HAZARD DATE

			LEL	UEL
ASH POINT (METHOD USED) None	FLAMMABLE LIMITS	N/A	-	
TINGUISHING MEDIA Non-combustible			-	
ECIAL FIRE FIGHTING PROCEDURES In solution, can react with amphoteric metals				
FIRE AND EXPLOSION HAZARDS None				

SECTION V - HEALTH HAZARD DATA

[TH]RESH[OLD] LIMIT VALUE

As with sodium hydroxide

[EFFE]CTS OF OVEREXPOSURE Burns to eyes, skin, irritant to mucous membranes

[EME]RGENCY AND FIRST AID PROCEDURES

[EY]ES: Flush with plenty of water for 15 minutes. Contact physician

[S]KIN: Neutralize with vinegar, contact physician in case of injury

[I]NGESTION: Do not induce vomiting. Give large amounts of water or milk. Contact physician

SECTION VI - REACTIVITY DATA

[UNS]TABLE		CONDITIONS TO AVOID
[STA]BLE	X	Additions of cleaner should be made slowly and preferably in cold water. The reaction liberates heat.

[INC]OMPATIBILITY (MATERIALS TO AVOID)

Unknown

[HAZ]ARDOUS DECOMPOSITION PRODUCTS

Unknown

[HAZ]ARDOUS POLYMERIAZTION		CONDITIONS TO AVOID
[MAY] OCCUR		
[WIL]L NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

[STE]PS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep/shovel excess material. Follow by flushing with water

[WAS]TE DISPOSAL METHOD

Neutralize to pH between 6.0 to 8.0 with dilute acid prior to discharging to sewer. Check government disposal regulation.

SECTION VIII - SPECIAL PROTECTION INFORMATION

[RE]SPIRATORY PROTECTION (SPECIFY TYPE)

Dust mask preferred

[VE]NTILATION	LOCAL EXHAUST: X	SPECIAL: N/A
	MECHANICAL (GENERAL): N/A	OTHER: N/A

[PR]OTECTIVE GLOVES: Rubber	EYE PROTECTION: Goggles

[OTH]ER PROTECTIVE EQUIPMENT

Rubber apron/boots

SECTION IX - SPECIAL PRECAUTIONS

[PR]ECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Prevent eye and skin contact. Keep in tightly closed containers in cool dry area

[OT]HER PRECAUTIONS

Corrosive - dry as well as wet

[PR]EPARED BY: Cherrie Gillis DATE: 9/17/84

10351

MATERIAL SAFETY DATA SHEET

/15/86 CODE 13001

SECTION 1

Manufacture's Name MacDermid Incorporated	EMERGENCY TELEPHONE 203-575-5700
ADDRESS (Number, Street, City, State, Zip Code) 526 Huntingdon Avenue Waterbury, CT. 06720 CFR-49 - DOT Proper Shipping Name Sodium Hydrogen Sulfate, Solid Mixture ORM-B UN1821	MFSA EMERGENCY 24 HOUR HOTLINE: (313) - 644 - 5626
CHEMICAL NAME AND SYNONYMS N/A	TRADE NAME AND SYNONYM Metex M-629
CHEMICAL FAMILY Acid Salts	FORMULA Mixture

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVE & SOLVENTS	%	TLV (UNITS)	ALLOYS & METALLIC COATINGS	%	TLV (UNITS)
	N/A			N/A	
PIGMENTS	"		BASE METAL	"	
CATALYST	"		ALLOYS	"	
VEHICLE	"		METALLIC COATINGS	"	
SOLVENTS	"		FILLER METAL PLUS OR CORE FLUX	"	
ADDITIVES	"		OTHERS	"	
OTHERS	"				

HAZARDOUS MIXTURES OR OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (UNITS)
...um Bisulfate (7681-38-1)	90	1mg/M³
Inorganic Fluorides	10	2.5mg/M³

SECTION III - PHYSICAL DATA

BOILING POINT (F)	N/A	SPECIFIC GRAVITY (H_2O = 1)	N/A
VAPOR PRESSURE (MM. HG.)	0	PERCENT VOLATILE BY VOLUME (%)	0
VAPOR DENSITY (AIR = 1)	N/A	EVAPORATION RATE (= 1)	N/A
SOLUBILITY IN WATER	Appreciable		

APPEARANCE AND ODOR
Off white granular powder

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	~~LEL~~	~~UEL~~
Non flammable	N/A		

EXTINGUISHING MEDIA
As appropriate for surrounding materials.

SPECIAL FIRE FIGHTING PROCEDURES
Wear self-contained breathing apparatus.

...UAL FIRE AND EXPLOSION HAZARDS
...emit oxides of sulfur. Also fluoride vapors at elevated temperatures.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Not established for product.

EFFECTS OF OVEREXPOSURE-UNLESS OTHERWISE STATED, CHRONIC OR LONG-TERM HEALTH EFFECTS UNKNOWN
Irritation of skin and eyes. Dust can be irritating to mucous membrane. Can be corrosive to eyes.

EMERGENCY AND FIRST AID PROCEDURES
Eyes: Flush with water for 15 minutes. Contact doctor.
Skin: Wash with plenty of water.
Internal: Egg whites. Contact doctor.

SECTION VI - REACTIVITY DATA

		CONDITIONS TO AVOID
UNSTABLE		
STABLE	X	N/A

INCOMPATIBILITY (MATERIALS TO AVOID)
Strong alkalis, glass, titanium

HAZARDOUS DECOMPOSITION PRODUCTS
Oxides of sulfur. Fluorides.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
MAY OCCUR		
WILL NOT OCCUR	X	Under extremely moist conditions will dissolve and form a corrosive acid solution.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Scoop up as much as possible and replace in drums. Flush remaining to chemical drain.

WASTE DISPOSAL METHOD
Contains fluorides which can be precipitated with lime. Allow precipitate to settle and discharge the neutral (pH 6-8) liquid to drain with cold water.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)
Dust mask - NIOSH approved

VENTILATION	LOCAL EXHAUST	SPECIAL
	N/A	N/A
	MECHANICAL (GENERAL)	OTHER
	X	N/A

PROTECTIVE GLOVES	EYE PROTECTION
Rubber	Face shield

OTHER PROTECTIVE EQUIPMENT
Rubber apron/boots

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Store in dry area in closed containers.

OTHER PRECAUTIONS
Keep away from alkalis

PREPARED BY: Cherrie D. Gillis DATE: 8/15/86

13001

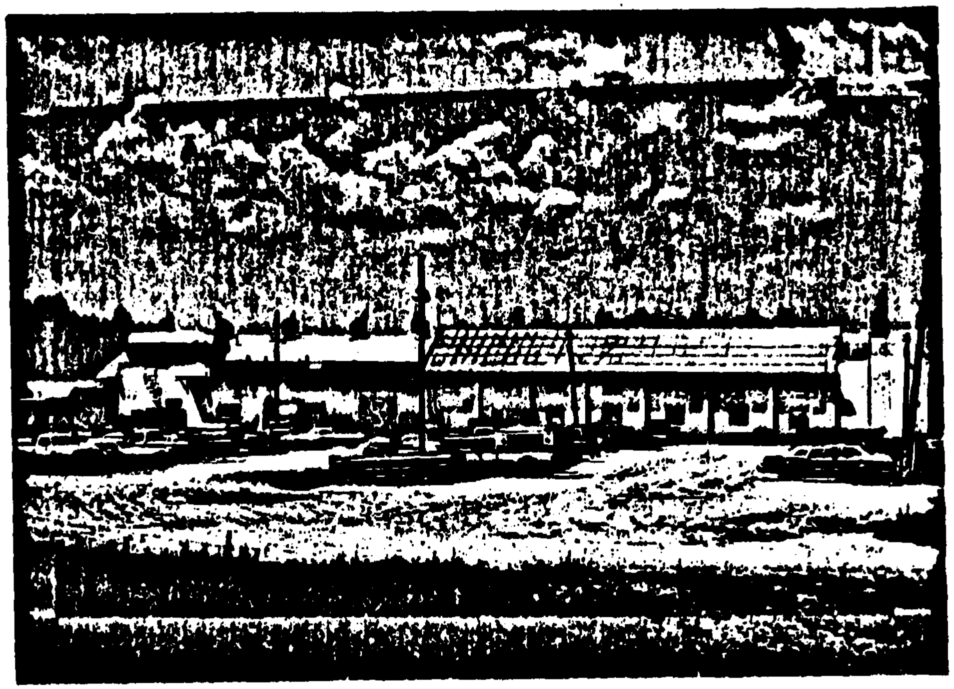
7/1/88 Report continued...

Appendix II

Photographic Documentation

From the VSI

PHO-KUHL



PHOTOGRAPH # 1
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of the south side of Kuhlman. Office located at right end of building.

Location: Kuhlman Diecasting Co.
Stanley, KS

Date: 6-24-87 **Time:** 1435

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 2
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of entrance road to Kuhlman. LPG tanks owned by facility and RR tracks owned by Missouri Pacific.

Location: Kuhlman Diecasting Co.
Stanley, KS

Date: 6-24-87 **Time:** 1435

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 3
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Drum accumulation area. Note lack of berm at concrete and soil interface.

Location: Kuhlman Diecasting Co.
Stanley, KS

Date: 6-24-87 Time: 0937

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 4
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: SE view of parking lot showing drum storage areas and Union Pacific train.

Location: Kuhlman Diecasting Co.
Stanley, KS

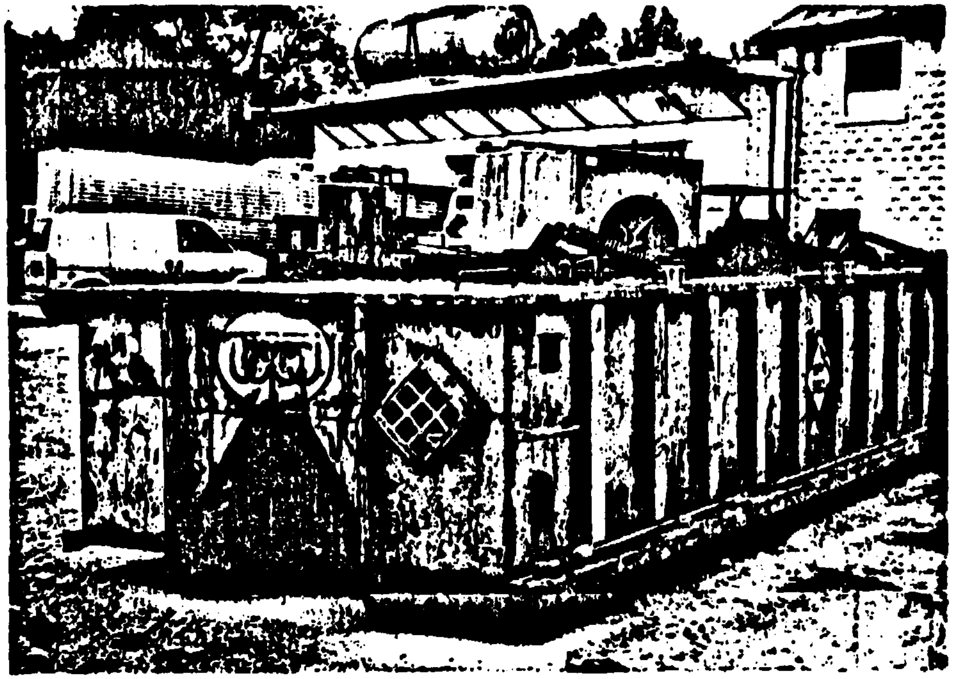
Date: 6-24-87 Time: 1545

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner



PHOTOGRAPH # 5
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: USPCI's container for the transport of the filter cake.

Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1415

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 6
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of the filter cake. Note greenish gray in color.

Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1415

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 7
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of outside settling tank located at the NW corner of facility.

Location: Kuhlman Diecasting Co.
Stanley, KS

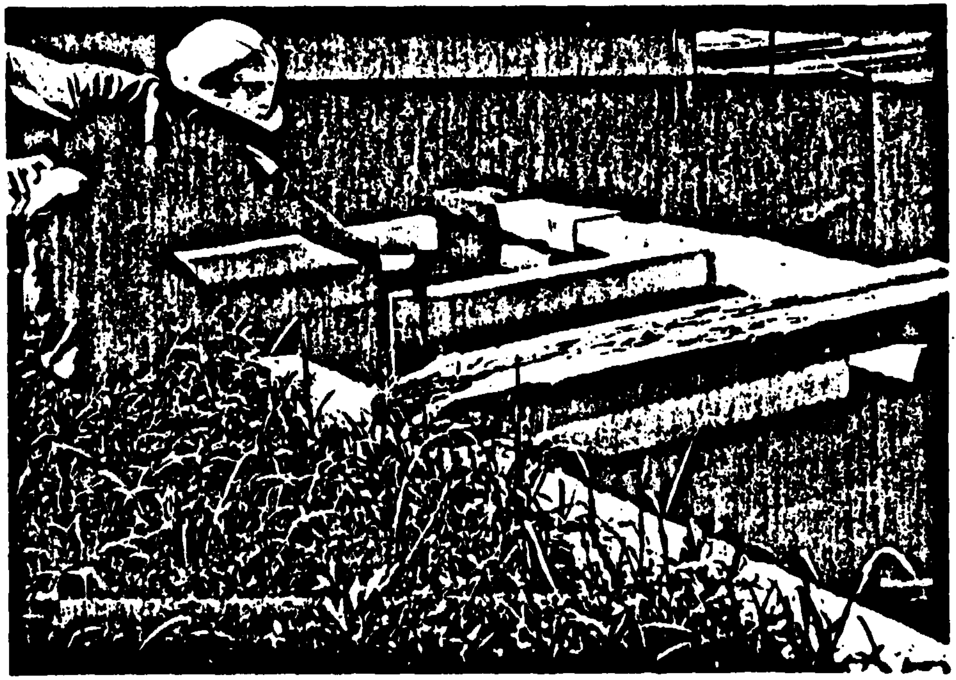
Date: 6-24-87 Time: 1105

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner



PHOTOGRAPH # 8
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of settling tank. B. Kesner is holding a 6" long pen to show amount of freeboard remaining.

Location: Kuhlman Diecasting Co.
Stanley, KS

Date: 6-24-87 Time: 1106

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH # 9
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Close up view of a crack in the SE corner of settling tank. Note pen for scale.
Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1108

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

PHOTOGRAPH #10
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of NPDES drainage outlet to the Blue River. Note bluish-green tint of the rocks and sediment.
Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1705

Photographer: Anne Harrington

Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul

PHOTOGRAPH #11
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

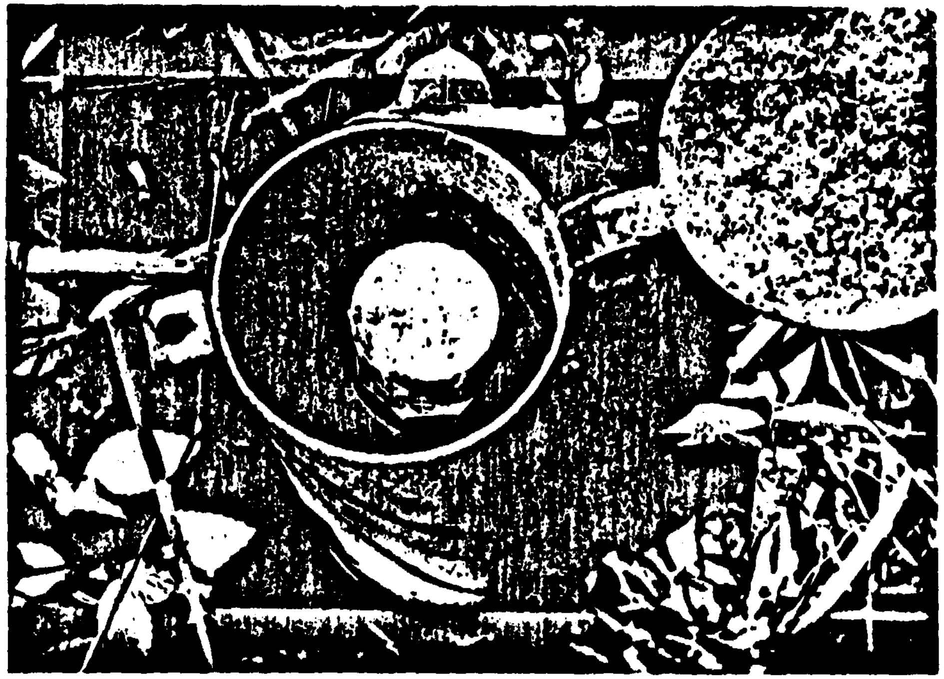
Subject: View of concrete slab at the entrance to the facility.
The slab was once a petroleum storage tank.
Mission Road and M. Mattione are in background.
Location: Kuhlman Diecasting Co., Stanley, KS

Date: 6-24-87 Time: 1435

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner



PHOTOGRAPH #12
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of GM-3. Note protective casing was full of water.
Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1515
Photographer: Anne Harrington
Film: Kodak
File: 05A00599
Witness: Byron Kesner

PHOTOGRAPH #13
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: B. Pedicino and M. Mattione at GM-17 next to warehouse NW of facility. No grout seal on well.
Location: Kuhlman Diecasting Co.
Stanley, KS
Date: 6-24-87 Time: 1600
Photographer: Anne Harrington
Film: Kodak
File: 05A00599
Witness: Byron Kesner

pho-khul

PHOTOGRAPH #16
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: SE view of the east polishing pond. The outfall pipe is located in the area of white flowers to the left.

Location: Kuhlman Diecasting Co., Stanley, KS

Date: 6-24-87 Time: 1525

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul

PHOTOGRAPH #17
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: SE view of west polishing pond.

Location: Kuhlman Diecasting Co., Stanley, KS

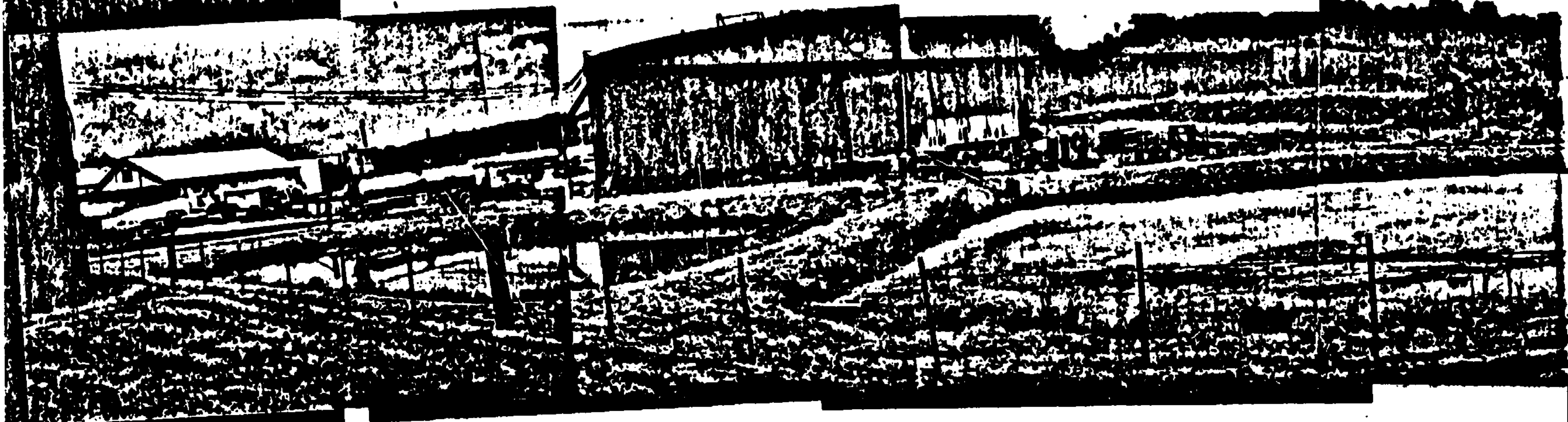
Date: 6-24-87 Time: 1515

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul



PHOTOGRAPH #18
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: NE view of the sanitary lagoons, the tank warehouse, drum storage, and the facility.

Location: Kuhlman Diecasting Co., Stanley, KS

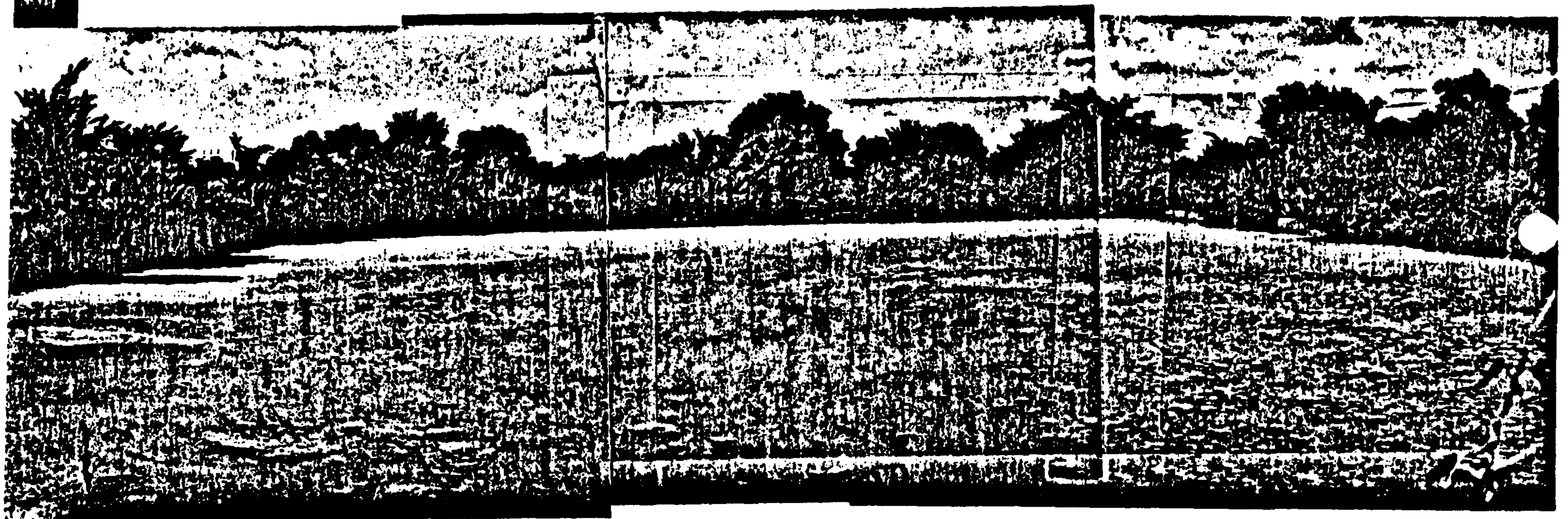
Date: 6-24-87 Time: 1525

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul



PHOTOGRAPH #19
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: North view of the stagnant water reservoir located just north of the facility. Note algal covering.

Location: Kuhlman Diecasting Co., Stanley, KS

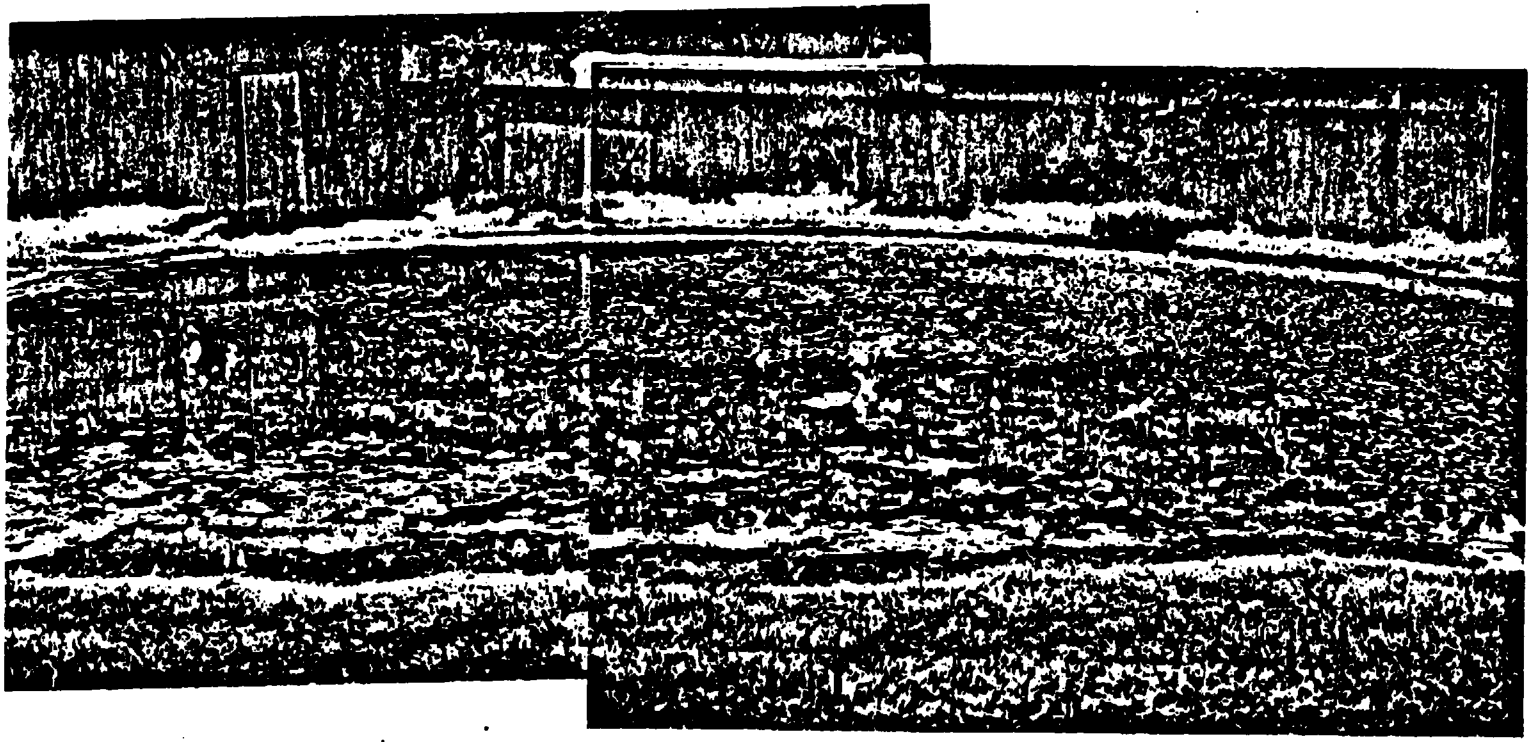
Date: 6-24-87 Time: 1606

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul



PHOTOGRAPH #20
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: NW view of sludge storage pond. Note standing water and berm surrounding the pond.

Location: Kuhlman Diecasting Co., Stanley, KS

Date: 6-24-87 Time: 1551

Photographer: Anne Harrington Film: Kodak

File: 05A00599

Witness: Byron Kesner

pho-khul

PHOTOGRAPH #21
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of Connie Catron and the ARCO pipeline sign located north of the sludge storage pond.

Location: Kuhlman Diecasting Co., Stanley, KS

Date: 6-24-87 **Time:** 1556

Photographer: Anne Harrington **Film:** Kodak

File: 05A00599

Witness: Byron Kesner

Quality Analytical Services, Inc.
1633 S. Marsh • Box 266517 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Kuhlman Diecasting
P. O. BOX 23218
Stanley, KS 66223

REPORT #: 7061156

DATE: 6/11/87

attn: C Catron

QAS SAMPLE #: 70511002
DATE RECEIVED: 5/11/87
SAMPLE ID: Sample Oil & Grease Back of Plating

PARAMETER	METHOD	DET. LIMIT	CONC.
pH	9041	NA	5.84
Halogens	microcoulemetric	10 ppm	94 ppm
Metals - total			
Arsenic	7060	0.05 ppm	ND
Barium	7080	10 ppm	ND
Cadmium	7130	0.1 ppm	ND
Chromium	7190	0.5 ppm	ND
Lead	7420	1 ppm	5.2 ppm
Mercury	7470	0.01 ppm	ND
Selenium	7740	0.05 ppm	ND
Silver	7760	0.1 ppm	ND

JEFFREY L. JENKINS

Quality Analytical Services, Inc.

1633 S. Marsh • Box 266517 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Kuhlman Diecasting
P. O. BOX 23218
Stanley, KS 66223

REPORT #: 7061155

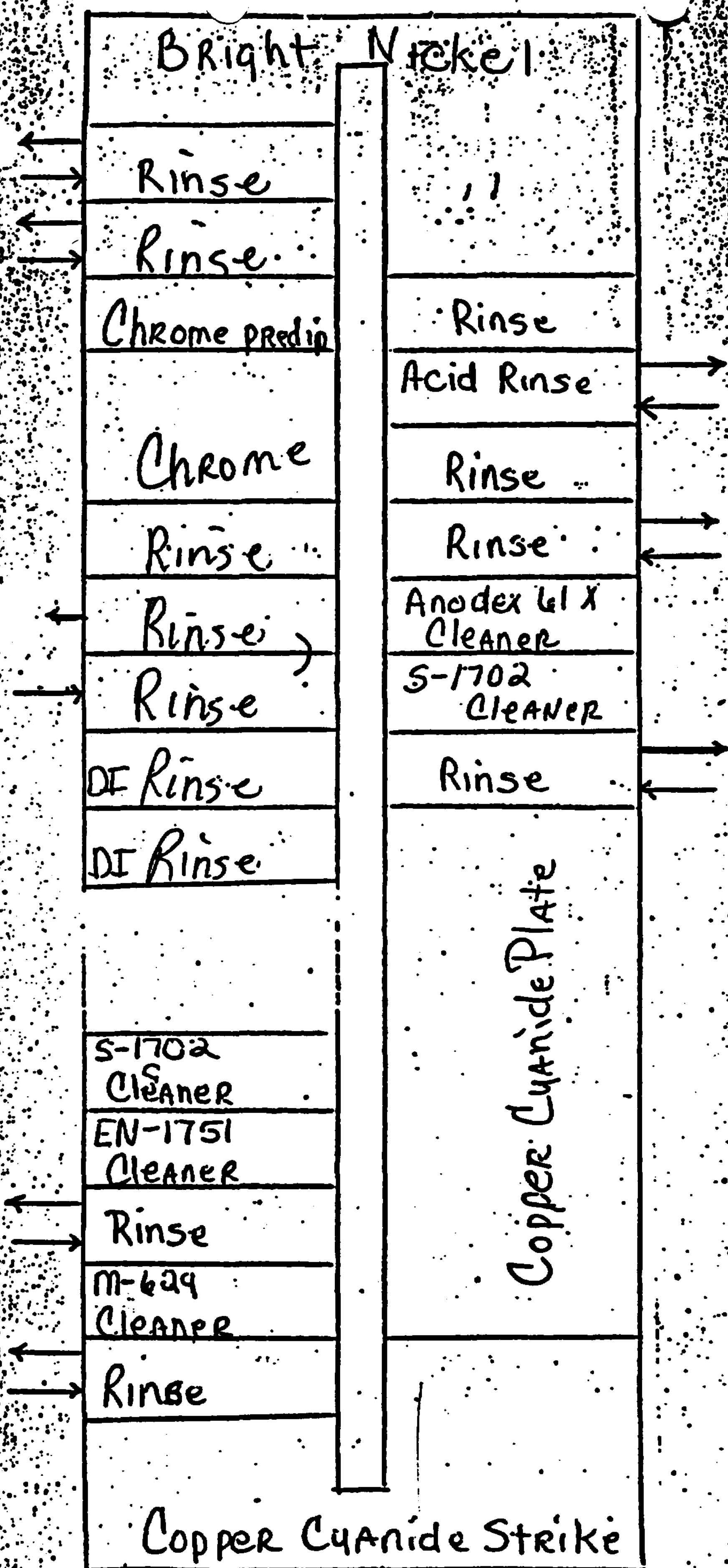
DATE: 6/11/87

attn: C Catron

QAS SAMPLE #: 70511001
DATE RECEIVED: 5/11/87
SAMPLE ID: Sample from underground tank behind boiler room

PARAMETER	METHOD	DET. LIMIT	CONC.
pH	9041	NA	5.19
Halogens	microcoulemetric	10 ppm	211 ppm
Metals - total			
Arsenic	7060	0.05 ppm	ND
Barium	7080	10 ppm	22 ppm
Cadmium	7130	0.1 ppm	0.39 ppm
Chromium	7190	0.5 ppm	8.0 ppm
Lead	7420	1 ppm	ND
Mercury	7470	0.01 ppm	ND
Selenium	7740	0.05 ppm	ND
Silver	7760	0.1 ppm	ND

JEFFREY L. JENKINS


Bright Nickel
Rinse
Rinse
Chrome predip
Chrome
Rinse
Rinse
Rinse
DI Rinse
DI Rinse
S-1702 Cleaner
EN-1751 Cleaner
Rinse
M-629 Cleaner
Rinse
Copper Cyanide Strike
Copper Cyanide Plate
Rinse
S-1702 Cleaner
Anodex 61 X Cleaner
Rinse
Rinse
Acid Rinse
Rinse

CHEMICALS USED IN LAB.

E NAME	CHEMICAL OR CHEMICAL MAKE-UP	PER WEEK USAGE
Acetone	D Methyl Ketone; 2 Propanone	50 mls
Acid Reagent Powder Pillows	Potassium Pyrosulfate	5g
Ammonium Biflouride	Ammonium Hydrogen Flouride	25g
Buffer Powder Pillows pH 4.01	Potassium Acid Phthalate ACS Grade	L.T. 1g
Buffer Powder Pillows pH 7.0	Sodium Phosphate, Dibasic	
	Anhydrous Potassium Phosphate, Monobasic	L.T. 1g
Chroma Ver 3	Potassium Pyrosulfate	10g
	Magnesium Sulfate Heptahydrate	
Chrome Plating Solution	Chromic Acid, Sulfuric Acid	300 mls
	Barium Carbonate, DC-1, CMS.	
	Lead Alloy Anodes and water	
Chromium 1 Reagent	Lithium Hypobromite, Lithium Hydroxide	5g
	Sodium Sulfate Anhydrous	
Chromium 2 Reagent	Sulfosalicylic Acid dehydrate	5g
	Sodium Sulfate, HexaVer	
Copper Cyanide Plating Solu.	Copper Cyanide, Potassium Cyanide	39 mls
	Caustic Potash, Rocheltex, CI-2	
	N-17, Copper Cyanide Anodes and water	
CuVer 1 Copper Reagent	Potassium Phosphate-Monobasic	3g
	Sodium Phosphate-Dibasic	
	Sodium Ascorbate, 2,2'-bicinchoninate, K salt	
Cyaniver 3 Cyanide Reagent	Potassium Phosphate Monobisic,	3g
	Sodium Phosphate Dibasic Anhydrous	
	Halane	
Cy...iver 4 Cyanide Reagent	Sodium Sulfate Anhydrous	3g
	Pyridine-3-Nitrophthalic Acid	
	L-Ascorbic Acid	
Cyaniver 5 Cyanide Reagent	3 Methyl-1-phenyl-2-pyrazolin-5-one	3g
	Sodium Sulfate, Anhydrous	
	Potassium Phosphate, Monobasic	
	Sodium Phosphate, Dibasic, Anhydrous	
Cyclohexanone (RCRA #U057)	Cyclohexanone	10 mls
DPD Total Chlorine Reagent	Sodium Phosphate, Dibasic Anhydrous	2.5g
	Potassium Phosphate Monobasic	
	Potassium Iodide, EthylenediaminetetraAcetic Acid	
	DPD Salt	
EDTA Reagent	Tetrasodium Salt	8g
	EthylenediaminetetraAcetic Acid	
Indicator BCG or		
Bromocresol Green Indicator	Bromocresol Green Powder and water	1 ml
Indicator E	Methyl Alcohol and Bromocresol Purple	2 mls
Indicator KI	Aqueous solution containing Potassium Iodide	3 mls
Indicator KMX	Sodium Chloride and Murexide Powder	4g
Indicator SC	Sodium Chromate	2 mls
Iodine Solution 0.1N	Potassium Iodide and Iodine	20 mls
Muriatic Acid 23°B_E	Hydrochloric Acid	250 mls
Nalco S0121	Monoethanolamine	5 mls.
Nal-- S0122	Calmagite in Potassium Chloride Carrier	5 Tablets
Na S0226 (RCRA #D009)	Sulfuric Aicd N/50 (0.02%)	10 mls
Nal.. S0234 (RCRA #D001)	Dilute Citric Acid-Phenolphthalein in water	10 mls
Nalco S0295	Sulfuric Acid 0.4 Normal	2 mls
Nalco S0297	Very dilute aqueous sodium chloride solution	15 mls

TRAD NAME	CHEMICAL OR CHEMICAL MAKE-UP	USAGE PER WEEK
Nalco S0613 (RCRA #D002)	Sulfamic Acid	3g
Nalco S0614	Aqueous solution of Potassium Iodide/Iodate	2 mls
Nalco S0624 (RCRA #D002)	0.45 N Sodium Hydroxide in water	2 mls
Nalco S0681	Aqueous solution of Chelate and indicator	5 mls
Nalco S0682	Aqueous solution of Magnesium Chloride	3 mls
Nickel Plating Solution	Nickel Sulfate, Nickel Chloride Boric Acid, Nickel Purifer, Sulfuric Acid Nickel Anode Chips, Water MacDermid Nickel Brightners #14, #8153 and #8162	20 mls
PanIndicator Solution 0.3%	Triton X-305 and Dimethylformamide	20 mls
Phosphoric Acid 85%	Phosphoric Acid 85% and Water 15%	25 mls
Phos Ver 3 Phosphate Reagent	Potassium Pyrosulfate, L-Ascorbic Acid Sodium Molybdate	5g
Phthalate-Phosphate Reagent	Potassium Acid Phthalate ACS Grade Sodium Pyrophoshate Anhydrous	25 mls
Potassium Iodide 10%	Aqueous solution containing Potassium Iodide	100 mls
Sodium Hydroxide Solution 5.0N	Sodium Hydroxide and water	10 mls
Sodium Thiosulfate Reagent Crystals	Inorganic Salts (Diluted to 0.1N)	5g
Solution "A" KSTS	Hydrochloric Acid and water	100 mls
Solution "B" KSTS	Aqueous solution containing Barium Chloride	50 mls
Solution N-15	Silver Nitrate and water	15 mls
Solution N-18	Silver Nitrate and water	15 mls
Solution N-25	Aqueous solution containing Sodium Cyanide	50 mls
Solution N-63	Ammonium Hydroxide and water	15 mls
Solution N-64	Ammonium Hydroxide and water	25 mls
Solution N-66	Ammonia Anhydrous and water	80 mls
Solution N-71	Sodium Hydroxide and water	10 mls
Solution N-73	sodium Hydroxide and water	30 mls
Solution N-85	Aqueous solution containing Hydrogen Peroxide and Acetanilide	60 mls
Solution R-43	Sorbitol and water	100 mls
Solution R-51	Sulfuric Acid and water	25 mls
Solution R-52	Aqueous solution containing Potassium Iodide, Trisodium Phosphate and Sodium Hydroxide in descending order concentration.	25 mls
Solution R-54	Ammonium Nitrate and Sodium Thiocyanate	25 mls
Solution R-79	Ethylene-Dinitrilo Tetraacetic Acid, Disodium Salt and water	50 mls
Zinco Ver 5 Zinc Reagent	Potassium Cyanide (RCRA #P098), Potassium Borate Boron Oxide	10g

DISPOSAL METHODS FOR WASTES GENERATED IN LAB

Different waste solutions are collected in 5 Gallon plastic pails. The wastes are kept separated. When Lab Technician is finished with analysis, wastes are taken to Wastewater Treatment Plant and put into proper treatment tank. Examples shown following:

1(ickel Analysis Wastes are put into Nickel treatment.

'. Chrome Analysis Wastes are put into Chrome treatment.

). Copper Cyanide Wastes are put into Cyanide treatment.

. Wastewater and Boiler Analysis Wastes are put into Wastewater Treatment Plant in neutralization pit.

Appendix III

Lab Analyses and

Lab Chemicals

COPY

State of Kansas

DEPARTMENT OF HEALTH & ENVIRONMENT

Topeka, Kansas

Forbes Air Force Base, Building 740
Topeka, Kansas 66620, Tel. 913-296-3825

September 30, 1974

Mr. Paul P. Hamilton, Chief
Ecological Services
Fish and Wildlife Service
U. S. Department of the Interior
Federal Building - Room 1748
601 East 12th Street
Kansas City, Missouri 64106

Re: Public Notice KS-74-275
Dated May 10, 1974
Kuhlman Diecasting Co., Inc.

Dear Mr. Hamilton:

This is in response to your memorandum dated May 17, 1974, concerning the above referenced permit. The following laboratory data (in mg/l) were taken from the final outfall on the indicated dates:

	12-10-73	2-22-74	3-29-74	6-28-74
Cyanide	0	.01	26.00	.04
Total Chromium	.546	.40	.98	.158
Hexavalent Chromium	.014	.13	.035	.060
Copper	5.0	16.60	6.0	1.10
Nickel	.066	27.50	4.55	.56
Zinc	.084	.88	.88	.04
Oil & Grease	13.0	32.80	3.90	10.20

The latest data is more indicative of their plant discharge because they have improved their waste treatment plant operation. Flow is approximately 100 gpm and the plant operates 16 hours daily. According to Mr. Brumwell, the plant manager, sanitary wastes account for approximately 10% of the discharge.

Treatment facilities consist of cyanide destruction, copper, zinc, nickel, and chromium precipitations, oil and grease removal, and a waste stabilization pond for sanitary wastes. Precipitated sludge is contracted out to a sanitary landfill and oil and grease is spread on roads and parking lots.

Final limitations and monitoring requirements are as indicated on the draft permit you received with the addition of monthly BOD (5-day) and fecal coliform measuring.

The wastewater treatment facilities were approved and the company was issued a State discharge permit No. 9348 under the old system prior to the National Pollutant Discharge Elimination System program. The new National Pollutant Discharge Elimination System permit will be issued within a few days. The treatment plant was placed in operation approximately August, 1973.

If you have further questions concerning this or other projects, please contact us.

Sincerely yours,

Division of Environment

Steven C. Rogers

Steven C. Rogers
Sanitary Engineer
Water Pollution Control

SCR:jac
cc: Dan Shiel - EPA
Northeast District

State of Kansas . . . ROBERT F. BENNETT, Governor

DEPARTMENT OF HEALTH AND ENVIRONMENT

DWIGHT F. METZLER, Secretary

Topeka, Kansas 66620

June 2, 1975

COPY

Mr. W.E. Brumwell, Plant Mgr.
Kuhlman Diecasting Company, Inc.
164th and Mission Road
Stanley, Kansas 66084

Dear Mr. Brumwell:

This department wishes to thank you for the courtesy you extended to Mr. James Bowman and myself during our inspection of your wastewater treatment facility on May 14. This yearly inspection is part of a statewide program to determine compliance with State/NPDES issued permits.

Tests performed on a grab sample obtained at the time of inspection indicate that the effluent is within the permit limitations except for cyanide and hexavalent chromium. We realize that one grab sample does not necessarily indicate compliance or noncompliance with effluent limitations. The inspection report, which includes the tests results, is attached. We suggest that you examine your treatment facility for possible causes for high cyanide and hexavalent chromium concentrations and report to us on your findings.

As stated at the time of inspection, we would like to point out that it is very important that the compliance dates for monitoring results and progress reports be submitted in accordance with the schedules on pages 4 and 6, respectively of your NPDES permit. It is required that you begin composite sampling, according to the schedule on page 2, of your wastewater effluent at the point after the last holding pond which receives both your process and sanitary wastewater.

We would like to suggest that the inlet pipe to the first cell of your sanitary waste stabilization pond be lowered to within one foot of the bottom of the pond. The lowering of the pipe below the surface would help to eliminate the floating solids. It is particularly important to mow the grass at

the water's edge as this vegetation, when unattended, provides harborage for mosquito breeding. A very satisfactory mowing arrangement is to use a sickle-bar type mowing machine with the end of the bar extending slightly into the water to cut all grass.

Kuhlman Diecasting should be commended on the steps previously taken toward the treatment of their process wastewater. However, it is important that good composite sampling be undertaken and continued to evaluate what actions, if any, are necessary to achieve the more stringent discharge limitations required on page 3 of your NPDES permit.

Enclosed is a copy of the Federal Regulations from which the 1977 effluent limitations for your company were calculated, and copies of the requested Discharge Monitoring Report forms. If you have any comments or questions concerning this letter, report, or your NPDES permit, please feel free to contact this office.

Respectfully submitted,

Division of Environment

SPM

S. Patrick McCool
Sanitary Engineer

SPM:lw

cc: Northeast District

It is recommended that the flow measurement device at the discharge from your process wastewater treatment facility be checked to see that it is operating properly. Daily totalizer readings should be taken, as required by your NPDES permit, to show the amount of wastewater discharged. This information will also assist your consulting engineer in the evaluation and upgrading of your wastewater treatment facility.

At the time of issuance of your NPDES permit, this department was requiring the monitoring of fecal coliform of waste stabilization pond effluents. However, this policy has been changed and your need not test or report fecal coliform levels as required by your permit. This limitation and monitoring requirement will be dropped when your permit is revised.

Should there be any comments or questions concerning this letter or the enclosed inspection form, please feel free to contact this office.

Respectfully,

Division of Environment

S. Patrick McCool
Northeast District Engineer

SPM:bb
cc: Northeast District

DEPARTMENT OF HEALTH AND ENVIRONMENT
Division of Environment
Water Pollution Control

FACILITY INSPECTION FORM

FACILITY NAME Kuhlman Diecasting Company, Inc.

FACILITY ADDRESS 164th and Mission Road

Stanley, Kansas 66084

TELEPHONE NO. (913) 681-2351 PERMIT NO. I-MO26-P001

INSPECTED BY James E. Bowman and S. Patrick McCool DATE May 14, 1975

District ~~AREA~~ OFFICE ADDRESS Northeast District, Topeka, Kansas

OFFICIAL CONTACTED Mr. W. E. Brumwell - Plant Manager

RECEIVING STREAM Blue River, DESIGN CAPACITY 180 gpm

I. Plant Operation and Maintenance:

a. Is current plant operation in agreement with plant design schematic? yes

b. Describe and comment on each unit process with emphasis on actual loading versus design loading. This company does copper, nickel and chromium plating on zinc diecastings. The description of the process and sanitary wastewater treatment systems is on the attached sheet.

c. Is flow measurement equipment available and operable? flow meter available and working; W & T chart recorder and totalizer available, not working

d. Is there ability to measure peak flow as well as average and minimum flows? yes

".sion of Environment
ter Pollution Control

FACILITY INSPECTION FORM

ACILITY NAME Kuhlman Diecasting Company, Inc.

ACILITY ADDRESS 164th and Mission Road, Stanley, Kansas 66223

ELEPHONE NO. (913) 681   PERMIT NO. I-MO26-P001

NSPECTED BY S. Patrick McCool   DATE May 14, 1976

ISTRICT OFFICE ADDRESS Topeka

FFICIAL CONTACTED Mr. W. E. Brumwell

ECEIVING STREAM Blue River, DESIGN CAPACITY 180 gpm

I. Plant Operation and Maintenance:

a. Is current plant operation in agreement with plant design schematic? yes

Is flow measurement equipment available and operable? see attached letter

c. Is there ability to measure peak flow as well as average and minimum flows? yes

d. Describe and comment on each unit process with emphasis on actual loading versus design loading. The process wastewater treatment facility consists of a cyanide destruction unit, hexavalent chromium reduction unit, coagulation and sedimentation unit using lime, and pH adjustment. The domestic wastewater is treated by a two-cell waste stabilization pond. The effluents from the process treatment system and waste stabilization pond are then combined in a holding pond before being discharged to the Blue River.

e. Does the city have a regular sewer maintenance program for the collection system? Not Applicable

I. Records and Permit Review:

a. Do the plant personnel perform their own tests? If not, who does? no

Western Chemical Co.

b. Are laboratory facilities and testing procedures adequate? yes

List tests performed. pH, Copper, Cyanide, hexavalent chromium, total chromium, zinc, oil and grease, BOD_5, total suspended solids

c. Are laboratory data available at the plant and are appropriate records kept?

yes

d. Do laboratory data indicate that the permittee is in compliance with the permit effluent limitations? see attached letter

e. Is permittee in compliance with the implementation schedule stipulated in the permit? yes; however, see attached letter

II. Residual Processing:

Are ultimate disposal practices for sludges, paunch manure, brines, etc. adequate? pump to lagoon; see attached letter

IV. Personnel:

Give a listing of operating personnel.

Name	Responsibilities & Qualifications
Mr. W. E. Brumwell	Plant Manager
Mr. Baker	Chemist and Sampler
Mr. Harry Miller	Operator

Industrial Contributors (significant) - List large or problem contributors Not Applicable

a. Industry ________________ Pretreatment? Yes___ No___

Main Pollutant(s) Discharged? ________________

____

Adverse Affect(s) - Describe ________________

Industry ________________ Pretreatment? Yes___ No___

Main Pollutant(s) Discharged? ________________

____

Adverse Affect(s) - Describe ________________

b. Have there been or are there any anticipated significant changes in influent quantity and/or quality? no

____

____

VI. Overall Considerations:

a. Are there adequate emergency procedures in event of power failures, equipment breakdown, etc.? no

____

b. Was a sample collected for analysis at the State Lab?* Yes x No___ Explain:

This facility is a major discharger

c. Describe the effect of this discharge on the receiving stream: no adverse effect noted at time of inspection

____

____

d. Is there a follow-up inspection needed? no Reason? ________________

____

____

e. Other observations and recommendations: see attached letter

____

____

*All facilities rated as a "principle discharger" must be sampled.

MMENTS

esults of Analytical Testing:

Parameter (mg/l)	NPDES Effluent Limitation (Daily Max.)	Test Results Grab Sample 6-9-76
Copper	3.00	0.02
Nickel	3.00	3.1
Chromium (total)	1.00	0.13
Zinc	1.5	0.00
Cyanide	0.050	0.0
TSS	20	5
Oil and Grease	N/A	7
BOD_5	45	18
Fecal Coliform (organisms/100 ml)	400	not tested
pH	6.0 - 9.0	7.8
Chromium (Hexavalent)	0.20	0.12

REPORT OF INVESTIGATION

KUHLMAN DIECASTING COMPANY

STANLEY, KANSAS

NPDES PERMIT NUMBER: KS-0001881

OCTOBER 6, 1978

BY

U. S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Surveillance and Analysis Division

INTRODUCTION

A compliance monitoring investigation of the Kuhlman Diecasting Company in Stanley, Kansas was conducted by Water Section personnel June 20 through June 23, 1978. This report presents the results of that investigation.

COMPLIANCE MONITORING PERSONNEL

Personnel: Stephen P. Busch
Title: Chemical Engineer
Personnel: Gregory Beemont
Title: Physical Science Technician

FACILITY DESCRIPTION

The Kuhlman Diecasting Company in Stanley, Kansas, was a diecasting operation. Diecasting consisted of zinc castings to customer specifications. Plating operations involved the plating of zinc castings,

aluminum castings, and plastic parts. Plating with copper, nickel, and chrome took place at the facility.

Wastewater treatment at the facility was accomplished by physical-chemical means on the segregated industrial wastewater flows. Chromate wasted were treated with sulfur dioxide for reduction of hexavalent chrome to the trivalent state. Cyanide destruction was accomplished with gaseous chlorine. All industrial wastes were then combined for flocclation-coagulation and pH adjustment utilizing alum and lime addition. Sludge from the sedimentation basin was disposed of on site in a single cell lagoon. The supernatant from the sedimentation basin was discharged to an additional lagoon for polishing prior to discharge. Sanitary waste is discharged to a two cell lagoon system operated in series. Due to the small amount of sanitary waste generated, this lagoon system rarely discharges.

COMPLIANCE MONITORING PROCEDURE

Three sets of 24-hour time proportional samples were collected of the company's effluent and combined influent (after addition of chlorine and sulfur dioxide, prior to flocculation-coagulation) during the period of June 20 through 23, 1978. An Instrumentation Specialties Company (ISCO) model 1392 wastewater sampler was utilized for collection of effluent samples while an ISCO model 1680 high speed sampler was used to collect the influent samples. Flow measurements were made at the company's 3-inch Parshall flume, instantaneous measurements were recorded.

Split samples were given to the discharger for comparative analyses. Analytical results were to be returned to the EPA laboratory for evaluation of laboratory analytical capabilities. Langston Laboratories, Inc., performed all laboratory analyses for Kuhlman Diecasting.

FINDINGS

1. Results of the monitoring period were as follows:

	Discharge	Permit Limitation
BOD_5, mg/l	7	30.
COD, mg/l	61	-
pH	9.8	6.0 to 9.5
Cr (total), kg/day	0.28	0.044
Zn (total), Kg/day	0.13	0.044
TSS, Kg/day	19.0	1.75
Oil and grease, mg/l	11.8	10.0
Cyanide (total), Kg/day	0.024	0.044
Flow, M^3/day	636	-

2. Results of split sample data were as follows:

Lab Number 210812	EPA	Discharger
BOD_5, mg/l	11	30
TSS, mg/l	112	106
Cr (total), ug/l	12,800	13,300
pH	6.6	6.5
Lab Number 210813		
CN^-, mg/l	0.076	0.26
Oil & Grease, mg/l	10.2	3.6
Lab Number 210822		
BOD_5, mg/l	4	9
TSS, mg/l	44	75
pH	9.9	9.5

Lab Number 210823

CN^-, mg/l	0.026	0.16
Oil & Grease, mg/l	12.6	6.2

CONCLUSION

During the monitoring period, pH, Cr-total, Zn-total, and TSS limitations were exceeded.

STATION DESCRIPTION: KUHLMAN DIECASTING POND INFLUENT JOHNSON KS

STORET NO. 190309

***** COMPOSITE SAMPLE DATA *****

DATE/TIME	200678 1030 210678 0915	210678 0915 220678 0900	220678 0900 230678 1100	
TYPE OF SAMPLER	ISCO 1680 MS	ISCO 1680 MS	ISCO 1680 MS	
LAB NO.	210810	210812	210814	
PARAMETERS				ARITH MEAN
00310 BOD 5 DAY MG/L	56.000	11.000	37.000	34.6666
00340 COD HI LEVEL MG/L	190.000	112.000	189.000	163.6666
00403 LAB PH SU	7.400	6.600	7.000	7.0000
00530 RESIDUE TOT NFLT MG/L	160.000	112.000	160.000	144.0000
01032 CHROMIUMHEX-VAL UG/L	***	***	***	
01034 CHROMIUMCR,TOT UG/L	15000.000	12800.000	19400.000	15733.3333
01092 ZINC ZN,TOT UG/L	4150.000	4160.000	8400.000	5570.0000
38260 MBAS MG/L	***	***	***	
50050 CONDUIT FLOW MGD	***	***	***	

***** GRAB SAMPLE DATA *****

DATE/TIME	210678 0915	220678 0900	230678 1100	
LAB NO.	210811	210813	210815	
PARAMETERS				ARITH MEAN
00010 WATER TEMP CENT	20.000	28.000	30.000	26.0000
00061 STREAM FLOW, INST-CFS	0.117	0.509	0.179	0.2600
00556 OIL-GRSEFREON-GR MG/L	10.700	10.200	10.300	10.4000
00720 CYANIDE CN-TOT MG/L	0.013	0.076	0.003	

NOTE: *** INDICATES PARAMETER NOT APPLICABLE

STATION DESCRIPTION: KUHLMAN DIECASTING BLUE RIVER JOHNSON KS

STORET NO. 190300

***** COMPOSITE SAMPLE DATA *****

DATE/TIME			200678 1040 210678 0905	210678 0905 220678 0915	220678 0915 230678 1110	
TYPE OF SAMPLER			ISCO 1392	ISCO 1392	ISCO 1392	
LAB NO.			210020	210022	210024	
PARAMETERS						ARITH MEAN
00310 BOD	5 DAY	MG/L	7.000	4.000	11.000	7.3333
00340 COD	HI LEVEL	MG/L	73.000	62.000	48.000	61.0000
00403 LAB	PH	SU	9.900	9.900	9.700	9.8333
00530 RESIDUE	TOT NFLT	MG/L	20.000	44.000	23.000	29.0000
01032 CHROMIUM	HEX-VAL	UG/L	***	***	***	
01034 CHROMIUM	CR,TOT	UG/L	640.000	310.000	340.000	430.0000
01092 ZINC	ZN,TOT	UG/L	271.000	188.000	155.000	204.6666
38260 MBAS		MG/L	***	***	***	
50050 CONDUIT	FLOW	MGD	***	***	***	

***** GRAB SAMPLE DATA *****

DATE/TIME			210678 0905	220678 0915	230678 1110	
LAB NO.			210021	210023	210025	
PARAMETERS						ARITH MEAN
00010 WATER	TEMP	CENT	30.000	30.000	29.000	29.6666
00061 STREAM	FLOW, INST-CFS		***	***	***	
00556 OIL-GRSE	FREON-GR	MG/L	12.000	12.600	10.800	11.8000
00720 CYANIDE	CN-TOT	MG/L	0.003	0.026	0.005	

NOTE: *** INDICATES PARAMETER NOT APPLICABLE

e. Does the city have a regular sewer maintenance program for the collection system? not applicable

II. Records and Permit Review:

a. Do the plant personnel perform their own tests? If not, who does? Western Chemical Company, 1345 Taney, North Kansas City, Missouri 64116

b. Are laboratory facilities and testing procedures adequate? not known

List tests performed. pH, copper, cyanide, nickel, hexavalent, chromium, total chromium, zinc, oil and grease

c. Are laboratory data available at the plant and are appropriate records kept? no - this matter was discussed at time of inspection

d. Do laboratory data indicate that the permittee is in compliance with the permit effluent limitations? not known since grab sampling - not compositing - has been done up to time of inspection

e. Is permittee in compliance with the implementation schedule stipulated in the permit? no - this matter was discussed at time of inspection

III. Residual Processing:

Are ultimate disposal practices for sludges, paunch manure, brines, etc. adequate? pump to a lagoon, and later hauled away

IV. Personnel:

Give a listing of operating personnel.

Name	Responsibilities & Qualifications
Mr. W. E. Brumwell	Plant Manager

V. Industrial Contr[illegible]s (significant) - List larg[illegible] problem contributors

a. Industry not applicable Pretreatment? Yes___ No___

Main Pollutant(s) Discharged? ______________________

Adverse Affect(s) - Describe ______________________

Industry ______________________ Pretreatment? Yes___ No___

Main Pollutant(s) Discharged? ______________________

Adverse Affect(s) - Describe ______________________

b. Have there been or are there any anticipated significant changes in influent quantity and/or quality? no

VI. Overall Considerations:

a. Are there adequate emergency procedures in event of power failures, equipment breakdown, etc.? no

b. Was a sample collected for analysis at the State Lab?* Yes xx No___ Explain:
NPDES major discharger

c. Describe the effect of this discharge on the receiving stream: The effluent was clear, however, the stream bed was lined with a bluish to bluish - green precipatate.

d. Is there a follow-up inspection needed? No Reason? ______________________

e. Other observations and recommendations: ______________________

*All facilities rated as a "principle discharger" must be sampled.

COMMENTS

This plant substantially complies with the NPDES interim discharge limitations.

Results of Analytical Testing:

Parameter (mg/l)	NPDES Effluent Limitation (Daily Max.)	Test Results Grab Sample 5-14-75
Copper	3.00	1.5
Nickel	3.00	0.5
Chromium (total)	1.00	0.53
Chromium (hexavalent)	0.20	0.50
Zinc	1.5	0.04
Cyanide	0.050	0.08
TSS	20	4
Oil and Grease	N/A	14.0
BOD_5	45	1.3
Fecal Coliform (organisms/100 ml)	400	less than 5
pH	6.0 - 9.5	9.1

The process wastewater treatment system consists of cyanide destruction, oxidation of chromium, and the precipitation of copper, nickel, zinc, and chromium. The treated process effluent then combines with the sanitary effluent from a two-cell waste stabilization pond and enters a shallow one-cell pond before being discharged to the Blue River via natural drainage.

The cyanide process wastewater which has a pH of 3.0 - 3.5 is oxidized to sodium carbonate and nitrogen gas by the addition of gaseous chlorine by a Wallace and Tierman Series A-741 chlorinator and sodium hydroxide. An in-line mixer follows the chlorinator; both an in-line mixer and a 180 gallon mixing tank follows the addition of sodium hydroxide.

The hexavalent chromium wastewater is reduced to the trivalent form by the addition of sulphur dioxide from a Wallace and Tierman Sulfanator. An in-line mixer follows the addition after which this wastewater, the cyanide wastewater, and the nickel and zinc wastewater combine in the primary mixing basin.

Sodium aluminate, Nalco #2 polymer, and lime to adjust the pH to around 9.0 and added to the combined process wastewater in a mixing basin to precipitate out the heavy metals. From the mixing basin the wastewater goes to a flocculation basin and then to a mechanically cleaned settling basin. The process wastewater treatment system has design capacity of 180 gpm and an operational capacity of slightly over 100 gpm.

The sanitary wastewater, which is less than 1% of the total discharge, to a two-cell waste stabilization pond located in the southwest corner of the property; the ponds did not appear to be overloaded. The sanitary wastewater effluent combines with the process wastewater in a shallow one-cell pond from which the discharges flow approximately 150 - 200 yards to the Blue River.

REPORT OF INSPECTION

STANLEY, KANSAS

KUHLMAN DIECASTING

NPDES Permit Number - KS-0001881

Inspector: John Feagans | Date of Report: March 24, 1976

Title: Chemical Engineer

Inspector: Joseph Joslin

Title: Sanitary Engineer

SUMMARY

A National Pollutant Discharge Elimination System (NPDES) Permit Inspection was made with Kuhlman Diecasting Vice-President and Plant Manager, Mr. William E. Brumwell, on January 22, 1976. Compliance with the conditions of the NPDES permit was unacceptable.

FACILITY DESCRIPTION AND SOURCES OF WASTEWATER

The plant has two distinct operations. One operation consists of zinc die casting to client specification with the dies furnished by the client but stored and maintained on site. The other operation consists of metal plating zinc castings produced on-site and aluminum die castings being produced at another company plant. Some metal plating of plastic parts produced off-site has been done on a trial basis since October, 1975.

Plating operations consist of an automatic line with copper, nickel (acid), and chromate baths; a limited capacity batch dip tank line for plating only plastics, and a batch dip tank manual system

for limited production plating jobs and for special plating operations.

The diecasting and plating operations are confined within a single building with all process wastewater collected and treated by facilities housed within the building. The process wastewater consist principally of plating bath and rinse waters, but also include some softener regeneration backwash, boiler blowdown and cooling water from the diecasting operation. Chromate wastes are treated separately with sulphur dioxide to reduce the chromium from the hexavalent to the trivalent state. Cyanide undergoes separate destruction using chlorine gas. After pretreatment of the chromate and cyanide waste, all the facility process water are collected together for flocculation and precipitation. Lime is used for pH adjustment and sodium aluminate as the flocculant. The resulting metal precipitate is pumped to a sludge lagoon. Effluent from the settling tanks is monitored for pH and the flow measured using a Parshall flume. This effluent had a vivid blue color associated with reduced chromium. It then flows to a junction box where it combines with the effluent from a two-cell lagoon system used only for sanitary wastes. This combined flow goes to a large lagoon cell for additional settling, then is discharged to the Blue River. This cell contained some metal sludge precipitate that had not been removed in the settling tanks. Mr. Brumwell indicated that some difficulties have been experienced with precipitation of the sludge at cooler water temperatures.

The two cell lagoon system is designed to treat only the sanitary waste and is operated with the two cells in series. Flow to this lagoon system has been very low due to curtailed employment at the

facility. As a result, the second cell contained very little water and there was no discharge from the lagoons.

FINDINGS

1. The company has their laboratory analysis done by Western Chemical Company located in North Kansas City, Missouri. Mr. Brumwell reports that analysis services from this laboratory have been very poor and as a result, Langsten Laboratory will probably be employed for future laboratory testing. Discharge monitoring reports for the period of July - December, 1975, were not available for review. The Kansas Department of Health and Environment report they have not received these reports. This is a violation of the requirements of the industry's NPDES permit.

2. The Kansas Department of Health and Environment (KDH&E) states that the progress report due June 30, 1975 as required by the NPDES permit was not submitted to the KDH&E.

3. The large single lagoon cell which receives both the sanitary lagoon discharge and the precipitation/settling tank discharge, contained substantial quantities of metal precipitates which had not been captured in the settling tank. The accumulated material appears as though it will be flushed to the Blue River if a large hydraulic surge occurs in the lagoon.

4. Skimmer system used to remove oil from the process wastewater was not totally effective.

5. No discharge from the sanitary lagoon system was occuring. Under present employment conditions, it is possible to valve the discharge and operate the sanitary lagoon in a complete retention mode.

RECOMMENDATIONS

1. The industry should employ a reliable laboratory for analysis purposes and monthly sampling and analysis as required by the NPDES permit section Effluent Limitations and Monitoring Requirements should begin immediately. The summary reports of these analyses should be submitted quarterly as required by the NPDES permit.

2. The progress reports on achieving compliance with the effluent limitations should be submitted as required by the NPDES permit. The next report is due on March 31, 1976.

3. The large lagoon should be cleaned to prevent the unnecessary

discharge of metal floc to the Blue River.

4. The oil skimmer and collection system should be improved operationally or by physical modification for increased oil capture.

DESCRIPTION OF WASTEWATER TREATMENT FACILITY

1. NPDES Permit No. KS-0001881
   EPA Survey No. ______
   Other No's or Designation ______

2. Name of Facility/Industry Kuhlman Diecasting Company, Inc.
   Owner Same
   Contact (Name) Mr. William E. Brumwell
   Title Vice President and Plant Manager
   Address 164th and Mission Road
   Stanley, Kansas 66084
   Telephone No. 913-681-2351

3. Location of Facility
   State Kansas County Johnson City Stanley
   Address same as above

   Latitude 38° 49' 50" Longitude 94° 37' 50"
   Township & Range Stanley-Johnson County R25E T14S
   U.S.G.S. Topographic Map 7½ min Stilwell, Kansas
   Receiving Stream (Name) or Sewage Treatment Plant
   Blue River
   Location of Outfall on Receiving Stream
   Miles ______ Kilometers ______ ☐ L or ☐ R (Facing Upstream)

4. General permit review including responsibilities assumed by facility, self-monitoring requirements and completion of monitoring report forms.
   Reviewed with (Name) Mr. William Brumwell Title Vice President

5. Status of progress if on compliance schedule.
   Last progress report was sent to State on May 20, 1975. Next report will be due March 31, 1976.

6. Have there been or are there any anticipated significant changes in influent characteristics: Yes___ No x

7. Do you anticipate treatment system modifications: Yes x No___
   If yes, describe, including dates.
   Polymer addition being utilized to improve settling. Plan to limit chrome by recycle and concentration to meet the secondary treatment deadline.

8. Comments on visual inspection of receiving stream, compare upstream and downstream conditions (color, solids, etc.),
   Plant Effluent - Clear vivid blue color

9. Method of self-monitoring sample analyses:
Own lab: ___
Other lab: Western Chemical, North Kansas City, Missouri

10. Industry Description (Complete for Industrial Sampling):
SIC Codes 347
Pretreatment -

Remarks Separate chromate and cyanide wastes are treated combined for neutralization, lime addition and settling tank with skimmer. Outside lagoon is ineffective.

Work Week 7:50am - 4:00pm / 4:00pm - 12:10am Hrs/Day 16 Days/Week 7
Daily or Seasonal Variation none

11. Flow Measurements
Description of Device: Influent ___ Effluent x
Type 3" Parshall Flume

Location At effluent of settling tank inside shop

Calibration
Recording Recording chart

Judgment of Adequacy Adequate

Estimated Discharge: 1-200 gpm (pumping varies) ______ cu m/day

12. Industrial Contributors

(a) Industry
Comments

(b) Industry
Comments

(c) Industry
Comments

(d) Industry
Comments

13. Sampling Stations

STORET NUMBER | Description of Sampling Point

a. ____________ ______________________________

b. ____________ ______________________________

c. ____________ ______________________________

d. ____________ ______________________________

e. ____________ ______________________________

f. ____________ ______________________________

14. Collection of Samples
Effluent Sampled ______________________________
Chain of Custody Followed: Yes___ No___

Sample Type:
Composite ______________________________
Grab ______________________________

15. Photographs taken: Yes___ No___
Included with report: Yes___ No___

16. Remarks:

State of Kansas . . . ROBERT F. BENNETT, Governor

DEPARTMENT OF HEALTH AND ENVIRONMENT

DWIGHT F. METZLER, Secretary

Topeka, Kansas 66620

July 13, 1976

Mr. W. E. Brumwell, Vice President
Kuhlman Diecasting Company, Inc.
164th & Mission Road
Stanley, Kansas 66223

Subject: Wastewater Treatment Facility Inspection

COPY

Dear Mr. Brumwell:

I wish to thank you for the courtesy extended to me during my operation and compliance inspection on May 14, 1976, and my sampling inspection on June 9, 1976, of your wastewater treatment facility. These inspections are part of a statewide program to determine compliance with State/NPDES issued permits.

As shown on the last page of the enclosed Facility Inspection Form, lab results of your facility's discharge are within interim effluent limitations, except for nickel. Your last two quarterly monitoring reports have also exceeded interim effluent limitations for total chromium, hexavalent chromium, and cyanide, and for nickel in the last report. As previously discussed, these high concentrations were due to a leaking filter pump in the cyanide destruction unit and manual operation of the plating line causing excessive strengths in the waste discharge which were beyond the capability of your existing facility to provide proper treatment. It appears from the lab results that the filter pump has been repaired and the manual operation of the plating line has been improved.

Also from the lab results on the Facility Inspection Form, it appears that the hexavalent chromium is not being properly converted to the trivalent form by the chlorine and sulfur dioxide units. Please investigate this matter.

Although your present wastewater treatment facility appears to be capable of achieving interim effluent limitations, more stringent effluent limitations must be met by July 1, 1977, as required on page 3 of your NPDES permit. Based upon 6,000 square feet of surface area plated daily and an effluent discharge flow of approximately 110,000 GPD, the average and maximum discharge concentration limitations are as follows:

Mr. W. E. Brummel
July 13, 1976
Page 2

Effluent Characteristic	Average Concentration (mg/l)	Maximum Concentration (mg/l)
Copper	0.107	0.214
Nickel	0.107	0.214
Zinc	0.107	0.214
Chromium (total)	0.107	0.214
Chromium (+6)	0.011	0.022
Cyanide (total)	0.107	0.214
Cyanide (oxidizable)	0.011	0.022
Total Suspended Solids	4.3	8.6
BOD (5-day)	30	45

The total suspended solids and BOD_5 limitations may be increased at a later date to take into consideration the effluent from the waste stabilization pond. Since the issuance of your permit, the federal government has revised the effluent limitations on the electroplating industry. In addition to previous effluent limitations, limitations on fluoride, cadmium, lead, zinc, and phosphorus have been promulgated. As discussed in a telephone conversation with you, these additional limitations most probably will not apply to your particular situation. However, it is recommended that you take an eight-hour composite for chemical analyses for these contaminants to confirm that these contaminants are not present in significant amounts.

It can easily be seen from your monitoring reports that your present wastewater treatment facility needs to be upgraded to achieve more stringent 1977 effluent limitations. (Therefore, it is recommended that you engage the services of a consulting engineer to investigate and recommend changes to achieve these limitations. Please submit to this department by August 6, 1976, a letter describing what actions have been and will be taken concerning this matter.) It should be remembered that all plans and specifications for upgrading your wastewater treatment facility must be submitted to this department for approval prior to construction.

JHB

At the present time there are no disposal facilities in your area in Kansas in which you may dispose of the settled sludge drying out in your abandoned holding pond. Two facilities which are approved for the disposal of this heavy metal sludge are:

1. Lincoln Brothers Sanitary Landfill, which is operated by Browning-Ferris Industries of Kansas City, Inc. and

2. Wheeling Disposal Service Co., Inc. Waste Disposal Site.

To contact Lincoln Brothers Sanitary Landfill, call Mr. Jack S. LaForce, Manager, at (816) 336-4422 or (913) 281-4343. To contact Wheeling Disposal Service, call Mr. Clayton R. Buntrock, President, at (816) 279-0815. Please inform this department of what action will be taken with this sludge and prior approval is needed if a disposal site other than the two previously mentioned is chosen.

Kaiser Copy

REPORT OF COMPLIANCE MONITORING INSPECTION

KUHLMAN DIE CASTING COMPANY

STANLEY, KANSAS

NPDES PERMIT NO: KS-0001881

MARCH 10-13, 1980

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Surveillance and Analysis Division

INTRODUCTION

At the request of the Enforcement Division, a National Pollutant Discharge Elimination System (NPDES) permit compliance sampling inspection was conducted at the Kuhlman Die Casting Company, Stanley, Kansas, during the period of March 10-13, 1980. This report and attachments present the results of that inspection.

PARTICIPATING PERSONNEL

U.S. EPA: Joseph Joslin, Sanitary Engineer
Gregory Beemont, Engineering Technician
John Bosky, Environmental Engineer

Kuhlman Die Casting: William E. Brumwell, Vice President

FINDINGS

1. The NPDES permit expired on October 1, 1979 and has not been reissued. Kansas Department of Health and Environment are reportedly working on a reissuance.

2. The following list of parameters had maximum and/or daily average values for the period of sampling which exceeded the NPDES permit effluent limitations. See the attached chart for specific values.

	Permit Limits Exceeded
Total suspended solids	Daily maximum and daily average
Copper	Daily maximum and daily average
Nickel	Daily maximum and daily average
Zinc	Daily maximum and daily average
Total chromium	Daily maximum and daily average
Oil and grease	Daily maximum

3. The commercial laboratory employed by Kuhlman Die Casting performed oil and grease analysis on the composite sample provided to Kuhlman by EPA. A plastic container was used to collect this sample making it unacceptable for oil and grease analysis. EPA, at the time of sampling, collected a grab sample in a glass container for oil and grease analysis.

4. A comparison of Langston Laboratories and EPA Laboratory shows a poor agreement for BOD_5 analysis but reasonably good agreement for metal analysis.

5. Monitoring of the Kuhlman final effluent is done once per month. The NPDES permit calls for once per week monitoring to be performed once per week beginning July 1, 1977. According to Mr. Brumwell, the permit has not been modified.

6. Samples are not kept cool during the compositing period.

7. During telephone communication between Mr. Brumwell and Mr. Joslin, Mr. Brumwell stated that the high metal discharges during the sampling period occurred due to inadequate lime being added to the wastewater to cause precipitation of the metals.

8. The bioscreen performed as part of the sampling effort was rated positive based on the response of the water fleas and algae. This response is a direct result of the high metal levels found in the lagoon.

RECOMMENDATIONS

The high metal concentration in the plant effluent have been attributed to improper monitoring of the effluent pH by new plant personnel. Because the metal precipitation process is very dependent on pH adjustment, a pH monitoring system would be a valuable asset at this facility. The pH monitor with a high and low set point and an alarm would allow optimization of lime feed or other pH adjustment and would serve as a reliable backup for human inattentiveness. Proper procedures for collection of oil and grease samples by collecting only in properly cleaned glass containers would be followed. All samples collected by manual composite procedure should be kept cool until delivered to the analytical laboratory.

FACILITY DESCRIPTION

Kuhlman Die Casting Company operations consist of die casting zinc alloy on a job basis to customer specification and chromium electroplating select plant manufactured zinc alloy castings and aluminum die cast and plastic parts which have been manufactured outside the plant. The facility is 16 years old with a current employment of 156 persons and operates on a five day, 24 hour per day work schedule. Most of the 24 hour production consists of electroplating while most zinc die casting is done on a single shift. Work load in the plant usually peaks during the spring of each year.

The plants rated capacity is 1,363,850 kilograms (3,000,500 pounds) per year of zinc die cast and electroplated parts. Current production is 17,242,350 parts per year of die cast and electroplated parts.

The facility discharges to the Blue River through a single permitted discharge approximately 100,000 gallons per day of treated process water and sanitary wastewater.

PROCESS DESCRIPTION

The Kuhlman facility consist of zinc alloy die casting to client specifications with dies furnished by the client but stored and maintained on site. The process is achieved by use of ten 50-600 ton die casting machines and fifteen 8-50 ton trim presses. The facility also chromium electroplates the zinc castings and aluminum die cast and plastic parts manufactured off site. The plating is accomplished by use of one electroplating machine with a capacity of 40-110 racks per hour. A hoist line plating machine with a capacity of 6 bars per hour is also available but not currently in operation. The plating operation raw materials include copper cyanide, potassium cyanide, potassium hydroxide, chromic acid, sulfuric acid, nickel sulfate, boric acid, and etching salts.

Die casting is a one shift per day, five day a week operation while plating is a 24 hour, five day a week operation with most plating on a batch type basis.

The die casting and plating operations are confined within a single building with all process wastewater collected and treated by facilities housed within the building. The process wastewater consist principally of plating bath and rinse waters, but also include some softener regeneration backwash, boiler blowdown and cooling water from the die casting operation. (Chromate wastes are treated separately with sulfur dioxide to reduce the chromium from the hexavalent to the trivalent state.) (Cyanide undergoes separate destruction using chlorine gas.) After pretreatment of the chromate and cyanide waste, all the facility process water are collected together for flocculation and precipitation. Lime is used for pH adjustment and sodium aluminate as the flocculant. (The resulting metal precipitate is pumped to a sludge lagoon. Effluent from the settling tanks is monitored for pH and the flow is measured using a Parshall flume and flow recorder with totalizer. It then flows to a junction box where it combines with the effluent from a two-cell lagoon system used only for sanitary wastes. This combined flow goes to a large lagoon cell for additional settling, then is discharged to the Blue River. This cell contained some metal sludge precipitate that had not been removed in the settling tanks.

The two cell lagoon system is designed to treat only the sanitary waste and is operated with the two cells in series. Flow to this system is low enough that evaporation/precolation within the system creates a situation where little or no discharge occurs. At the time of sampling there was no sanitary waste lagoon discharge.

COMPLIANCE MONITORING PROCEDURE

Sampling at the Kuhlman Die Casting facility was begun on March 11, 1980 without prior notification being given to facility personnel. An ISCO Model 1580 HS automatic wastewater compositor was installed at approximately 11:30 a.m. to sample the plant effluent. The specific site was at the lagoon discharge adjacent to the lagoon. The sampler intake line was weighted to prevent washout and inserted in the lagoon discharge line such that the sampler tube was not laying on the bottom of the discharge line. This sampler was serviced for the following three mornings at approximately 10:30 a.m. resulting in three consecutive approximate 24 hour composite samples. In addition, an ISCO Model 1680 HS was operated for the period of March 12-13 to collect a three gallon sample over approximately 24 hours to be used for bioscreening. The bioscreen sampler tube was suspended adjacent to the tube used for other sample parameter coverage. All samples were kept cool during the period by icing. A split sample was left at the permittee's request for all three days of sampling. Results of the permittee's contract laboratory analysis are included as part of the data tabulation. Receipts for the split samples are attached to this report. All EPA samples were transported to the laboratory by EPA carriers. Chain-of-custody procedures were used in transporting the samples and official Federal Register or permittee laboratory analysis are contained in the attached data summary table.

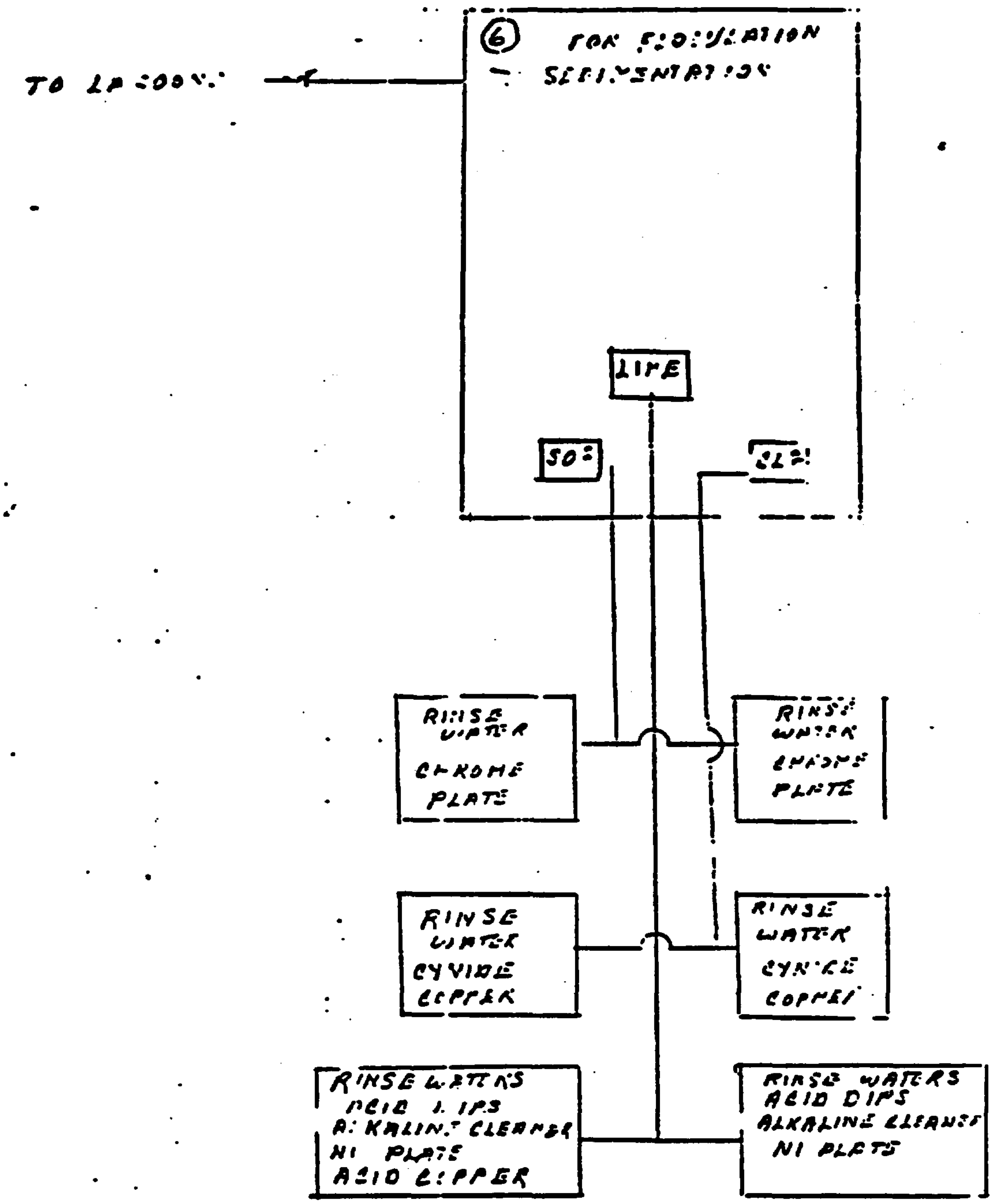
JOSEPH JOSLIN
SANITARY ENGINEER
DATE: May 17, 1980

Robert B. Dona
ROBERT B. DONA
CHIEF, WATER SECTION
DATE: May 17, 1980

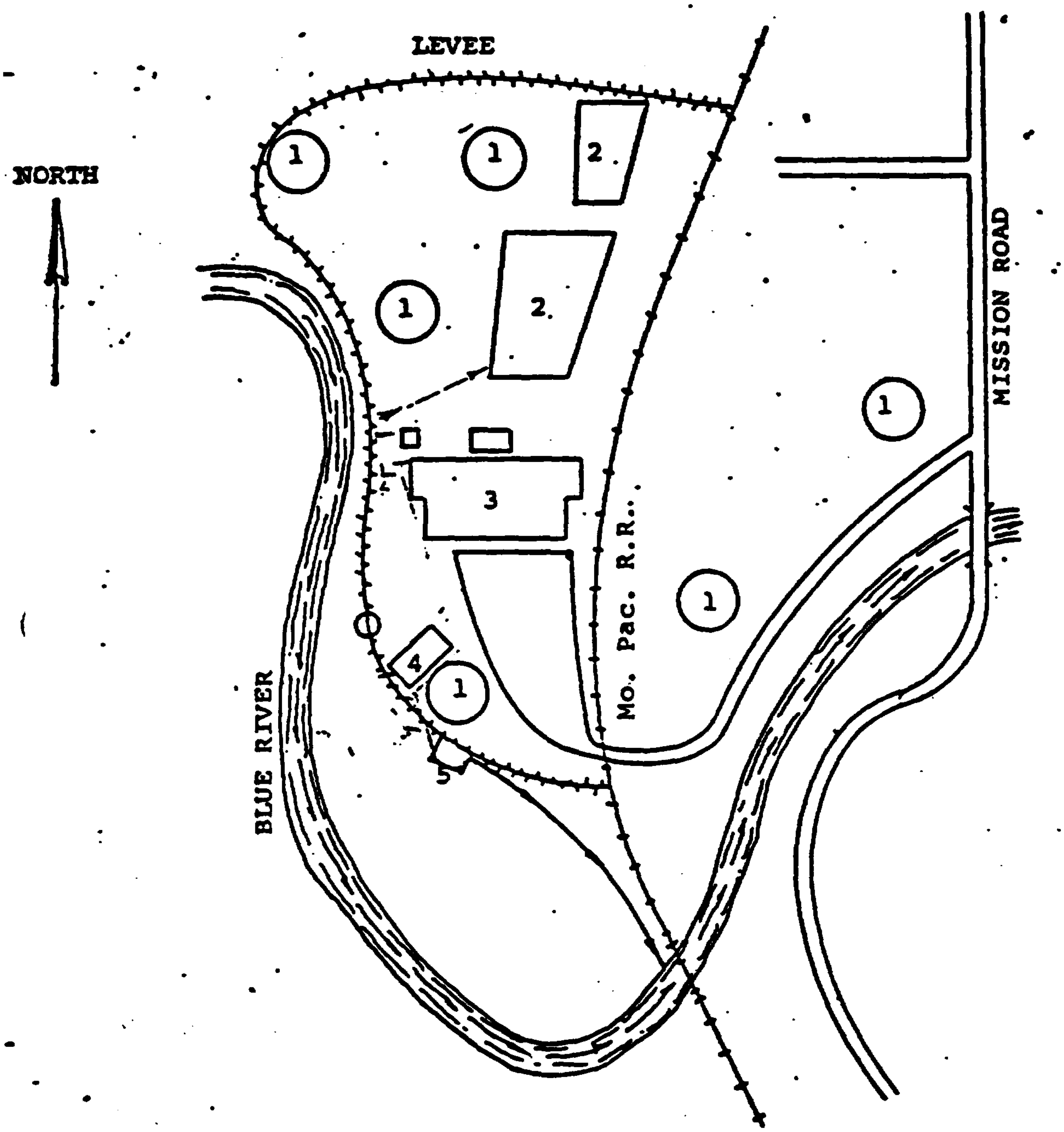
COMPARISON OF ANALYSIS FOR SPLIT SAMPLES
BY EPA LABORATORY AND LANGSTON LABORATORIES, INC.
FOR
KUHLMAN DIE CASTING COMPANY
STANLEY, KANSAS
MARCH 10-13, 1980

Sample Period Laboratory	3/10-11/80 Langston Lab	 EPA	3/11-12/80 Langston Lab	 EPA	3/12-13/80 Langston Lab	 EPA	Average 3/10-13/80 Langston Lab	 EPA	NPDES Permit Effluent Limitations Daily Avg.	 Daily Max.
5 Day BOD (mg/l)	30	15	21	14	36	21	29	17	30	45
COD (mg/l)	53	85	42	54	91	93	62	77		
Total Suspended Solids (lbs/day)	6.3	4.5	8.1	9.8	11.3	6.2	8.6	6.8	3.9	6.0
pH Standard Units	7.2	7.2	7.9	7.7	8.7	8.6	7.2-8.7	7.2-8.6	6.0-9.0	6.0-9.0
Copper (lbs/day)	0.35	0.29	0.28	0.29	0.39	0.34	0.34	0.31	0.098	0.196
Nickel (lbs/day)	4.71	3.94	3.42	3.03	2.16	1.93	3.43	2.97	0.098	0.196
Zinc (lbs/day)	0.91	0.37	0.26	0.27	0.36	0.23	0.51	0.29	0.098	0.196
Total Chromium (lbs/day)	0.91	0.74	0.89	0.83	0.84	0.64	0.88	0.74	0.098	0.196
Hexavalent Chromium (lbs/day)		< 0.005		< 0.041		< 0.02		< 0.02	0.009	0.009
Total Cyanide (lbs/day)	0.04	0.01	0.02	0.01	< 0.01	0.027	0.02	0.02	0.098	0.196
Oxidizable Cyanide (lbs/day)		0		0.003		0.01		0.004	0.009	0.020
Oil & Grease (mg/l)	4*	2.4	2*	2.1	2*	20.9	2.7*	8.5	10	15
Flow (MGD)		0.0543		0.0975		0.1233		0.092		

* This analysis performed on composite sample collected in plastic container and provided to Kuhlman Die Casting by EPA. EPA Sample for Oil and Grease analysis was a grab sample collected in glass container.



6
LIME
RINSE WATER
CHROME PLATE
RINSE WATER
CYVIDE COPPER
RINSE WATERS
ACID DIPS
ALKALINE CLEANER
NI PLATE



Scale in feet

0 200 400

Legend
1 - Abandoned petroleum reservoirs
2 - Raw water reservoirs
3 - Plant
4 - Sanitary lagoon
5 - Industrial waste lagoon
6 [illegible]

KUHLMAN DIECASTING CO. INC.
164th & MISSION ROAD
STANLEY, KANSAS 66084

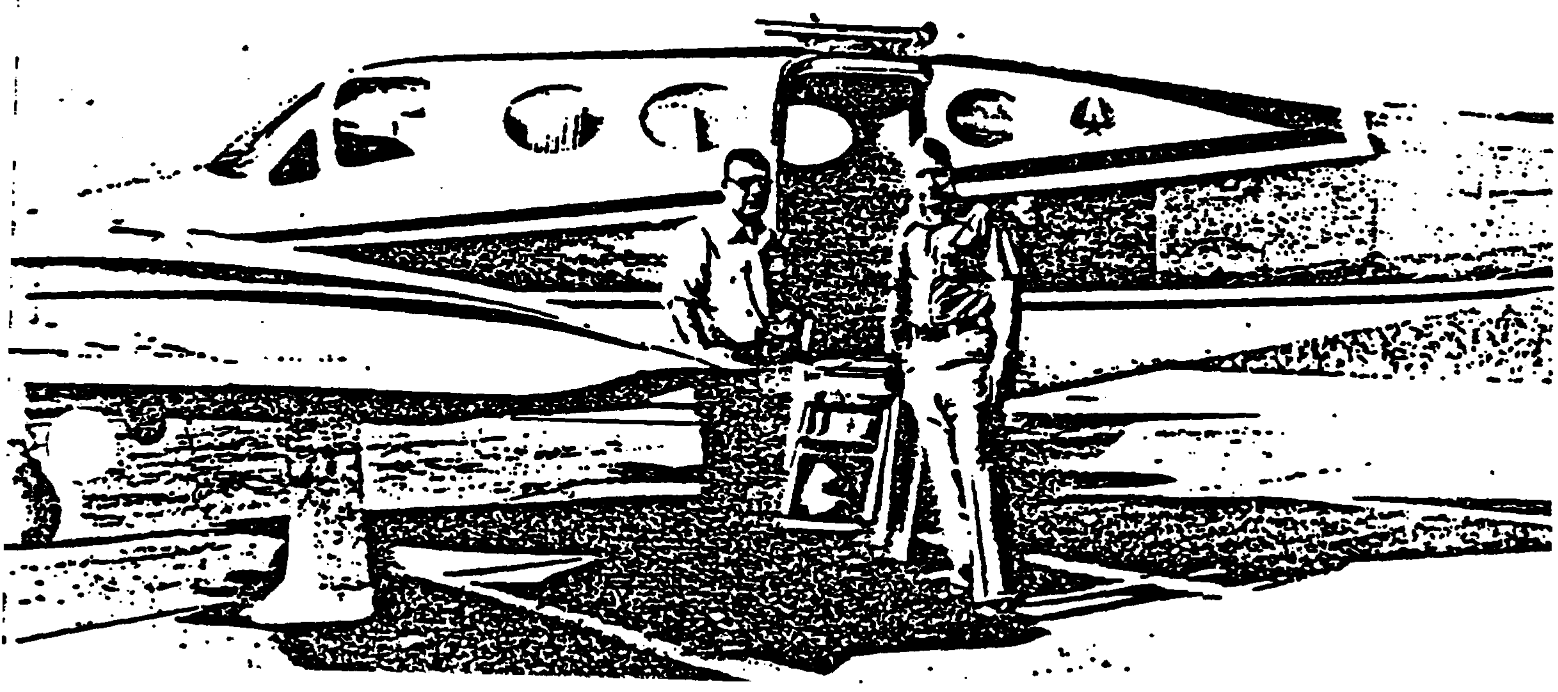
Wm. Brumwell – plant Mgr. – Stanley, Kansas. L. O. Kuhlman – President, David Kuhlman – plant Mgr. – Monroe City.

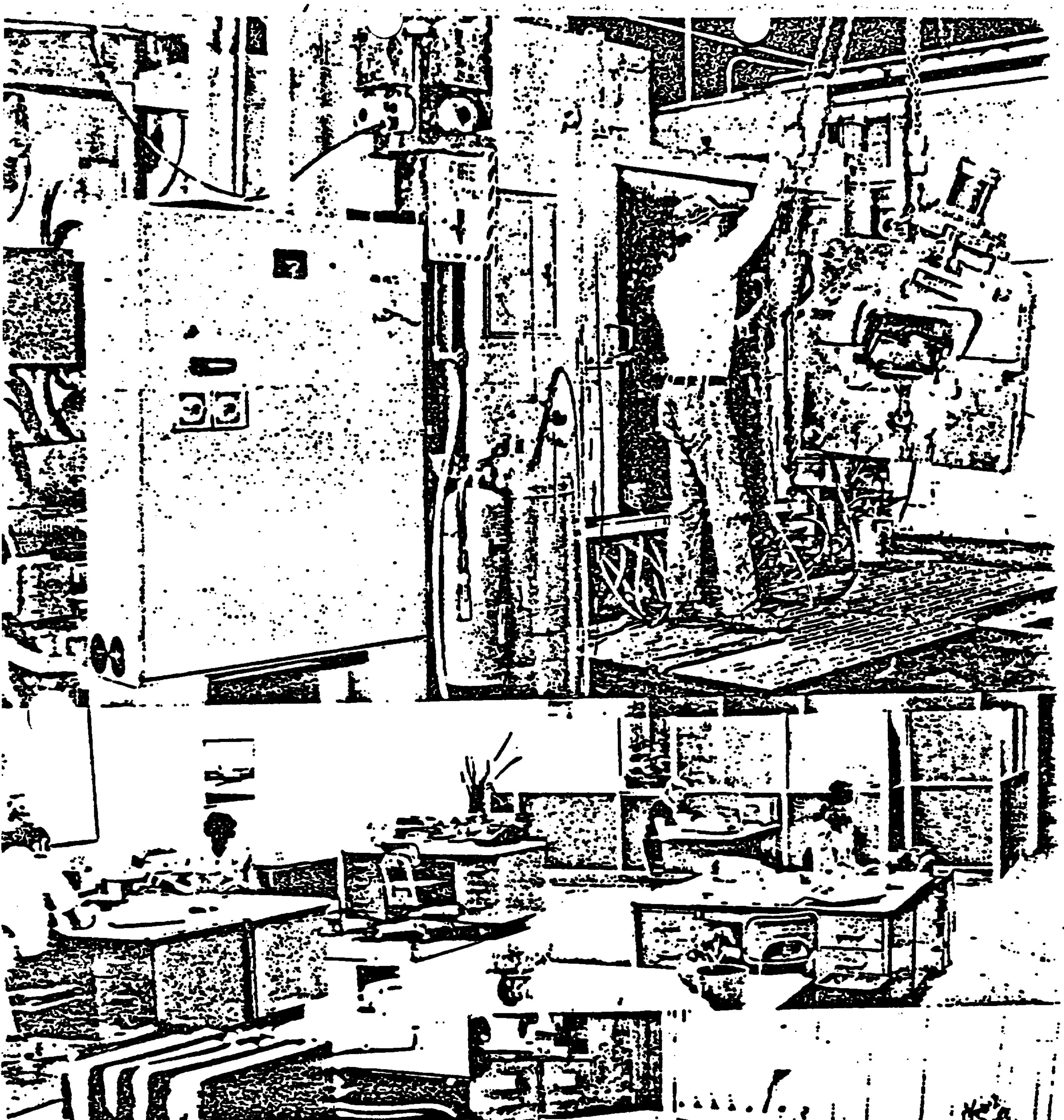
COUNSELING, DESIGN ASSISTANCE, DIECASTING, MACHINING, PLATING, PAINTING, TOOLING — All from the combined resources of KUHLMAN DIECASTING CO. & MONROE CITY DIECASTING CO.

Here is important information for users of zinc and aluminum alloy die castings.

This booklet describes the mechanical facilities of the Kuhlman Diecasting Co., Stanley, Kansas (70,000 sq. ft.) and Monroe City Diecasting Co., Monroe City, Mo. (70,250 sq. ft.) — Two companies in one, that combine years of experience and engineering background with precision equipment and the expertise of skilled technicians providing everything necessary to meet your die casting requirements.

FAST – PERSONAL SERVICE





COMPUTERIZED
Scheduling and Production Control

C[illegible]ner Service includes computerized sc[illegible]uling and production control with constant follow up, through all channels of communication, with customers and suppliers. Special attention to customer needs includes frequent and prompt consultations often expedited by our private plane.

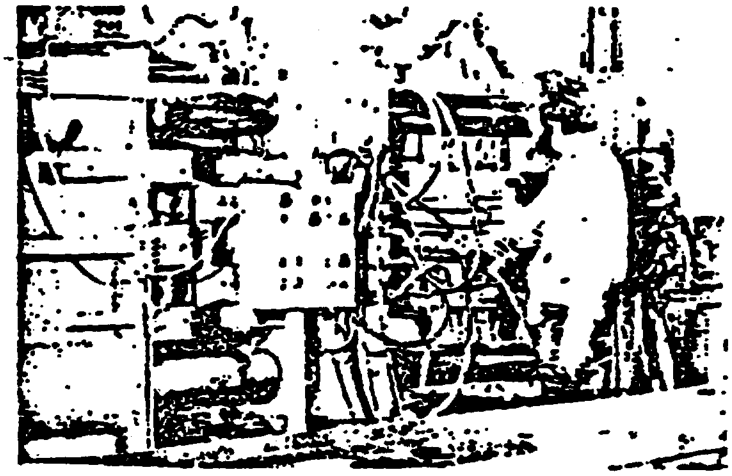
OMPLETE INVOLVEM

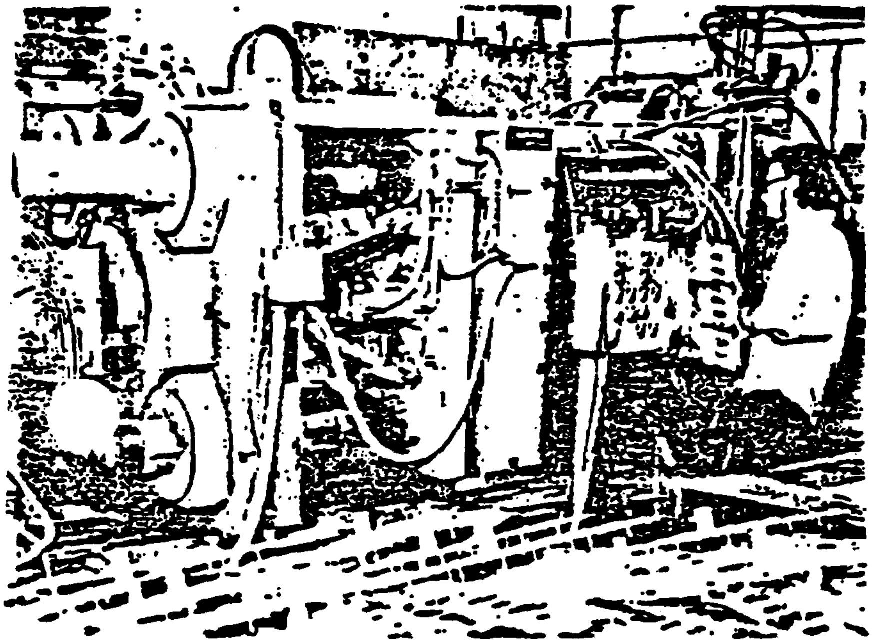
'any factors must be considered in developing and 'oducing just the right product to meet our customers' ıeeds. It often becomes a combined effort of engineers, ooling specialist, production managers, and designers to 'ovide the optimum product for the purpose intended. his urse means frequent checking with the customer ind with the ultimate user.

'/hen the prototype is approved and Production dies are ompleted — speed and accuracy on the production line ecome vitally important in keeping delivery promises and liminating waste.

:mployee awareness of customer needs and the impor- ance of customer acceptance has been the key to our success for over 30 years. The intricate details of zinc and luminum die castings, produced by these employees, estify to the pride they take in skilled worksmanship and heir dedication to customer satisfaction.

the production equipment -d processes with listings of machines and capacities t lp you judge our capabilities.



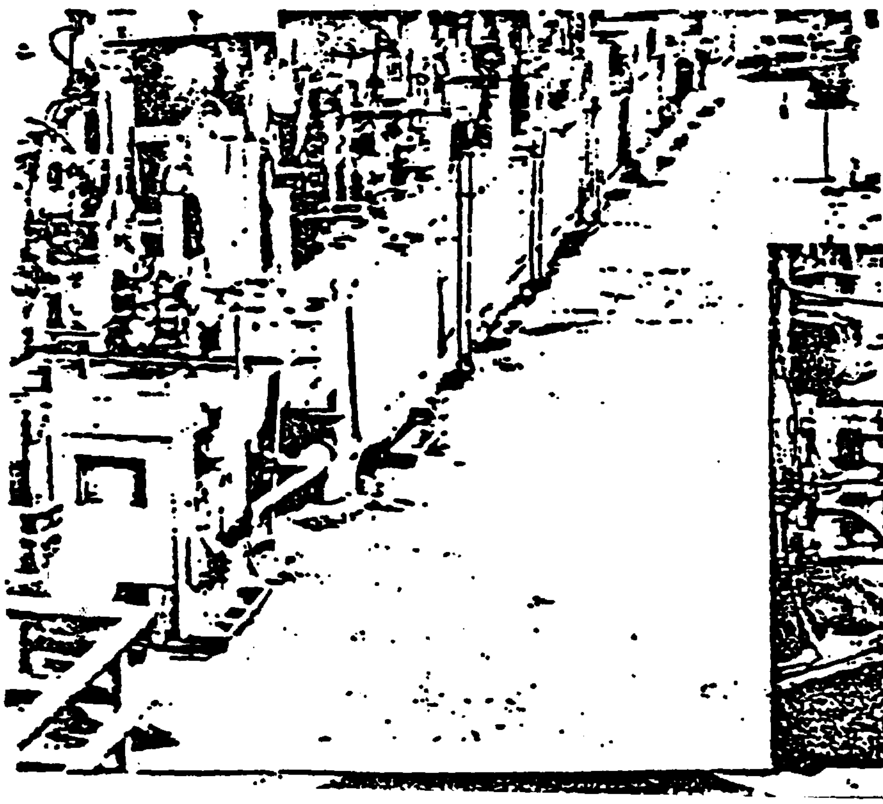


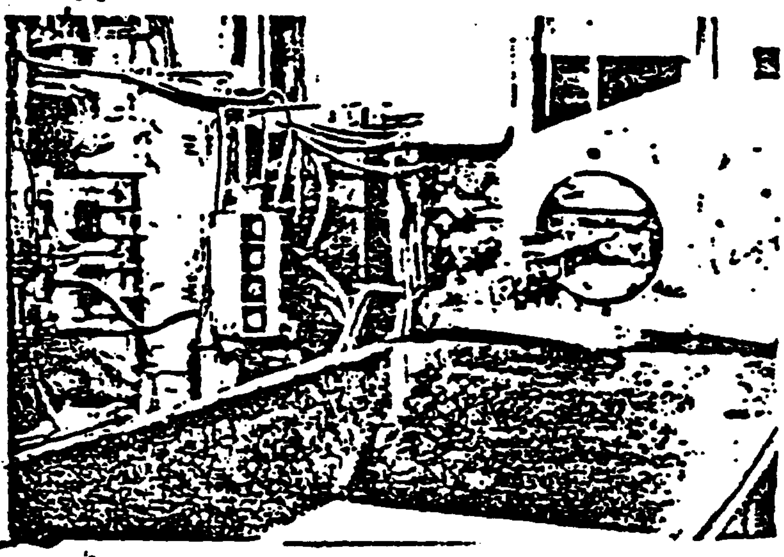
ZINC DIE CASTING

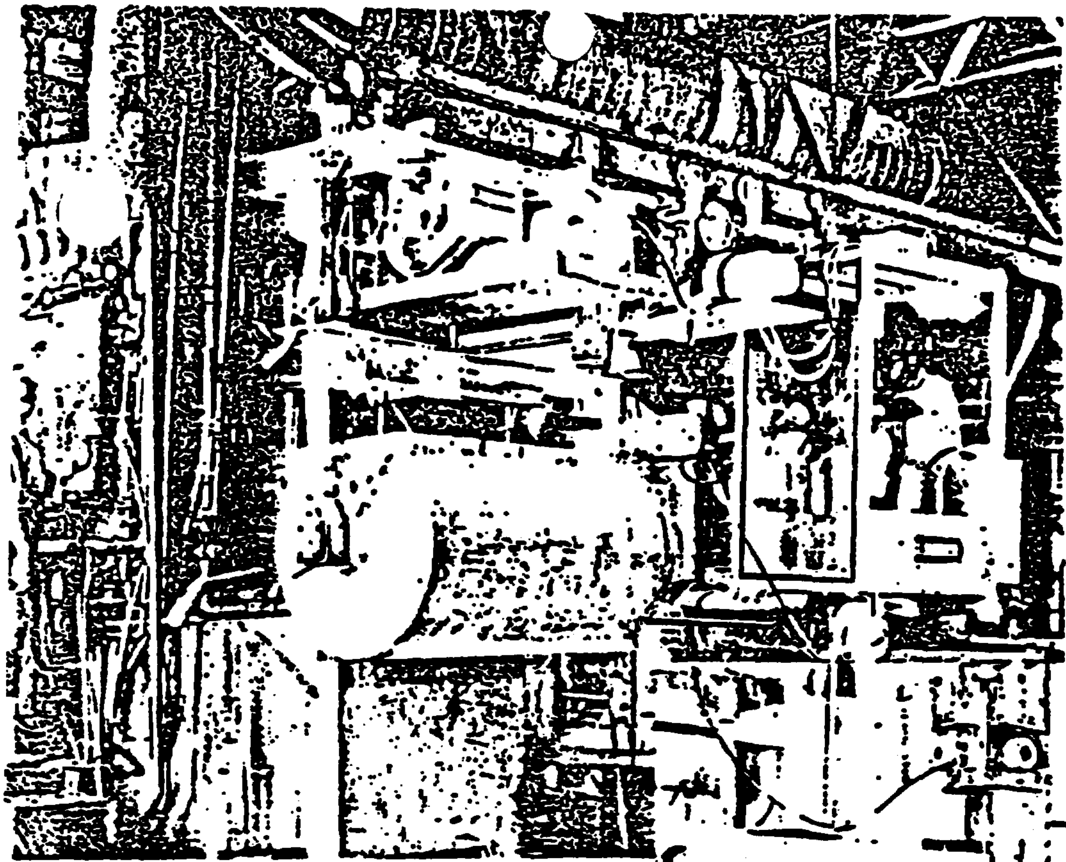
Photos on this page show typical zinc die casting operations. Above and left is a 550 ton zinc die casting machine. Our Kozma Laundral system and a die-casting production line are at lower left. Below a robot unloads castings from a zinc die casting machine.

Our Zinc Die Casting Equipment includes:

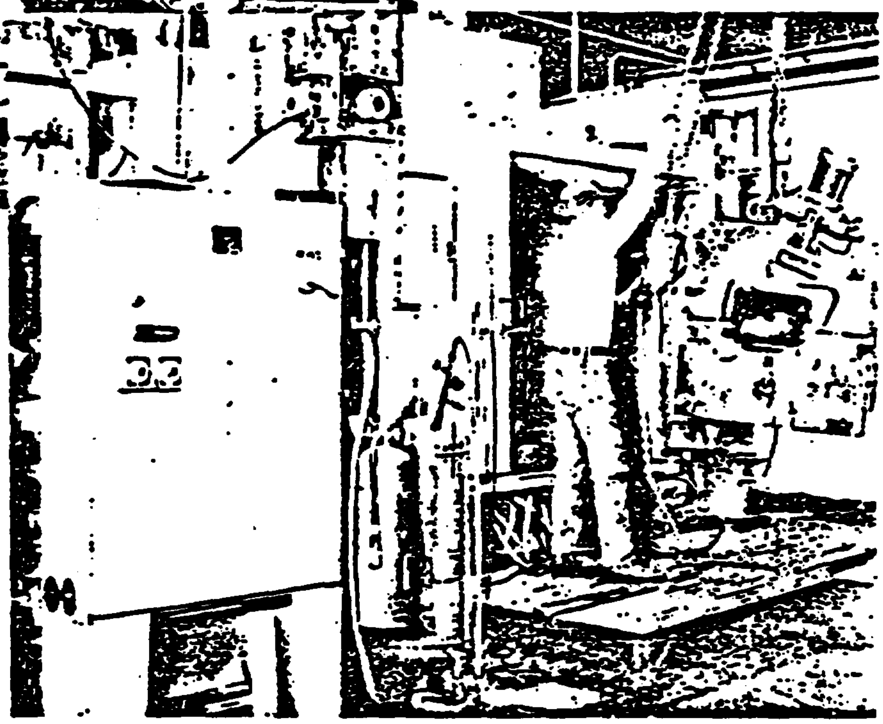
1 — 75-ton Prince Mini-Cast
2 — 100-ton Company made machines
1 — 100-ton Shultze
1 — 200-ton Kux
1 — 300-ton Kux
5 — 400-ton Reed-Prentice
1 — 450-ton B & T
1 — 550-ton B & T
1 — 600-ton Reed-Prentice
Plus a zinc dross metal reclaiming system







Photos on this page show at left – a 600-ton Morton Verticast machine being serviced with the Loudén Aluminum metal carrier on the Monorail System. Below a 850-ton Aluminum die casting machine and a production line of aluminum die casting machines.



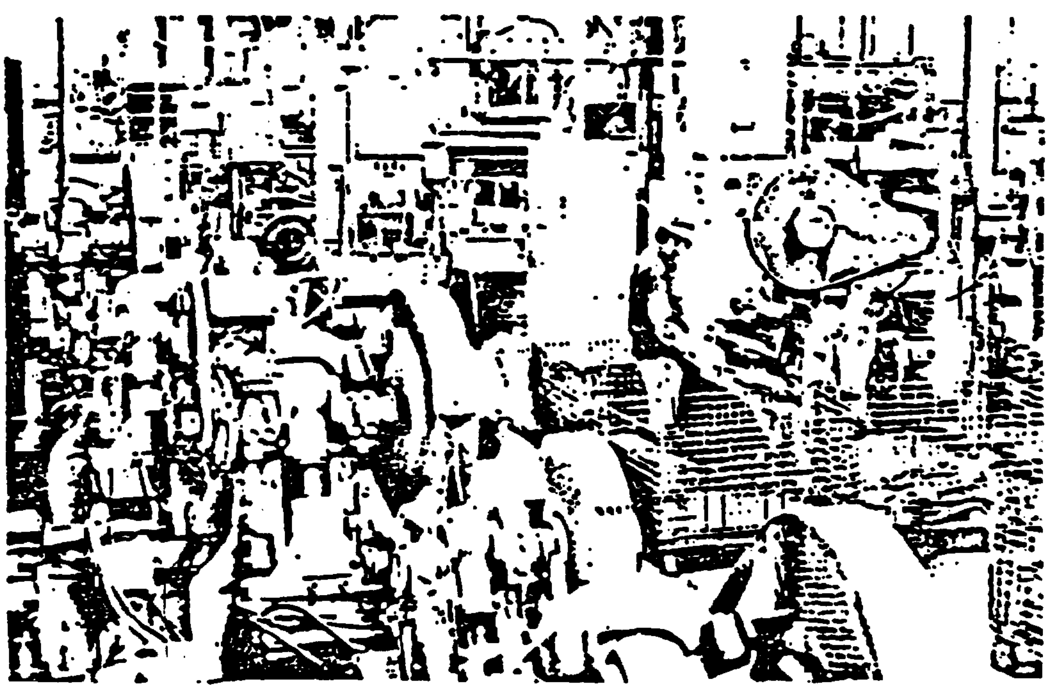
LU 'NUM DIE CASTING

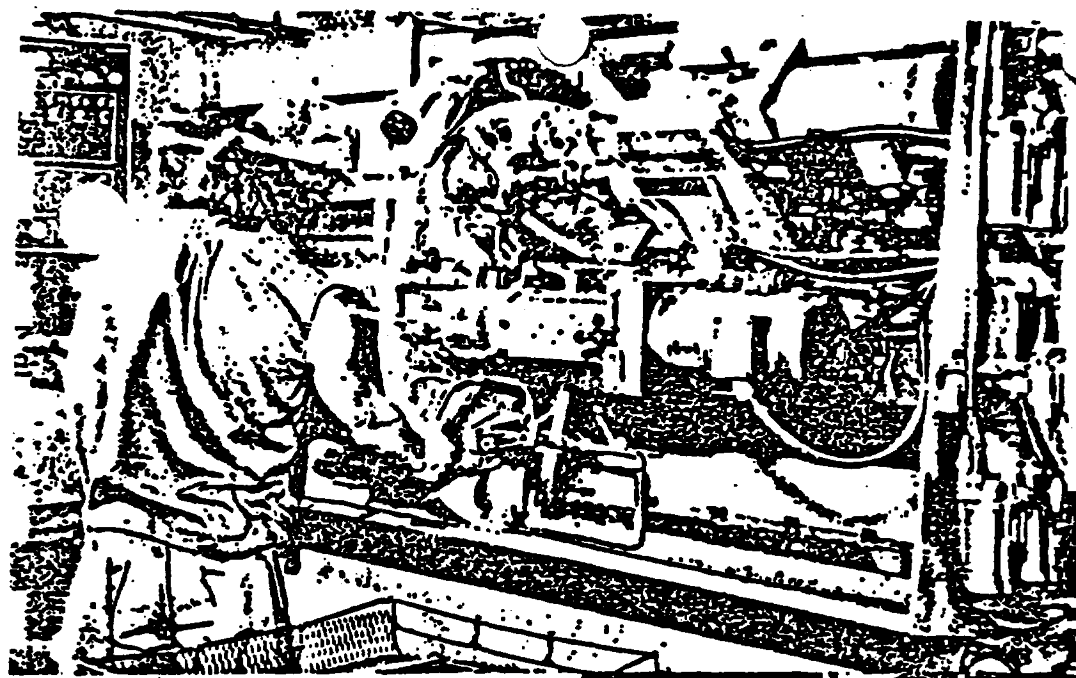
: capabilities of Kuhlman and Monroe City ecasting equipment and technicians seem itless as the cover of the booklet suggests. *minum Die Casting machines include:*

1 — 400-ton Lester
4 — 400-ton Morton Verticast
2 — 450-ton B & T
2 — 600-ton Standard
1 — 600-ton Kux
2 — 600-ton Reed Prentice
1 — 600-ton Morton Verticast
1 — 800-ton Lake Erie
2 — 800-ton Lester
1 — 850-ton B & T

s Kozma furnaces and molten metal stem

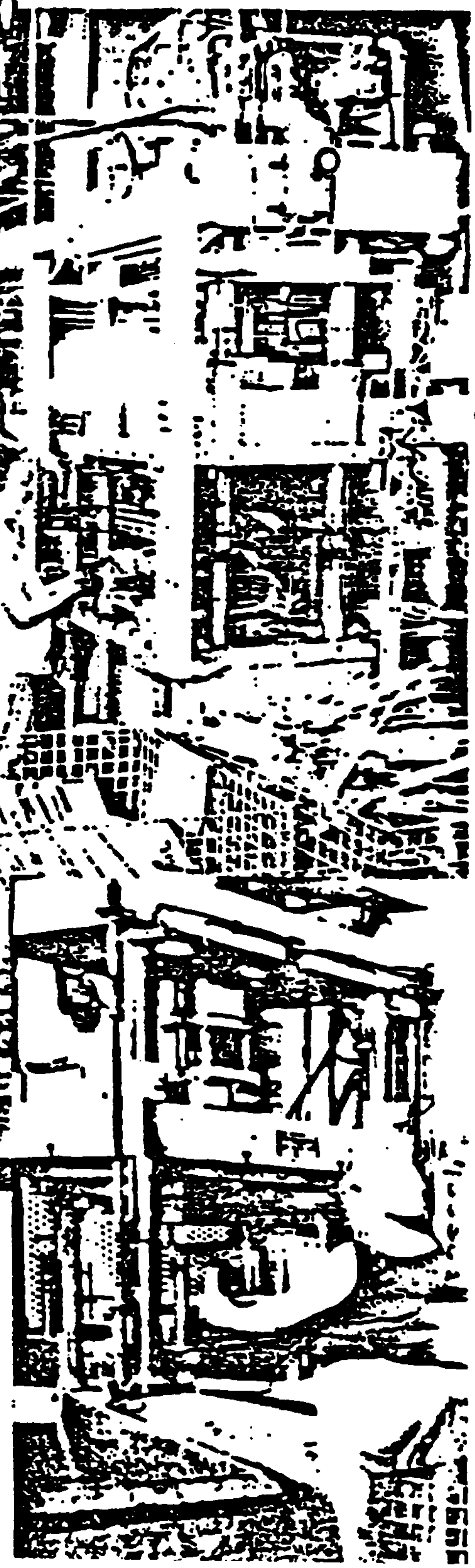
- Kozma immersed crucible ingot furnace (7000# cap.)
- 2 Reverbatories (20,000# each)
- Louden hot metal carrier with monorail system
- Aluminum dross metal reclaiming system





At Left – Custom designed 8 Station Machining Center.

TRIMMING



MACHINING

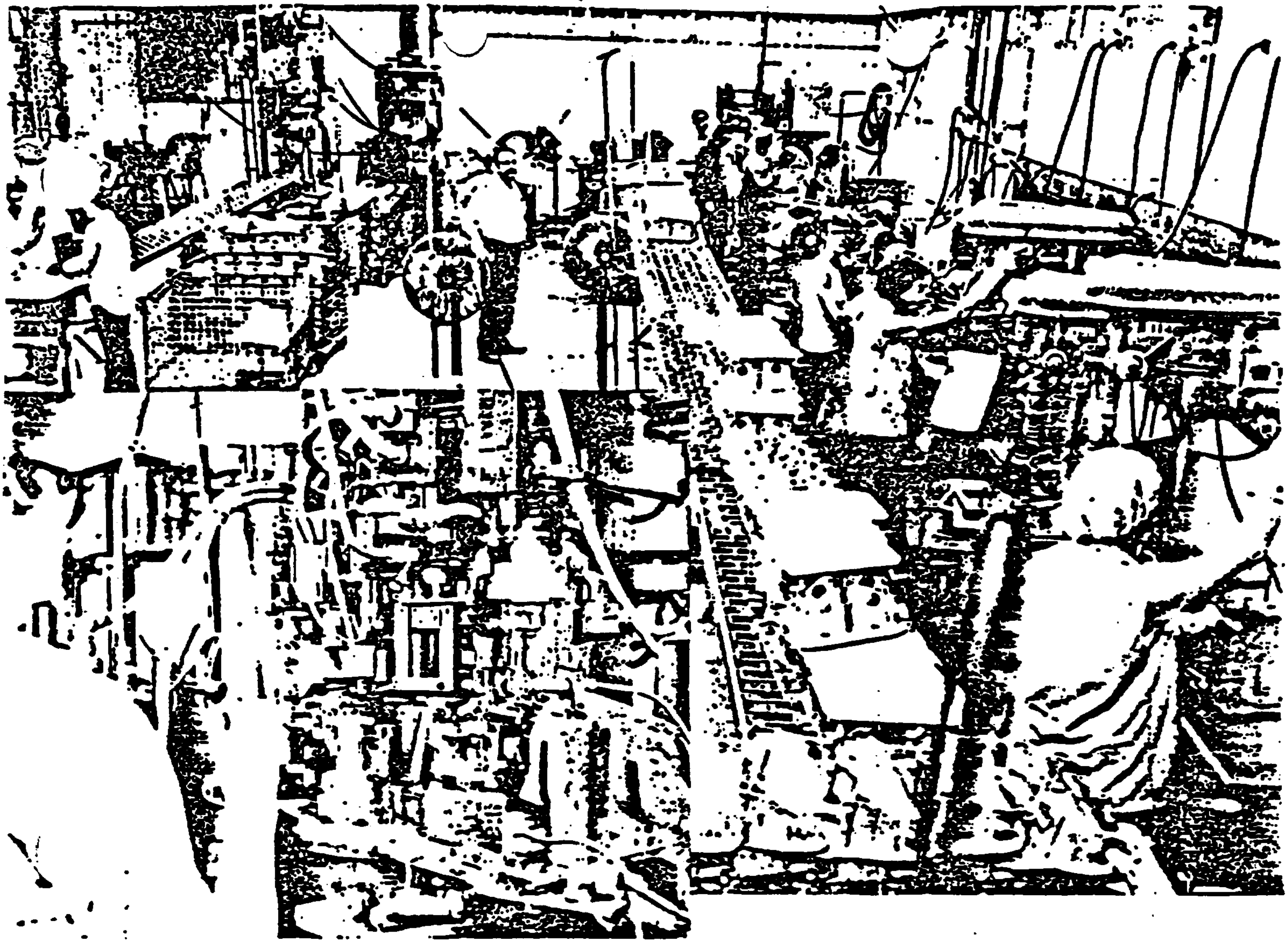
Our plants have a wide variety of equipment designed for trimming, machining, drilling, tapping, and other multiple operations. A wide range of standard equipment is available as well as custom designed machines for automatic machining and assembling. Tolerances are as critical in machining and trimming operations as in die casting and die making. Absolute precision is the guide line whatever the size or intricate details of the finished product may be.

Following is a partial list of secondary equipment available:

- Over 60 hydraulic and mechanical presses from 4 to 60 tons
- 4 Logan turret lathes
- 3 Warner-Swasey turret lathes
- Bardons & Oliver turret lathes
- Snow automatic threading machine
- Heat bonding machines
- Blackwell tapping machines
- Rivet machines
- Natco Multi-Spindle tapping and drilling machines
- Numerous drill presses
- Many special purpose machines
- Electro-Deburring wheelabrator
- Vibratory finishing machine (4,000# cap.)
- Pangborn Rotoblast
- Faxitron X-ray equipment
- Fully equipped quality control department

Above a production line of hydraulic trim presses.

Right – Close-up of Hydraulic Trim Press.



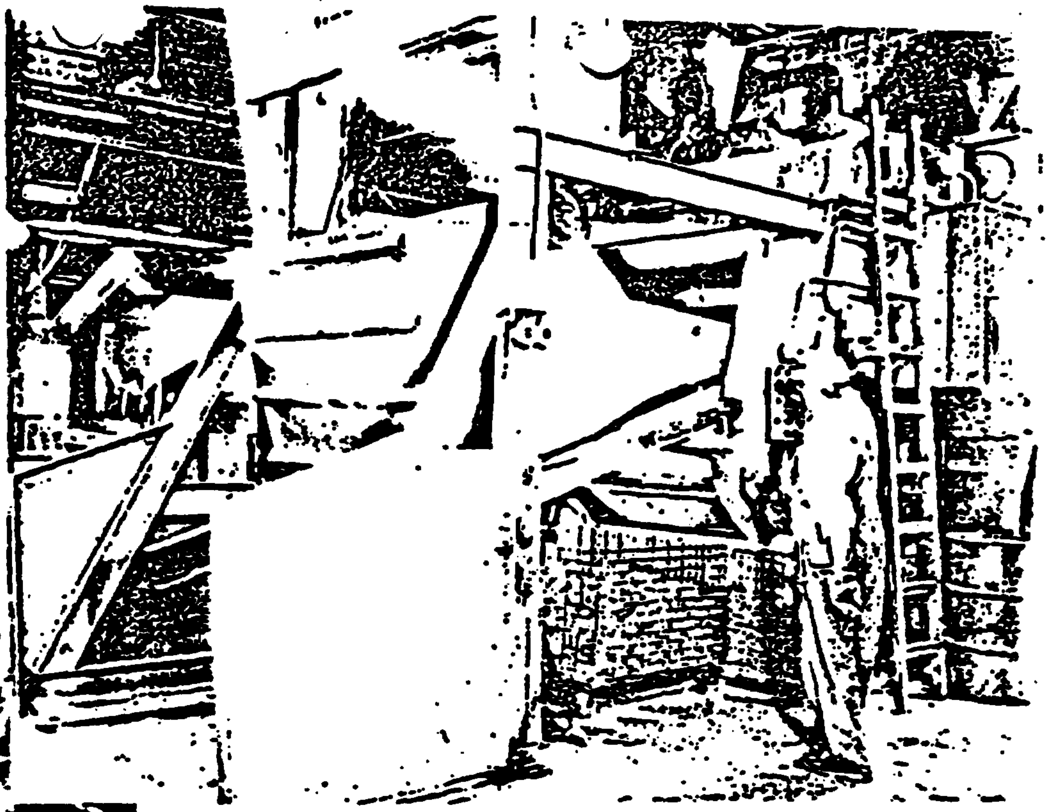
Above – A custom built machining device for highly complicated, precision operations.

ASSEMBLY, DRILLING, TAPPING, ETC.

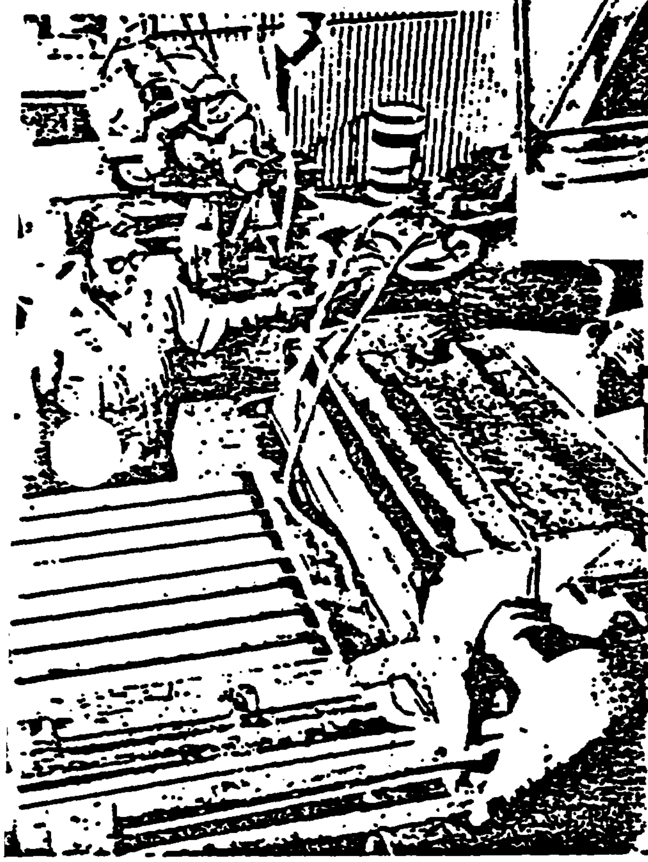
Some of the "support" equipment listed on the opposite page is shown in the combination reaming, drilling, tapping, and assembly line operations above. The extent of manual versus automatic operations in such work areas depends on the nature of the product, the quantity, the efficiency of one means versus another, and the cost and delivery requirements.

At left – Special built machine to perform multiple operations on thin wall die casting.

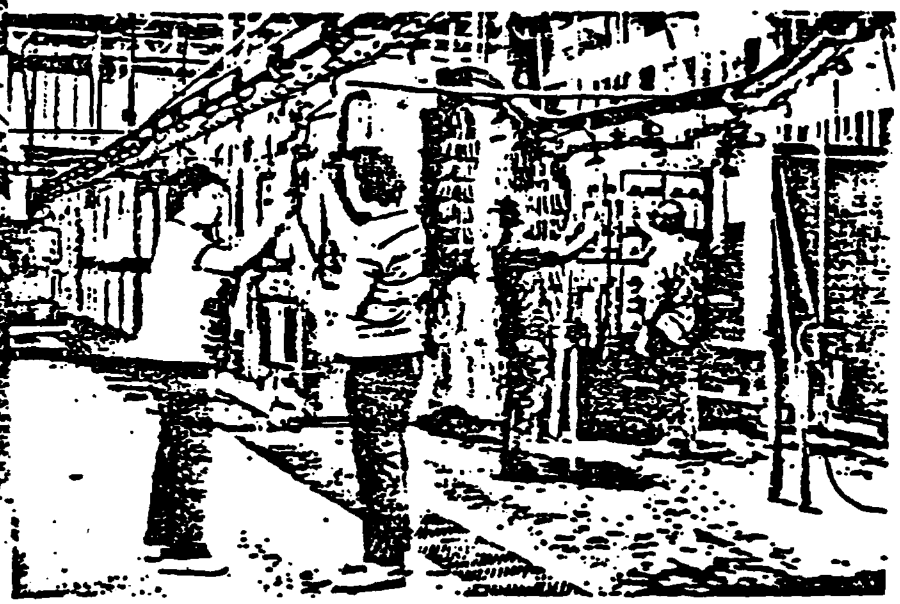
CLEANING
POLISHING
PLATING
PAINTING
PACKAGING



Above – Large capacity Pangborn Rotoblast.
Below – Automatic chrome plating line.



Above – Automatic Buffing machines.



POLISHING EQUIPMENT:

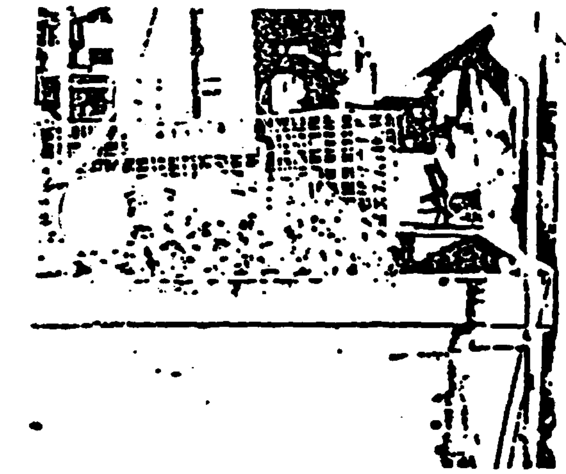
1 Acme semi-automatic straight line
2 Clair fully automatic
Rotary automatic polishing equipment
Vibratory mill (20 cu. ft. cap.)
Ransohoff conveyorized spray washing machine

[illegible]NTING EQUIPMENT:

[illegible] Conforming Matrix automatic paint machines
11 paint booths
3 Infrared ovens with automatic overhead conveyors
Dychromate setup
Automatic phosphating lines

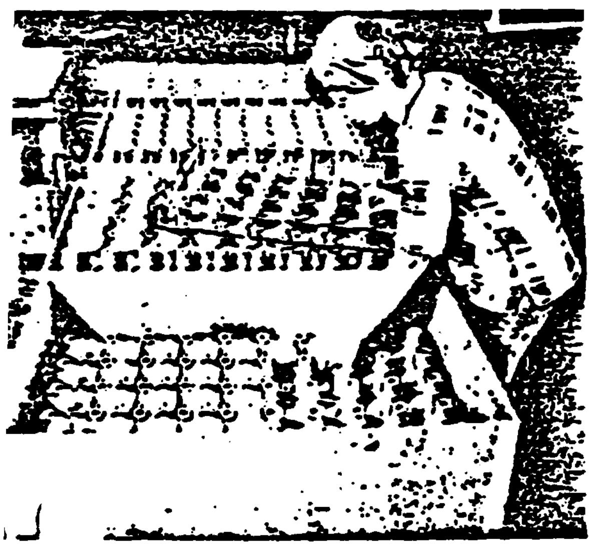
PLATING EQUIPMENT FOR Zinc, Brass, Aluminum & Plastics:

Complete plating equipment for zinc, brass, aluminum and plastics.
1 Udylite fully automatic plating machine
1 Udylite junior fully automatic plating machine
Straight line copper, nickel and chrome plating
Hand plating setup for special finishes
Pressure blast bead machines
Vibro-energy finishing machines
Ball burnishing equipment
Fully equipped laboratory



easing Operation

ay mask painting

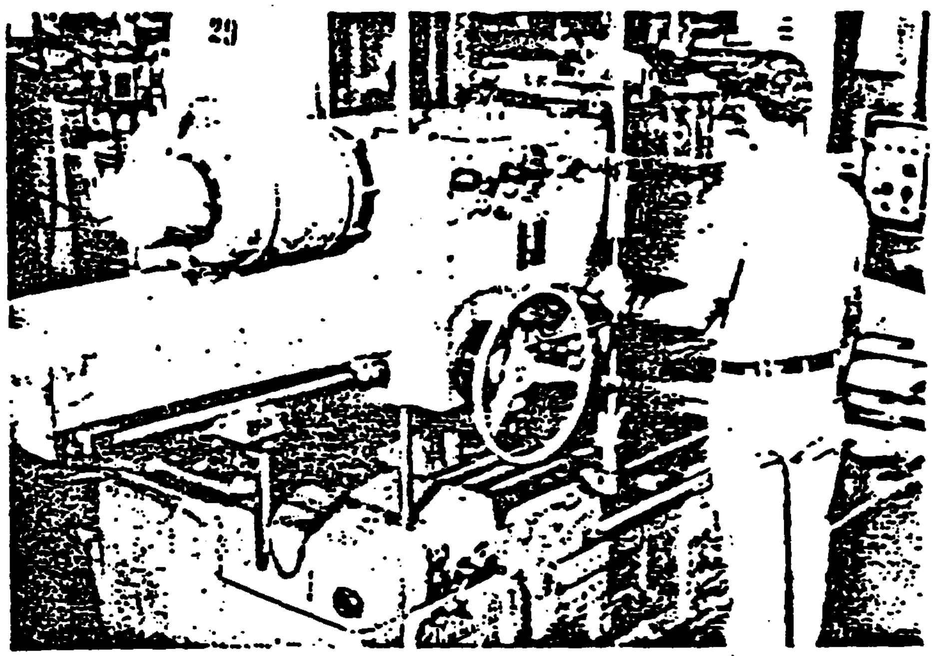


Packing of finished die castings ready for delivery.

TOOLING

Our modern, sophisticated tooling departments are complete with everything necessary for precision work on dies and plant equipment. Here is a partial list of the equipment used by highly competent toolroom technicians:

- 1 Supermill 43½" swing 37" bed
- 1 Bradford Lathe 14" swing 6' bed
- 1 South Bend Eng. Lathe 14½" swing 16" bed
- 1 Cincinnati Tray Top 18" swing 42" bed
- 1 Cincinnati Tray Top 12½" swing 30" bed
- 1 Leblond Lathe 15" swing 48" bed
- 2 Bridgeport Mills with optics
- 1 Bridgeport Mill with Digital Readout
- 2 Bridgeport Mills with advance Rotary Turntables
- 1 Cincinnati Horizontal Mill
- 1 Thompson Surface Grinder 12 x 36
- 1 Brown & Sharp #2 Universal Grinder
- 1 Heald Internal Grinder
- 1 Cincinnati Shaper 24132
- 1 Miller Arc Welder
- 1 Gorton Duplicator
- 1 Harig Steptool Grinder



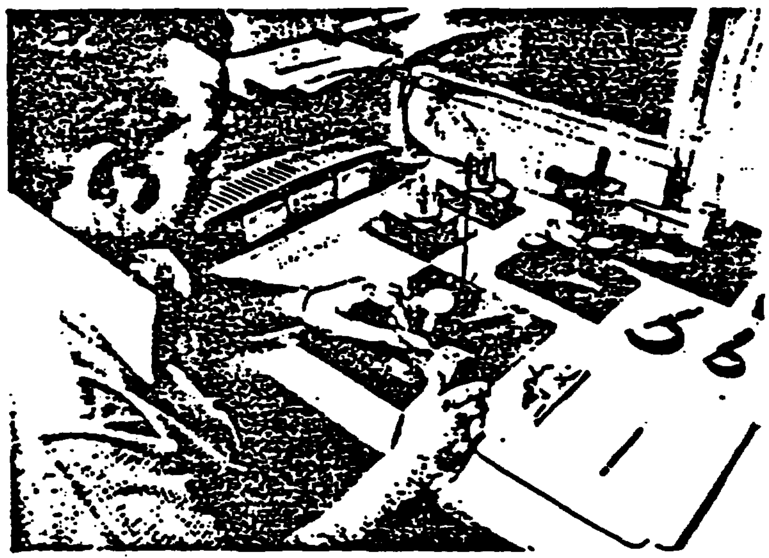
Above – "Super Mill" horizontal milling machine.
Below – Bridgeport vertical milling machines and other precision tooling equipment.

CUSTOMER DIE STORAGE MAINTENANCE and REPAIR

Customer die storage is a sizeable project that relieves our customers of the storage problem, record keeping, and shipping — a saving in space and time and a convenience for reruns or die changes, and maintenance. Our storage area accommodates over 1000 dies.

QUALITY ASSURANCE

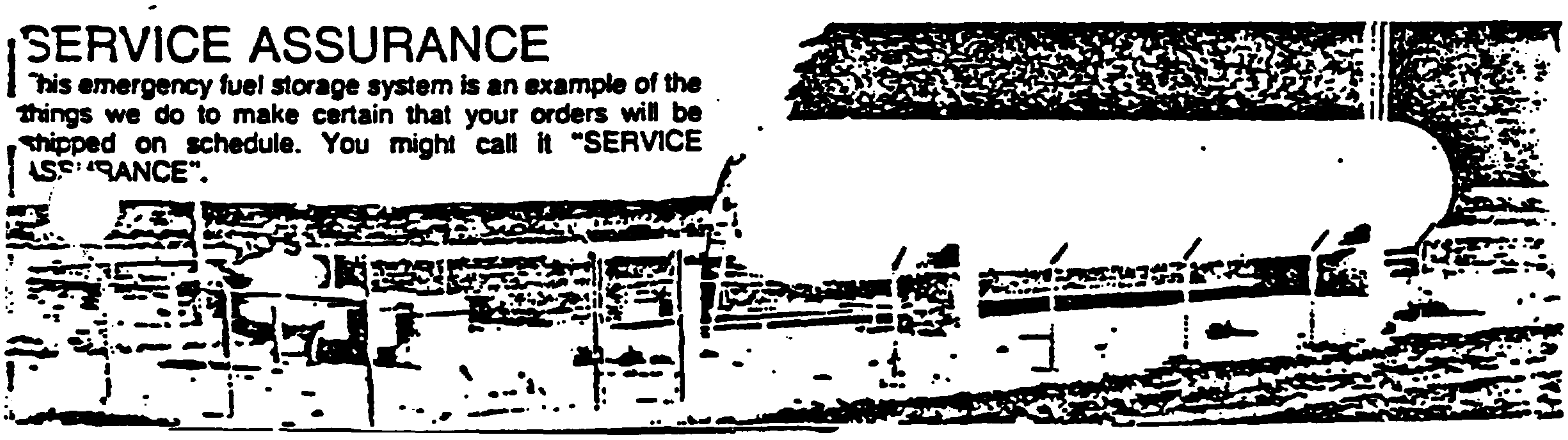
Highly essential to our goals of complete customer satisfaction is Quality Control



It is the responsibility of this department to make continuous checks with appropriate tests and instrument measurements and to stop production on any project that does not meet specifications. The technicians in this department must see before shipment that every part or assembly will meet all customer requirements. This is not only your assurance of satisfaction but our assurance of satisfied customers who will return.

SERVICE ASSURANCE

This emergency fuel storage system is an example of the things we do to make certain that your orders will be shipped on schedule. You might call it "SERVICE ASSURANCE".



LANGSTON LABORATORIES
INCORPORATED
RESEARCH • DEVELOPMENT • TESTING

September 3, 1980

Kuhlman Diecasting
P. O. Box 218
Stanley, KS 66223

Attn: Mr. William Brumwell

Dear Mr. Brumwell:

Enclosed is the report sheet containing the results of analyses performed on the sample submitted to our laboratories on August 5, 1980.

We thank you for this opportunity to be of service. If you have any questions, please do not hesitate to contact us.

Sincerely,

Alan Kerschen

Alan Kerschen
Laboratory Director

AGK:dgp

Enclosure

RECEIVED
SEP 8 1980
KUHLMAN
DIECASTING
CO.

2005 WEST 103RD TERRACE (B) LEAWOOD, KANSAS 66206 PHONE 913/341-7800

B. CHEMICAL ANALYSIS

1. Flash Point > 200 °F Testing Method Pensky-Martens, Closed Cup.

2. pH 7.4

3. Acidity - % Alkalinity - % Determine percent for all wastes displaying a pH greater than 12.0 or less than 3.0.

4. Percent Solids ______ % Determine percent for all semi-solid wastes.
   4.6% at 100°C
   3.3% at 600°C

5. Chemical Elements Range of Concentration

Identify by generic or I.U.P.A.C. name and weight percent or ppm concentration.

6. Analyses: Each waste, with the exceptions noted, that is not totally organic will require a total profile analyses for the following parameters. The analyses are to be conducted only by a *Kansas Certified Laboratory*. A copy of the laboratory report is to be attached.

NAME	TOTAL AS RECEIVED	FILTRATE	LEACHATE TEST	NAME	TOTAL AS RECEIVED	FILTRATE	LEACHATE TEST
Cn Cyanide	1.6	< 0.01	< 0.01	F Fluoride	12	7.3	2.4
As Arsenic	0.67	0.012	0.008	Pb Lead	3.6	0.03	0.03
Ba Barium	62	0.09	0.35	Hg Mercury	< 0.001	< 0.001	< 0.001
Cd Cadmium	0.14	0.005	0.02	Ni Nickel	1,740	0.57	44
Cr^{+3} Chromium	1,140	< 0.01	3.6	Se Selenium	< 0.5	< 0.01	< 0.01
Cr^{+6} Chromium	< 0.01	< 0.01	< 0.01	Ag Silver	0.20	< 0.005	< 0.005
Cu Copper	700	0.04	10.6	Zn Zinc	430	0.01	18

All Results are Reported in ppm

Exceptions: Analyses need not be performed on discarded, overaged, spoiled or recalled containerized retail products. Likewise it is not necessary to analyze homogeneous (single substance) waste materials provided that the substance and its properties are identified. Examples of such materials are spent capacitors, pesticides, and asbestos.

C. QUANTITY REQUIRING DISPOSAL

1. ________ /_/ Gallons /_/ Pounds /_/ Tons /_/ Drums /_/ Cubic Yards /_/ Other

2. Generation rate per year: ________ /yr

3. Production of this waste is: /_/ Continuous /_/ Periodic /_/ One Time Only

DATE:

CLIENT: Kuhlman Diecasting Company

COLLECTION PERFORMED BY: Kuhlman

DATE OF COLLECTION: 8/20/81

TIME OF COLLECTION:
(If composite, designate time period)

COLLECTION POINTS: Sludge samples #2,#3
(#1 received broken)

LABORATORY DATA

DATE ANALYSIS BEGUN: 9/8/81

COLLECTION POINT	PARAMETER	CONCENTRATION	ANALYST
Sludge #2	EP Toxicity Ni	30.5 mg/l	KM
Sludge #3	EP Toxicity Ni	29.8 mg/l	KM

DATE PROMISED

DATE COMPLETED

DATE: 11/6/81

IENT: Kuhlman Diecasting Company

COLLECTION PERFORMED BY: Kuhlman

DATE OF COLLECTION: 11/6/81

TIME OF COLLECTION:
(If composite, designate time period)

COLLECTION POINTS: Sludge

LABORATORY DATA

DATE ANALYSIS BEGUN: 11/9/81

COLLECTION POINT	PARAMETER	CONCENTRATION	ANALYST
Sludge	EP Toxicity Nickel	255 mg/l	KM

NOV 19 1981

DATE PROMISED

DATE COMPLETED

RECEIVED
MAY 3 1982

LANGSTON LABORATORIES, INC.

Laboratory Report

Date Received: April 21, 1982
Time Received: 10:10 am
Date Completed: April 25, 1982

ILI Project No.: 81-8227

Submitted by: Kuhlman Diecasting
P. O. Box 218
Stanley, KS 66223
Attn: Mr. Phil Meeker
P. O. No.:

Sample Description: Sludge

Sample Identification	Analysis	Results
Sludge 4/20/82	EP Toxicity	
	Arsenic	< 0.25 mg/liter
	Barium	< 5.0 mg/liter
	Cadmium	< 0.05 mg/liter
	Chromium	< 0.25 mg/liter
	Lead	0.36 mg/liter
	Mercury	< 0.01 mg/liter
	Nickel	7.1 mg/liter
	Selenium	< 0.05 mg/liter
	Silver	< 0.25 mg/liter

POND

Comments: Methodology - as per 40 CFR, Part 136.

Approved: [signature]
Alan Kerschen
Laboratory Director

2005 West 103rd Terrace Leawood, KS 66206 913/341-7800

General Testing Laboratories
Engineering — Chemical Consultants
1517 WALNUT STREET / KANSAS CITY, MISSOURI 64108 / 816-471-1205

Date December 12, 1980 Number 36721

Sample of Used Solvent

Marked From 17 drums 11/20/80

Submitted by Kuhlman Diecasting Co.

pH	9.0
Flash Point	26 °F.
Total Solids	7.44 %
Volatile Solids	7.30 %
Suspended Solids	0.047 %
Suspended Volatile Solids	0.042 %
Ash	0.14 %
Specific Gravity @ 60 °F.	0.8750

Fractional distillation with infra-red anaylsis indicated the following solvents to be present:

Acetone	2.5 %
Isopropyl Alcohol	15 %
Toluene (Toluol)	72 %
Butyl Acetate	2.5 %
Traces of other Alcohols, esters and etc.	0.5 %

Respectfully submitted

GENERAL TESTING LABORATORIES, INC.

By Lawrence Bisner

(1)gs

General Testing Laboratories
Engineering — Chemical Consultants
1517 WALNUT STREET / KANSAS CITY, MISSOURI 64108 / 816-471-1205

Date December 12, 1980 Number 36721

Sample of Used Solvent

Marked From 17 drums 11/20/80

Submitted by Kuhlman Diecasting Co.

Metallic Content:

	Total Metals
Copper	1.2 ppm
Silver	0.11 ppm
Mercury	less than 0.01 ppm
Arsenic	less than 0.10 ppm
Nickel	1.1 ppm
Barium	294 ppm
Lead	2.7 ppm
Cadmium	0.11 ppm
Selenium	0.03 ppm
Chromium	29 ppm
Zinc	33 ppm

RECEIVED
DEC 15 1980

Respectfully submitted

GENERAL TESTING LABORATORIES, INC.

By Laurence Bisner

(1)gs

FORM 1104

F-R

SPENT MATERIAL SURVEY

Phone (715) 834-9624
WASTE RESEARCH and RECLAMATION CO., INC.
Route 7 • EAU CLAIRE, WISCONSIN 54701

Company
Address

Contact Title
Phone Date of Sampling

Waste Stream Information

Name of Main Components
Quantity On Hand Monthly Generation
Packaging: Bulk ______ Drums ______
Physical State at 70°F Solid ☐ Liquid ☐ Semi-Solid ☐

DETAIL DESCRIPTIONS: For my hazardous waste to be handled properly and economically, I am furnishing the information below fully and accurately to the best of my knowledge. Signed By ______ Date ______

General Basic Parameters

Flash Point
pH Value
Specific Gravity
Suspended Solids %
Waste Producing Process
Gaseous Emission Substance
Layers Present
Total % of Chloride
Total % of Sulfur
Toxicity Rating
Inhalation ______ Dermal ______ Oral ______
Carcinogens not listed in this form

Hazards as defined by R.C.R.A.

Ignitable	☐	Radioactive	☐
Corrosive	☐	Infectious	☐
Reactive	☐	Phytotoxic	☐
Toxic	☐	Teratogenic/Mutagenic	☐

Organic Solvents

______ %
______ %
______ %
______ %
______ %

Organic Residues ______ %
Oil Type ______ %
Polymeric ______ %
Type %

Oil Products (Type, Specification and Usages):

Metallic Contents in PPM

	Dissolved	Suspended
CN		
Cu		
Ag		
Hg		
As		
Ni		
Ba		
Pb		
Cd		
Se		
Cr		
Zn		

Acids ______ %
or ______ %
Alkalis ______ %
______ %
%
Salts ______ %
%

Packaging and Documenting: Will this waste material be packaged in proper containers with proper labelling and marking to its general contents as required by Department of Transportation and EPA's regulation?

Yes ☐ No ☐ If no, explain:

Desired Service
Recovery ☐
Disposal ☐
(Others)______ ☐

WR&R Representative
Branch Office Date
Remarks

Kuhlman Diecasting Company, Inc.
Monroe City Diecasting Company
DIECASTINGS OF ZINC OR ALUMINUM ALLOYS

164th & Mission Road
Stanley, Kansas 66223
913—681-2351

135 Front Street
Monroe City, Missouri 63456
314—735-4567

May 5, 1981

Administrator,
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

ATTN: Mr. John Lehman, Director
Solid Waste Management Section

RE: Petition to exclude the waste water treatment sludge at KUHLMAN DIECASTING COMPANY'S electroplating operations from Part 261.31 of May 19, 1980 Federal Register.

Kuhlman Diecasting Company is a diecasting job shop with a captive electroplating facility. As a result of our electroplating operation we generate a waste water treatment sludge. The sludge consist mostly of lime with small amounts of other constituents (see attached analysis).

In Part 261 Appendix VII, the basis for listing waste water treatment sludge from electroplating operations, F006, is cadmium, chromium, nickel and cyanide (complexed). We believe that the levels of these constituents in our sludge are not high enough to justify being a hazardous waste.

On August 4, 1980 a sample of our sludge was taken by our lab technician (Dwaine High). It was submitted to Langston Laboratories, 2005 West 103rd Terr., Leawood, Kansas 66206 for analysis. The results of that analysis are attached. They show that the levels of cyanide, cadmium, chromium and nickel are well below the levels mentioned in the back ground document. This analysis was conducted according to the E.P. procedure outlined in the Federal Register, the results being that the constituents fall below the E.P. toxicity levels. Given the preceding information we believe our sludge does not qualify for listing according to Part 261.11.

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Any questions regarding the analysis may be directed to Alan Kerschen, Laboratory Director, Langston Laboratories, Inc., 2005 West 103rd Terr., Leawood, Kansas 66205. 913-341-7800.

The attached process sheet demonstrates how we generate our sludge. The sludge consist mostly of lime and water, the other constituents are listed on the attached analysis sheet. These other constituents represent a very small amount of the total weight. We estimate the average monthly quantity of sludge produced to be 4400 pounds (dry weight) and the maximum monthly quantity to be 5200 pounds (dry weight). The yearly average and maximum are 52,800 pounds (dry weight) and 62,400 pounds (dry weight) respectively.

Based on the preceding information I petition the adminstrator to exclude the waste water treatment sludge at Kuhlman Diecasting Company's electroplating operations from Part 261.31 of the May 19, 1980 Federal Register.

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that based on my inquiry of those individuals immediatly responsible for obtaining the information, I believe the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

KUHLMAN DIECASTING CO.

W. E. Brumwell,
Vice President

WEB:dh
enc.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF SOLID WASTE

NOV 13 1981

NOV 4 1981

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

W. E. Brumwell, Vice President
Kuhlman Diecasting Company, Inc.
164th & Mission Road
Stanley, KS 66223

Dear Mr. Brumwell,

This letter is written to confirm our telephone conversation of 30 October 1981, concerning the additional information that is needed by EPA before we may complete the processing of Kuhlman Diecasting's petition for exclusion of it's wastewater treatment sludge generated by electroplating operations at the Stanley facility. This sludge is listed in the RCRA regulations as an F006 waste as described in 46 FR 4618 (January 16, 1981). The hazardous constituents of concern for which this waste is listed are cadmium, hexavalent chromium, nickel, and cyanide (complexed).

As we discussed, the information required icludes the following:

(1) Are the constituents cadmium, hexavalent chromium, nickel, and cyanide (complexed), utilized in any electroplating operations at the Stanley facility ? If not, please submit a statement to that effect to the Agency.

(2) Please submit EP toxicity test data, based on three representative samples of wastewater sludge, for hexavalent chromium, cadmium and cyanide following the procedures described in Test Methods for Evaluating Solid Wastes (SW-846). In addition, please submit EP toxicity test data for leachable nickel based on six representative sludge samples. If any of these constituents are not utilized in your operations, no further testing is required.

(3) Please submit data, based on three representative samples, for total cyanide and free cyanide in the sludge.

(4) Please submit a written description of the manufacturing processes employed at Kuhlman Diecasting.

(5) Please submit a brief written description of Kuhlman Diecasting's wastewater treatment system.

(6) Where is the wastewater treatment sludge currently being disposed and where will disposal take place if an exclusion is granted by the Agency ?

If you have any questions about the data being requested, please do not hesitate to call me on (202)-755-9187.

Sincerely yours,

William G. Sproat, Jr.
Waste Characterization Branch
Hazardous and Industrial Waste Division (WH-565)

FEB 10 1982

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. W. E. Brumwell
Kuhlman Die Casting Co.
164th and Mission
Stanley, Kansas 66223

EPA I.D. No. KSD006325013

Dear Mr. Brumwell:

Your firm has notified the Environmental Protection Agency (EPA) as a treatment, storage or disposal facility, pursuant to Section 3010(a) of the Resource Conservation and Recovery Act (RCRA), as amended. A Part A permit application was also submitted relative to the requirements of Section 3005 of RCRA. Based on a review of your notification and Part A permit application, EPA has determined that the subject facility does not meet all the legal prerequisites for Interim Status, as set forth in Section 3005 of RCRA and at 40 CFR 122.23(a). This determination is based on the fact that the Part A application was submitted after the regulatory deadline of November 19, 1980 (see 40 CFR 122.22(a)).

Interim Status allows a facility to legally continue to handle hazardous wastes until a permit is formally issued by EPA or by a state authorized by EPA to conduct a hazardous waste program. In the absence of Interim Status, it is unlawful to treat, store, or dispose of a hazardous waste at an unpermitted facility (Hazardous wastes are defined in the Code of Federal Regulations at 40 CFR Part 261). Any person treating, storing or disposing of hazardous waste without a permit or without having achieved Interim Status may be ordered by the agency to cease such operations or may be subject to civil penalties or other sanctions, as provided in Section 3008 of RCRA.

EPA has recognized the need to exercise good judgment and common sense in enforcing these legal requirements and, on November 19, 1980, published in the Federal Register (45 FR 76630) its enforcement and regulatory policies for dealing with well-managed facilities, the continued operation of which is in the public interest. The policy takes into consideration the reasons for the owner or operator's failure to submit a timely notice or application and good faith efforts to comply with other applicable regulatory requirements.

ARWM/AWCM DAKaiser:jh x 6487 2/1/82

AWCM AWCM AWCM ARWM ARWM

EPA Region VII is currently in the process of determining what enforcement action, if any, is appropriate relative to the subject facility. In making this determination, we would like to offer your company the opportunity to submit any information it feels may have a bearing on our decision. Such submission is strictly voluntary and may include, but should not necessarily be limited to, the following:

- The nature and approximate amounts of hazardous waste which are presently being handled or will be handled in the near future at this facility, including the type of activity involved (e.g., treatment; storage, greater than 90 days; or disposal);

- Information demonstrating that continued treatment, storage or disposal of hazardous waste at the facility is in the public interest;

- Reasons that your company failed to submit a timely notification or permit application, including explanation of reasonable and good faith efforts to comply; and

- Any evidence that the facility is currently meeting the requirements of 40 CFR Part 265.

Any information submitted within thirty (30) days of receipt of this letter will be considered in our future course of action, which could range from the exercise of enforcement discretion allowing continued operation to initiation of a Compliance Order or civil action for penalties and to prohibit continued operation of the hazardous waste facility. Criminal sanctions are also provided in the statute for knowing violations.

If you have any questions, please feel free to contact me at (815) 374-5971. The member of my staff most familiar with this subject, Mr. Wayne A. Kaiser, (816) 374-6487, can also provide additional information.

Sincerely yours,

David A. Wagoner
Director, Air and Waste Management Division

cc: Mr. John Paul Goetz
Kansas Department of Health and Environment

Kuhlman Diecasting Company, Inc.
Monroe City Diecasting Company
DIECASTINGS OF ZINC OR ALUMINUM ALLOYS

164th & Mission Road
Stanley, Kansas 66223
913—681-2351

135 Front Street
Monroe City, Missouri 63456
314—735-4567

February 25, 1982

Mr. David A. Wagoner
U.S. Environemental Protection Agency
Region VII
324 East Eleventh St.
Kansas City, Missouri 64106

RE: EPA I.D. No. KSD006325013

Dear Mr. Wagoner:

In response to your letter concerning our Part A permit application, I have prepared a summary of the steps, and reasons for our actions leading up to the time we submitted our application for interim status. I hope you will find this information satisfactory. If you need any additional information, please call Phil Meeker at 913-681-2351.

Sometime prior to August, 1980, we became aware of RCRA. On August 5 we submitted a sample of our hazardous waste to Langston Laboratory, on August 13 we submitted our notification as required by RCRA. On September 8 we received the analysis. It appeared from the analysis that our sludge may not be hazardous waste. I called the Region 7 office and talked to Jean Lee on September 26, I explained the situation to her telling her that I thought our sludge might not be hazardous waste because all of the levels listed in Table 1 on page 33122 of Identification and Listing of hazardous waste (Federal Regulations) we were below, nickel was not listed and I wanted to know what levels of nickel were acceptable, she took my name and number and called back later, she said that as far as she could determine that nickel did not enter into E.P. toxicity and , therefore, should not be a problem. To confirm this, I sent a letter to John Goetz on October 1, 1980 summarizing my conversation

Kuhlman Diecasting Company, Inc.
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with Jean Lee and asking him to help us in determining whether our sludge was hazardous waste. At this time, we felt that our sludge was not hazardous waste and there was no reason to file for interim status. We planned to submit a petition and have our waste delisted.

Mr. Goetz sent a letter back, that we received January 19, 1981, in this letter he noted that it would appear that our waste was not hazardous waste, but that we would have to petition the EPA. I then contacted the Region 7 office to find out what was needed in a petition. In talking with someone in the EPA they recommended that I get the background document and told me where in the Federal Register the rules for petitioning were. Up to this time I had only been looking in the Identification and Listing of hazardous waste booklet, I had looked at the large hazardous waste and consolidated permit regulations. In reviewing this, I decided that even though our waste was not hazardous, we should have submitted a Part A permit until we were officially delisted. I then sent in the postcard for the package, when we received this I found that we needed a map from the U.S. Geological Survey. When we received the map, we then completed the application and sent it in on April 8, 1981.

Up until the last week in January we did not think it was necessary for us to file for interim status, at that time we started and it took from late January to April 8 to get the packet and then the map and complete the form.

Very truly yours,

KUHLMAN DIECASTING CO.

Phillip Meeker

PM :dh

[ ] PHONE CALL [ ] DISCUSSION [ ] FIELD TRIP [ ] CONFERENCE

[ ] OTHER (SPECIFY)

(Record of item checked above)

FROM: Wayne Kaiser

DATE: 2/23/82

TIME: 1000

SUBJECT: Khulman Die Casting, Stanley KS

SUMMARY OF COMMUNICATION

I talked to Tom Green, KDHE, today about subject facility. I reviewed with him my conversation c̄ Phil Meeker, of Khulman, last week. Tom agreed with my suggestion to have EPA issue a C.O. to force to remove haz waste off-site within 90 days. He said KDHE would assist the company with necessary permits.

ITEM ... ACTION TAKEN ...

INFORMATION COPIES

TO

☐ PHONE CALL	☐ DISCUSSION	☐ FIELD TRIP	☐ CONFERENCE
☐ OTHER (SPECIFY)			

(Record of item checked above)

TO: Files

FROM: Wayne Kaiser

DATE: 3/26/82

TIME:

SUBJECT: Khulman Die Casting, Stanley, KS

SUMMARY OF COMMUNICATION

I called Phil Meiken to discuss his letter to us of 3/2?/82 re storage of haz waste w/o interim status due to late Part A submittal.

He said that they wanted to properly dispose of the waste now in storage, and thereafter dispose of all waste within 90 days so that a Part A would not be necessary.

He said a process change was made to reduce the Cd content in the sludge, but that they hadn't retested to determine if the Cd content in the sludge generated now is hazardous. Present generation rate is 4400 lbs/mo of F006.

I told him I would contact KDHE to get recent lab results, and then follow up a response to his 3/2?/82 letter.

h. 06B

i. 07B

j. 08B

k. 09B

7. 11B 120 ~~days~~; 180 ~~day~~; 8 January 1, April 1
July 1, and October

8. 12B

9. 14B

10. 15B

11. 17B

12. 21B

13. 23B

14. 24B

☒ PHONE CALL ☐ OTHER (SPECIFY)

FROM: Wayne Kain

DATE: 4/8/82 1100

Khulman Die Casting

SUMMARY OF COMMUNICATION

I talked to Tom Gross, KDHE, to again request a copy of the KDHE inspection report for this facility. This report should provide the most information on the RCRA compliance aspects of the facility and the condition of the waste being stored.

TO

EPA Form

State of Kansas . . . John Carlin, Governor

DEPARTMENT OF HEALTH AND ENVIRONMENT

Joseph F. Harkins, Secretary

Forbes Field
Topeka, Kansas 66620
913-862-9360

April 9, 1982

Mr. W. E. Brumwell
Kuhlman Diecasting Company
164th and Mission Road
Stanley, Kansas 66223

Dear Mr. Brumwell:

On January 15, 1982, I visited your facility to determine whether or not your facility produces hazardous waste as defined by RCRA and to determine how your wastes are being handled.

During the course of my visit, it was determined the only process waste consists of a sludge containing nickel from your electroplating operation. At this time, you believed this waste was not hazardous since nickel does not appear under the list of materials for EP toxicity. I myself was unsure how this waste would have to be handled.

Since my inspection of your facility, we have determined that this is a wastewater treatment sludge from electroplating operation not explicity exempted under 40 CFR, Part 261.31. It is classified F006 and must be handled as such unless EPA grants a specific exemption in this case. This exemption can be granted only by EPA. In order to seek this action you must file a delisting petition in accordance with 40 CFR, Part 260.22. Whether you decide to petition for delisting or not is your perogative. Until and unless this takes place, you will need to come into compliance with state and federal regulations concerning proper handling and disposal of hazardous waste.

During the course of my visit, it was determined that you generate between 4,400 and 5,200 pounds of this waste listed as F006. This quantity classifies you as a generator under both state and federal criteria and subjects you to full regulation under RCRA.

This regulation requires you to comply with all of 40 CFR, Part 262 and the portions of 40 CFR, Part 265. Enclosed is an outline of the regulations which you will be expected to comply with in the future.

Also noted during my inspection, is the fact you now have stored on site, in a large metal tank being utilized as a storage building, several thousand pounds of this F006 material. In order to prevent your company from being regulated as a treatment/storage/disposal facility (T/S/D) you must

Mr. W. E. Brumwell
Page 2
April 9, 1982

properly dispose of this material within 90 days of receipt of this letter. While the method of storage currently in use has not produced any adverse environmental impact to date, we feel a more suitable method of storage should be undertaken. Our suggestion is placing this sludge in suitable barrels and storing the waste inside the current enclosure without removing it from the barrels. This would also facilitate handling when disposal is necessary. If storage of 1000 kilograms or more exceeds 90 days prior to disposal, you will be required to secure a T/S/D.

If you have any questions concerning this letter or other hazardous waste matters, please contact us.

Sincerely yours,

Division of Environment

G. Paul Belt

G. Paul Belt
Field Services Section
Bureau of Environmental Sanitation

mw
Enclosure

C Thomas Gross
Randy Bradley

RECORD OF COMMUNICATION

[X] PHONE CALL [ ] DISCUSSION [ ] FIELD TRIP [ ] CONFERENCE
[ ] OTHER (SPECIFY)

TO: Files

FROM: Wayne Kaiser

DATE: 4/30/92 2:32 pm

SUBJECT: Khulman Die Casting, Stanley KS

SUMMARY OF COMMUNICATION

I called G. Paul Belt, KDHE RCRA inspector, to obtain additional information regarding his January 15, 1982 RCRA inspection of the subject facility. Paul stated that to his knowledge none of the waste has been shipped off-site. He also stated that at the time of his inspection the facility was not complying with any of the Part 265 requirements.

SOIL SURVEY OF

Johnson County, Kansas

United States Department of Agriculture
Soil Conservation Service
in cooperation with
Kansas Agricultural Experiment Station

SHEET NUMBER 27

Ca = Chase soils

...presented are for soil samples that were collected ...n carefully selected sites. The soil profiles sampled are typical of the series discussed in the section "Soil series and morphology." The soil samples were analyzed by the Kansas Department of Transportation, Research and Materials Laboratory.

The methods used in obtaining the data are listed by ...le in the next paragraph. Most of the codes, in parentheses, refer to the methods assigned by the American Association of State Highway and Transportation Officials. The codes for Unified classification are those assigned by American Society for Testing and Materials.

The methods and codes are AASHTO classification (M-15-66); Unified classification (D-2487-66T); mechanical analysis (T88-72); liquid limit (T89-68); and plasticity index (...0-70); moisture-density, method A (T99-74).

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is desc... The detailed descriptions of each soil horizon ...ndards in the Soil Survey Manual (3). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Chase series

The Chase series consists of deep, somewhat poorly drained and moderately well drained, slowly permeable soils on low terraces. These soils formed in loamy or clayey alluvium. Slope ranges from 0 to 2 percent.

Chase soils are similar to Martin and Reading soils and are near the Kennebec, Reading, and Wabash soils on the landscape. Martin soils have a thinner mollic epipedon and are on slopes higher on the landscape than the Chase soils. Kennebec soils are less clayey, and are in lower positions near the streams. Reading soils are in similar positions on the landscape but have a less clayey argillic horizon and are better drained than the Chase soils. Wabash soils do not have an argillic horizon, and they are on large flood plains and in backwater areas.

Typical pedon of Chase silt loam, 2,050 feet west and ...0 feet north of the southeast corner of sec. 10, T. 14 S., R. 25 E.:

A—... 10 inches; very dark brown (10YR 2/2) silt loam, ...sh brown (10YR 5/2) dry; moderate fine and medium granular structure; slightly hard, friable; few fine roots; medium acid; gradual smooth boundary.

B1—10 to 18 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; hard, firm; slightly acid; gradual smooth boundary.

B21t—18 to 30 inches; black (10YR 2/1) silty clay, dark gray (10YR 4/1) dry; few fine faint dark yellowish brown (10YR 4/4) mottles; moderate fine and medium blocky structure; very hard, very firm; medium acid; gradual smooth boundary.

B22t—30 to 42 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; common medium faint dark yellowish brown (10YR 4/4) mottles; moderate medium blocky structure grading to massive; very hard, very firm; medium acid; gradual smooth boundary.

C—42 to 60 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; common medium faint dark yellowish brown (10YR 4/4) mottles; massive; hard, firm; slightly acid.

Thickness of the solum ranges from 40 to 60 inches. Thickness of the mollic epipedon is greater than 40 inches.

The A horizon typically has hue of 10YR, value of 2 or 3 (4 or 5 dry), and chroma of 1 or 2. It is silt loam or silty clay loam. Reaction ranges from medium acid to neutral. The B and C horizons have the same range in color and reaction as the A horizon. The B horizon is silty clay loam or silty clay, and it averages between 40 and 50 percent clay. The C horizon ranges from silty clay loam to clay. Mottles are in the lower part of the B and C horizons. They range in abundance from few to many and are usually of higher chroma than the soil mass. Some pedons contain iron-manganese concretions in the lower part of the B and C horizons.

Eudora series

The Eudora series consists of deep, well drained, moderately permeable soils on bottom lands. These soils formed in loamy alluvium. Slope ranges from 0 to 3 percent.

Eudora soils are similar to Kennebec soils and are near Kimo soils on the landscape. Kennebec soils are more clayey and are in small drainageways. Kimo soils have clayey over loamy textures and are in lower positions and in old meander scars.

Typical pedon of Eudora silt loam, 200 feet north of the center of sec. 34, T. 11 S., R. 23 E.:

A1—0 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine and very fine granular structure; slightly hard, friable; few fine roots; neutral; clear smooth boundary.

C1—13 to 38 inches; dark grayish brown (10YR 4/2) very fine sandy loam, grayish brown (10YR 5/2) dry; mas-

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Permea-bility	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete	Erosion factors: K	Erosion factors: T	Wind erodi-bility group
	In	In/hr	In/in	pH						
Chase:										
Ca	0-10	0.2-0.6	0.21-0.24	5.6-7.3	High	High	Low	0.37	5	6
	10-60	0.06-0.2	0.11-0.19	5.6-7.8	High	High	Low	0.37		
Eudora:										
Ea, Eb	0-14	0.6-2.0	0.20-0.24	6.1-7.3	Low	Low	Low	0.32	5	5
	14-60	0.6-2.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.43		
[1]Ec:										
Eudora part	0-14	0.6-2.0	0.20-0.24	6.1-7.3	Low	Low	Low	0.32	5	5
	14-60	0.6-2.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.43		
Kimo part	0-24	0.06-0.2	0.13-0.22	6.6-8.4	High	High	Low	0.37	5	4
	24-60	0.6-6.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.37		
[1]Ed:										
Eudora part	0-14	0.6-2.0	0.20-0.24	6.1-7.3	Low	Low	Low	0.32	5	5
	14-60	0.6-2.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.43		
Kimo part	0-24	0.06-0.2	0.13-0.22	6.6-8.4	High	High	Low	0.37	5	4
	24-60	0.6-2.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.37		
Grundy:										
Ga	0-9	0.6-2.0	0.22-0.24	5.6-7.3	Moderate	High	Low	0.37	3	6
	9-15	0.2-0.6	0.18-0.20	5.6-6.0	High	High	Low	0.37		
	15-29	0.06-0.2	0.11-0.13	5.1-6.5	High	High	Moderate	0.37		
	29-60	0.06-0.2	0.18-0.20	5.6-7.3	High	High	Low	0.37		
Kennebec:										
Ka, Kb	0-48	0.6-2.0	0.22-0.24	5.6-6.5	Moderate	Moderate	Low	0.32	5	6
	48-60	0.6-2.0	0.20-0.22	6.1-7.3	Moderate	Moderate	Low	0.43		
Kimo:										
Kc	0-24	0.06-0.2	0.13-0.22	6.6-8.4	High	High	Low	0.37	5	4
	24-60	0.6-2.0	0.17-0.22	6.6-8.4	Low	Low	Low	0.37		
Ladoga:										
La, Lb	0-13	0.6-2.0	0.22-0.24	6.1-6.5	Low	Moderate	Low	0.32	5	6
	13-31	0.2-0.6	0.18-0.20	5.1-6.0	Moderate	Moderate	Moderate	0.43		
	31-60	0.2-0.6	0.18-0.20	5.1-6.5	Moderate	Moderate	Moderate	0.43		
Martin:										
Ma	0-15	0.2-0.6	0.21-0.23	5.6-6.5	Moderate	High	Low	0.37	4	7
	15-60	0.06-0.2	0.12-0.18	5.6-7.8	High	High	Low	0.37		
[1]Mb:										
Martin part	0-15	0.2-0.6	0.21-0.23	5.6-6.5	Moderate	High	Low	0.37	4	7
	15-60	0.06-0.2	0.12-0.18	5.6-7.8	High	High	Low	0.37		
Vinland part	0-18	0.6-2.0	0.21-0.24	5.6-7.8	Moderate	Moderate	Low	0.37	2	6
	18	---	---	---	---	---	---	---		
Morrill:										
Mc	0-13	0.6-2.0	0.14-0.21	5.1-6.5	Low	Low	Moderate	0.28	5	6
	13-22	0.2-0.6	0.15-0.19	5.1-6.5	Moderate	Moderate	Moderate	0.28		
	22-60	0.2-2.0	0.15-0.18	5.1-7.3	Low	Low	Moderate	0.37		
Orthents:										
Oa.										
Oska:										
Ob	0-16	0.2-0.6	0.18-0.20	5.6-6.5	Moderate	Moderate	Moderate	0.43	3	7
	16-32	0.06-0.2	0.14-0.18	5.6-8.4	High	Moderate	Low	0.32		
	32	---	---	---	---	---	---	---		

[1] See footnote at end of table.

TABLE 8.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," and "fair." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Chase:					
Ca	Severe: percs slowly.	Slight	Severe: too clayey.	Severe: floods.	Poor: too clayey.
Eudora:					
Ea, Eb	Moderate: floods.	Moderate: seepage.	Moderate: floods.	Moderate: floods.	Good.
[1]Ec:					
Eudora part	Moderate: floods.	Moderate: seepage.	Moderate: floods.	Moderate: floods.	Good.
Kimo part	Severe: percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey.
[1]Ed:					
Eudora part	Moderate: floods.	Moderate: seepage.	Moderate: floods.	Moderate: floods.	Good.
Kimo part	Severe: percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey.
Grundy:					
Ga	Severe: percs slowly, wetness.	Moderate: slope.	Moderate: too clayey, wetness.	Moderate: wetness.	Fair: too clayey.
Kennebec:					
Ka	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Kb	Severe: floods, wetness.	Severe: floods.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Kimo:					
Kc	Severe: percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey.
Lagoga:					
La	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
Lb	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey, slope.
Martin:					
Ma	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: thin layer.
[1]Mb:					
Martin part	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: thin layer.
Vinland part	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Moderate: slope.	Poor: thin layer.
Morrill:					
[illegible]	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.

See footnote at end of table.

r ((3) evaluate alternative routes for roads, ets, ..ways, pipelines, and underground cables; (4) uate alternative sites for location of sanitary landfills, e sewage disposal systems, and other waste disposal ties; (5) plan detailed onsite investigations of soils geology; (6) find sources of gravel, sand, clay, and oil; (7) plan farm drainage systems, irrigation systems, ds, terraces, and other structures for soil and water servation; (8) relate performance of structures already l to the properties of the kinds of soil on which they built so that performance of similar structures on the e or a similar soil in other locations can be predicted; (9) predict the trafficability of soils for cross-country ement of vehicles and construction equipment.

ata presented in this section are useful for land-use nning and for choosing alternative practices or general igns that will overcome unfavorable soil properties and imize soil-related failures. Limitations to the use of se data, however, should be well understood. First, the a are generally not presented for soil material below a th of 5 or 6 feet. Also, because of the scale of the ailed map in this soil survey, small areas of soils that r from the dominant soil may be included in mapping. s, these data do not eliminate the need for onsite estigations, testing, and analysis by personnel having ertise in the specific use contemplated.

The information is presented mainly in tables. Table 7 ows each kind of soil, the degree and kind of ta for building site development; table 8, for sani- fa...ies. Table 10 shows the kind of limitations for ter management. Table 9 shows the suitability of each d of soil as a source of construction materials.

The information in the tables, along with the soil map, soil descriptions, and other data provided in this rvey, can be used to make additional interpretations d to construct interpretive maps for specific uses of d.

Some of the terms used in this soil survey have a ecial meaning in soil science. Many of these terms are fined in the Glossary.

...ilding site development

The degree and kind of soil limitations that affect shal- v excavations, dwellings with and without basements, all commercial buildings, and local roads and streets e indicated in table 7. A *slight* limitation indicates that il properties generally are favorable for the specified e; any limitation is minor and easily overcome. A *moder- e* limitation indicates that soil properties and site fea- res are unfavorable for the specified use, but the limita- ns can be overcome or minimized by special planning d design. A *severe* limitation indicates that one or more il properties or site features are so unfavorable or diffi- lt to overcome that a major increase in construction fort, special design, or intensive maintenance is re- ire r some soils rated severe, such costly measures ay e feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 7 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Depth to bedrock, slope, and large stones in or on the soil are also important considerations in the choice of sites for these structures and were considered in determining the ratings (fig. 15). Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 7 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, depth to hard rock or very compact layers, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of th

oil ...portant in selecting sites for these facilities and in ...lentifying limiting soil properties and site features to be ...onsidered in design and installation. Also, those soil ...roperties that affect ease of excavation or installation of ...hese facilities will be of interest to contractors and local ...fficials. Table 8 shows the degree and kind of limitations ...f each soil for such uses and for use of the soil as daily ...over for landfills. It is important to observe local ordin...nces and regulations.

If the degree of soil limitation is expressed as *slight*, ...oils are generally favorable for the specified use and ...imitations are minor and easily overcome; if *moderate*, ...oil properties or site features are unfavorable for the ...pecified use, but limitations can be overcome by special ...lanning and design; and if *severe*, soil properties or site ...eatures are so unfavorable or difficult to overcome that ...major soil reclamation, special designs, or intensive main...enance is required. Soil suitability is rated by the terms ...ood, *fair*, or *poor*, which, respectively, mean about the ...ame as the terms *slight*, *moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of ...ile or perforated pipe that distribute effluent from a septic ...ank into the natural soil. Only the soil horizons between ...epths of 18 and 72 inches are evaluated for this use. ...he soil properties and site features considered are those ...hat affect the absorption of the effluent and those that ...ffe... the construction of the system.

...ties and features that affect absorption of the ...ffl... are permeability, depth to seasonal high water ...able, depth to bedrock, and susceptibility to flooding. Stones, boulders, and shallowness to bedrock interfere ...ith installation. Excessive slope can cause lateral seep...ge and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed ...n sloping soils.

In some soils, loose sand and gravel or fractured bed...ock is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, ...nd ground water in the area may be contaminated.

On many of the soils that have moderate or severe ...imitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed ...r the size of the absorption field can be increased so ...hat performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold ...ewage while aerobic bacteria decompose the solid and ...quid wastes. Lagoons have a nearly level floor and cut ...lopes or embankments of compacted soil material. Aero...bic lagoons generally are designed to hold sewage within ...a depth of 2 to 5 feet. Nearly impervious soil material for ...he lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter and those that have ...obbles, stones, or boulders are not suitable. Unless the ...oil ... very slow permeability, contamination of ground wa... a hazard where the seasonal high water table is abo... the level of the lagoon floor. In soils where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness can be a limitation, because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 8 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

Where it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 9 by ratings of good, fair, or poor. The texture, thickness, and organic-

HAZARDOUS WASTE MANIFEST

001
MANIFEST DOCUMENT NUMBER

KSD 006325073
SHIPPER NUMBER

McKesson Chemical Company — NAME OF CARRIER — (SCAC) — 13-1027023 CARRIER NUMBER

IDENTIFICATION

	12 DIGIT EPA ID #	COMPANY NAME, MAILING ADDRESS, AND TELEPHONE NUMBER	DATE SHIPPED OR RECEIVED
GENERATOR/SHIPPER	KSD006325073	913-681-2351 Kuhlman Diecasting Co. Box 23218 Stanley, Kansas 66223	1/8/81
TRANSPORTER # 1	MOD007158157	816-842-6240 McKesson Chemical Co. 2000 Guinotte Ave. K.C.Mo. 64120	1/8/81
TRANSPORTER # 2 (if required)			
SITE OF TREATMENT STORAGE OR DISPOSAL FACILITY	MOD007158157	816-842-6240 McKesson Chemical Co. 2000 Guinotte Ave. K.C.Mo. 64120	
ALT. SITE OF TREATMENT STORAGE OR DISPOSAL FACILITY			

WASTE INFORMATION

NO. OF UNITS & CONTAINER TYPE	HM	EPA HAZ WASTE ID #	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UN # or NA #	EXEMPTION OR NO LABELS REQUIRED	FLASH POINT (IN °C) WHEN REQ'D	UNITS WT/VOL	TOTAL QUANTITY	RATE	CHARGES (For Carrier Use Only)
Drums		U220	Waste Solvents N.O.S. F005 → Toluene	UN 1993	✓		55gal	1485		

SPECIAL HANDLING INSTRUCTIONS

If an RQ commodity is spilled on a waterway or adjoining land, the incident must be promptly reported to the Federal government at 1-800-424-8802 (toll free) or 202-426-2675 (toll call). If other DOT Hazardous Materials are discharged creating a serious situation, call shipper's telephone number or Chemtrec 1-800-424-9300 immediately.

COMMENTS

"Collect on Delivery" shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

PLACARDS TENDERED Yes ☐ No ☐

REMIT C.O.D. TO: ADDRESS

COD Amt: $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES. $

FREIGHT CHARGES

"If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

Signature

Signature of Consignor

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the U.S. Environmental Protection Agency

GENERATOR'S SIGNATURE — DATE

This is to certify acceptance of the hazardous waste shipment.

TRANSPORTER #1 SIGNATURE & DATE — TRANSPORTER #2 SIGNATURE & DATE (if required)

This is to certify acceptance of the hazardous waste for treatment, storage or disposal.

TSDF SIGNATURE — DATE

4

oice

esson Chemical Company
nosst-McKesson
ica[illegible]oup

McKESSON CHEMICAL

MCKESSON CHEMICAL CC
2CCC GUINCTTE AVE
KANSAS CITY MC 6412C

PHCNE NC. 816-842-6240

Please Remit To

MCKESSCN CHEMICAL
LCCK BCX 27-352
KANSAS-CITY MC 641[illegible]

Invoice No. 55854215

Invoice Date 1/26/81

Account No. 01-48171A

Ship To: (Same as 'Sold To' unless shown)

l To:

KUHLMAN DIECASTING
P C BCX 218
STANLEY KS 66223

RECEIVED
FEB 2 1981

Shipped	Sls Rep	Customer Order No.	PPD/Coll	Terms	Shipped Via	F.O.B.
726/81	8		PREPAID	NET 3C DUE C2/26/81	&RR	CELIVERE[illegible]

uct Code	Units	Description	Quantity/Unit		Price/Unit		Amount
		TO CHRG FCR DISPCSAL CF SLUDGE MATERIAL					
CO[illegible]	4	DISPCSAL TRICHLCR-ACETCNE SLUD	4	E	24C.CC	E	96C.[illegible]
DC138	1	DISPCSAL TOLUCL-TRICHLCR SLUDG	1	E	24C.CC	E	24C.[illegible]
C0138	1	DISPCSAL PAINT SLUDGE	1	E	24C.00	E	24C.[illegible]
		EXEMPT					
		INVOICE TOTAL				**	1,440.

Gremost-
McKesson,
Inc

Seller warrants that the above material shall conform to the description stated herein. This warranty is in lieu of and excludes all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. Buyer shall examine and test such material immediately. Failure of Buyer to make claim within 30 days after delivery shall be a waiver by Buyer of all claims with respect thereto. Buyer assumes all risk and liability for the results obtained by use of the material in manufacturing processes. No claim of any kind shall be greater in amount than the purchase price of the material in respect of which otherwise. This provision sets forth Buyer's sole and exclusive remedy.

We hereby certify that these goods were produced in compliance with all applicable requirements of Sections 6, 7 and 12 of the Fair Labor Standards Act, as amended, and of Regulations and Orders of the United States Department of Labor issued under [illegible] thereof.

Charge for container is required to be paid with invoice. Will be refunded if con[illegible]

LANGSTON LABORATORIES, INC.
Research • Testing • Problem Solving
2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: Kuhlman Diecasting Co., Inc.
P. O. Box 23218
Stanley, KS 66223
ATTN: Dwayne Kiewitt

RECEIVED: December 18, 1986 (5:00 pm)
COMPLETED: February 10, 1987

LLI NO.: 86-1086

SAMPLE DESCRIPTION: Paint Filters

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
Paint Filters	E. P. Toxicity	
	Arsenic	< 0.25 mg/liter
	Barium	< 5.0 mg/liter
	Cadmium	< 0.05 mg/liter
	Chromium	48 mg/liter
	Lead	< 0.25 mg/liter
	Mercury	< 0.01 mg/liter
	Selenium	< 0.05 mg/liter
	Silver	< 0.25 mg/liter

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

JUN 17 1986

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: Kuhlman Diecasting Co., Inc.
P. O. Box 23218
Stanley, KS 66223

ATTN: Dwayne Kiewitt

RECEIVED: May 29, 1986 (4:30 pm)
COMPLETED: June 12, 1986

LLI NO.: 86-9477

SAMPLE DESCRIPTION: Liquid

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
Waste Toluene	pH	7.2
	Flash Point	23 °F
	Total Solids	5.97%
	Volatile Solids	5.59%
	Suspended Solids	1,240 mg/liter
	Suspended Volatile Solids	700 mg/liter
	Ash	0.38%
	Specific Gravity at 60°F	0.850
	Acetone	7.7%
	Isopropyl Alcohol	8.5%
	Toluene	60%
	Butyl Acetate	1.2%
	Total Copper	0.51 mg/liter
	Total Silver	< 0.01 mg/liter
	Total Nickel	0.16 mg/liter
	Total Barium	48 mg/liter
	Total Lead	7.2 mg/liter
	Total Cadmium	0.046 mg/liter
	Total Chromium	3.90 mg/liter
	Total Zinc	96 mg/liter

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

NOV 1 1986

LANGSTON LABORATORIES, INC.

Research • Testing • Problem Solving

2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

.IENT:	Kuhlman Diecasting Co., Inc. P. O. Box 23218 Stanley, KS 66223	RECEIVED: COMPLETED:	October 22, 1986 (4:50 pm) November 5, 1986
TN:	Dwayne Kiewitt	LLI NO.:	86-0671

MPLE DESCRIPTION: Copper-Cyanide Plating Tank Sludge

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
Sludge	E. P. Toxicity	
	Arsenic	< 0.25 mg/liter
	Barium	< 5.0 mg/liter
	Cadmium	< 0.05 mg/liter
	Chromium	1.1 mg/liter
	Lead	< 0.25 mg/liter
	Mercury	< 0.001 mg/liter
	Selenium	< 0.05 mg/liter
	Silver	< 0.25 mg/liter
	pH	10.4
	Flash Point	> 200°F
	Sulfide	< 1.0 mg/liter
	Cyanide	16,230 mg/kg
	Volatiles at 100°C	14.38%
	Volatiles at 600°C	69.92%

APPROVED: Alan Kerschen

Alan Kerschen
Vice President

...CRIPTION: Copper-Cyanide Plating Tank Sludge

SAMPLE ...NTIFICATION	ANALYSIS	RESULTS
Sludge	Total Copper	90,200 mg/kg
	Total Potassium	366,000 mg/kg
	Total Sodium	7,914 mg/kg
	Total Zinc	377 mg/kg
	Total Chromium	200 mg/kg
	Total Lead	< 1.0 mg/kg.

Resp Ex. 26

James Casbum

E. F. HOUGHTON & CO./RESIDENCE: 1704 1st STRE
BLUE SPRINGS, MO. 64015/PHONE: 816-229-8572

January 28, 1983

Kuhlman Diecasting Co.
164 & Mission Rd.
P.O. Box 23218
Stanley, Kansas 66223

Gentlemen:

EPA regulation identification and listing of hazourdous wastes sub part D (list of hazourdous materials Sec. 261.33) as of 11/26/82 Houghton Safe 520 does not contain any hazourdous waste.

Generic Formula:

Ethylene glycol 30-40%
Alkanolamine soap less than 5%
Corrosion inhibitor less than 1%
High molicular weight polyethylene glycol ether 10-20%
Alkamolamine less than 1%
Dye less than 1%
Water 40-50%

E.F. Houghton Co.

James Casburn

James Casburn

State of Kansas, County of Johnson ss.

BE IT REMEMBERED, that on this 28 day of January, 1983, before me, the undersigned, a Notory Public in and for said county and state, came the above named, to me personally known to be the same person who signed, acknowledged and agreed to the foregoing instrument of writing and duly acknowledged that he understood and executed the same as of the date above written.

Bettylee Shatzer
Notary Public

My commission expires April 4, 1984

BETTYLEE SHATZER NOTARY PUBLIC STATE JOHNSON COUNTY, KANSAS

RECEIVED
MAY 27 1987

P.D.C. LABORATORIES, INC.
INDUSTRIAL WASTE ANALYTICAL SERVICES

(309) 676-4893

P.O. Box 9071
PEORIA, ILLINOIS 61614

ANALYTICAL REPORT FORM

To: Kuhlman Diecasting | Date Collected ________ | Sales Rep Teri Shull
P.O. Box 23218 | Date Received 5-6-87 | Sample # ________
Stanley, KS 66223 | Date Due 5-20-87 | PDC # 705067E
(913) 681-2351 | Date Completed 5-20-87 | Permit # ________
Attn: Connie Catron | Date of Report ________ | P.O. # Sales #2

Waste Stream Filter Sludge

Odor None | Physical State Solid
Color Green | Number of Phases 1
Bulk Density 1634.1 lb/yd3 | Water Reactivity None

pH ______ (neat): 8.5 (10% solution) | Paint Filter Passed

Flashpoint >200 °F | Load Bearing Capacity (ton/sq.ft.) ________

% Solids 19 | Acidity ________ | Alkalinity ________

EOX 59 ppm | TOC ________ ppm | Oil & Grease ________

	Totals (mg/kg)	EP Toxicity (mg/1)		(mg/kg)
Arsenic	<0.08		Cyanide (Total)	33
Barium	29		Cyanide (Reactive)	<0.09
Cadmium	1.0	<0.03		
Lead	36	<0.5	Sulfide (Total)	0.97
Mercury	0.1876	<0.0005	Sulfide (Reactive)	
Selenium	<0.10			
Silver	<1.3		Phenol (Total)	<1.8
Chromium (Total)	3500	0.10		
Chromium (Hex)				

Note 1: All analysis are conducted utilizing recommended USEPA and IEPA methods.
Note 2: The paint filter and load bearing capacity tests are run according to Illinois Pollution Control (6/84) Section 729.320/321.

Laboratory Manager Lynn Eick
PDC Laboratories, Inc.

Quality Analytical Services, Inc.

1633 S. Marsh • Box 266517 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Kuhlman Diecasting
P. O. BOX 23218
Stanley, KS 66223

REPORT #: 7061157

DATE: 6/11/87

attn: C Catron

QAS SAMPLE #: 70515001
DATE RECEIVED: 5/11/87
SAMPLE ID: Sample from underground tank next to wall

PARAMETER	METHOD	DET. LIMIT	CONC.
pH	9041	NA	5.85
Halogens	microcoulemetric	10 ppm	144 ppm
Metals - total			
Arsenic	7060	0.05 ppm	ND
Barium	7080	10 ppm	ND
Cadmium	7130	0.1 ppm	ND
Chromium	7190	0.5 ppm	ND
Lead	7420	1 ppm	ND
Mercury	7470	0.01 ppm	ND
Selenium	7740	0.05 ppm	ND
Silver	7760	0.1 ppm	13.4 ppm

JEFFREY L. JENKINS

7/1/88
Report continued...

Appendix IV

Reference Documents

References

Document Number	
1	Handwritten report entitled Preliminary Evaluation Report, Kuhlman Diecasting Company, Stanley, Johnson, Kansas, Big Blue River, Refuse Act Permit Program, Permit Branch, Enforcement Division, U.S. EPA, revised November 1972.
2	Memorandum from H.A. Janzen, September 25, 1973, Field Visit, 18 September 1973.
3	Letter from Steven C. Rogers, Sanitary Engineer, Water Pollution Control, KDHE to Mr. Paul P. Hamilton, Chief of Ecological Services, Fish and Wildlife Service, U.S. Department of the Interior, September 30, 1974.
4	Letter from S. Patrick McCool, Sanitary Engineer, KDHE to Mr. W.E. Brumwell, Plant Mgr., Kuhlman Diecasting Company, June 2, 1975.
5	Report of Inspection, Stanley, Kansas, Kuhlman Diecasting, NPDES Permit Number KS-0001881, March 24, 1976.
6	Letter from S. Patrick McCool, Northeast District Engineer to Mr. W.E. Brumwell, Vice President, Kuhlman Diecasting Company, July 13, 1976.
7	Report of Investigation, Kuhlman Diecasting Company, Stanley, Kansas, NPDES Permit Number: KS-0001881, U.S. EPA, Region VII Surveillance and Analysis Division, October 6, 1978.
8	Report of Compliance Monitoring Inspection, Kuhlman Diecasting Company, Stanley, Kansas, NPDES Permit No.: KS-0001881, U.S. EPA, Region VII, Surveillance and Analysis Division, March 10-13, 1980.
9	Memorandum from Donald R. Carlson, KDHE to Kuhlman Diecasting Company 7.0 File - Stanley, November 3, 1980.
10	Memorandum from Donald R. Carlson, KDHE to Kuhlman Diecasting Company, Inc., Permit File - Stanley, Kansas, May 28, 1981.
11	Letter from G. Paul Belt, Field Services Section, Bureau of Environmental Sanitation, KDHE, to Mr. W.E. Brumwell, Kuhlman Diecasting Company, April 9, 1982.
12	Report of RCRA Compliance Inspection at Kuhlman Diecasting Company, Inc., Stanley, Kansas, EPA ID Number: KSD 006325013, U.S. EPA Region VII, Environmental Services Division, August 19-20, 1982.
13	Memorandum from Robert B. Dona, Chief, Field Investigations Section, EMCM/ENSV to Michael J. Sanderson, Chief, AWCM/ARWM, May 14, 1984.

14 Report of Compliance Monitoring Inspection, Kuhlman Diecasting Company, Inc., Stanley, Kansas, NPDES Permit Number: KS-0001881, U.S. EPA, Region VII, Environmental Services Division, July 30-August 2, 1984.

15 Report of Performance Audit Inspection at Kuhlman Diecasting Company, Inc., Stanley, Kansas, NPDES Number: KS-0001881, U.S. EPA, Region VII, Environmental Services Division, July 9, 1986.

16 Letter from Joel C. Rife, P.E., Environmental Health Engineer, Northeast District Staff, KDHE, to Mr. Phillip W. Meeker, Plant Manager, Kuhlman Diecasting Company, September 19, 1986.

17 Order Assessing an Administrative Penalty to Phillip Meeker, Kuhlman Diecasting Company, Case No. 87-E-15, KDHE, March 11, 1987.

18 Letter from Connie L. Catron, Kuhlman Diecasting Company to Jim Fischer, Division of Environment, Bureau of Waste Management, KDHE, May 13, 1987.

19 Memorandum from John R. Helvig, Chief, Air Section, ENSV/FINV, EPA, to Michael J. Sanderson, Acting Chief, ARWM/AWCM, EPA, May 25, 1982.

20 Motion to Extend Time for Completion of Closure Plan, In Re: Kuhlman Diecasting Company, Respondent, Case No. 83-H-004, U.S. EPA, Region VII.

21 Soils Analysis Trend Summary for Kuhlman Diecasting Company from Leslie Y. Wilson, Environmental Coordinator ESI, February 14, 1984.

22 Letter from Michael J. Sanderson, Chief, RCRA Branch, Waste Management Division, U.S. EPA, to Mr. Phillip Meeker, Kuhlman Diecasting Company, April 23, 1987.

23 Letter report from Mr. Robert F. Skach, P.E., Vice President, ETI, to Karen Flourney, U.S. EPA, Region VII, December 12, 1984.

24 Report on the Decontamination of the Old Petroleum Storage Tank by Phillip Meeker, Kuhlman Diecasting Company, May 23, 1983.

25 Letter report from Rubert F. Skach, P.E., Vice President, ETI, to Karen Flourney, U.S. EPA, Region VII, July 5, 1984.

26 Letter, laboratory report, and Bill of Lading for Paint Contaminated Soil from Connie Hawkins, Kuhlman, to Anne Harrington, Jacobs, November 10, 1987.

27 Phone Conversation Record between Anne Harrington, Jacobs Engineering Group, to Steve Broslavick, KDHE; Letter from Steve Broslavick, KDHE, to Phillip W. Meeker, Kuhlman Diecasting Company, January 13, 1987.

3

ENFC-PERM

KS 2SB OXR 2 000116

PRELIMINARY EVALUATION REPORT

Kuhlman Diecasting Company
Stanley, Johnson, Kansas

Big Blue River

Refuse Act Permit Program
Permit Branch, Enforcement Division
Environmental Protection Agency
Region VII

~~May 1972~~

Revised November 1972

Introduction and Tentative Recommendations

The Industry, Its Nature and Background

The major activity of this company is the manufacturing of zinc diecastings. Zinc ingots are melted down and cast in molds, and the castings are smoothed, cleaned and buffed. Most of the castings are then copper, nickel, and chrome plated. Some painting of the plated parts also is performed. The ~~casting~~ diecasting operation does not produce any waste water discharge.

Discharge from the plating operation includes cleaner baths, rinse baths, and acid baths. Cyanide, when used, is destroyed by use of chlorine and caustic. Chromium is reduced with sulfuric acid and sulfur dioxide. No specific treatment is provided to remove copper or nickel. After ~~this~~ pretreatment these waste ~~discharge~~ streams, ~~are~~ and all other liquid wastes without ~~with~~ pretreatment are discharged to a lagoon and from there are discharged into the Big Blue River. Sanitary wastes are collected separately and pass through a small retention pond prior to being discharged with the other plant wastes.

Kuhlman has been working on a state approved abatement ~~schedule~~ program which

should be finished at this time. This project involves the construction of a multi-chambered mixing-settling basin in which the pH will be adjusted to precipitate the metals as hydroxides. The ~~[illegible]~~ cyanide destruction unit is being modernized, but cyanides were not being used at the time we last contacted the company.

The following table summarizes some of the more critical parameters as reported in their application and as determined by an EPA study:

Parameter	Application	EPA Survey
flow	110,000 gpd	
pH	6.7	9.6
BOD_5	3 mg/l	88 mg/l
COD	12 "	239 "
Oil & grease	258 "	124 "
Cyanide	A	N.R.
Cadmium	0 mg/l	0.02 mg/l
Chromium ~~Iron~~	3.0 "	18 "
Copper	14 "	12.3
Iron	0.52 "	2.46
Nickel	16 "	11.8

Zinc	3.1 "	N.R.
Nitrate	250. "	N.R.

These are all values for the discharge prior ~~to~~ to completion of their abatement program.

The discharge began April 30, 1962.

The Receiving Stream. The Big Blue River in Kansas is used for recreation including sport fishing and agricultural purposes.

a. General criteria

The cumulative effect of waste discharges to the Big Blue River and all tributaries thereto will be guided by the 1962 U.S. Public Health Service Drinking Water Standards except that for substances toxic to fish, standards generally accepted for fishery environment will be considered. Pollutional substances will be maintained below maximum permissible concentrations which would be detrimental for public water supplies, recreational requirements, agricultural needs, and other established beneficial use. The above named stream and tributaries thereto shall be controlled so that public health hazards or nuisance conditions will not develop due to man-made discharges. It is the long-range objective to eliminate all treated waste discharges to the Big Blue River and tributaries thereto.

b. Specific criteria

1. Temperature: Waste discharges shall not elevate the temperature of the receiving stream above 90° F. Heat of artificial origin shall not be added to a stream in excess of the amount that will raise the temperature of the water more than 5° F above natural conditions. The epilimnion of lakes shall not be raised more than 3° F above that temperature which existed before the addition of heat of artificial origin. The normal daily and seasonal temperature variations before the addition of heat due to other than natural causes should be maintained. The measurement system to be used in each case should provide for temperature measurements at the outfall and with the maximum temperature allowed at the outfall reflecting a reasonable mixing zone in the contiguous receiving waters. Any barrier to migration and the free movement of the aquatic biota is prohibited.

2. Hydrogen ion potential: Waste discharges shall not cause the pH of the receiving stream flows to vary below 6.5 nor above 8.5.

3. Oil and grease: The receiving stream shall be essentially free of visible oil and grease. Dissolved or emulsified grease concentrations shall be kept below levels which will interfere with established beneficial use.

4. Solids: There shall be no man-made deposits of solids in the rivers and creeks, either organic or inorganic, which will be detrimental to established beneficial use.

The rivers and creeks shall be free of floating debris, scum, and other floating materials attributable to municipal, industrial, or other waste disposal practices in amounts sufficient to be unsightly or detrimental to established beneficial use.

5. Turbidity: There shall be no turbidity increase of other than natural origin that will preclude other beneficial use.

6. Taste and odor producing substances: Taste and odor producing substances from man-made sources shall be limited to concentrations in the receiving waters that will not interfere with the production of potable water by reasonable water treatment processes or impart unpalatable flavor to fish, or result in noticeable offensive odors in the vicinity of the water, or otherwise interfere with established beneficial use of the river.

7. Color: Man-made discharges of color-producing substances shall be limited to concentrations which will not be detrimental to established beneficial use.

The 10-year 7-day low flow of the Blue River is approximately 0.2 cfs.

Tentative Recommendations

The following special conditions are ~~recommended~~ ~~as~~ included as tentative recommendations for a 3 year permit:

(01) KS 0 3 B. D X R 2 . 0 0 0 1 1 . U

Kuhlman Diecasting Company

1. (02)

2. (12) 3; Big Blue River; June 30, 1971

3. (13) (~~two~~ 2 1/2 years from permit issuance)

a. Discharge Serial No.	Parameter	Maximum Conc. (mg/l)
001	Cyanide	0.03
001	Chromium-hexavalent	0.05
001	Chromium-trivalent	0.05
001	Chromium-total	0.25
001	Copper	0.2
001	Nickel	1.0
001	Zinc	0.5

b. (08) 6.5; 9.0

c. (14)

d. (09)

~~e~~

4. (15) (120 days from permit issuance); (~~two~~ 2 1/2 years from permit issuance); 3

5. 17

6. 18

a. D.S.#	P	Min. Freq. of Analysis	Sample Type
001	Flow	daily	—
001	temperature	daily	—
001	pH	daily	—
001	cyanide	2/month	24 hr. composite
001	Chromium +6	"	"
001	Chromium +3	"	"
001	Chromium - total	"	"
001	Copper	"	"
001	Nickel	"	"
001	Zinc	"	"
001	Oil & Grease	"	"
001	Nitrate	"	"
001	COD		

b. 19

c. 20

d. 01B

e. 02B

f. 03B

g. ~~04B~~ 05B

Narrative By Subject Heading

Effluent Limits

The discharge limitations specified are the Schedule A guidelines for the metal finishing industry. It is anticipated that the abatement program completed will not meet Schedule B guidelines for all parameters. Consideration has been given to the fact that the discharge comprises approximately 65% of the 10-year 7-day low flow of the stream.

~~Abatement Program Required~~

~~A 2 1/2 year period has been allowed~~

Permit Period

A ~~three~~ 3 year permit period has been established to allow 2 1/2 years for completion of the abatement program and 6 months for resubmittal if they desire to continue discharging.

Interstate Effect Downstream

The discharge is located approximately two river miles from the Kansas - Missouri state line on an interstate stream. Thus, there would be a definite possibility of an interstate effect.

MEMORANDUM

September 25, 1973

TO: Files, Stanley 7.0, Kuhlman Die Casting Company

FROM: H. A. Janzen

SUBJECT: Field Visit, 18 September 1973.

On the above date, I first took a look at the conditions of the stream (Big Blue headed for Missouri). Recent rains had resulted in a rise of several feet as judged from high water marks on the banks; water level now was still a foot or so above normal levels as judged from projecting vegetation. The water was still quite muddy and had a very slight vague peculiar, oily "rainbow". I am not familiar with this appearance.

I then went to the plant to meet Mr. W. E. Brumwell, Plant Manager. He showed me the wastewater treatment facilities they have had in operation now for several months. This is the plant for which Gyula Kovach approved the plans; the permit number 9348 is dated 27 April 1972. Consultant is Kirkwood & Associates.

The chrome wastes are originally handled separately from the others by first adding chlorine and sulphur dioxide; a small reaction basin provides for adjustment of pH to 3.0 and converting hexavalant chrome to trivalent chrome, then this flow joins the other liquid industrial wastes.

Both chemicals are fed through W. & T. V-notch equipment supplied by Haines Equipment Company. The Chlorinator has a capacity of 20 lbs. per day and the sulphur dioxide feeder has a capacity of 100 lbs. per day. This equipment is housed in a separate, heated room with doorway to the outdoors.

The other liquid industrial wastes are collected into a sump from which they are pumped into a somewhat conventional water treatment plant where lime and alum are added for coagulation, settling and discharge through a Parshall flume to an existing pond before discharge to the river. An oil skimming system has been improvised. W. & T. pH monitoring probs are located at the Parshall flume. Records indicate that the pH had been maintained at approximately 8.0 although it was 7.2 at the time of my visit.

Records indicate that the flow volume remains at 50 gpm except for short periods of time when it reaches 220 gpm; this sharp but short-time rise in flow supposedly results from the action of the sump pump mentioned earlier. Mr. Brumwell indicated plans exist for dampening this surge by installing a much lower capacity pump in the sump system.

As this liquid industrial waste leaves the specific treatment facilities, the discharge from the sanitary waste stabilization ponds system joins to make the total discharge of all liquid wastes going to the final pond.

Memorandum
Page 2
September 25, 1973

A contract has been made with Western Chemical Company, 1345 Taney, Kansas City, Missouri 64116 for monthly analyses of the discharge from this plant. The first sample has been submitted to them for the month of August but results have not yet been made known to Mr. Brumwell.

The problem with the carry-over of the large, light-weight floc is to be discussed with the consultants by Mr. Brumwell. Other coagulating chemicals and changes in the sump pump rates are factors to be explored, investigated and probably put into use.

HOJ

jla

cc: Mr. W. E. Brumwell
Mr. Harry Bond
Northeast Area Office - Topeka

P.S. - Sludge from settling basin flows by gravity to a sump outside the building from where it is pumped to a steel storage tank. This tank is a former "Tank farm tank" and reportedly has a capacity of 15-20 barrels. (15x42 gallons per bbl. = 600,000 ± gallons capacity.) As this accumulates some method of decanting will be planned and solids hauled to landfill by Deffenbaugh.
Oil & grease skimmings go to a tank truck parked outside the building. As this accumulates, it is hauled to parking lot & driveway areas where it is spread as a water-repellant cover over gravel surfaces.

H.

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR
PUBLIC SAFETY AUTHORITY, OR THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T.
SHIPPING NAME SOLVENTS, NOS. UN OR NA# ______

GENERATOR INFORMATION:

NAME KUHLMAN DIE CASTING CO

ADDRESS 164TH + MISSION RD BOX 218

CITY STANLEY STATE KS ZIP 66223

EPA
ID NO. KSD 006325073

EPA
WASTE NO. U 220

ACCUMULATION
START DATE ______

MANIFEST
DOCUMENT NO. 001

HANDLE WITH CARE!

CONTAINS HAZARDOUS OR TOXIC WASTES

STYLE WM-6

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

NOTIFICATION OF HAZARDOUS WASTE ACTIVITY

INSTALLATION'S EPA I.D. NO.

NAME OF INSTALLATION

II. INSTALLATION MAILING ADDRESS

KUHLMAN [illegible]
BX 219
STERLING, KS [illegible]

III. LOCATION OF INSTALLATION

INSTRUCTIONS: If you received a preprinted label, affix it in the space at left. If any of the information on the label is incorrect, draw a line through it and supply the correct information in the appropriate section below. If the label is complete and correct, leave Items I, II, and III below blank. If you did not receive a preprinted label, complete all items. "Installation" means a single site where hazardous waste is generated, treated, stored and/or disposed of, or a transporter's principal place of business. Please refer to the INSTRUCTIONS FOR FILING NOTIFICATION before completing this form. The information requested herein is required by law (Section 3010 of the Resource Conservation and Recovery Act).

FOR OFFICIAL USE ONLY

COMMENTS

INSTALLATION'S EPA I.D. NUMBER	APPROVED	DATE RECEIVED (yr., mo., & day)
KSD006325613[illegible]		8[illegible]0815

I. NAME OF INSTALLATION

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX

CITY OR TOWN | ST. | ZIP CODE

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER

CITY OR TOWN | ST. | ZIP CODE

IV. INSTALLATION CONTACT

NAME AND TITLE (last, first, & job title) | PHONE NO. (area code & no.)

V. OWNERSHIP

NAME OF INSTALLATION'S LEGAL OWNER

[illegible] COMPANY INC

TYPE OF OWNERSHIP (enter the appropriate letter into box)

F = FEDERAL
M = NON-FEDERAL

M

VI. TYPE OF HAZARDOUS WASTE ACTIVITY (enter "X" in the appropriate box(es))

X A. GENERATION
☐ B. TRANSPORTATION (complete item VII)
☐ C. TREAT/STORE/DISPOSE
☐ D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION (transporters only — enter "X" in the appropriate box(es))

☐ A. AIR ☐ B. RAIL ☐ C. HIGHWAY ☐ D. WATER ☐ E. OTHER (specify):

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA I.D. Number in the space provided below.

X A. FIRST NOTIFICATION ☐ B. SUBSEQUENT NOTIFICATION (complete item C)

C. INSTALLATION'S EPA I.D. NO.

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information.

EPA Form 8700-12 (6-80)

CONTINUE ON REVERSE

I.D. – FOR OFFICIAL USE ONLY

W | KSD0C63R5W | B | 2 | I

IV. DESCRIPTION OF HAZARDOUS WASTES (continued from front)

A. HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES. Enter the four-digit number from 40 CFR Part 261.31 for each listed hazardous waste from non-specific sources your installation handles. Use additional sheets if necessary.

1	2	3	4	5	6
F006					
7	**8**	**9**	**10**	**11**	**12**

B. HAZARDOUS WASTES FROM SPECIFIC SOURCES. Enter the four-digit number from 40 CFR Part 261.32 for each listed hazardous waste from specific industrial sources your installation handles. Use additional sheets if necessary.

13	14	15	16	17	18
19	**20**	**21**	**22**	**23**	**24**
25	**26**	**27**	**28**	**29**	**30**

C. COMMERCIAL CHEMICAL PRODUCT HAZARDOUS WASTES. Enter the four-digit number from 40 CFR Part 261.33 for each chemical substance your installation handles which may be a hazardous waste. Use additional sheets if necessary.

31	32	33	34	35	36
37	**38**	**39**	**40**	**41**	**42**
43	**44**	**45**	**46**	**47**	**48**

D. LISTED INFECTIOUS WASTES. Enter the four-digit number from 40 CFR Part 261.34 for each listed hazardous waste from hospitals, veterinary hospitals, medical and research laboratories your installation handles. Use additional sheets if necessary.

49	50	51	52	53	54

E. CHARACTERISTICS OF NON-LISTED HAZARDOUS WASTES. Mark "X" in the boxes corresponding to the characteristics of non-listed hazardous wastes your installation handles. (See 40 CFR Parts 261.21 – 261.24.)

☐ 1. IGNITABLE (D001) ☐ 2. CORROSIVE (D002) ☐ 3. REACTIVE (D003) ☐ 4. TOXIC (D000)

V. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE	NAME & OFFICIAL TITLE (type or print)	DATE SIGNED
	W.E. LEDWELL, GENERAL MANAGER	8/1/80

Form Approved OMB No. 158 R0175

FORM 1 GENERAL	EPA	ENVIRONMENTAL PROTECTION AGENCY **GENERAL INFORMATION** *Consolidated Permits Program* *(Read the "General Instructions" before starting.)*	I. EPA I.D. NUMBER F KSD006325013

LABEL ITEMS

I. I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X			F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

[illegible] D I E C A S T I N G C O

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
[illegible] V I C E P R E S .	[illegible]

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX
[illegible]

B. CITY OR TOWN	C. STATE	D. ZIP CODE
S T A N L E Y	K S	6 6 2 2 3

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER
[illegible]

B. COUNTY NAME
[illegible]

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
S T A N L E Y	K S	6 6 2 2 3	

APR 2 1 1981

(specify in order of priority)

A. FIRST

(specify) Zinc Diecasting

B. SECOND

7 3471 (specify) Coating (Plating)

C. THIRD

(specify)

7

D. FOURTH

7 (specify)

OPERATOR INFORMATION

A. NAME

B. Is the name listed in Item VIII-A also the owner?

[X] YES [ ] NO

UHLMAN DIECASTING COMPANY

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL
S = STATE
P = PRIVATE

M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.)

A 913 651 2351

E. STREET OR P.O. BOX

BOX 23218

F. CITY OR TOWN

G. STATE

H. ZIP CODE

STANLEY KS 66223

IX. INDIAN LAND

Is the facility located on Indian lands?

[ ] YES [X] NO

EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)

D. PSD (Air Emissions from Proposed Sources)

9 P

B. UIC (Underground Injection of Fluids)

E. OTHER (specify)

9 (specify)

C. RCRA (Hazardous Wastes)

E. OTHER (specify)

9 (specify)

MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

NATURE OF BUSINESS (provide a brief description)

A diecasting job shop engaged in the production of zinc diecastings, including a captive electroplating operation. We produce parts for the automotive, communications, and appliance industries.

CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)

B. SIGNATURE

C. DATE SIGNED

... Grunnell, Vice President

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (6-80) REVERSE

Form Approved OMB No. 158-S80004

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

1 X S D 0 0 6 3 2 5 0 1 3

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

X 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

YR.	MO.	DAY
-1	10	01

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)

2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

1. FACILITY HAS INTERIM STATUS

2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. [illegible] provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (Item III-C).

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY	PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:			*Treatment:*		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS	TANK	T01	GALLONS PER DAY OR LITERS PER DAY
TANK	S02	GALLONS OR LITERS	SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
PILE	S03	CUBIC YARDS OR CUBIC METERS	INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS	OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY
Disposal:					
INJECTION WELL	D79	GALLONS OR LITERS			
LANDFILL	D80	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER			
LAND APPLICATION	D81	ACRES OR HECTARES			
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY			
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS			

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III (shown in line numbers X-1 and X-2 below): A facility has [illegible] gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
	DUP								
[illegible]	[illegible]	600	G		5				
[illegible]	T 0	20	E		6				
		[illegible]			7				
					8				
					9				

...S (continued)

... ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES (code "T04"). FOR EACH PROCESS ENTERED HERE ... DESIGN CAPACITY.

. DESCRIPTION OF HAZARDOUS WASTES

EPA HAZARDOUS WASTE NUMBER — Enter the four—digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four—digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste(s) that will be handled which possess that characteristic or contaminant.

UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

State of Kansas
DEPARTMENT OF HEALTH AND ENVIRONMENT
Division of Environment
Topeka, Kansas 66620

MEMORANDUM

TO: Kuhlman Diecasting Company 7.0 File - Stanley

FROM: Donald R. Carlson

DATE: November 3, 1980

SUBJECT: Meeting Summary

RECEIVED
APR 06 19[illegible]
[illegible]TER COMPLIANCE BRANCH

On the morning of October 22, 1980, Pat McCool, Steve Broslavick and I met at the Kuhlman plant site in Stanley, Kansas, for the purpose of conducting a brief plant tour to familiarize Steve and I with the layout of the plant, manufacturing processes employed, and the wastewater treatment system serving the facility.

Upon arriving at the plant, we met with Mr. Brumwell and had a brief discussion concerning the proposed enforcement actions being initiated by the Environmental Protection Agency, the status of the reissuance of their NPDES permit, the development of promulgated effluent guideline limitations on the part of the Environmental Protection Agency, as well as the strict limitations being placed on municipal, commercial, and industrial discharges in Johnson County. We advised Mr. Brumwell of EPA's pending enforcement action and tried as best we could to explain the reasoning for EPA initiating such an action. We also advised Mr. Brumwell that we were currently formulating new permit limitations in an attempt to reissue his permit on a short term basis until the Environmental Protection Agency could come out with promulgated effluent guideline limitations. We also explained in detail the various options with which we could draft and reissue the permit and tried to explain the various ramifications involved in each of the proposals. During the course of our conversation with Mr. Brumwell, I showed him a schematic of the mechanical plating line processes which had previously been prepared by A. C. Kirkwood & Associates as part of an engineering report. Mr. Brumwell indicated that the process schematic still accurately reflects the operations at the plant. See Attachment #4 of this memorandum. Also during the course of our conversation, Mr. Brumwell updated a sketch of the plant layout which had previously been submitted as part of the old Corps of Engineers permit application. See Attachment #5 of this memorandum. Also accompanying this memorandum is a xeroxed copy of a topographical map showing the plant location. See Attachment #1 of this memorandum.

During the course of the plant tour, Mr. Brumwell indicated that the plant had formerly been an old pipeline pumping station and that it had several owners during the course of its life as a pumping station. The facility had previously been owned by the Prairie Pipeline Company, Arco

Pipeline Company, and the Sinclair Pipeline Company. As a result of the sites previous use, Mr. Brumwell indicated that following rain storms in which there is any significant runoff from the plant site, that he has seen petroleum "product" seep out of the ground. This water is discharged through their industrial treatment lagoon to the river.

On initiating the tour, we briefly looked at the water treatment plant at the facility. The water treatment plant draws water from the Blue River after which alum and/or lime are added to the water. It is then directed to a settling basin for clarification. The water had been chlorinated and previously used as a potable water source as well as a process water source for the whole plant. We were advised by Mr. Brumwell that the plant is served by a rural water district and that all the potable water sources within the plant come off of the rural water district line. They still use river water in combination with the water from the rural water district for some of their process operations. The water reservoirs shown on Attachment #5 basically act as presedimentation basins and that they are only used sparingly at this time. Recently we had received a call from an anonymous individual reporting the discharge of a brown substance into the Blue River from the Kuhlman facility. Based upon my observations of the plant site, it could possibly have been blowdown from the presedimentation basin for their water treatment plant. The discharge of mud, leaves and other solids taken out of the river water might have produced the dirty brown appearance reported to our office. They were also utilizing low pressure sand filters following the presedimentation basin and the anonymous report may have been from the backwashing of these filters. Clarification of this matter will be made with Mr. Brumwell in the near future.

After briefly looking at the water treatment system serving the plant we made a brief tour of the plant itself. The cooling water system serves the diecasting operation and according to Mr. Brumwell it should be a closed loop total retention type of operation. Mr. Brumwell indicated that he had recently determined that some level controls in the cooling tower required replacement and that as a result of improper operations of these controls, the cooling tower did periodically overflow to a ditch running through the plant property to the industrial lagoon. Mr. Brumwell indicated that they were using a Nalco additive to the cooling tower but only as a water stabilizer. No chromates or toxic algacides are used in the cooling water system. Inside of the plant they currently have a hand plating line as well as a mechanical plating line. They were currently in the process of installing another mechanical line to their system in a effort to eliminate their hand plating operation. Mr. Brumwell indicated that with replacement of the hand plating operation with the new mechanical line, there should be a significant decrease in the overall waste strength being directed to their physical/chemical treatment system and that the chrome, zinc, nickel, and other metals carried over into their wastewater system should be significantly reduced as a result of the elimination of the hand plating operation. Mr. Brumwell indicated that although they were eliminating the hand plating operation with the new mechanical line that they would retain the hand plating operation as a backup system in the event that one of

their mechanical lines went down. In observing the plant personnel in the hand plating operation, it was obvious why there is quite a bit of carry-over of metallic salts into their wastewater treatment system. Slop over and dragout from the tanks, when the parts are removed, creates a very small but continual flow of high strength waste to the physical/chemical treatment plant. The plant sewers were designed to separate the chrome and cyanide waste streams. The chrome waste stream is treated separately with sulfur dioxide to reduce the chromium from the hexavalent to the trivalent state. The cyanide waste streams undergoes chlorination which destroys the cyanide. The chrome waste streams, cyanide waste streams, and untreated waste streams are then combined together for flocculation and precipitation. Lime is used for pH adjustment and sodium aluminate as a flocculant. Kuhlman is also utilizing an additional polymer, to help in the sedimentation of the flocculant. The result metal precipitant is pumped to a sludge lagoon located on the north part of the plant property. Clarified wastewater is then discharged to a transfer structure at the levy on the south end of the plant property where it flows through a diversion box to the industrial lagoon and out to the river. The sludge pond located on the north part of the property was relatively dry at the time we were there and did contain quite a bit of sludge in the bottom of pond. John Paul Goetz and his group have collected a sample of the sludge from this pond for analysis to determine whether it will be designated as a hazardous material. In addition to the sludge in the pond, there is a tank located on the south end of the property adjacent to the domestic lagoon, which Kuhlman had used periodically, which contains precipitated sludge from their physical/chemical treatment plant. All sanitary wastes on the facility are directed to a two-cell waste stabilization lagoon which has over the past several years remained non-discharging. The ponds were heavy with algae and duckweed. The industrial lagoon receives all of the treated process wastewater from the plant, cooling tower blow-down, boiler blowdown, zeolite regenerate discharge, and stormwater runoff from the plant site. There are two industrial ponds located on the outside of the levy south of the plant. The eastern most industrial pond has been abandoned for several years and was at the time of our visit dry. The western most pond was being used at the time of our visit and seemed relatively shallow. The water coming from the pond was relatively clear but the pond did contain visible sludge on the bottom of the pond which gave a visual effect to the pond of it being lime green.

At the time of our visit, samples were collected at a low water dam located upstream of the Kuhlman discharge. The dam is located approximately due west of the plant building. A sample was collected from the discharge of the industrial lagoon before it reached the river. A third sample was collected downstream of the Kuhlman discharge at a location where the Missouri-Pacific Railroad crosses the river. Samples are being analyzed for copper, nickel, total chromium, zinc, lead, cadmium, iron, and chlorides. We are currently awaiting word from the lab concerning the results of the tests. At the time of our visit, the Blue River was almost stagnant and was near the point of becoming anaerobic as the result of decaying vegetation in the stream, i.e., leaves. In the event the stream does go anaerobic, it may result in a fish kill in the stream near Kuhlman's discharge.

At this time the following items remain to be done with respect to the Kuhlman facility:

1. Get a determination from the lab concerning whether the material in the sludge pond, located on the north end of the property, is considered hazardous.

2. In the event that the material in the sludge pond on the north end of the property is found to be hazardous, samples should be collected of the sludge from both the active and inactive industrial lagoons located on the south end of the property.

3. Kuhlman's permit should be redrafted regardless of the existence of promulgated effluent guideline limitations from EPA.

4. Consideration should be given to diverting the extraneous stormwater runoff from the plant site around the industrial lagoon so that the washout of solids from the lagoon to the river will not occur.

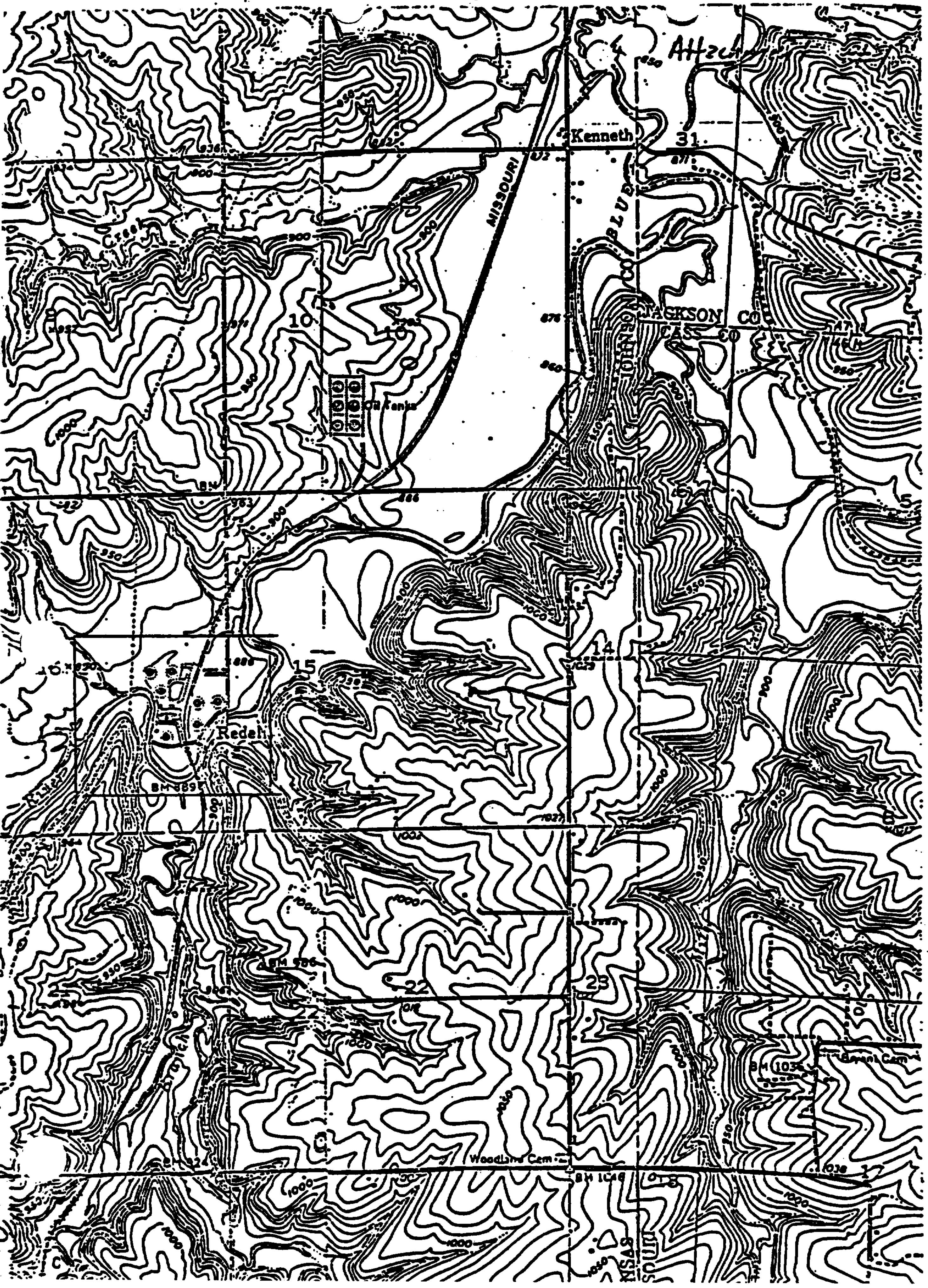
5. We should encourage Mr. Brumwell to install a low capacity pump inside the plant to handle tank spillover and drag-out from the hand plating line operation. This will result in a uniform flow of high strength waste to their physical/chemical treatment plant and help assure proper treatment.

6. Follow-up as to the disposal of the presedimentation basin sludge and filter backwash for their water treatment system needs to be conducted.

7. Consideration should also be given to placing limits in the permit covering the boiler blowdown, cooling tower blowdown, and zeolite regenerate wastewater.

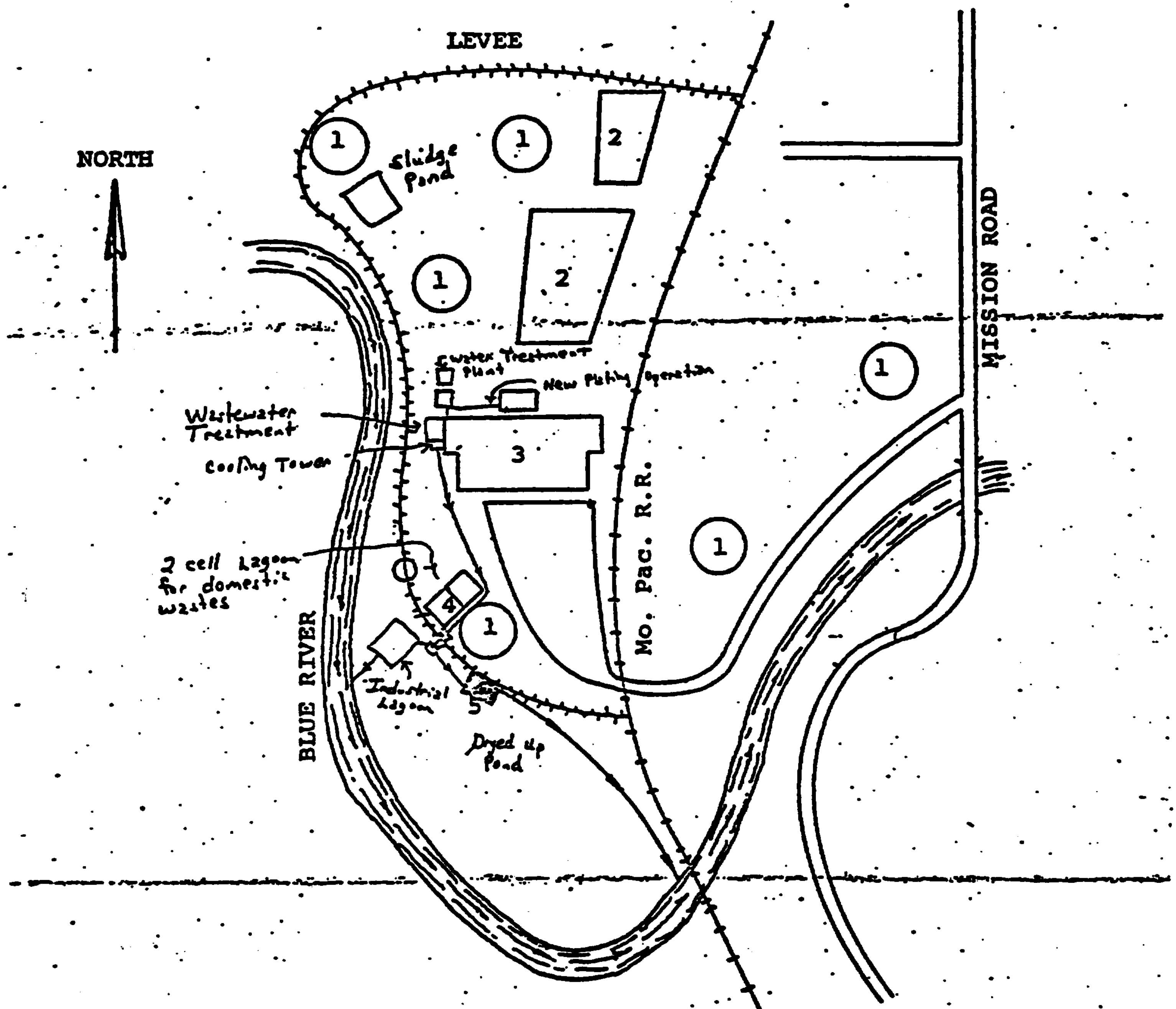
Based upon my observations of the plant and my conversation with Mr. Brumwell, I believe that Mr. Brumwell is sincere in his efforts in trying to correct the plant problems and that his delaying the upgrading of the plant to be somewhat justifiable. Mr. Brumwell is hesitant on upgrading the system until the Environmental Protection Agency and/or KDHE can develop a set of effluent limitations for his facility which he can be assured will not change immediately after the installation of the new equipment. Based upon by conversations with Mr. Brumwell, I believe that as long as we can give him sound guidance in upgrading his plant that he will cooperate.

jaw
cc: Northeast District



Kenneth
31
32
MISSOURI
BLUE
JACKSON CO
CASS CO
Creek
Oil Tanks
10
14
15
22
23
BM 889
BM 986
BM 1036
BM 1048
BM 924
Woodland Cem
1000
950
900

Attachment #5



2SB-OXR 2 000116

Scale in feet

0 200 400

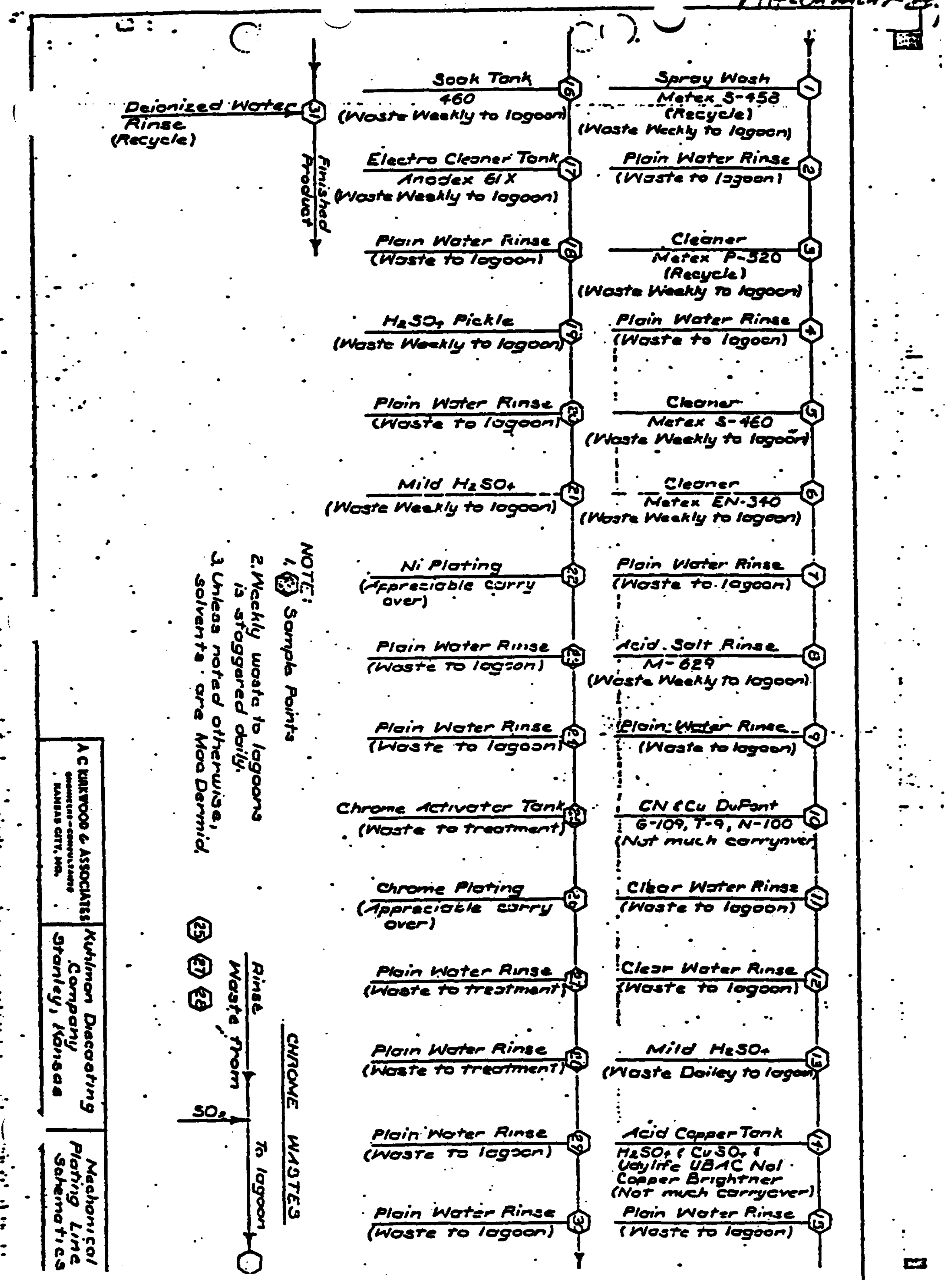
Legend

1 - Abandoned petroleum reservoirs
2 - Raw water reservoirs
3 - Plant
4 - Sanitary lagoon
5 - Industrial waste lagoon

KUHLMAN DIECASTING CO. INC.
164th & MISSION ROAD
STANLEY, KANSAS 66084

Updated by Mr. Bramwell
on 10-22-80
DRC

Attachment II



Don Carlson
10-22-80

Facility Sampled: Kuhlman Diecasting
164th & Mission Rd.
Stanley, Ks.

Samples Collected 10-22-80

Samples Collected By: Don Carlson
Steve Broslavick
Pat McCool

Bottle #89: Sample collected @ 11:15 A.M.
Sample collected from the Blue River upstream of Kuhlman's discharge at a low water dam.

#324: Sample collected @ 11:26 A.M.
Sample collected from discharge of lagoon handling all industrial process flows.

Bottle #220: Sample collected @ 11:56 A.M.
Sample collected from Blue River downstream of Kuhlman's discharge. Sample collected at railroad tressel near SE corn of plant property.

Please Run For: Copper, Nickel, Chromium (total), Zinc, Lead, Cadmium, Iron, Tin
Run chlorides if there enough of a sample left.

Please send copies to: Don Carlson & Pat McCool

State of Kansas
DEPARTMENT OF HEALTH AND ENVIRONMENT
Division of Environment
Topeka, Kansas 66620

M E M O R A N D U M

TO: Kuhlman Diecasting Company, Inc.
Permit File - Stanley, Kansas

FROM: Donald R. Carlson

DATE: May 28, 1981

SUBJECT: Meeting Summary

On the morning of May 27, 1981, Eugene Jensen and I met with Mr. William Brumwell with the Kuhlman Diecasting Company, Mike Ward, Gene Reid, and Ron McCutchepn of the Environmental Protection Agency, for the purpose of discussing the enforcement action initiated by the Environmental Protection Agency as well as familiarizing the EPA staff with the Kuhlman facility. Immediately following the introductions and some minor questions raised by the EPA staff, a tour of the facility was given by Mr. Brumwell. At the time of our visit, Kuhlman had completed the installation of the new automatic plating line and had basically eliminated the hand plating operation from their major production scheme. The hand plating will remain active for use in handling a limited amount of special orders. During the course of inspecting the control room Mr. Brumwell indicated that their strip chart on their flow recorder was not functioning properly, but that the flow totalizer still remained operational and accurate. Mr. Brumwell also indicated that the wastewater sump receiving the floor drainage from around the hand plating operation had been modified so as to reduce the capacity of the sump pump. This had been accomplished by partially opening a bypass line on the pump thus restricting the capacity of the pump. An addition to the water pollution control facilities, which had been made since the October of 1980 visit, was the installation of a small sludge drying unit. A small pump removes the accumulated sludge from their sedimentation basin and directs it to a small storage tank from which it is distributed onto a roll of filter paper. This filter paper travels along a framed screen to a point where it flows under a heating unit with a fan. Dewatered effluent is then directed back to the clarification basin while the sludge is dumped into a small container adjacent to the sludge filter. At the time of our visit, the sludge was being shoveled into large cardboard containers with plastic liners. In discussing the handling of the sludge with Mr. Brumwell, he indicated that they were currently running out of containers for the storage of the sludge and would have to start directing some of this material to one of the empty oil storage tanks which currently contains dried chemical sludges from this operation. John Paul Goetz's group has evidentally designated this material as non-hazardous as a result of the analytical work conducted in our lab, but it still remains the responsibility of the Kuhlman Diecasting Company to get this material declassified as it is currently listed in the hazardous waste category due to the plating operation. As a result of the recent rains which the area had received, there was evidence of accumulated oil being directed

to their surface drainage ditch which ultimately is discharged from their outfall. Mr. Brumwell indicated that the contaminated surface water runoff was the result of picking fugitive oil lost during that period when the facility was operated as a pipeline pumping station. During the course of our inspection of the lagoons, we found the small two-cell waste stabilization pond to be discharging to the distribution box which directs all the surface runoff, domestic wastes, and process wastewater to the "industrial" lagoon. The industrial lagoon, at the time of our visit, was murky as a result of the surface runoff. The auxiliary lagoon, located immediately east of the industrial lagoon, remains essentially empty except for a small amount of accumulated stormwater runoff. The lagoon dikes at the facility had not been mowed for quite some time, and there were prolific growths of Russian Musk Thistles all along the dikes.

With the completion of the plant inspection, the group returned to Mr. Brumwell's office at which time a summation of the EPA findings was made along with a recommendation from KDHE as to how to resolve the current enforcement activities initiated by the Environmental Protection Agency. I indicated that we would go back and review the existing effluent guideline limitations which no longer are in effect as well as evaluating the effluent quality that could be directed to the receiving stream. The information developed as a result of this review would then be compared to the existing effluent quality from the treatment system to determine whether the existing permit limitations need to be tightened or relaxed somewhat. I indicated to the Environmental Protection Agency that we would go ahead and issue an NPDES permit based upon water quality standards for a period of five years and that we would place in the permit two revocation/reissuance clauses. The initial revocation/reissuance clause would be the standard EPA verbage which covers the development of BAT and/or toxicity limits for the plating industry. The other revocation/reissuance clause would address "BPT" and/or effluent guideline limitations addressing non-toxic pollutants. Mike Ward indicated that he would like to see our Department develop technology based effluent guideline limitations "BEJ" for the industry. We had indicated to EPA, during numerous previous meetings, that we had no intention of developing technology based effluent limitations in those areas in which the Environmental Protection Agency was in the process of developing guidelines. During the course of the meeting, Eugene Jensen requested that EPA forward some additional stream quality data generated during the course of the Blue River survey conducted approximately 2 or 3 years ago. Ron McCutcheon also indicated that he would check with the effluent guidelines people in Washington to determine what their recent projections were with respect to the development of BAT and/or toxic effluent guideline limitations for the plating industry. In the near future we will be developing effluent guideline limitations for the Kuhlman facility and clearing them through the Water Quality Management Section to assure that water quality standards can be met. Additionally, Gene Jensen requested that I check with LaVene Brenden concerning the possibility of regionalizing the treatment system at Kuhlman with other existing or proposed wastewater treatment systems.

dig
cc: Northeast District
Karl Mueldener
Dave Waldo

State of Kansas . . . John Carlin, Governor

DEPARTMENT OF HEALTH AND ENVIRONMENT

Joseph F. Harkins, Secretary

Forbes Field
Topeka, Kansas 66620
913-862-9360

April 9, 1982

Mr. W. E. Brumwell
Kuhlman Diecasting Company
164th and Mission Road
Stanley, Kansas 66223

Dear Mr. Brumwell:

On January 15, 1982, I visited your facility to determine whether or not your facility produces hazardous waste as defined by RCRA and to determine how your wastes are being handled.

During the course of my visit, it was determined the only process waste consists of a sludge containing nickel from your electroplating operation. At this time, you believed this waste was not hazardous since nickel does not appear under the list of materials for EP toxicity. I myself was unsure how this waste would have to be handled.

Since my inspection of your facility, we have determined that this is a wastewater treatment sludge from electroplating operation not explicity exempted under 40 CFR, Part 261.31. It is classified F006 and must be handled as such unless EPA grants a specific exemption in this case. This exemption can be granted only by EPA. In order to seek this action you must file a delisting petition in accordance with 40 CFR, Part 260.22. Whether you decide to petition for delisting or not is your perogative. Until and unless this takes place, you will need to come into compliance with state and federal regulations concerning proper handling and disposal of hazardous waste.

During the course of my visit, it was determined that you generate between 4,400 and 5,200 pounds of this waste listed as F006. This quantity classifies you as a generator under both state and federal criteria and subjects you to full regulation under RCRA.

This regulation requires you to comply with all of 40 CFR, Part 262 and the portions of 40 CFR, Part 265. Enclosed is an outline of the regulations which you will be expected to comply with in the future.

Also noted during my inspection, is the fact you now have stored on site, in a large metal tank being utilized as a storage building, several thousand pounds of this F006 material. In order to prevent your company from being regulated as a treatment/storage/disposal facility (T/S/D) you must

Mr. W. E. Brumwell
Page 2
April 9, 1982

properly dispose of this material within 90 days of receipt of this letter. While the method of storage currently in use has not produced any adverse environmental impact to date, we feel a more suitable method of storage should be undertaken. Our suggestion is placing this sludge in suitable barrels and storing the waste inside the current enclosure without removing it from the barrels. This would also facilitate handling when disposal is necessary. If storage of 1000 kilograms or more exceeds 90 days prior to disposal, you will be required to secure a T/S/D.

If you have any questions concerning this letter or other hazardous waste matters, please contact us.

Sincerely yours,

Division of Environment

G Paul Belt

G. Paul Belt
Field Services Section
Bureau of Environmental Sanitation

mv
Enclosure

C Thomas Gross
Randy Bradley

3. The inspection revealed the following violations of Kansas Hazardous Waste Administrative Regulations:

a. Kuhlman Diecasting Company has not notified the Kansas Department of Health and Environment that they are generating waste cyanide solution from an electroplating operation. This notification is required by K.A.R. 28-31-4(e).

b. Kuhlman Diecasting Company did not have the words "Hazardous Waste" or the accumulation start date marked on one drum of waste 1,1,1-Trichloroethane, one drum of waste cyanide solution, and the gondols of wastewater treatment sludge as required by K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

c. One (55-gallon) drum of waste 1,1,1-Trichloroethane located in the maintenance shop was open which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

d. Upon request of the inspector, Kuhlman Diecasting Company could not provide the required placards which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.33,

e. Kuhlman Diecasting Company is not conducting weekly inspections of the hazardous waste storage areas as required by K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34 or documenting these inspections in a log as required by K.A.R. 28-31-4(d).

f. Kuhlman Diecasting Company has not conducted a hazardous waste management personnel training program since May 16, 1985, which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

g. Kuhlman Diecasting Company has not made arrangements with the emergency response agencies to familiarize them with the properties of hazardous wastes handled, layout of the facility, and the types of injuries which could result which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

4. The inspection also revealed that Kuhlman Diecasting Company has been disposing of waste paint and paint thinner by dumping it on the ground outside of their paint booths, on southwest corner of the plant. The waste paint and paint thinner meet the definition of "solid waste" as described in K.S.A. 65-3402(a). The disposal of the waste paint and paint thinner by open dumping is a violation of K.S.A. 65-3409(a)(5).

5. Based on correspondence received from Kuhlman Diecasting Company, steps are being taken to correct the areas of noncompliance which were identified by the Kansas Department of Health and Environment.

6. Upon finding that a person has violated any provision of K.S.A. 65-3441, the Director of the Division of Environment, pursuant to K.S.A. 65-3446, may impose a penalty not to exceed $10,000 which shall constitute an actual and substantial economic deterrent to the violation for which it is assessed and, in the case of a continuing violation, every day such violation continues shall be deemed a separate violation.

7. Upon finding that a person has violated any provision of K.S.A. 65-3409, the Director of the Division of Environment, pursuant to K.S.A. 65-3419, may impose a penalty not to exceed $500 which shall constitute an actual and substantial economic deterrent to the violation for which it is assessed and, in the case of a continuing violation, every day such violation continues shall be deemed a separate violation.

8. The Director of the Division of Environment concludes that the actions and omissions by Kuhlman Diecasting Company described in Section 3 of this Order constitute violations of K.A.R. 28-31-4 and therefore, a violation of K.S.A. 65-3441(a)(4). Furthermore, the Director of the Division of Environment concludes that the actions described in Section 4 of this Order constitute violations of K.S.A. 65-3409(a)(5).

Order

The Director of the Division of Environment finds that Kuhlman Diecasting Company should be assessed an administrative penalty for the above noted violations of K.S.A. 65-3441 and K.S.A. 65-3409, to deter future violations of the Kansas Solid and Hazardous Waste Statutes and Regulations. Therefore, pursuant to K.S.A. 65-3446(a) and K.S.A. 65-3419, Kuhlman Diecasting Company is hereby assessed and ordered to pay an administrative penalty of $6,000 for violations of K.A.R. 28-31-4, K.S.A. 65-3441 and K.S.A. 65-3409.

Kuhlman Diecasting Company is further ordered to submit payment of all penalties ($6,000) to the Kansas Department of Health and Environment, Forbes Field, Building 740, Topeka, Kansas 66620, within thirty (30) days of receipt of this Order. Notice confirming payment of the civil penalty should be sent to the Legal Office, Department of Health and Environment, Forbes Field, Building 728, Topeka, Kansas 66620.

Appeal Rights

Kuhlman Diecasting Company may appeal this Order by filing a written Notice of Appeal which states the specific legal and factual grounds upon which relief is requested. Said written Notice of Appeal must be sent to Jack D. Walker, M.D., Secretary, Department of Health and Environment, Forbes Field, Building 740, Topeka, Kansas 66620. Such Notice of Appeal must be received by the Secretary within 15 days from the date this Order is received.

IT IS BY THE DIRECTOR OF THE DIVISION OF ENVIRONMENT SO ORDERED ON THIS 11th DAY OF MARCH 1987.

James A. Power, Jr., Acting Director
Division of Environment

Certificate of Mailing

I hereby certify that on the 11th day of March 1987, a true and correct copy of the above foregoing Order was mailed to Mr. Phillip Meeker, Kuhlman Diecasting Company, 164th and Mission Road, Stanley, Kansas 66223; and to Resident Agent for Kuhlman Diecasting Company, Mr. William E. Brumwell, 164th and Mission Road, Stanley, Kansas 66223, by depositing the same in a properly addressed envelope, postage prepaid, certified mail, return receipt requested, in the U.S. mail.

Michelle West
Staff Member

Certified Mail Nos. 128 656 116 Mr. Phillip Meeker

128 656 117 Mr. William E. Brumwell

BUREAU OF WASTE MANAGEMENT

PENALTY ASSESSMENT WORKSHEET

Name of Facility: Kuhlman Diecasting Co.

Address: 164th. & Mission Rd.

Stanley, Ks.

Violation number	Violation	Penalty Range	Penalty Assessed
1	Failure to notify for cyanide solution	500 - 2000	$500
7	1 open container	50-200 per drum	$50
8	Failure to mark 3 containers. "Haz. waste" or accum. start date X 3	25-100 per drum	$~~300~~ 150
5	No placards	500 - 2000	$500
17	No weekly inspections X 3 3 storage areas	500 - 2000	$3000
18	No personnel training since 5/16/85	500 - 2000	$1250
22	No arrangements with local authorities	400 - 1500	$400
	illegal disposal of solid waste		$500

Other Factors: $6,000

Total $~~6,500~~ 6,350

KUHLMAN DIECASTING COMPANY

May 13, 1987

RECEIVED

MAY 15 1987

K. D. H. E.
NORTHEAST D'STRICT

Division of Environment
Bureau of Waste Management
Department of Health & Environment
808 West 24th Street
Lawrence, Kansas 66046-9417

ATTENTION: Mr. Jim Fischer

Dear Mr. Fischer:

Enclosed is a typed copy of the Emergency/Contingency Plan for Kuhlman Diecasting Company. Copies of this contingency plan have been sent to all Emergency Response Teams by certified mail.

The paint contaminated soil behind the paint shop has been removed and t into drums. We are waiting for permission from Mr. Linn to dispose of e soil at the Miami County Landfill.

Also enclosed is a list containing chemicals used in our Quality Control Lab. The quantity is based on weekly useage. The disposal methods for lab wastes are enclosed in this list.

If I can supply you with other needed information, please feel free to contact my office.

Sincerely,

KUHLMAN DIECASTING COMPANY

Connie L Catron

Connie Catron
Chemical Engineer

CC:mh
Encls:

tanley Division: P.O. Box 23218, Stanley, Kansas 66223, Tel. 913-681-2351 TWX 910-749-6413

MIKE HAYDEN
Governor
JACK D. WALKER, M.D.
Secretary

STATE OF KANSAS

Forbes Field
Topeka, KS 66620-0001
(913) 862-9360

DEPARTMENT OF HEALTH AND ENVIRONMENT

May 13, 1987

Ms. Connie L. Catron
Kuhlman Diecasting Company
P. O. Box 23218
Stanley Kansas 66223

Re: Industrial Solid Waste Disposal Authorization Number 2071

Dear Ms. Catron:

We have considered your request dated May 6, 1987, for disposal of approximately six cubic yards of paint contaminated soil.

Approval is given to dispose of this waste at the Miami County landfill operating under Kansas Permit 256 provided the following conditions are met:

1. Approval to deliver the waste must be obtained from the landfill operator prior to transporting the waste to the landfill. The final decision on whether to accept or reject the waste rests with the landfill operator. Please contact David Bilderback, Landfill Supervisor, telephone 913-294-4377 to obtain approval. If the landfill operator refuses to accept this waste you should contact us to determine alternate disposal options.

2. The waste must be transported separately to the landfill and be identified to the operator upon delivery.

3. Kansas Administrative Regulation 28-29-23(r) requires solid waste disposal facilities to maintain a log of commercial or industrial wastes received such as sludges, liquids, and barreled waste. The log must indicate the source and quantity of waste and the disposal location thereof. The industrial waste authorization number should be used as identification when entering the shipment into the log.

Ms. Connie L. Catron
Page 2, Authorization Number 2071
May 13, 1987

4. This approval is valid for only one shipment to the landfill. If additional shipments are required you must contact us to receive another disposal authorization.

If you have any questions, feel free to contact me.

Sincerely yours,

Charles H. Linn

Charles H. Linn, P.E., Chief
Solid Waste Section
Bureau of Waste Management

d/REK/mw

C John Paul Goetz
David Bilderback
Northeast District - Lisa Larsen

KUHLMAN DIECASTING COMPANY

April 17, 1987

Johnson County Environmental Department
P. O. Box 39
Mission, Kansas 66201

ATTENTION: Ms. Prilutsky, Environmental Specialist

SUBJECT: Special Waste Disposal Request
for contaminated soil.

This request was denied — Generator has requested disposal authorization for Miami Co L/F

Dear Ms. Prilutsky:

We are requesting permission to dispose of Reportedly Paint Contaminated Soil at a sanitary landfill in Johnson County. The disposal request is being made in response to a clean-up order from Kansas Department of Health and Environment.

22 drums of paint contaminated soil

Enclosed is the Waste Disposal Request Form and the analytical data for the soil.

If I can supply you with any other needed information, please feel free to contact my office.

Very truly yours,

KUHLMAN DIECASTING COMPANY

Connie Catron
Chemical Engineer

C:mh

REPORT OF RCRA COMPLIANCE INSPECTION

AT

KUHLMAN DIECASTING COMPANY, INC.

STANLEY, KANSAS

EPA ID NUMBER: KSD 006325013

AUGUST 19-20, 1982

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VIII
Environmental Services Division

INTRODUCTION

At the request of the Air and Waste Management Division, a RCRA compliance sampling inspection was performed at Kuhlman Diecasting Company, Inc. in Stanley, Kansas, on August 19-20, 1982. The inspection was conducted under the authority of Section 3007 of the Resource Conservation and Recovery Act (RCRA), as amended. This inspection was performed in conjunction with an intensive NPDES compliance sampling inspection, the results of which are provided in a separate report. This narrative report and attachments present the results of the RCRA inspection.

PARTICIPANTS

Kuhlman Diecasting Co., Inc.:
William E. Brumwell, General Manager
Phillip Meeker, Assistant Office Manager

U.S. EPA:
Carl Bailey, Environmental Scientist
Dale I. Bates, Environmental Scientist
Greg Beemont, Engineering Technician
Lyle Cowles, Environmental Scientist

FINDINGS AND CONCLUSIONS

1. This facility is a generator of hazardous wastes pursuant to §262.11, 40 CFR.

a. A notification was submitted in accordance with §262.12, 40 CFR, on August 13, 1980 and an EPA identification number was subsequently assigned to this facility.

b. Wastewater treatment sludges from electroplating operations (F006) were the only hazardous wastes identified on the notification as being generated at the facility.

(1) Based on the analytical results from the samples collected during the inspection (see Attachment 1), the sediment in the old polishing pond and new polishing pond, and the sludge in the sludge-holding tank and sludge lagoon do not meet the criteria for the characteristic of EP Toxicity (D004-D011) as described in §261.24, 40 CFR. The wastewater treatment sludge (F006) is, however, a listed waste in Subpart D of 40 CFR Part 261.

(2) The paint-saturated paint filters, utilized to absorb paint overspray in the paint booths, appear to meet the criteria for the characteristic of ignitability (D001) as identified in §261.21, 40 CFR. According to Mr. Brumwell, these paint filters, when they become saturated with paint, are too dangerous to store due to their extremely flammable nature and are, therefore, burned on site as soon as they are removed from the paint booths.

(3) Spent solvents are generated and stored at the facility prior to sending them for recycling. The primary solvent utilized at the facility is Solvent Supply Co. #714 which is a mixture containing mostly toluene. Toluene, a non-halogenated solvent (F005), is listed in Subpart D of 40 CFR Part 261. This solvent is utilized for cleaning paint spray guns and paint mats and for other cleanup in the plant. Trichloroethane (F001), also a listed solvent in Subpart D of 40 CFR Part 261, is utilized in the degreaser. There is reportedly little waste of this solvent in degreasing operations.

2. This plant is a treatment, storage, and disposal (TSD) facility of hazardous wastes and is, therefore, subject to the permit requirements of Section 3005 of RCRA.

a. A Part A permit application was submitted by this facility on April 8, 1981. Because the permit application was submitted after the regulatory deadline pursuant to §122.22, 40 CFR, it is not certain whether or not the facility has interim status. A final determination has apparently not been made regarding this issue.

b. The Part A permit application included only the management of the wastewater treatment sludges (F006) in the sludge-storage tank. It appears that the following operations should have also been included in the permit application: sludge lagoon, disposal of the paint filters and storage of spent solvents.

3. The following information was obtained during the course of the inspection from observations and conversations with Mr. Brumwell and Mr. Meeker:

a. According to Mr. Brumwell, the paper filter unit was installed at the facility in or about March 1981. An exact date of the installation and start up of the unit was not known. At the same time; i.e., start up of the paper filter, the facility started utilizing the sludge storage tank for storing the partially dried sludge and filter paper mixture and terminated use of the sludge lagoon for sludge disposal.

b. The facility has not made any actual determinations as to whether or not the paint filters are hazardous based on one of the hazard waste characteristics defined in Subpart C of 40 CFR Part 261, but, according to Mr. Brumwell, they are too dangerous to store for any period of time due to their extremely flammable nature.

(1) The paint filters are made of a straw mesh material and are purchased from Solvent Supply Company in sheets that are approximately 2 feet by 2 feet. The sheets are hung vertically in the back of the 3 paint booths to catch paint overspray. The area covered by the filters is approximately 6 feet by 6 feet and requires about 9 sheets of the filter material.

(2) The paint filters, when they become saturated with paint, are removed, placed in a metal container and burned on site. The generation and disposal rate of these filters is not known, but occurs at least twice or three times a week on an average.

c. The spent solvent #714 is stored in 55-gallon drums until enough is accumulated to send for recycling. At the time of the inspection, there were about 12 drums full or partially full of waste solvent being stored behind the plant. The containers are being stored for a period greater than 90 days, are not properly marked to indicate their contents and do not reflect accumulation time. At least two of the drums that were observed were not closed. An accurate inventory is not being maintained.

d. The manifest, dated January 8, 1981 (see Attachment 2), resulted from the shipment of drums of waste solvent to McKesson Chemical Company for recycling. This was the only shipment of hazardous waste from this facility since the effective date of the RCRA regulations.

(1) The EPA identification number of the generator is incorrect as entered on the manifest.

(2) A signed copy of the manifest has never been returned to the shipper by the TSD facility to verify that the shipment was received.

e. The origin of the sample collected and submitted to Langston Laboratories, Inc. for analysis on August 5, 1980 (see Attachment 3), was the sludge from the paper filter. The method of analysis was the EP Toxicity Test Procedure pursuant to Part 261, 40 CFR, although it indicates leachate on the analytical results form.

f. At about 8:30 a.m., on August 29, 1982, Carl Bailey of EPA observed the dumping of a partially full 55-gallon drum containing a reddish brown liquid onto the ground at the northwest corner of the parking lot (see photo in Attachment 4). It was learned later from Mr. Meeker that the liquid was a mixture of synthetic oil and water from the diecasting machine. Mr. Meeker indicated that about 55 gallons of this mixture are accumulated and disposed of in this manner about every two months.

g. A petition pursuant to §260.22, 40 CFR, to exclude the wastewater treatment sludges from regulation was submitted to the EPA Administrator by the company on May 5, 1981. This petition was subsequently withdrawn on or about December 5, 1981 following additional requested sludge testing which showed higher nickel content than was supposedly allowed.

h. The facility is not meeting the requirements of either Part 264 or Part 265, 40 CFR, depending on which part applies, based on the determination of interim status.

DESCRIPTION OF FACILITY

The Kuhlman Diecasting Company, Inc. facility is located southwest of Stanley, Kansas (see Attachment 5). The operations at this facility consist of zinc alloy diecasting and plating of chrome, copper and nickel on aluminum, plastic and zinc diecastings. The plant currently employs about 150 people and operates on a 24-hour per day, 5-day per week basis.

Wastes generated at this facility include wastewater treatment sludge, paint filters and spent solvents. The wastewater treatment sludge is produced from the physical-chemical treatment of the process wastewater. The sludge which settles out of the wastewater in the sedimentation basin is pumped out and partially dewatered by a gravity paper filter unit. The sludge and filter paper mixture is placed in a storage tank located just southwest of the main plant building. The storage tank is an abandoned steel tank that was previously utilized for petroleum storage and has had a large door cut in one side from ground level to facilitate entry and exit. The sludge is hauled from the filter unit to the storage tank via 55-gallon drums which are transported by a small farm tractor equipped with a rear-mounted hydraulic lift unit.

The paint filters, which are made of a straw mesh material, are utilized in the three paint booths in the plant. They are placed vertically in the back of the paint booths in front of an exhaust fan to catch paint overspray. When the filters become saturated with paint, they are removed from the spray booth, placed in a metal container and burned on site.

Spent solvents are generated from cleaning paint mats and spray guns and other cleaning. The primary solvent utilized at the plant is designated as #714, a solvent mixture consisting mostly of toluene from Solvent Supply Co. The spent solvent is placed in 55-gallon drums, from which the original product came, for storage prior to recycling.

DISCUSSION

1. Proper EPA credentials were presented to the responsbile official upon arrival at the facility, and consent to enter the facility and to perform the inspection were obtained.

2. A RCRA Inspection Confidentiality Notice was provided to the responsible official upon initiation of the RCRA inspection (see Attachment 6). There was no information obtained during the course of the inspection that was requested to be handled confidently.

SAMPLING PROCEDURES

Samples of sediment and sludge were collected in conjunction with this inspection in order to determine if any of these wastes met the characteristics for EP Toxicity. Sediment samples were collected out of both the old and new polishing ponds, and sludge samples were collected from the sludge storage tank and the sludge lagoon.

Each of the two polishing ponds was divided into four sections or quadrants to facilitate sampling; i.e., each pond was separated into four equal parts by dividing the pond lengthwise and widthwise. Five samples were collected out of each quadrant (one sample near each corner and one sample in the middle of each quadrant) and composited into a single sample for analysis. The sediment samples were collected utilizing a five-foot section of 2-1/2" PVC pipe which was pushed through the water column and into the bottom sediment to obtain a core sample. The core samples from each quadrant were placed in a plastic pan and mixed thoroughly with a stainless steel spoon. The mixed or composite sample from each of the quadrants was placed in a 1-quart wide-mouthed glass jar.

The sludge samples of the contents in the sludge storage tank were obtained by first dividing the tank into two equal halves. Since the sludge was stockpiled in a ring around the outside of the tank, individual samples of the sludge were obtained at three equally spaced locations around the inside edge of the sludge ring of each half of the tank and two equally spaced locations around the outside edge of the ring of each half of the tank. The samples were placed in a plastic pan and mixed thoroughly. The composite sample from each half of the tank was placed in a 1-quart wide-mouthed glass jar for analysis.

The sludge lagoon was divided into quadrants like the polishing ponds for sampling. Five samples were collected out of each quadrant (one hear each corner and one in the middle of each quadrant) and were mixed into a single composite sample for analysis. The individual samples were collected utilizing a stainless steel spoon at about mid-depth in the sludge layer. The samples from each quadrant were placed in a plastic bucket, mixed thoroughly and placed in a 1-quart wide-mouthed jar.

Chain of custody was maintained on these samples from the time of collection until delivery to the EPA Region VII laboratory for analysis. The composite sample collected from the southeast quadrant of the sludge lagoon was split with the facility for comparative analysis. All of the analytical results are provided in Attachment 1.

Dale I. Bates
Environmental Scientist
Date: 10/14/82

Robert B. Dona
Chief, Field Investigations Section
Date: Oct 12, 1982

Attachments:
1 - Analytical Results (5 pages)
2 - Manifest dated 1/8/81
3 - Sample results dated 9/3/80 (2 pages)
4 - Photographs (4 pages)
5 - Location Map (2 pages)
6 - RCRA Inspection Confidentiality Notice (2 pages)

ATTACHMENT ONE

Analytical Results
Kuhlman Diecasting Company, Inc., Stanley, Kansas
Sludge/Sediment Samples

Sample No.	Location	Mercury mg/kg	Hexavalent Chromium mg/kg	Cyanide mg/kg
	Old Polishing Pond			
EJ6501	SW Quadrant	0.04	<100	123
EJ6502	NW Quadrant	0.08	<100	94.4
EJ6503	SE Quadrant	0.02	<100	36
EJ6504	NE Quadrant	0.17	<100	15
	Sludge Lagoon			
EJ6505	SE Quadrant	0.32	<100	2
EJ6506	NE Quadrant	0.24	<100	5.8
EJ6507	NW Quadrant	0.19	<100	2
EJ6508	SW Quadrant	0.17	<100	8.9
	Sludge Storage Tank			
EJ6511	East Half	1.09	<100	22
EJ6512	West Half	0.79	<100	21
	New Polishing Pond			
EJ6516	SW Quadrant	0.18	<100	42.7
EJ6517	NW Quadrant	0.35	<100	17
EJ6518	SE Quadrant	0.33	<100	16
EJ6519	NE Quadrant	0.58	<100	22

KUHLMAN STUDY
INDUCTIVELY COUPLED PLASMA DATA-SLUDGE(MG/KG)DRY
GLN 220 10SEPT82

	Old Polishing Pond				Sludge Lagoon		
	SW Quadrant	NW Quadrant	SE Quadrant	NE Quadrant	SE Quadrant	NE Quadrant	NW Quadrant
LAB NUMBER	EJ6501	EJ6502	EJ6503	EJ6504	EJ6505	EJ6506	EJ6507
SILVER MG/KG	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
ALUMINUM MG/KG	10600.0	7770.0	11400.0	12100.0	2520.0	3040.0	2940.0
ARSENIC MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
BARIUM MG/KG	330.0	466.0	432.0	387.0	401.0	367.0	130.0
BERYLLIUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
CADMIUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
COBALT MG/KG	47.8	47.7	48.2	35.1	55.0	93.0	71.5
CHROMIUM MG/KG	30900.0	24900.0	27300.0	20900.0	43600.0	56700.0	46500.0
COPPER MG/KG	29300.0	33600.0	35000.0	25300.0	22600.0	23500.0	23100.0
IRON MG/KG	10000.0	8890.0	10900.0	11300.0	2990.0	3210.0	3060.0
MANGANESE MG/KG	237.0	226.0	355.0	328.0	136.0	108.0	118.0
MOLYBDENUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
NICKEL MG/KG	40100.0	37900.0	42900.0	33300.0	59000.0	73800.0	66900.0
LEAD MG/KG	142.0	201.0	187.0	154.0	87.0	80.6	65.6
ANTIMONY MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
SELENIUM MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
TITANIUM MG/KG	84.3	73.9	101.0	94.9	64.8	64.6	71.5
THALLIUM MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
VANADIUM MG/KG	29.6	25.3	32.6	20.5	22.0	23.9	24.0
ZINC MG/KG	17600.0	17000.0	10800.0	13400.0	13700.0	16300.0	15600.0
CALCIUM MG/KG	72100.0	57000.0	64100.0	55200.0	103000.	141000.	144000.
MAGNESIUM MG/KG	3130.0	3360.0	3850.0	3670.0	11400.0	14000.0	11900.0
SODIUM MG/KG	3620.0	3600.0	3590.0	3270.0	4020.0	2940.0	3340.0
POTASSIUM MG/KG	1850.0	1040.0	2340.0	2550.0	< 40.00	170.0	202.0

KUHLMAN STUDY

INDUCTIVELY COUPLED PLASMA DATA-SLUDGE(MG/KG)DRY

GLN 228 10SEP182

	Sludge Lagoon	Sludge Storage Tank			New Polishing Pond		
	SW Quadrant	East Half	West Half	SW Quadrant	NW Quadrant	SE Quadrant	NE Quadrant
LAB NUMBER	EJ6508	EJ6511	EJ6512	EJ6516	EJ6517	EJ6518	EJ6519
SILVER MG/KG	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
ALUMINUM MG/KG	1930.0	3280.0	2460.0	9610.0	7720.0	10600.0	8640.0
ARSENIC MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
BARIUM MG/KG	303.0	246.0	243.0	150.0	285.0	109.0	316.0
BERYLLIUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
CADMIUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
COBALT MG/KG	45.4	48.0	35.1	9.9	29.0	18.6	27.8
CHROMIUM MG/KG	29600.0	35900.0	28200.0	1000.0	8350.0	4430.0	12600.0
COPPER MG/KG	14300.0	21500.0	17400.0	1010.0	8160.0	3900.0	9470.0
IRON MG/KG	1880.0	13100.0	11500.0	14100.0	9050.0	14000.0	11100.0
MANGANESE MG/KG	102.0	389.0	338.0	397.0	417.0	501.0	305.0
MOLYBDENUM MG/KG	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
NICKEL MG/KG	43100.0	46600.0	35500.0	31100.0	29200.0	13800.0	30000.0
LEAD MG/KG	39.4	91.3	80.2	5.9	66.9	28.8	67.6
ANTIMONY MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
SELENIUM MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
TITANIUM MG/KG	47.1	53.7	42.9	19.5	60.8	38.6	56.3
THALLIUM MG/KG	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00	< 50.00
VANADIUM MG/KG	13.8	22.7	17.5	19.9	19.7	21.4	20.7
ZINC MG/KG	9480.0	12000.0	8600.0	550.0	4360.0	1900.0	4530.0
CALCIUM MG/KG	106000.	173000.	135000.	21900.0	147000.	70400.0	139000.
MAGNESIUM MG/KG	6370.0	14000.0	11500.0	2170.0	7400.0	3730.0	6950.0
SODIUM MG/KG	21700.0	4890.0	3800.0	1700.0	5400.0	2740.0	5120.0
POTASSIUM MG/KG	131.0	657.0	406.0	2520.0	2700.0	2530.0	2600.0

AW-1 Analytical Results [illegible]

KUHLMAN STUDY
METALS ANALYSIS DATA-EP TOXICITY (SEDIMENT)
EPA REGION 7 LABORATORY-KANSAS CITY

CRS 204 17 SEPT 82 METHOD: ICP-HG BY AA

	Old Polishing Pond				Sludge Lagoon	
	SW Quadrant	NW Quadrant	SE Quadrant	NE Quadrant	SE Quadrant	NE Quadrant
LAB NUMBER	EJ6501	EJ6502	EJ6503	EJ6504	EJ6505	EJ6506
SILVER UG/L	< 5	< 5	< 10	< 5	< 5	< 5
ALUMINUM UG/L	< 20	< 20	< 20	< 20	136	150
ARSENIC UG/L	< 50	< 50	< 50	< 50	< 50	< 50
BARIUM UG/L	453	139	139	169	749	650
BERYLLIUM UG/L	< 2	< 2	< 2	< 2	< 2	< 2
CADMIUM UG/L	< 2	< 2	< 2	< 2	< 2	< 2
COBALT UG/L	20	34	28	24	29	26
CHROMIUM UG/L	14	14	20	28	49	61
COPPER UG/L	14300	21100	10100	11700	2520	2770
IRON UG/L	< 50	< 50	359	< 50	71	60
MANGANESE UG/L	922	788	1160	1340	995	839
MOLYBDENUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5
NICKEL UG/L	37700	49200	40800	39300	44300	44100
LEAD UG/L	107	120	116	104	90	99
ANTIMONY UG/L	< 50	< 50	< 50	< 50	< 50	< 50
SELENIUM UG/L	< 50	< 50	< 50	< 50	< 50	< 50
TITANIUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5
THALLIUM UG/L						
VANADIUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5
ZINC UG/L	15900	10000	15300	14900	0150	9100
CALCIUM MG/L						
MAGNESIUM MG/L	11	11	11	10	97	105
SODIUM MG/L	29	20	26	26	44	44
POTASSIUM MG/L	7	9	10	10	< 2	< 2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Att. 1

KUHLMAN STUDY
METALS ANALYSIS DATA-EP TOXICITY (SEDIMENT)

CRS 204 17 SEPT 82

	Sludge Lagoon		Sludge Storage Tank		New Polishing Pond			
	NW Quadrant	SW Quadrant	East Half	West Half	SW Quadrant	NW Quadrant	SE Quadrant	NE Quadrant
LAB NUMBER	EJ6507	EJ6508	EJ6511	EJ6512	EJ6516	EJ6517	EJ6518	EJ6519
SILVER UG/L	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5
ALUMINUM UG/L	171	69	196	216	105	128	117	147
ARSENIC UG/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
BARIUM UG/L	637	690	612	537	1090	979	1090	1050
BERYLLIUM UG/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CADMIUM UG/L	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
COBALT UG/L	30	34	56	43	49	21	27	25
CHROMIUM UG/L	68	164	598	562	38	1090	320	1730
COPPER UG/L	2900	4750	7770	7580	1330	5490	2980	6250
IRON UG/L	69	111	86	82	65	98	63	67
MANGANESE UG/L	765	1110	3330	3390	4960	1800	4010	1700
MOLYBDENUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
NICKEL UG/L	44200	48100	86100	83500	6160	29200	17000	32800
LEAD UG/L	98	116	201	203	< 50	52	< 50	67
ANTIMONY UG/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
SELENIUM UG/L	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
TITANIUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
THALLIUM UG/L								
VANADIUM UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
ZINC UG/L	9670	12500	16000	14800	2060	10700	6390	11000
CALCIUM MG/L								
MAGNESIUM MG/L	110	59	111	115	10	29	18	27
SODIUM MG/L	44	44	63	63	43	44	42	44
POTASSIUM MG/L	< 2	< 2	8	6	35	11	16	11
MERCURY UG/L	0.09	0.06	0.07	0.21	0.09	0.17	<0.05	0.15

HAZARDOUS WASTE MANIFEST

001
MANIFEST DOCUMENT NUMBER

KSD 006[illegible]073
SHIPPER NUMBER

McKesson Chemical Company
NAME OF CARRIER (SCAC)

13-1027[illegible]23
CARRIER NUMBER

IDENTIFICATION

	12 DIGIT EPA ID #	COMPANY NAME, MAILING ADDRESS, AND TELEPHONE NUMBER	DATE SHIPPED OR RECEIVED
ENERATOR/SHIPPER	KSD006325073	913-631-2351 Kuhlman Diecasting Co. Box 23218 Stanley, Kansas 66223	1/8/81
TRANSPORTER # 1	MOD007158157	816-842-6240 McKesson Chemical Co. 2000 Guinotte Ave. K.C.Mo. 64120	1/8/81
TRANSPORTER # 2 (if required)			
OF TREATMENT STORAGE OR DISPOSAL FACILITY	MOD007158157	816-842-6240 McKesson Chemical Co. 2000 Guinotte Ave. K.C.Mo. 64120	
OF TREATMENT STORAGE OR DISPOSAL FACILITY			

WASTE INFORMATION

OF UNITS & CONTAINER TYPE	HM	EPA HAZ. WASTE ID #	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UN # or NA #	EXEMPTION OR NO LABELS REQUIRED	FLASH POINT (IN °C) WHEN REQ'D	UNITS WT/VOL	TOTAL QUANTITY	RATE	CHARGES (For Carrier Use Only)
Drums		U220	Solvents N.O.S.				55gal	1485		

SPECIAL HANDLING INSTRUCTIONS

If an RQ commodity is spilled on a waterway, or according to the ... must be promptly reported to the Federal government at 1-800-424-8802 (toll free) or 202-426-2675 (toll call). If other DOT Hazardous Materials are discharged creating a serious situation, call shipper's telephone number or Chemtrec 1-800-424-9300 immediately.

COMMENTS

"Collect on Delivery" shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

PLACARDS TENDERED
Yes ☐ No ☐

REMIT C.O.D. TO: ADDRESS

COD Amt. $

C.O.D. FEE: PREPAID ☐ COLLECT ☐ $

TOTAL CHARGES $

FREIGHT CHARGES

"If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is 'carrier's or shipper's weight.'"

Signature

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Signature of Consignor

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the U.S. Environmental Protection Agency

GENERATOR'S SIGNATURE DATE

This is to certify acceptance of the hazardous waste shipment.

TRANSPORTER #1 SIGNATURE & DATE TRANSPORTER #2 SIGNATURE & DATE (if required)

This is to certify acceptance of the hazardous waste for treatment, storage or disposal.

TSDF SIGNATURE DATE

4

ATTACHMENT 3

LANGSTON LABORATORIES INCORPORATED

RESEARCH • DEVELOPMENT • TESTING

September 3, 1980

Kuhlman Diecasting
P. O. Box 218
Stanley, KS 66223

Attn: Mr. William Brumwell

Dear Mr. Brumwell:

Enclosed is the report sheet containing the results of analyses performed on the sample submitted to our laboratories on August 5, 1980.

We thank you for this opportunity to be of service. If you have any questions, please do not hesitate to contact us.

Sincerely,

Alan Kerschen

Alan Kerschen
Laboratory Director

AGK:dgp

Enclosure

RECEIVED
SEP 8 1980
KUHLMAN
DIECASTING
CO.

B. CHEMICAL ANALYSIS

1. Flash Point > 200 °F Testing Method Pensky-Martens, Closed Cup.

2. pH 7.4

3. Acidity - % Alkalinity - % Determine percent for all wastes displaying a pH greater than 12.0 or less than 3.0.

4. Percent Solids ______ % Determine percent for all semi-solid wastes.
   4.6% at 100°C
   3.3% at 600°C

5. Chemical Elements Range of Concentration

Identify by generic or I.U.P.A.C. name and weight percent or ppm concentration.

6. Analyses: Each waste, with the exceptions noted, that is not totally organic will require a total profile analyses for the following parameters. The analyses are to be conducted only by a *Kansas Certified Laboratory*. A copy of the laboratory report is to be attached.

NAME	TOTAL AS RECEIVED	FILTRATE	LEACHATE TEST	NAME	TOTAL AS RECEIVED	FILTRATE	LEACHATE TEST
Cn Cyanide	1.6	< 0.01	< 0.01	F Fluoride	12	7.3	2.4
As Arsenic	0.67	0.012	0.008	Pb Lead	3.6	0.03	0.03
Ba Barium	62	0.09	0.35	Hg Mercury	< 0.001	< 0.001	< 0.001
Cd Cadmium	0.14	0.005	0.02	Ni Nickel	1,740	0.57	44
Cr^{+3} Chromium	1,140	< 0.01	3.6	Se Selenium	< 0.5	< 0.01	< 0.01
Cr^{+6} Chromium	< 0.01	< 0.01	< 0.01	Ag Silver	0.20	< 0.005	< 0.005
Cu Copper	700	0.04	10.6	Zn Zinc	430	0.01	18

All Results are Reported in ppm

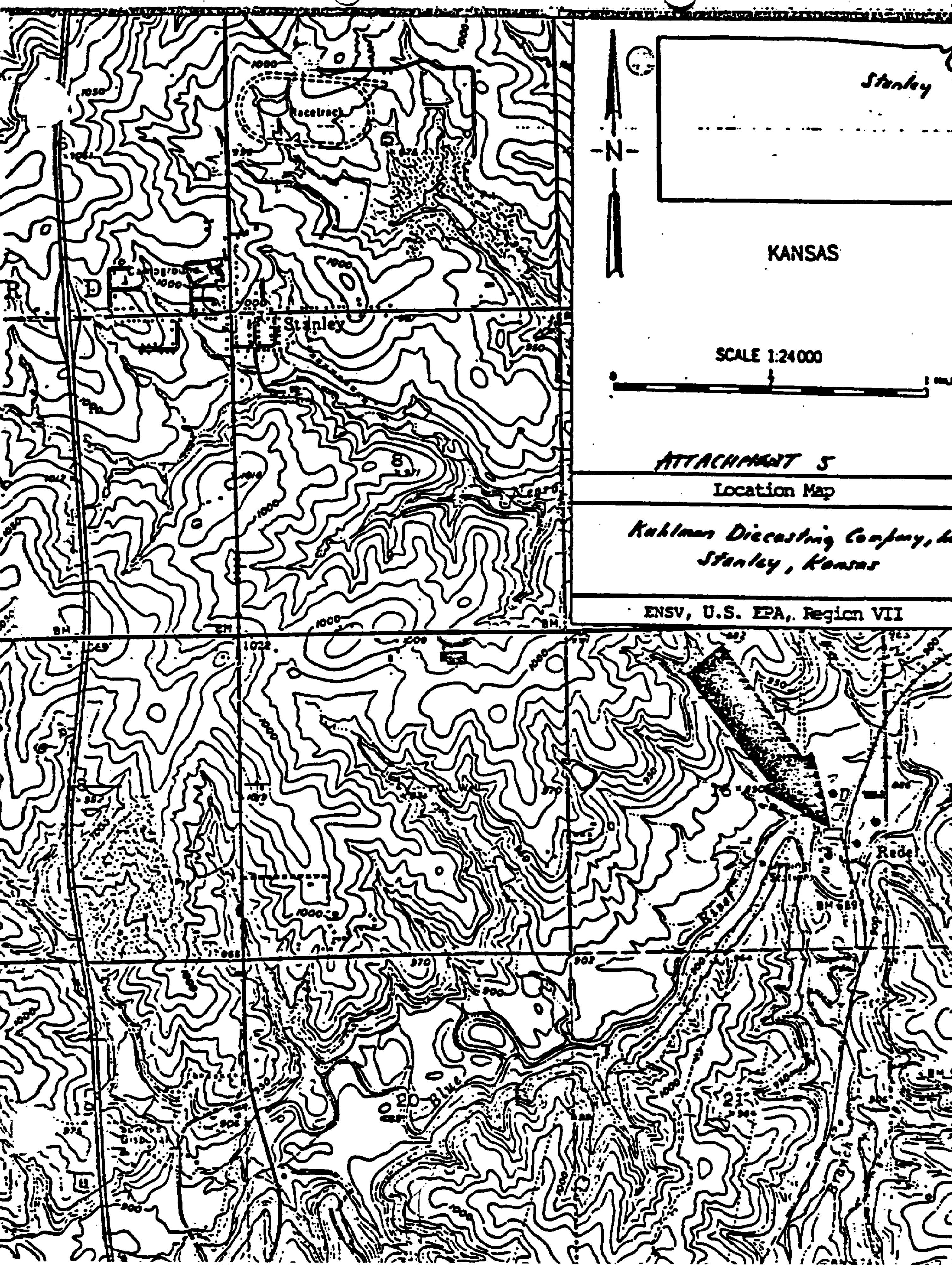
Exceptions: Analyses need not be performed on discarded, overaged, spoiled or recalled containerized retail products. Likewise it is not necessary to analyze homogeneous (single substance) waste materials provided that the substance and its properties are identified. Examples of such materials are spent capacitors, pesticides, and asbestos.

C. QUANTITY REQUIRING DISPOSAL

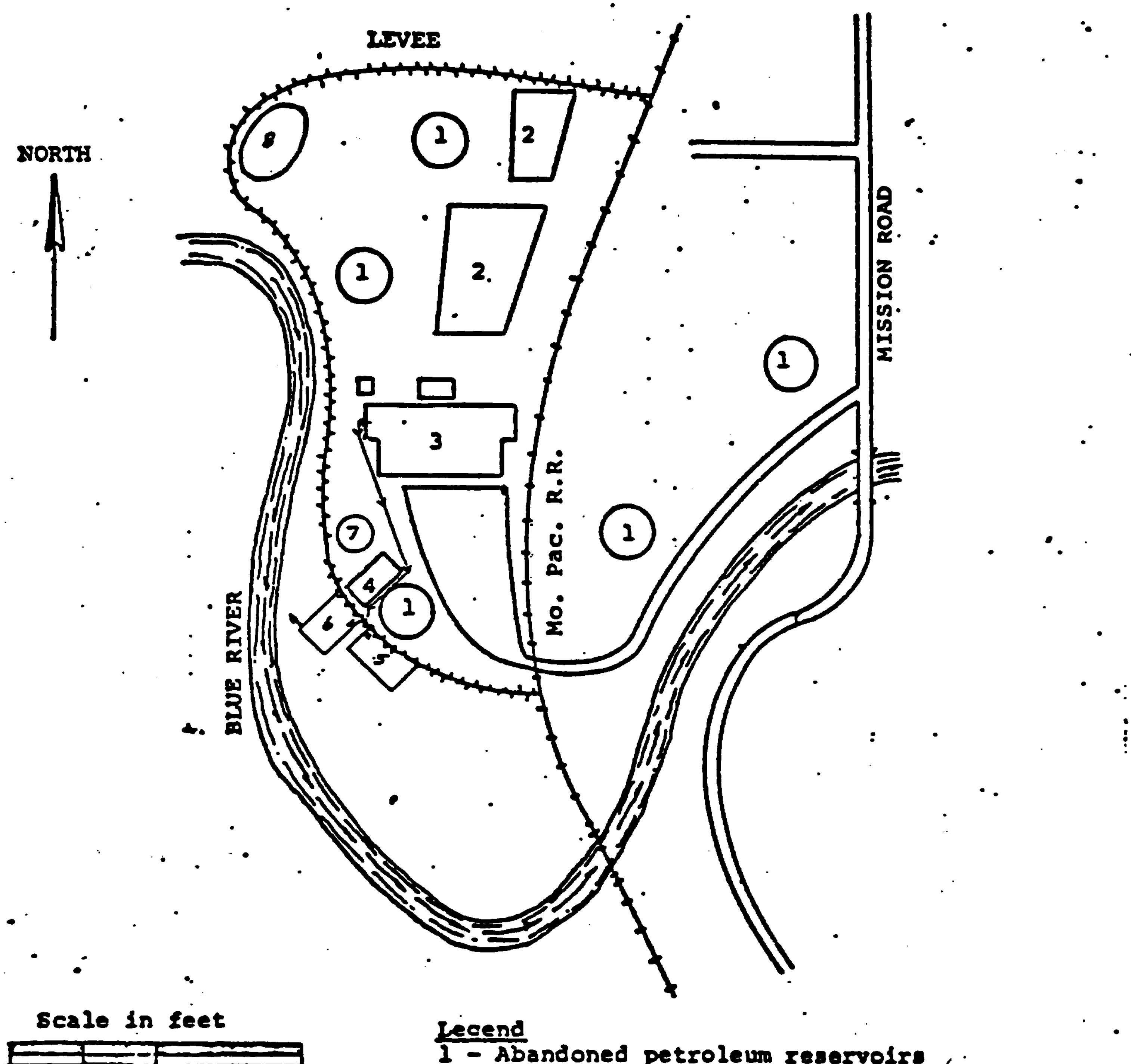
1. ______ ☐ Gallons ☐ Pounds ☐ Tons ☐ Drums ☐ Cubic Yards ☐ Other

2. Generation rate per year: ____________/yr

3. Production of this waste is: ☐ Continuous ☐ Periodic ☐ One Time Only


N
Stanley
KANSAS
SCALE 1:24000
ATTACHMENT 5
Location Map
Kuhlman Diecasting Company, In
Stanley, Kansas
ENSV, U.S. EPA, Region VII
Racetrack
Stanley
Blue
Branch

Att. 5



Legend
1 - Abandoned petroleum reservoirs
2 - Raw water reservoirs
3 - Plant
4 - Sanitary ponds
5 - Old polishing pond
6 - New polishing pond
7 - Sludge storage tank
8 - Sludge lagoon

KUHLMAN DIECASTING CO. INC.

ATTACHMENT 6

U.S. ENVIRONMENTAL PROTECTION AGENCY

RCRA INSPECTION
CONFIDENTIALITY NOTICE

Name and Address of Inspector(s)	Name and Address of Facility	
Dale I. Bates U.S. Environmental Protection Agency 25 Funston Rd. Kansas City, KS 66115	Kuhlman Diecasting Co, Inc Box 218 Stanley, KS 66223 Owner, Operator, or Agent in Charge William E. Brumwell Title Vice President/Genl Manager Address	
Name of Individual to Whom Notice Given Phillip Parker William E. Brumwell	Title Asst Office Manager. VP/Genl Manager.	Date 3/2/83

It is possible that EPA will receive public requests for release of the information obtained during inspection of the facility above. Such requests will be handled by EPA in accordance with provisions of the Freedom of Information Act (FOIA), 5 U.S.C. 552; EPA regulations issued thereunder, 40 CFR Part 2; and the Resource Conservation and Recovery Act, Section 3007. EPA is required to make inspection data available in response to FOIA requests, unless the Administrator of the Agency determines that the data contains information entitled to confidential treatment.

Any or all of the information collected by EPA during the inspection may be claimed confidential, if it relates to trade secrets or commercial or financial matters that you consider to be confidential. If you make claims of confidentiality, EPA will disclose the information only to the extent, and by the means of the procedures set forth in the regulations (cited above) governing EPA's treatment of confidential information. Among other things, the regulations require that the EPA notify you in advance of publicly disclosing any information you have claimed and certified confidential.

To claim information confidential, you must certify that each claimed item meets all of the following criteria:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.

2. The information is not, and has not been, reasonably obtainable without your company's consent by other persons (other than governmental bodies) by use of legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding).

3. The information is not publicly available elsewhere.

4. Disclosure of the information would cause substantial harm to your company's competitive position.

At the completion of the inspection, you will be given a receipt for all documents, samples, and other materials collected. At that time, you may make claims that some or all of the information is confidential and meets the four criteria listed above.

RCRA INSPECTION CONFIDENTIALITY NOTICE | Facility

If you are not authorized by your company to make confidentiality claims, this notice will be sent by certified mail, along with the receipt for documents, samples, and other materials, to the Owner, Operator, or Agent in Charge of your firm, within two days of this date. That person must return a statement, specifying any information which should receive confidential treatment.

The statement from the Owner, Operator, or Agent in Charge should be addressed to:

Mr. David A. Wagoner
Director, Air and Waste Management Division
United States Environmental Protection Agency
324 E. 11th Street
Kansas City, Missouri 64106

and mailed by registered, return-receipt requested mail within seven (7) calendar days of receipt of this Notice.

Failure by your firm to submit a written request that information be treated as confidential, either at the completion of the inspection or by the Owner, Operator, or Agent in charge, within the seven-day period, will be treated by the EPA as a waiver by your company of any claims for confidentiality regarding the inspection data.

To be completed by the facility official receiving this Notice:

I have received and read this Notice.

Name Phillip MEEKER

Title Asst Office Manager

Signature Phillip Meeker

Date 8/19/82

If there is no one on the premises of the facility who is authorized to make business confidentiality claims for the firm, a copy of this Notice and other inspection materials will be sent to the Owner, Operator, or Agent in charge of the company. If there is another company official who should also receive this information, please designate below:

Name ______________________

Title ______________________

Address ______________________

____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: OCT 14 1982

SUBJECT: Transmittal of RCRA Compliance Monitoring Report

FROM: Robert B. Dona RB Dona
Chief, Field Investigations Section, EMCM/ENSV

TO: Michael J. Sanderson
Acting Chief, AWCM/ARWM

This memorandum transmits the following report of compliance monitoring investigation performed by the Field Investigations Section, Environmental Monitoring and Compliance Branch, Environmental Services Division:

Facility	EPA I.D. No.
Kuhlman Diecasting Company, Inc. Stanley, Kansas	KSD-006325013

Attachment

RECEIVED
OCT 14 1982
AIR AND HAZARDOUS MATERIALS DIVISION

EPA Form 1320-6 (Rev. 3-76)

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Betts

Camera Setting:

Caption: Lime feed system

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Betts

Camera Setting:

Caption: Sedimentation basin

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Betts

Camera Setting:

Caption: Outfall 001

#16

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Betts

Camera Setting:

Caption:

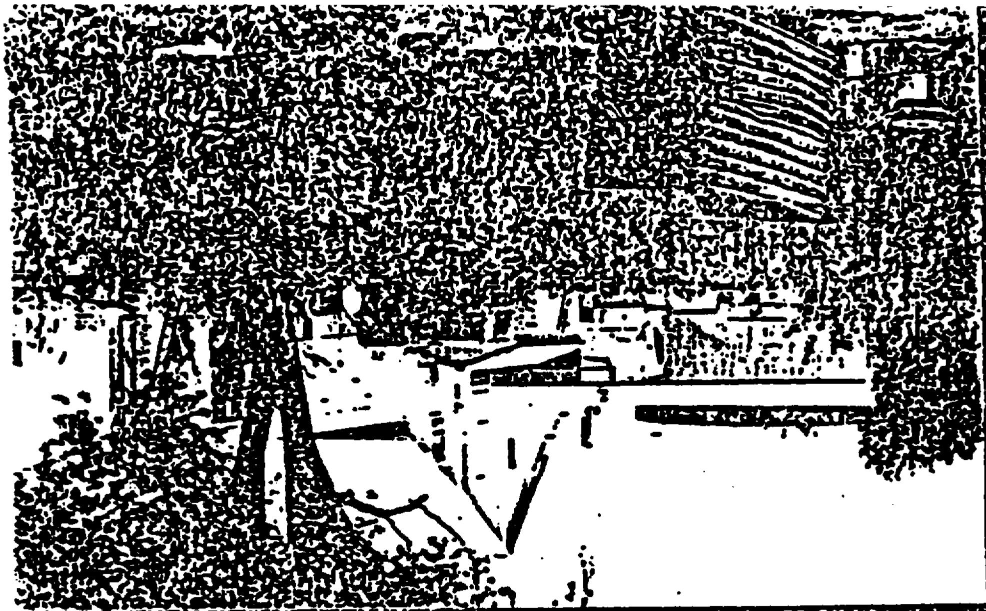
Name & Location: Kuhlman Diecasting Stanley, KS

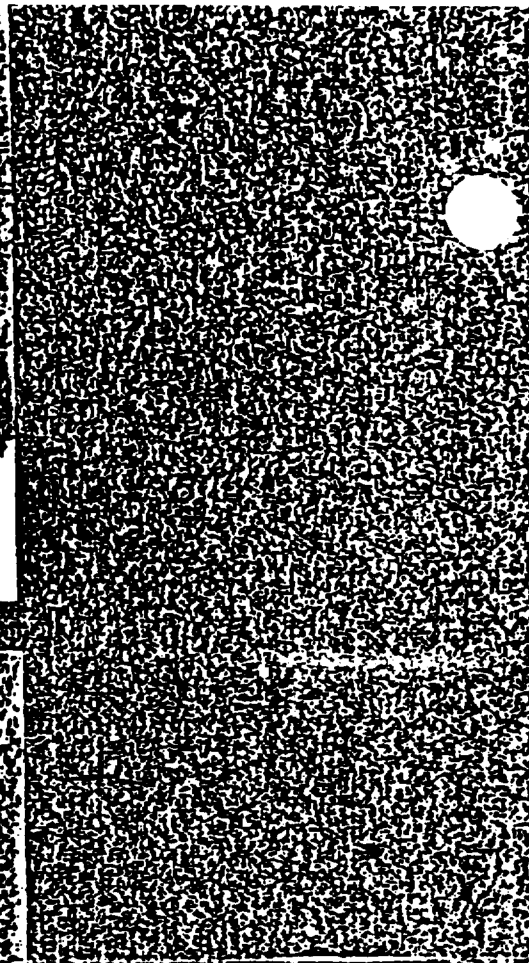
Date & Time: 8/20/82

Photographer: Dale Betts

Camera Setting:

Caption: Sludge paper filter





#2.1

Name & Location: Kuhlman Diecasting
Stanley, KS

Date & Time: 8/19/82 1510 hrs

Photographer: Dale Bates

Camera Setting:

Caption: Solvent storage area

Name & Location: Kuhlman Diecasting
Stanley, KS

Date & Time: 8/19/82 1515 hrs

Photographer: Dale Bates

Camera Setting:

Caption: Ashes from paint filters inside metal container

Name & Location: Kuhlman Diecasting
Stanley, KS

Date & Time: 8/19/82 1520 hrs

Photographer: Dale Bates

Camera Setting:

Caption: Solvent storage area

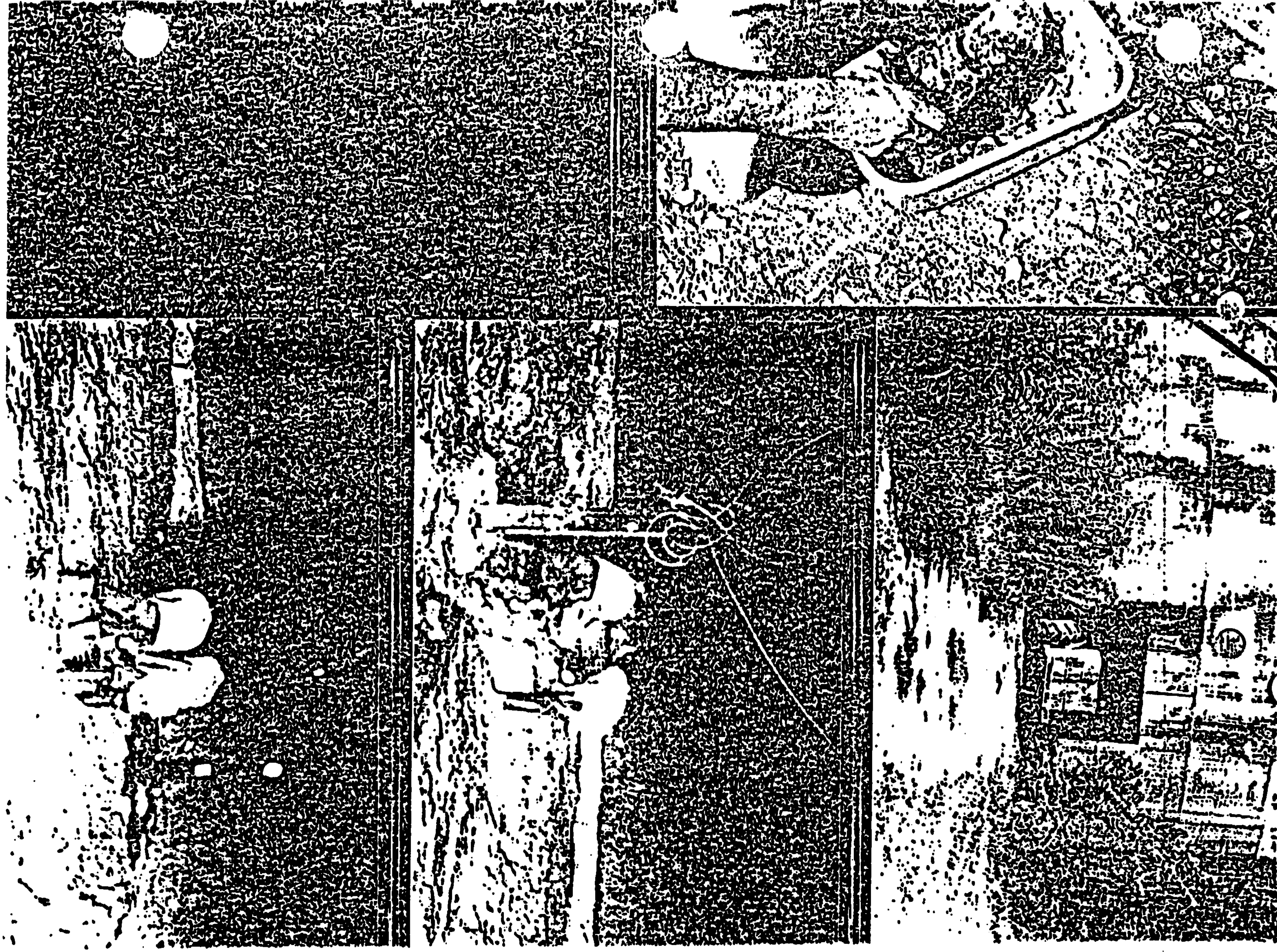
Name & Location: Kuhlman Diecasting
Stanley, KS

Date & Time: 8/19/82 1525 hrs

Photographer: Dale Bates

Camera Setting:

Caption: Metal container for burning paint filters



#15

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82 1000 hrs

Photographer: Dale Bates

Camera Setting:

Caption: Tractor hauling drums of sludge out sludge storage tank

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Bates

Camera Setting:

Caption: Spraying, mixed sludge at sludge holding tank into [illegible]

Name & Location: Kuhlman Diecasting Stanley, KS

Date & Time: 8/19/82

Photographer: Dale Bates

Camera Setting:

Caption: Sampling in sludge storage tank

Name & Location: Kuhlman Diecasting Stanley, KS

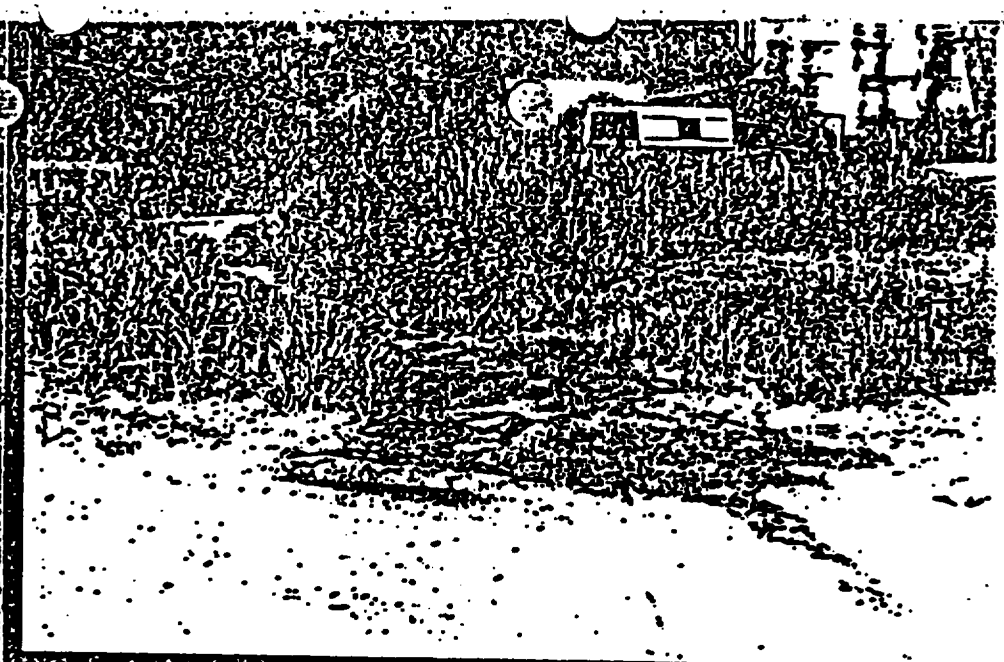
Date & Time: 8/19/82

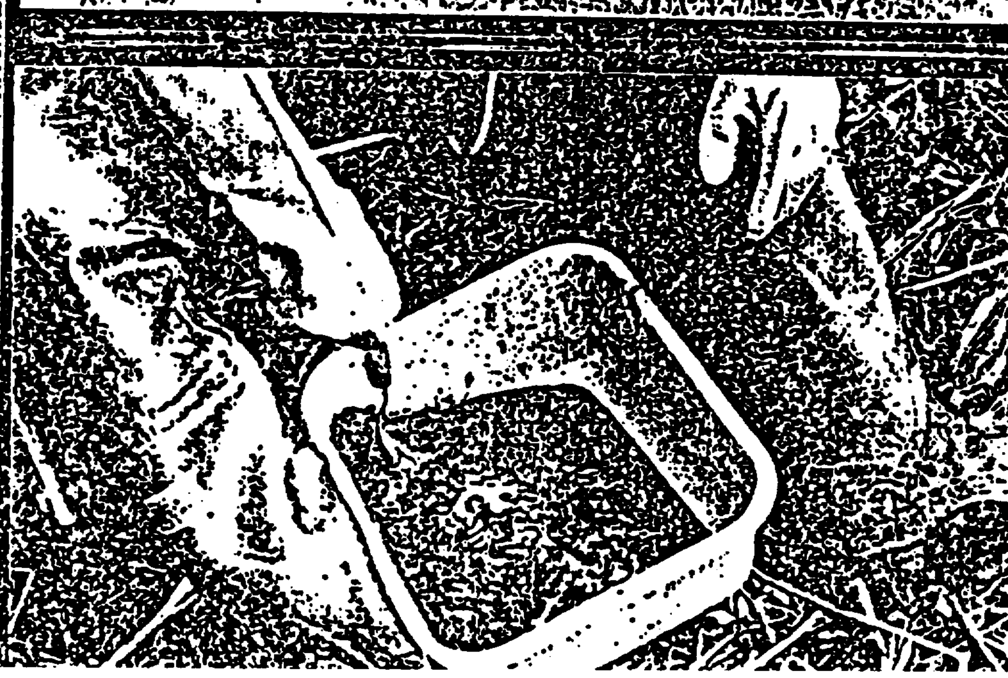
Photographer: Dale Bates

Camera Setting:

Caption: Sampling in sludge storage tank







#23

Name & Location: Kuhlman Decorating
Stanley, KS

Date & Time: 8/20/82 1000 hrs

Photographer: Dale Batis

Camera Setting:

Caption: North end of sludge lagoons

#124

Name & Location: Kuhlman Decorating
Stanley, KS

Date & Time: 8/20/82 1000 hrs

Photographer: Dale Batis

Camera Setting:

Caption: South end of sludge lagoons

Name & Location: Kuhlman Decorating
Stanley, KS

Date & Time: 8/19/82 0945

Photographer: Dale Batis

Camera Setting:

Caption: Oil & earth mixture
dumped on ground

Name & Location:

Date & Time:

Photographer:

Camera Setting:

Caption:

Name & Location: Kuhlman Decorating
Stanley, KS

Date & Time: 8/19/82 0915 hrs

Photographer: Dale Batis

Camera Setting:

Caption: Mixing sidewall sample
from old finishing stand

-Teo 2 -555- 02- A2- 0011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

MEMORANDUM

SUBJECT: Transmittal of Inspection Report

FROM: Robert B. Dona
Chief, Field Investigations Section, EMCM/ENSV

TO: Michael J. Sanderson
Chief, AWCM/ARWM

This memorandum transmits the following the RCRA compliance inspection report performed by the Field Investigations Section, Environmental Monitoring & Compliance Branch, Environmental Services Division.

Facility	EPA I.D. Number	Activity Number
Kuhlman Diecasting Company Stanley, Kansas	KSD006325013	AE59

Attachment

RECEIVED
MAY 15 1984
AIR AND WASTE C... BRANCH

REPORT OF RCRA COMPLIANCE INSPECTION

AT

KUHLMAN DIECASTING COMPANY, INCORPORATED
STANLEY, KANSAS

EPA ID NUMBER: KSD006325013

ON

April 11, 1984

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Environmental Services Division

INTRODUCTION

At the request of the Air and Waste Management Division, a RCRA compliance sampling inspection was performed at Kuhlman Diecasting Company, Inc. in Stanley, Kansas on April 11, 1984. This inspection was performed to determine the status of closure of the three surface impoundments on site and to obtain split samples from the four ground water monitoring wells for analysis. This narrative report and attachments present the results of the inspection.

PARTICIPANTS

Kuhlman Diecasting Company, Inc.:
Phillip Meeker, Assistant Office Manager

ETI of North America, Inc.:
Randall J. Overton, Hydrologist

U.S. Environmental Protection Agency:
Dale I. Bates, Environmental Scientist
K. Carrol McKinney, Environmental Scientist

INSPECTION PROCEDURES

This inspection was performed on an announced basis in order to assure that Mr. Meeker would be available for the inspection and that Mr. Overton would be available to sample the groundwater monitoring wells. As arranged ahead of time, Ms. McKinney and I met with Mr. Meeker and Mr. Overton at 10:00 p.m. on April 11, 1984 at the facility. The inspection consisted of obtaining information regarding the status of closure of the three surface impoundments by discussing the activities that had been accomplished and reviewing the manifest files. Following this we accompanied Mr. Overton to sample the four groundwater monitoring wells on site. Samples were

collected by Mr. Overton and split with us for comparative analysis. The EPA samples were preserved in accordance with the current Region VII standard operating procedures. The samples were placed in ice in a plastic cooler and transported to the Region VII laboratory for analysis. Chain-of-custody was maintained on the samples.

DESCRIPTION OF FACILITY

The Kuhlman Diecasting Company, Inc. facility is located southwest of Stanley, Kansas. The facility, which employs about 150 people, is engaged in the production of plastic and aluminum and zinc alloy diecastings. The operations at the facility, which operates on a 24-hour/day, five day/week basis, consist of zinc alloy diecasting, plating of chrome, copper and nickel on aluminum, plastic and zinc diecastings, machining, cleaning, polishing, painting and packaging.

The wastes generated at this facility include wastewater treatment sludge, paint filters and spent solvents. The wastewater treatment sludge is produced from the physical-chemical treatment of process wastewater. The wastewater treatment facility consists of chromium reduction for the chrome plating waste, cyanide treatment of the copper plating wastes, and combined treatment of pretreated (chromium and cyanide wastes) and remaining process wastes in a flocculation basin followed by a sedimentation basin and continuous backwash sand filter. The sludge that settles out of the wastewater in the sedimentation basin is pumped out utilizing a pump with a suction hose. The sludge is dried using a filter press that was installed in December 1983. The dried sludge is placed in Merimo bags and stored in the storage tank prior to disposal.

The paint filters, which are used to collect paint overspray at three paint booths, are made of a straw mesh material. The paint saturated filters are removed and burned in a metal container on site.

The spent solvents are generated primarily from the painting operations for cleaning paint mats, spray guns and associated equipment. This waste is placed in 55-gallon drums for storage on-site prior to shipping off-site for disposal.

FINDINGS AND CONCLUSIONS

1. Based on information provided by Mr. Meeker and a review of the hazardous waste manifests on file during the inspection, the following actions have been completed to the date of this inspection:

a. The clean-up activities on the sludge lagoon (Phase I) and the old polishing pond (Phase II) have been completed pending a determination of acceptable levels of nickel and chromium in the soil (see comments regarding this below). The clean-up of these two impoundments was accomplished by dewatering and then mixing the remaining sludge and soil with fly ash. This mixture was shipped via truck under manifest to the U.S. Pollution Control, Inc. (USPCI) Lone Mtn. Surface Disposal Site (EPA ID No. OK0065438376)

located at Waynoka, Oklahoma. A total of about 1923 yd^3 of material was shipped off-site from December 20, 1983 until January 30, 1984.

b. The filter press (21 $ft.^3$) being used to process the sludge from the final polishing pond (Phase III) was not received on site until March 12, 1984. The filter press was initially started on March 16, 1984, but due to equipment breakdown was out-of-service until March 20, 1984 when it was restarted.

1. Except for four days of downtime due to problems with the equipment, e.g., diaphragm failure, valve problems and hose problems, the filter press has been operated continuously (24 hours/day, 7 days/week) since March 20, 1984.

2. The sludge from the pond is being pumped to a small open-topped tank and then to the filter press for processing. The dewatered sludge is placed in a 21 yd^3 gondola belonging to USPCI. One gondola load was picked up on April 2, 1984 and the second gondola load was to be picked up on April 12, 1984.

3. At the time of the inspection, the pump that was used to pump sludge out of the pond was out-of-service due to a bad impeller. Mr. Meeker stated that another pump was being obtained to replace it.

c. The 3 ft^3 filter press and continuous backwash filter for the wastewater treatment facility were received and installed in December 1983.

d. Soil samples were taken after clean-up of the sludge lagoon and old polishing pond was completed. A report, according to Mr. Overton, is scheduled to be completed by April 20, 1984 regarding the analytical data from these soil samples and establishment of justification for closure of the three surface impoundments based on nickel and chromium levels. Actual closure of the impoundments cannot proceed until this issue is resolved.

2. Mr. Meeker estimated that the clean-up activities were 7 or 8 days behind schedule at the time of the inspection based on the 12-week extension as proposed during a meeting with EPA in March 1984. According to Mr. Meeker, the delays had resulted from the late receipt of the filter press, equipment problems and rain.

3. In regard to the handling of the other hazardous wastes generated at this facility, the following comments are made based on the observations made during this inspection:

a. The wastewater treatment sludge is being accumulated on-site for less than 90 days. The sludge is currently being placed in Merimo bags which are stored in the storage tank. The wastes are shipped via manifest to USPCI in Waynoka, Oklahoma. According to Mr. Meeker, following completion of the final polishing pond clean-up operations, a gondola will be used for accumulating, storing and transporting the sludge.

b. The spent solvents are accumulated on-site for less than 90 days. The accumulated solvents are shipped via manifest to McKesson Chemical Company in Kansas City, Missouri.

c. At the time of the inspection, several drums had recently been accumulated as a result of cleaning up a storage area containing paint. According to Mr. Meeker, the drums contain waste paint.

4. In regard to the groundwater monitoring, Mr. Overton is preceeding with Phase I of the groundwater assessment plan.

a. The current monitoring system consists of four wells designated as GM-1, GM-2, GM-3 and GM-4. The locations of the wells are shown on the site map (Attachment 1).

b. The analytical results of the samples collected during the inspection are provided in Attachment 2. The data for Total Organic Carbon (TOC) was not available at the time of this report due to instrument problems.

c. A distinct petroleum odor (believed to be diesel fuel) was detected during bailing of well GM-2. An oil sheen was visible on the surface of the water samples collected. An ARCO pipeline is located on the outside of the dike toward the west from the well.

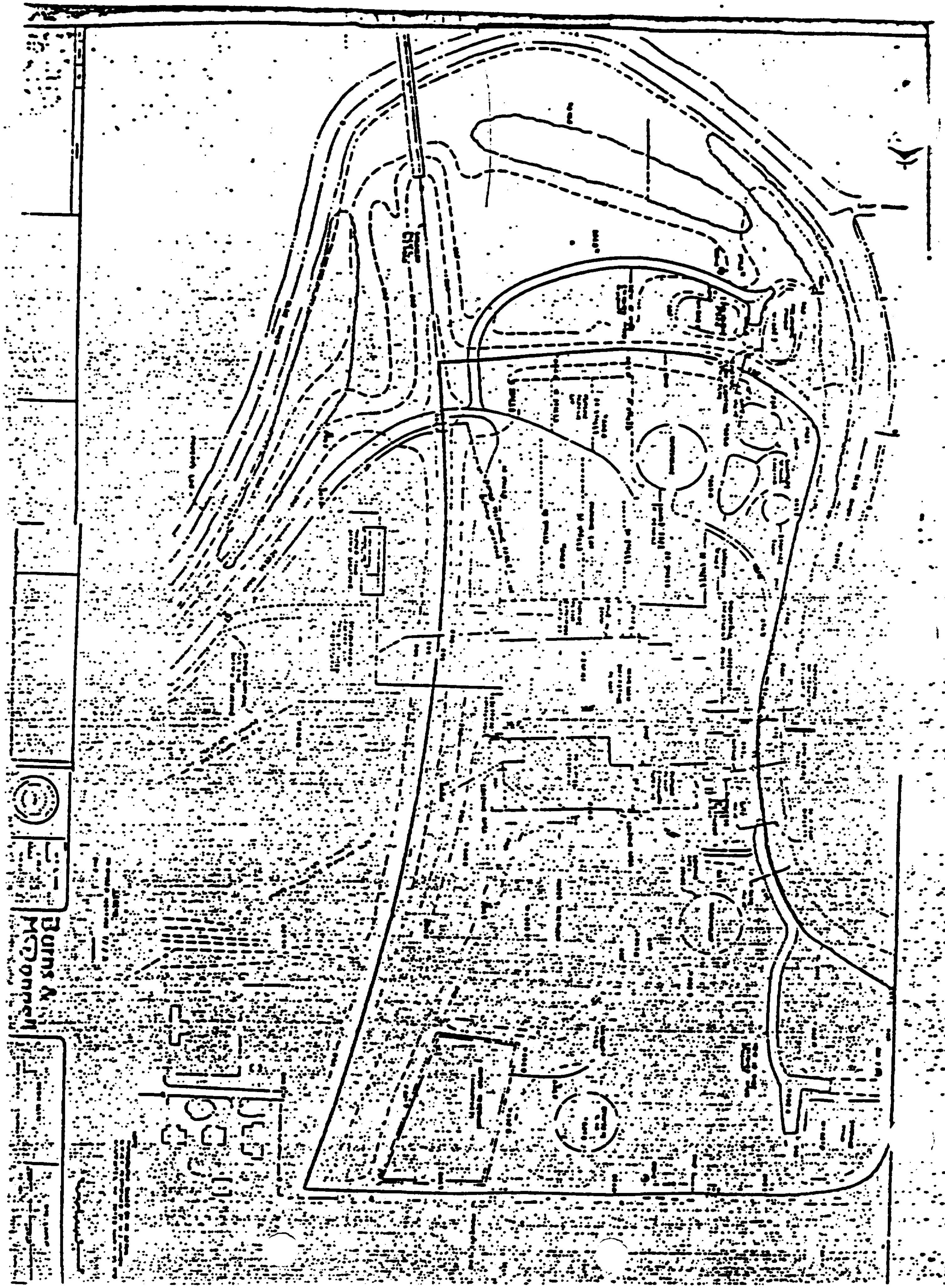
5. Photographs of the site were taken during the inspection and are included as Attachment 3.

Dale I. Bates
Environmental Scientist
Date: 5/11/84
Activity No.: A859

Robert B. Dona
Chief, Field Investigations Section
Date: 5-11-84

Attachments:

1 - Site Map
2 - Analytical Results (2 pages)
3 - Photographs (8 pages)


Burns & McDonnell

Attachment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

SURVEILLANCE AND ANALYSIS DIVISION
REGION VII
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

GRAB X COMP ______ BOTH ______

STATION DESCRIPTION: Kohlman Decorating Co. Inc.

STORET NUMBER ______

SAMPLED BY Gates

Well	GM-1	GM-2	GM-3	GM-4		
DATE/TIME	4/11/84 1230	4/11/84 1300	4/11/84 1140	4/11/84 1150		
LAB NUMBER	AB5901	AB5902	AB5903	AB5904		

PARAMETERS

VALUES						
Water level ft		(8.71)	(4.83)	(5.79)		
Temperature °C	12 (13.1)	12 (13.1)	12 (13)	10 (11.1)		
pH su	6.55 (6.19)	6.66 (6.52)	7.28 (6.91)	7.37 (6.52)		
Cyanide mg/l	<0.004	<0.004	0.035	<0.004		
TOC mg/l						
Specific Conductance umhos/cm	686	490	1250	1050		
Redox Potential	(-119 mv)	(-60 mv)				
Color	Light brown	Dark gray brown	Dark gray brown	Light gray brown		

Note: Values in parentheses were obtained by Randy Overton. He utilized Hach meter for temperature, pH & redox potential determinations. All of the water level measurements were measured to the top of the well casing.

GRS 204 26 APRIL 84

	Well GM-1	Well GM-2	Well GM-3	Well GM-4	
LAB NUMBER	AB5901	AB5902	AB5903	AB5904	
SILVER UG/L	5	< 5	5	[illegible]	
ALUMINUM UG/L	204000	83700	55000	63000	
ARSENIC UG/L	178	147	47	21	AA
BARIUM UG/L	3300	1410	1020	1080	
BERYLLIUM UG/L	9	3	2	[illegible]	
CADMIUM UG/L	8	9	6	7	AA
COBALT UG/L	139	72	37	62	
CHROMIUM UG/L	250	100	294	196	
COPPER UG/L	352	164	133	100	
IRON UG/L	370000	101000	81900	94000	
MANGANESE UG/L	9670	11300	8170	7290	
MOLYBDENUM UG/L	163	75	51	51	
NICKEL UG/L	304	151	159	106	
LEAD UG/L	122	77	50	59	AA
ANTIMONY UG/L	< 50	< 50	< 50	< 50	
SELENIUM UG/L	<10	<10	<10	<10	AA
TITANIUM UG/L	6950	1220	863	912	
THALLIUM UG/L	< 3000	< 300	< 300	< 300	
VANADIUM UG/L	521	229	135	152	
ZINC UG/L	1140	495	313	305	
CALCIUM MG/L	202	141	166	212	
MAGNESIUM MG/L	56	27	10	60	
SODIUM MG/L	42	13	124	104	
POTASSIUM MG/L	41	21	11	[illegible]	
MERCURY UG/L	N/A	N/A	N/A	N/A	

7/4/88 Report continued...

APPENDIX 2

REPORT OF COMPLIANCE MONITORING INSPECTION

KUHLMAN DIECASTING COMPANY, INCORPORATED
STANLEY, KANSAS

NPDES PERMIT NUMBER: KS-0001881

JULY 30 - AUGUST 2, 1984

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Environmental Services Division

INTRODUCTION

At the request of the Water Compliance Branch, Water Management Division, an NPDES Compliance Sampling Inspection (CSI) was performed at Kuhlman Diecasting Company, Incorporated in Stanley, Kansas, on July 30 - August 2, 1984. This narrative report and attachments present the results of the NPDES compliance sampling inspection.

PARTICIPANTS

Kuhlman Diecasting Company, Incorporated:
Phillip Meeker, Assistant Office Manager
Bob Happel, Chemist

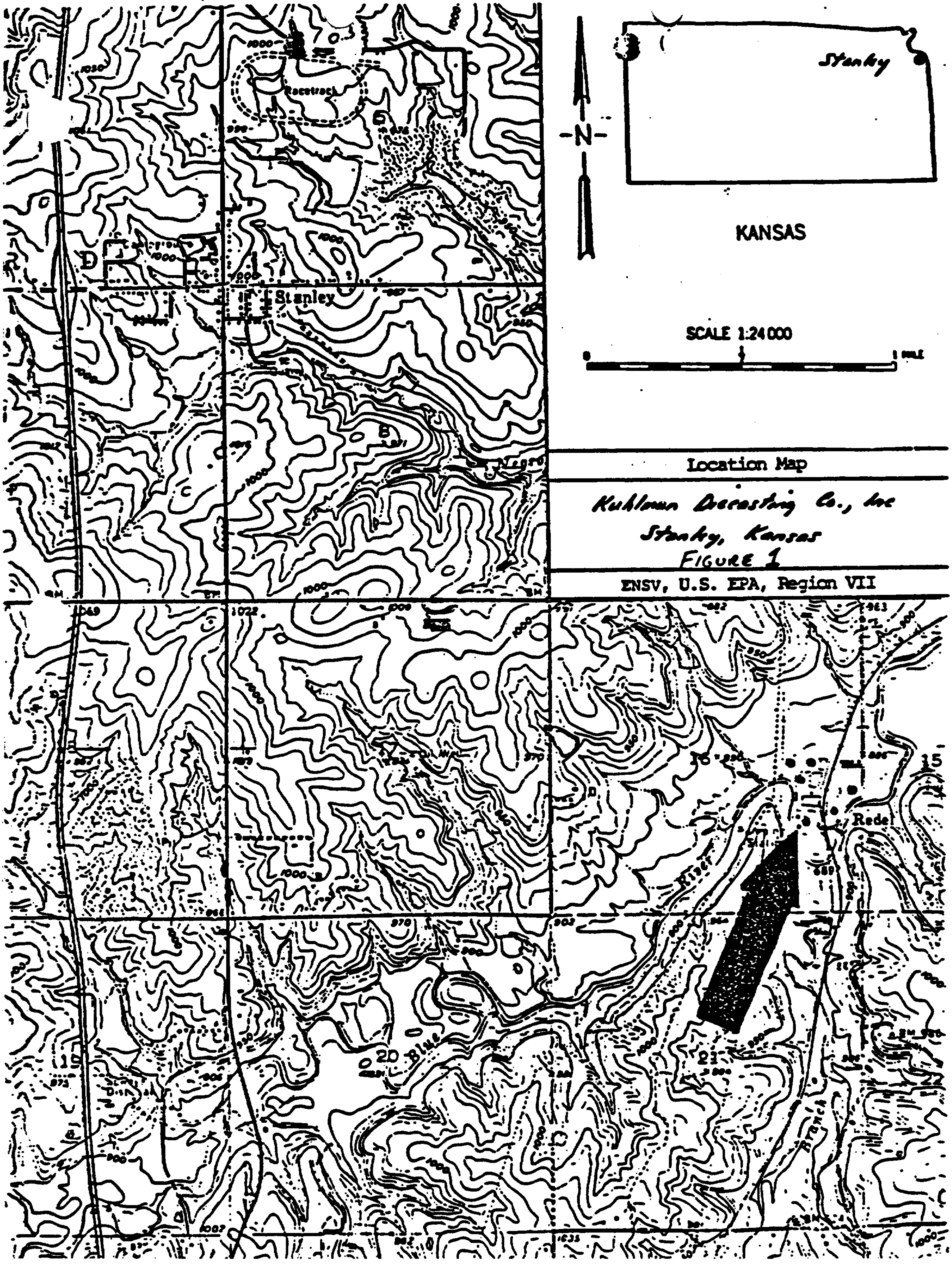
U.S. Environmental Protection Agency:
Joseph E. Joslin, Environmental Engineer

DESCRIPTION OF FACILITY

The Kuhlman Diecasting Company, Incorporated facility is located southeast of Stanley, Kansas (see Figure 1). The operations at the facility consist of zinc alloy diecasting and plating of chrome, copper and nickel on aluminum, plastic, and zinc diecastings. The plant currently employs about 170 people and operates on a 24-hour per day, five-day per week basis.

Raw water for facility use is obtained from Johnson County Rural Water District No. 2. Water in the past has been taken from the Blue River and treated on site, but this practice has been discontinued due to economic considerations.

All of the sanitary wastewater is separate from the process wastes and is treated by a two-cell stabilization pond system (see Figure 2). Flow to the system is via gravity. Due to the low volume of wastewater discharged to the ponds and to evaporation/percolation in the ponds, there is normally no discharge from this sytem. Currently, there is no provision to discharge from the lagoon system because of modification to the piping system.



Location Map

Kuhlman Diecasting Co., Inc
Stanley, Kansas
FIGURE 1

ENSV, U.S. EPA, Region VII

FLOW DIAGRAM
KUHLMAN DIECASTING COMPANY, INC
STANLEY, KS

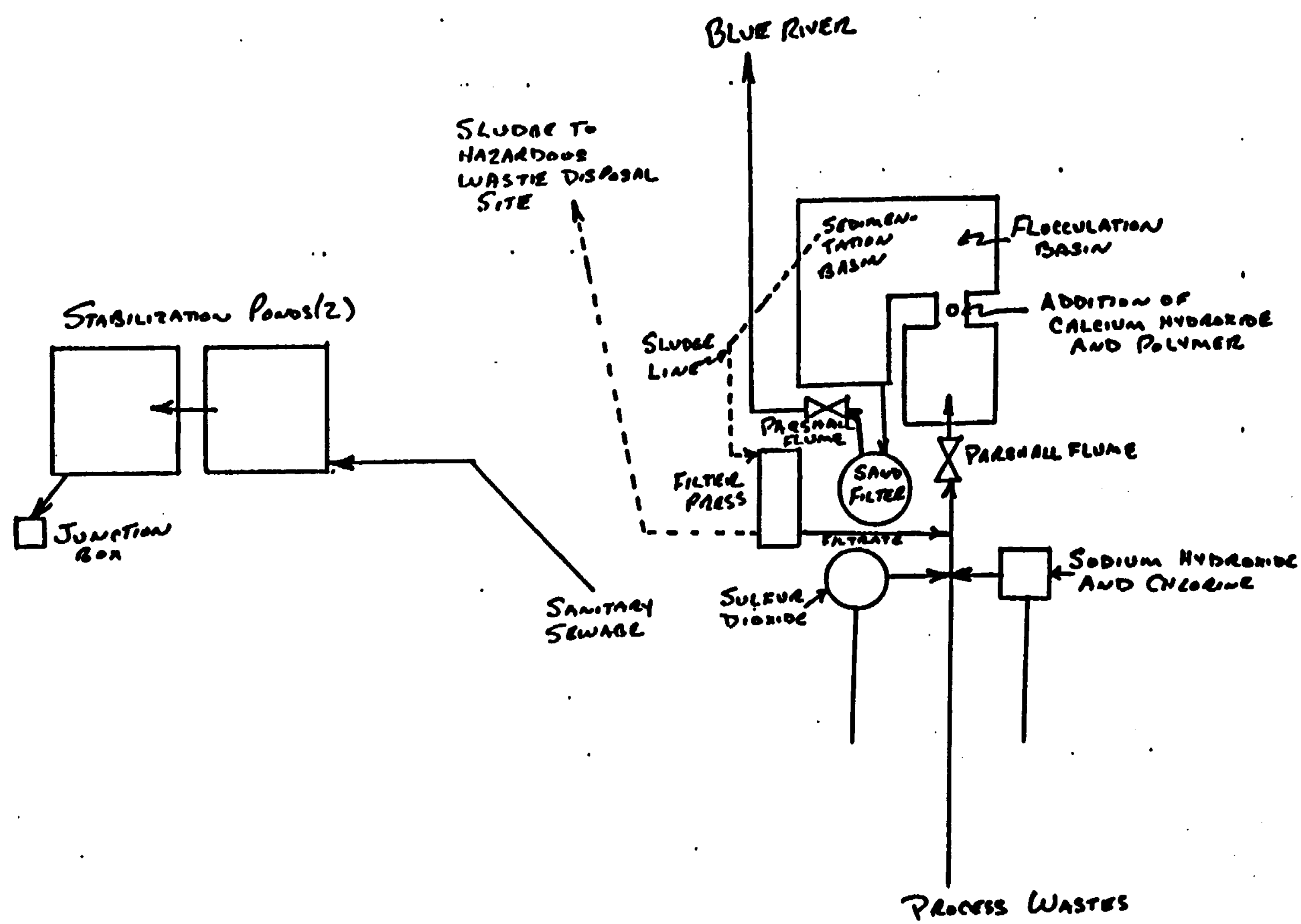


FIGURE 2

The process wastewater consists of primarily plating bath and rinse water, but also includes some boiler blowdown and cooling water from the diecasting operations. Approximately 90% of plating is on zinc while the remainder is on plastic or other material. The chromium wastes from the chrome plating operations and the cyanide wastes from the copper plating operations are segregated from the other waste streams and are pretreated prior to combining them with the other waste streams. The chromium wastes are treated with sulfur dioxide to reduce hexavalent chromium to the trivalent form. The cyanide wastes are treated with caustic soda (sodium hydroxide) for pH adjustment and chlorine to oxidize cyanide to cyanate. These waste streams combine with the rest of the process wastewater just ahead of the Parshall flume at the inlet to the flocculation basin. Hydrated lime (calcium hydroxide) and a polymer are added to the wastewater in the flocculation basin for pH control and precipitation of metals. After sedimentation, all water is filtered in a "Dynasand" single media, upflow filter. The final effluent flows by gravity to outfall 001 which discharges to the Blue River.

Sludge from the sedimentation basin is pumped out utilizing a small diaphragm pump with a suction hose attached. The suction hose is positioned in the sludge at different locations in the sedimentation basin to facilitate sludge removal. The sludge is pumped to a filter press unit for dewatering. Filtrate from filtering is returned to the treatment processes. The dewatered sludge is dumped into a small metal container which is emptied into a metal gondola. The gondola is transported to USPCI, Lone Mountain, Oklahoma for final sludge disposal.

FINDINGS AND CONCLUSIONS

1. The permittee does not maintain an adequate record of the following items:

   a. Sampling date, time, and exact location
   b. Analysis dates
   c. Individual performing analysis
   d. Analytical methods/techniques used.

2. A review of the permittee's NPDES self-monitoring data for the period of January through June 1984, shows an exceedance of the permit limit, 1.0 mg/l, for total chromium on June 25, 1984 with a value of 1.45 mg/l. The data also shows that the permit limitation for total nickel of 0.5 mg/l was exceeded on February 23, 1984 with a value of 0.68 mg/l and on February 29, 1984 with a value of 0.72 mg/l.

3. The results of the sampling are presented in Tables 1-3. The effluent exceeded the allowable NPDES permit limitations for concentration and quantity on the days sampled as shown below. It should be noted that quantity calculations were based on estimated flows as provided by Kuhlman, and if flows were greater than those estimated, addition exceedances of quantity limitations could have occurred.

Parameter	Concentration 7/30-31	Concentration 7/31-8/1	Concentration 8/1-2	Quantity 7/30-31	Quantity 7/31-8/1	Quantity 8/1-2
BOD	No Exceedances			No Exceedances		
Suspended Solids	No Exceedances			No Exceedances		
Hexavalent Chromium	No Exceedances			No Exceedances		
Total Chromium	X	X	X	X	X	X
Total Copper	X	X	X	X		
Total Nickel	X	X	X		X	X
Total Zinc	X			No Exceedances		
Free Cyanide	No Limit			No Limit		
Total Cyanide	No Exceedances			No Exceedances		
Oil & Grease	No Exceedances			No Exceedances		
pH	X	X	X			

4. At the time of inspection the flow recorder was broken. Records show the recorder was broken from June 11, 1984 until September 4, 1984.

5. All samples are collected in plastic containers and not preserved or iced. EPA methodology recommends that oil and grease samples be collected in a wide-mouth glass container. Cyanide and oil and grease samples should be preserved immediately. It is recommended that all samples be kept cool from the time of sample collection until analyzed. A summary sheet describing the parameter, proper container for collection and the proper preservative was provided Kuhlman Diecasting staff at the time of inspection.

6. The waste stabilization lagoons designed to treat the sanitary waste have never discharged in the last several years of operation. This situation may be the result of evaporation exceeding inflow into the lagoons or the lagoon may be infiltrating into the ground water. However, the lagoons currently do not have a designed outlet. Recent piping modifications and cleanup of hazardous waste ponds in the area of the lagoons have left them without a designed piped outlet.

7. As part of the sampling, a bioscreen using minnows and water fleas was performed. A discussion of the entire test can be found in Attachment C. The finding of the bioscreen was negative meaning that the battery of tests, with their inherrent limitations, did not detect acute toxicity in the wastewater at the time the sample was collected.

RECOMMENDATIONS

1. The permittee should maintain records as required by the NPDES permit.

2. The permittee should collect and preserve samples in accordance with EPA recommended methodology.

3. The waste stabilization ponds should be piped such that a discharge to the Blue River is available if needed.

TABLE 1

Facility: Ku[illegible]man Diecasting Company, Inc.
Permit No.: KS-0001881
Sampling Period: July 30 - August 2, 1984

Sample Description:
Final Effluent
Composite Samples

Parameter		Quantity					Concentration					No. Analyses	Sample
	July-Aug.				Avg.	Units	30-31	31-1	1-2	Avg.	Units	No. Days	Type
Flow	Measured Value	0.267	0.267	0.267	0.267	MGD							
Estimated flow by the permittee	Permit Condition												
BOD_5	Measured Value	16	16			#/Day	7.1	7.1	*	7.1	mg/1	3/3	
	Daily Avg. Permit Condition							.....	....	25			
	Daily Max.	125	125	125			35	35	35				
Total Suspended Solids	Measured Value	60	42	51	51	#/Day	27	19	23	23	mg/1	3/3	
	Daily Avg. Permit Condition									25			
	Daily Max	125	125	125			35	35	35				
Hexavalent Chromium	Measured Value	-	-	-	-	#/Day	<10	<10	<10	<10	ug/1	3/3	
	Daily Permit Condition Maximum	0.7	0.7	0.7			200	200	200				
Total Chromium	Measured Value	4.23	4.43	4.28	4.31	#/Day	1.9	1.99	1.92	1.94	mg/1	3/3	
	Daily Avg. Permit Condition									0.5			
	Daily Max.	3.6	3.6	3.6			1.0	1.0	1.0				

* Data omitted due to laboratory error.

Facility: K[illegible] Diecasting Company, Inc.
Permit No.: KS-0001881
Sampling Period: July 30 - August 2, 1984

Sample Description:
Final Effluent
Composite Samples

Parameter		Quantity					Concentration					No. Analyses No. Days	Sample Type
	July - August	30-31	31-1	1-2	Avg.	Units	30-31	31-1	1-2	Avg.	Units		
Total Copper	Measured Value	2.87	1.42	1.32	1.87	#/Day	1.29	0.636	0.595	0.840	mg/1	3/3	
	Daily Permit Condition Maximum	1.8	1.8	1.8			0.5	0.5	0.5				
Total Nickel	Measured Value	1.69	2.52	2.36	2.19	#/Day	0.759	1.130	1.06	0.983	mg/1	3/3	
	Daily Permit Condition Maximum	1.8	1.8	1.8			0.5	0.5	0.5				
Total Zinc	Measured Value	1.54	1.09	0.83	1.15	#/Day	0.691	0.490	0.372	0.518	mg/1	3/3	
	Daily Permit Condition Maximum	1.8	1.8	1.8			0.5	0.5	0.5				
	Measured Value												
	Permit Condition												
	Measured Value												
	Permit Condition												

Facility: [illegible] in Diecasting Co., Inc.
Permit No.: KS-0001881
Sampling Period: July 31 - August 2, 1984

Sample Description:
Final Effluent
Grab Samples

Parameter		Quantity					Concentration					No. Analyses	Sample
	July-Aug.	31	1	2	Daily Avg.	Units	31	1	2	Daily Avg.	Units	No. Days	Type
Amenable (Free) Cyanide	Measured Value						<0.003	<0.003	<0.003	<0.003	mg/1	3/3	
	Permit Condition												
Total Cyanide	Measured Value	0.02	0.02	0.11	0.05	#/Day	0.01	0.01	0.05	0.02	mg/1	3/3	
	Daily Max. Permit Condition	0.2	0.2	0.2			0.05	0.05	0.05				
Oil and Grease	Measured Value	20	8	6	11	#/Day	8.9	3.8	2.9	5.2	mg/1	3/3	
	Daily Avg. Permit Condition									10			
	Daily Max.	54	54	54			15	15	15				
pH	Measured Value						9.45	9.41	9.18		su	3/3	
	Permit Condition						6.0	to	9.0				
	Measured Value												
	Permit Condition												

4. The permittee should determine the reasons for non compliance with the effluent limitations stated in the NPDES permit and take corrective action to bring the effluent into continuous compliance with the permit limitations for all parameters.

5. The metal treatment system is being operated to remove metals at a pH of 9 that is at the low end of the scale for effective metal removal by precipitation. However, this pH is the upper limit of the NPDES permit effluent limitation. The permittee should consider maximizing metal removal by operating at a higher pH of around 11 with a subsequent neutralization step by acid addition to meet permit limitations. It is recognized that this step is more costly, but the costs involved should be weighed against the likelihood of achieving an effluent which consistently meets the NPDES effluent limitations.

COMPLIANCE MONITORING PROCEDURE

Sampling at the Kuhlman Diecasting Company was begun on July 30, 1984, without prior notification being given to plant personnel. Mr. Phillip Meeker was contacted upon arrival at the facility. After presentation of EPA credentials, I explained the purpose of the inspection and requested assistance in identifying the proper sampling location. An ISCO Model 1580 automatic wastewater sampler was installed at the effluent of the industrial plating waste treatment process. The sampler Teflon intake tube was suspended in the flow just downstream of the effluent Parshall flume. The sampler was stocked with ice and set to take equal volume samples each 30 minutes. Teflon tubing and a precleaned three-gallon jug were used to allow samples to be used in bioscreen analysis, as well as to analyze for the NPDES permit parameters. The sampler was serviced for the next three consecutive days resulting in three sets of data.

In addition to collecting 24-hour composite samples at these two sites, grab samples were manually collected for analysis of oil and grease, and cyanide (both total and amenable or oxidizable) at the end of each 24-hour sampling period. A grab sample was also collected at the end of each sampling period for temperature and pH determinations.

Flow measurements were not made because the facility flow recorder was not operational. An attempt was made to manually measure flow, but flow depth in the Parshall flume varied from zero to several inches in five minutes making the use of instantaneous flow very questionable.

All of the samples were preserved in accordance with established procedures. The samples were iced during transport to the Region VII laboratory for analysis. Chain-of-custody procedures were followed during the sampling period.

The samples collected during the three days of sampling were split with the permittee for comparative analysis.

Joseph E. Joslin
Environmental Engineer
Date: 9/14/84
Activity No.: WJ74

Robert B. Dona
Chief, Field Investigations Section
Date: 9/21/84

Attachments:
A. NPDES Compliance Inspection Report (6 pages)
B. Industrial Residual Management Field Information Sheet (3 pages)
C. Bioscreen Report (2 pages)

ATTACHMENT A

Form Approved
OMB No. 158-R0073

NPDES COMPLIANCE IN[...]CTION REPORT (Coding Instructions on back [...] last page)

TRANSACTION CODE		NPDES	YR MO DA	TYPE	INSPECTOR	FAC TYPE	TIME
C	5	KS0001881	84 07 30	S	R	2	9:30 a.m.

REMARKS

ADDITIONAL

SECTION A - Permit Summary

NAME AND ADDRESS OF FACILITY (Include County, State and ZIP code)		EXPIRATION DATE / ISSUANCE DATE
KUHLMAN DIECASTING COMPANY, INC. 164TH & MISSION ROAD, P.O. BOX 23218 STANLEY, JOHNSON COUNTY, KANSAS 66223		EXPIRATION DATE: NOV. 2, 1987 ISSUANCE DATE: NOV. 3, 1982
RESPONSIBLE OFFICIAL: PHILLIP MEEKER	TITLE: ASST. OFFICE MANAGER	PHONE: (913) 681-2351
FACILITY REPRESENTATIVE:	TITLE:	PHONE:

SECTION B - Effluent Characteristics (Additional sheets attached ______)

PARAMETER/OUTFALL		MINIMUM	DAILY AVERAGE	DAILY MAXIMUM	ADDITIONAL
FLOW MGD	SAMPLE MEASUREMENT	0.13	0.260	0.45	DISCHARGERS SELF-MONITORING DATA
	PERMIT REQUIREMENT				FOR THE PERIOD OF JANUARY THROUGH JUNE, 1984
[illegible]DS #/day	SAMPLE MEASUREMENT	4.8 / 11.1	13.3 / 26	26 / 41.5	
	PERMIT REQUIREMENT		25 / –	35 / 125	
TSS mg/l #/day	SAMPLE MEASUREMENT	1.5 / 2.6	15 / 31.1	29 / 69.2	
	PERMIT REQUIREMENT		25 / –	35 / 125	
OIL & GREASE mg/l #/day	SAMPLE MEASUREMENT	0.6 / 1.2	2.0 / 3.9	6.5 / 12.1	
	PERMIT REQUIREMENT		10	15 / 54	
pH S.U.	SAMPLE MEASUREMENT	6.5		9.0	
	PERMIT REQUIREMENT	6.0		9.0	

SECTION C - Facility Evaluation (S = Satisfactory, U = Unsatisfactory, N/A = Not applicable) IND = INDETERMINATE

U	EFFLUENT WITHIN PERMIT REQUIREMENTS	S	OPERATION AND MAINTENANCE	U	SAMPLING PROCEDURES
U	RECORDS AND REPORTS	NA	COMPLIANCE SCHEDULE	IND	LABORATORY PRACTICES
U	PERMIT VERIFICATION	U	FLOW MEASUREMENTS		OTHER:

SECTION D - Comments

SECTION E - Inspection/Review

SIGNATURES	AGENCY	DATE	ENFORCEMENT DIVISION USE ONLY
INSPECTED BY [signature]	USEPA	Sept 11, 1984	COMPLIANCE STATUS ☐ COMPLIANCE ☐ NONCOMPLIANCE
[...]CTED BY			
REVIEWED BY			

Form Approved
OMB No. 158-R0073

NPDES COMPLIANCE INSPECTION REPORT (Coding Instructions on back of last page)

TRANSACTION CODE		NPDES	YR	MO	DA	TYPE	INSPECTOR	FAC TYPE	TIME
1	2 S	3–11	12		17	18	19	20	a.m. / p.m.

REMARKS

21 — 64

65 — 70 ADDITIONAL

SECTION A - Permit Summary

NAME AND ADDRESS OF FACILITY (Include County, State and ZIP code)		EXPIRATION DATE
		ISSUANCE DATE
RESPONSIBLE OFFICIAL	TITLE	PHONE
FACILITY REPRESENTATIVE	TITLE	PHONE

SECTION B - Effluent Characteristics (Additional sheets attached ________)

PARAMETER/ OUTFALL		MINIMUM	DAILY AVERAGE	DAILY MAXIMUM	ADDITIONAL
HEX CHROMIUM mg/l / #/day	SAMPLE MEASUREMENT	0 / 0	0.04 / 0.08	0.15 / 0.32	
	PERMIT REQUIREMENT			0.2 / 0.7	
TOTAL CHROMIUM / #/day	SAMPLE MEASUREMENT	0.26 / 0.46	0.48 / 0.98	1.45 / 3.22	
	PERMIT REQUIREMENT		0.5 / —	1.0 / 3.6	
TOTAL COPPER mg/l / #/day	SAMPLE MEASUREMENT	0 / 0	0.027 / 0.05	0.06 / 0.14	
	PERMIT REQUIREMENT			0.5 / 1.8	
TOTAL NICKEL mg/l / #/day	SAMPLE MEASUREMENT	0.12 / 0.32	0.38 / 0.75	0.72 / 1.62	
	PERMIT REQUIREMENT			0.5 / 1.8	
TOTAL ZINC mg/l / #/day	SAMPLE MEASUREMENT	0.01 / 0.01	0.02 / 0.04	0.03 / 0.06	
	PERMIT REQUIREMENT			0.5 / 1.8	

SECTION C - Facility Evaluation (S = Satisfactory, U = Unsatisfactory, N/A = Not applicable)

	EFFLUENT WITHIN PERMIT REQUIREMENTS		OPERATION AND MAINTENANCE		SAMPLING PROCEDURES
	RECORDS AND REPORTS		COMPLIANCE SCHEDULE		LABORATORY PRACTICES
	PERMIT VERIFICATION		FLOW MEASUREMENTS		OTHER

SECTION D - Comments

SECTION E - Inspection/Review

SIGNATURES	AGENCY	DATE	ENFORCEMENT DIVISION USE ONLY
INSPECTED BY			COMPLIANCE STATUS
INSPECTED BY			☐ COMPLIANCE ☐ NONCOMPLIANCE
REVIEWED BY			

Form Approved
OMB No. 158-R0073

NPDES COMPLIANCE INSPECTION REPORT *(Coding Instructions on back of last page)*

TRANSACTION CODE		NPDES	YR MO DA	TYPE	INSPECTOR	FAC TYPE	TIME
1	5 (2)	3–11	12–17	18	19	20	a.m. / p.m.

REMARKS (21–64)

(65–70) ADDITIONAL

SECTION A - Permit Summary

NAME AND ADDRESS OF FACILITY *(Include County, State and ZIP code)*		EXPIRATION DATE
		ISSUANCE DATE
RESPONSIBLE OFFICIAL	TITLE	PHONE
FACILITY REPRESENTATIVE	TITLE	PHONE

SECTION B - Effluent Characteristics *(Additional sheets attached ______)*

PARAMETER/ OUTFALL		MINIMUM	DAILY AVERAGE	DAILY MAXIMUM	ADDITIONAL
FREE CYANIDE mg/l / #/day	SAMPLE MEASUREMENT	NONE DETECTED			
	PERMIT REQUIREMENT	NO LIMIT			
TOTAL CYANIDE [illegible] / #/day	SAMPLE MEASUREMENT	0 / 0	0.004 / 0.008	0.02 / 0.038	
	PERMIT REQUIREMENT			0.05 / 0.2	
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				
	SAMPLE MEASUREMENT				
	PERMIT REQUIREMENT				

SECTION C - Facility Evaluation *(S = Satisfactory, U = Unsatisfactory, N/A = Not applicable)*

	EFFLUENT WITHIN PERMIT REQUIREMENTS		OPERATION AND MAINTENANCE		SAMPLING PROCEDURES
	RECORDS AND REPORTS		COMPLIANCE SCHEDULE		LABORATORY PRACTICES
	PERMIT VERIFICATION		FLOW MEASUREMENTS		OTHER.

SECTION D - Comments

SECTION E - Inspection/Review

SIGNATURES	AGENCY	DATE	ENFORCEMENT DIVISION USE ONLY
INSPECTED BY			COMPLIANCE STATUS
INSPECTED BY			☐ COMPLIANCE ☐ NONCOMPLIANCE
[illegible]EWED BY			

Form Approved
OMB No. 158-R0073

Sections F thru L: Complete on all inspections, ... ppropriate. N/A = Not Applicable

PERMIT NO. KS-0001881

SECTION F - Facility and Permit Background

ADDRESS OF PERMITTEE IF DIFFERENT FROM FACILITY *(Including City, County and ZIP code)*	DATE OF LAST PREVIOUS INVESTIGATION BY EPA/STATE
	FINDINGS

SECTION G - Records and Reports

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. ☐ YES ☒ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

		YES	NO	N/A
(a) ADEQUATE RECORDS MAINTAINED OF:				
(i)	SAMPLING DATE, TIME, EXACT LOCATION	☐	☒	☐
(ii)	ANALYSES DATES, TIMES — NOT GIVEN ON LAB REPORT	☐	☒	☐
(iii)	INDIVIDUAL PERFORMING ANALYSIS — NOT GIVEN ON LAB REPORT	☐	☒	☐
(iv)	ANALYTICAL METHODS/TECHNIQUES USED — NOT GIVEN ON LAB REPORT	☐	☒	☐
(v)	ANALYTICAL RESULTS *(e.g., consistent with self-monitoring report data)*	☐	☐	☐
(b) MONITORING RECORDS *(e.g. flow, pH, D.O., etc.)* MAINTAINED FOR A MINIMUM OF THREE YEARS INCLUDING ALL ORIGINAL STRIP CHART RECORDINGS *(e.g. continuous monitoring instrumentation, calibration and maintenance records).*		☒	☐	☐
(c) LAB EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS KEPT. — IS NOT DETERMINED		☐	☐	☐
(d) FACILITY OPERATING RECORDS KEPT INCLUDING OPERATING LOGS FOR EACH TREATMENT UNIT.		☐	☒	☐
(e) QUALITY ASSURANCE RECORDS KEPT. — UNKNOWN		☐	☐	☐
(f) RECORDS MAINTAINED OF MAJOR CONTRIBUTING INDUSTRIES *(and their compliance status)* USING PUBLICLY OWNED TREATMENT WORKS.		☐	☐	☒

SECTION H - Permit Verification

INSPECTION OBSERVATIONS VERIFY THE PERMIT. ☐ YES ☒ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

	YES	NO	N/A
(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE.	☒	☐	☐
(b) FACILITY IS AS DESCRIBED IN PERMIT. — NO INDUSTRIAL LAGOON	☐	☒	☐
(c) PRINCIPAL PRODUCT(S) AND PRODUCTION RATES CONFORM WITH THOSE SET FORTH IN PERMIT APPLICATION.	☒	☐	☐
(d) TREATMENT PROCESSES ARE AS DESCRIBED IN PERMIT APPLICATION.	☒	☐	☐
(e) NOTIFICATION GIVEN TO EPA/STATE OF NEW, DIFFERENT OR INCREASED DISCHARGES.	☐	☐	☒
(f) ACCURATE RECORDS OF RAW WATER VOLUME MAINTAINED.	☒	☐	☐
(g) NUMBER AND LOCATION OF DISCHARGE POINTS ARE AS DESCRIBED IN PERMIT.	☒	☐	☐
(h) CORRECT NAME AND LOCATION OF RECEIVING WATERS.	☒	☐	☐
(i) ALL DISCHARGES ARE PERMITTED.	☒	☐	☐

SECTION I - Operation and Maintenance

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. ☒ YES ☐ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

	YES	NO	N/A
(a) STANDBY POWER OR OTHER EQUIVALENT PROVISIONS PROVIDED.	☐	☒	☐
(b) ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	☐	☒	☐
(c) REPORTS ON ALTERNATE SOURCE OF POWER SENT TO EPA/STATE AS REQUIRED BY PERMIT.	☐	☐	☒
(d) SLUDGES AND SOLIDS ADEQUATELY DISPOSED.	☒	☐	☐
(e) ALL TREATMENT UNITS IN SERVICE.	☒	☐	☐
(f) CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATION AND MAINTENANCE PROBLEMS.	☒	☐	☐
(g) QUALIFIED OPERATING STAFF PROVIDED.	☒	☐	☐
(h) ESTABLISHED PROCEDURES AVAILABLE FOR TRAINING NEW OPERATORS.	☒	☐	☐
(i) FILES MAINTAINED ON SPARE PARTS INVENTORY, MAJOR EQUIPMENT SPECIFICATIONS, AND PARTS AND EQUIPMENT SUPPLIERS.	☒	☐	☐
(j) INSTRUCTIONS FILES KEPT FOR OPERATION AND MAINTENANCE OF EACH ITEM OF MAJOR EQUIPMENT.	☒	☐	☐
(k) OPERATION AND MAINTENANCE MANUAL MAINTAINED.	☐	☐	☒
(l) SPCC PLAN AVAILABLE. — SINGLE 200 GALLON GASOLINE UNDERGROUND	☐	☐	☒
(m) REGULATORY AGENCY NOTIFIED OF BY PASSING. *(Dates ______ ______)*	☐	☐	☒
(n) ANY BY-PASSING SINCE LAST INSPECTION.	☐	☒	☐
(o) ANY HYDRAULIC AND/OR ORGANIC OVERLOADS EXPERIENCED.	☐	☒	☐

Form Approved
OMB No. 158-R0073

PERMIT NO. KS-0001881

SECTION J - Compliance Schedules

PERMITTEE IS MEETING COMPLIANCE SCHEDULE. ☐ YES ☐ NO ☒ N/A *(Further explanation attached ___)*

CHECK APPROPRIATE PHASE(S):

☐ (a) THE PERMITTEE HAS OBTAINED THE NECESSARY APPROVALS FROM THE APPROPRIATE AUTHORITIES TO BEGIN CONSTRUCTION.
☐ (b) PROPER ARRANGEMENT HAS BEEN MADE FOR FINANCING *(mortgage commitments, grants, etc.)*.
☐ (c) CONTRACTS FOR ENGINEERING SERVICES HAVE BEEN EXECUTED.
☐ (d) DESIGN PLANS AND SPECIFICATIONS HAVE BEEN COMPLETED.
☐ (e) CONSTRUCTION HAS COMMENCED.
☐ (f) CONSTRUCTION AND/OR EQUIPMENT ACQUISITION IS ON SCHEDULE.
☐ (g) CONSTRUCTION HAS BEEN COMPLETED.
☐ (h) START-UP HAS COMMENCED.
☐ (i) THE PERMITTEE HAS REQUESTED AN EXTENSION OF TIME.

SECTION K - Self-Monitoring Program

Part 1 – Flow measurement *(Further explanation attached ___)*

	YES	NO	N/A
PERMITTEE FLOW MEASUREMENT MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS: SANITARY SEWAGE FLOW CANNOT BE MEASURED	☐	☒	☐
a. PRIMARY MEASURING DEVICE PROPERLY INSTALLED. INDUSTRIAL FLOW ONLY	☒	☐	☐
TYPE OF DEVICE. ☐ WEIR ☒ PARSHALL FLUME ☐ MAGMETER ☐ VENTURI METER ☐ OTHER (Specify ___)			
b. CALIBRATION FREQUENCY ADEQUATE. *(Date of last calibration* RECORDER BROKEN*)*	☒	☐	☐
c. PRIMARY FLOW MEASURING DEVICE PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
d. SECONDARY INSTRUMENTS *(totalizers, recorders, etc.)* PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
e. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGES OF FLOW RATES	☒	☐	☐

Part 2 – Sampling *(Further explanation attached ___)*

	YES	NO	N/A
PERMITTEE SAMPLING MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS	☐	☐	☐
a. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.	☒	☐	☐
b. PARAMETERS AND SAMPLING FREQUENCY AGREE WITH PERMIT.	☒	☐	☐
c. PERMITTEE IS USING METHOD OF SAMPLE COLLECTION REQUIRED BY PERMIT. IF NO ☒ GRAB ☒ MANUAL COMPOSITE ☐ AUTOMATIC COMPOSITE FREQUENCY HOURLY	☐	☐	☐
d. SAMPLE COLLECTION PROCEDURES ARE ADEQUATE.	☐	☒	☐
(i) SAMPLES REFRIGERATED DURING COMPOSITING	☐	☒	☐
(ii) PROPER PRESERVATION TECHNIQUES USED NO PRESERVATION	☐	☒	☐
(iii) FLOW PROPORTIONED SAMPLES OBTAINED WHERE REQUIRED BY PERMIT	☒	☐	☐
(iv) SAMPLE HOLDING TIMES PRIOR TO ANALYSES IN CONFORMANCE WITH 40 CFR 136.3	☒	☐	☐
e. MONITORING AND ANALYSES BEING PERFORMED MORE FREQUENTLY THAN REQUIRED BY PERMIT	☐	☒	☐
f. IF e IS YES, RESULTS ARE REPORTED IN PERMITTEE'S SELF-MONITORING REPORT.	☐	☐	☒

Part 3 – Laboratory *(Further explanation attached ___)*

	YES	NO	N/A
PERMITTEE LABORATORY PROCEDURES MEET THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS: NOT DETERMINED – FACILITY USES CONTRACT LABORATORY	☐	☐	☐
a. EPA APPROVED ANALYTICAL TESTING PROCEDURES USED. (40 CFR 136.3)	☐	☐	☐
b. IF ALTERNATE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED	☐	☐	☐
c. PARAMETERS OTHER THAN THOSE REQUIRED BY THE PERMIT ARE ANALYZED.	☐	☐	☐
d. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.	☐	☐	☐
e. QUALITY CONTROL PROCEDURES USED	☐	☐	☐
f. DUPLICATE SAMPLES ARE ANALYZED ___ % OF TIME.	☐	☐	☐
g. SPIKED SAMPLES ARE USED. ___ % OF TIME.	☐	☐	☐
h. COMMERCIAL LABORATORY USED.	☒	☐	☐
i. COMMERCIAL LABORATORY STATE CERTIFIED.	☒	☐	☐

LAB NAME: M.D. CHEMICAL & TESTING

LAB ADDRESS: 5205 S.W. DRIVE, SUITE B
TOPEKA, KS 66614
(913) 273-1503

REPORT OF PERFORMANCE AUDIT INSPECTION

AT

KUHLMAN DIECASTING COMPANY, INCORPORATED

STANLEY, KANSAS

NPDES NUMBER: KS-0001881

JULY 9, 1986

BY

U. S. ENVIRONMENTAL PROTECTION AGENCY
Region VII
Environmental Services Division

INTRODUCTION

At the request of the Water Compliance Branch, Water Management Division, a performance audit inspection (PAI) was conducted at the facilities of the Kuhlman Diecasting Company, Stanley, Kansas, on July 9, 1986. The methodology of the persons responsible for sampling was discussed and the locations of the sampling sites were observed. Kuhlman Diecasting Company contracts with M. D. Chemical and Testing of Topeka, Kansas, for all analytical work. No samples were taken, but self-monitoring data were observed from the discharge monitoring reports.

An inspection of the wastewater treatment facilities was also conducted and the operation of this facility was observed. Details of the inspection will be found on the attached EPA NPDES Compliance Inspection Form 3560-3.

PARTICIPATING PERSONNEL

U. S. Environmental Protection Agency (EPA):
  Carl Bailey, Environmental Scientist

Kuhlman Diecasting Company:
  Philip Meeker, General Manager
  Duane Kiewitt, Chemical Engineer

DESCRIPTION OF FACILITY

The Kuhlman Diecasting Company, Incorporated, facility is located southeast of Stanley, Kansas. The operations at the facility consist of zinc alloy diecasting and plating of chrome, copper, and nickel on aluminum, plastic, and zinc diecasting. The plant currently employs about 170 people and operates a 24-hour per day, five day per week basis.

Raw water for facility use is obtained from Johnson County Rural Water District No. 2. Water in the past has been taken from the Blue River and treated on site, but this practice has been discontinued due to economic considerations.

All of the sanitary wastewater is separate from the process wastes and is treated by a two-cell stabilization pond system (see Figure 2). Flow to the system is via gravity. Due to the low volume of wastewater discharged to the ponds and to evaporation/percolation in the ponds, there is normally no discharge from this system. Currently, there is no provision to discharge from the lagoon system because of modification to the piping system.

The process wastewater consists of primarily plating bath and rinse water, but also includes some boiler blowdown and cooling water from the diecasting operations. Approximately 90% of plating is on zinc while the remainder is on plastic or other material. The chromium wastes from the chrome plating operations and the cyanide wastes from the copper plating operations are segregated from the other waste streams and are pretreated prior to combining them with the other waste streams. The chromium wastes are treated with sulfur dioxide to reduce hexavalent chromium to the trivalent form. The cyanide wastes are treated with caustic soda (sodium hydroxide) for pH adjustment and sodium hypochlorite to oxidize cyanide to cyanate. These waste streams combined with the rest of the process wastewater just ahead of the Parshall flume at the inlet to the flocculation basin. Hydrated lime (calcium hydroxide) and a polymer are added to the wastewater in the flocculation basin for pH control and precipitation of metals. After sedimentation, all water is filtered in a "Dynasand" single media, upflow filter. The final effluent flows by gravity to Outfall 001 which discharges to the Blue River.

Sludge from the sedimentation basin is pumped out utilizing a small diaphragm pump with a suction hose attached. The suction hose is positioned in the sludge at different locations in the sedimentation basin to facilitate sludge removal. The sludge is pumped to a filter press unit for dewatering. Filtrate from filtering is returned to the treatment processes. The dewatered sludge is dumped into a small metal container which is emptied into a metal gondola. The gondola is transported to USPCI, Lone Mountain, Oklahoma, for final sludge disposal.

FINDINGS

1. The FY-86 DMR-QA audit sample data submitted by this laboratory were acceptable for all parameters except cyanide.

2. DMR data showed permit limitation exceedances during the last quarter for chromium, copper, and nickel.

3. Oil and grease samples are collected in a plastic bottle.

4. The NPDES permit requires eight-hour composite samples to be collected; however, the company operates 24 hours per day six days a week.

RECOMMENDATIONS

1. Oil and grease samples must be collected in glass containers in accordance with standard methods.

2. We recommend that the eight-hour composite sample now required be increased to a 24-hour composite sample to more effectively measure pollutant concentration in the waste discharged.

C A Bailey

Carl A. Bailey
Environmental Scientist
Date: 7/18/86
Activity No.: WXF38

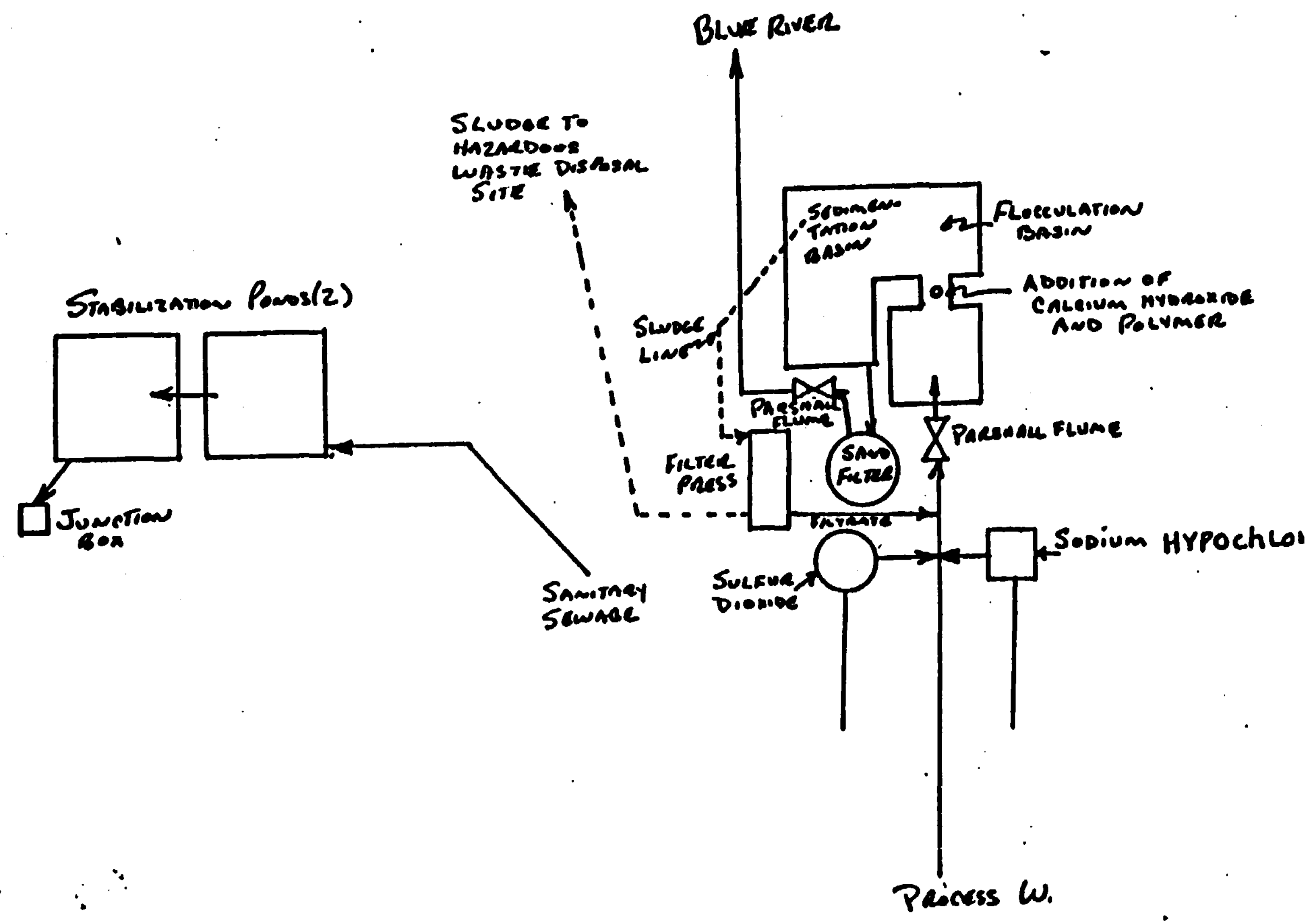
C A Bailey for Th

Thomas T. Holloway, Ph.D., Team Leader
Water and Analytical Support Team
Date: 7/18/86

Attachments
EPA Form 3560-3

FLOW DIAGRAM

KUHLMAN DIECASTING COMPANY, INC
STANLEY, KS



United States Environmental Protection Agency
Washington, D. C. 20460

EPA NPDES Compliance Inspection Report

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

Section A: National Data System Coding

Transaction Code 1 [ ] 2 [5] NPDES 3 [KS0011461] 11 yr/mo/day 12 [860709] 17 Inspection Type 18 [ ] Inspector 19 [ ] Fac Type 20 [ ]

Remarks

Reserved 67 [ ] 69 Facility Evaluation Rating 70 [ ] BI 71 [ ] QA 72 [X] Reserved 73 [ ] 74 75 [ ] 80

Section B: Facility Data

Name and Location of Facility Inspected	Entry Time / Exit Time/Date	Permit Effective Date / Permit Expiration Date
Kuhlman Diecasting Stanley, Kansas	Entry Time [X] AM [ ] PM 0900; Exit Time/Date 1130 7/9/86	Permit Effective Date 11/3/82; Permit Expiration Date 11/2/87
Name(s) of On-Site Representative(s): Duane Kiewitt	Title(s): Chem engineer	Phone No(s): 913 681-2351
Name, Address of Responsible Official: Phillip Meeker	Title: General Mgr; Phone No.	Contacted [ ] Yes [ ] No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

	Permit	S	Flow Measurement		Pretreatment		Operations & Maintenance
	Records/Reports	S	Laboratory		Compliance Schedules	S	Sludge Disposal
	Facility Site Review	U	Effluent/Receiving Waters		Self-Monitoring Program		Other

Section D: Summary of Findings/Comments *(Attach additional sheets if necessary)*

Parameter Outfall		Minimum	Average	Maximum	Additional
BOD	Sample Measurement				
	Permit Requirement		25		OK for conventionals
TSS	Sample Measurement				
	Permit Requirement		25		
O&G	Sample Measurement				Cr, Cu, Ni
	Permit Requirement		10		exceedances
pH	Sample Measurement				
	Permit Requirement	6		9	

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
CABailey	EPA 913 236 3884	7/9/86
Signature of Reviewer	Agency/Office	Date

Regulatory Office Use Only

Action Taken	Date	Compliance Status
		[ ] Noncompliance [ ] Compliance

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Sections F thru L: Complete on all inspections, as appropriate. N/A = Not Applicable	PERMIT NO.

SECTION F - Facility and Permit Background

ADDRESS OF PERMITTEE IF DIFFERENT FROM FACILITY (Including City, County and ZIP code)	DATE OF LAST PREVIOUS INVESTIGATION BY EPA/STATE
	FINDINGS

SECTION G - Records and Reports

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. ☐ YES ☐ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

	YES	NO	N/A
(a) ADEQUATE RECORDS MAINTAINED OF:			
(i) SAMPLING DATE, TIME, EXACT LOCATION	☐	☐	☐
(ii) ANALYSES DATES, TIMES	☐	☐	☐
(iii) INDIVIDUAL PERFORMING ANALYSIS	☐	☐	☐
(iv) ANALYTICAL METHODS/TECHNIQUES USED	☐	☐	☐
(v) ANALYTICAL RESULTS *(e.g., consistent with self-monitoring report data)*	☐	☐	☐
(b) MONITORING RECORDS *(e.g.,flow, pH, D.O., etc.)* MAINTAINED FOR A MINIMUM OF THREE YEARS INCLUDING ALL ORIGINAL STRIP CHART RECORDINGS *(e.g. continuous monitoring instrumentation, calibration and maintenance records).*	☐	☐	☐
(c) LAB EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS KEPT.	☐	☐	☐
(d) FACILITY OPERATING RECORDS KEPT INCLUDING OPERATING LOGS FOR EACH TREATMENT UNIT.	☐	☐	☐
(e) QUALITY ASSURANCE RECORDS KEPT.	☒	☐	☐
(f) RECORDS MAINTAINED OF MAJOR CONTRIBUTING INDUSTRIES *(and their compliance status)* USING PUBLICLY OWNED TREATMENT WORKS.	☐	☐	☒

SECTION H - Permit Verification

INSPECTION OBSERVATIONS VERIFY THE PERMIT. ☐ YES ☐ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

	YES	NO	N/A
(a) CORRECT NAME AND MAILING ADDRESS OF PERMITTEE.	☐	☐	☐
(b) FACILITY IS AS DESCRIBED IN PERMIT.	☐	☐	☐
(c) PRINCIPAL PRODUCT(S) AND PRODUCTION RATES CONFORM WITH THOSE SET FORTH IN PERMIT APPLICATION.	☐	☐	☐
(d) TREATMENT PROCESSES ARE AS DESCRIBED IN PERMIT APPLICATION.	☐	☐	☐
(e) NOTIFICATION GIVEN TO EPA/STATE OF NEW, DIFFERENT OR INCREASED DISCHARGES.	☐	☐	☐
(f) ACCURATE RECORDS OF RAW WATER VOLUME MAINTAINED.	☐	☐	☐
(g) NUMBER AND LOCATION OF DISCHARGE POINTS ARE AS DESCRIBED IN PERMIT.	☐	☐	☐
(h) CORRECT NAME AND LOCATION OF RECEIVING WATERS.	☐	☐	☐
(i) ALL DISCHARGES ARE PERMITTED.	☒	☐	☐

SECTION I - Operation and Maintenance

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. ☒ YES ☐ NO ☐ N/A *(Further explanation attached ______)*

DETAILS:

	YES	NO	N/A
(a) STANDBY POWER OR OTHER EQUIVALENT PROVISIONS PROVIDED.	☐	☐	☒
(b) ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	☐	☐	☒
(c) REPORTS ON ALTERNATE SOURCE OF POWER SENT TO EPA/STATE AS REQUIRED BY PERMIT.	☐	☐	☒
(d) SLUDGES AND SOLIDS ADEQUATELY DISPOSED.	☒	☐	☐
(e) ALL TREATMENT UNITS IN SERVICE.	☒	☐	☐
(f) CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATION AND MAINTENANCE PROBLEMS.	☒	☐	☐
(g) QUALIFIED OPERATING STAFF PROVIDED. Chem E	☒	☐	☐
(h) ESTABLISHED PROCEDURES AVAILABLE FOR TRAINING NEW OPERATORS.	☐	☒	☐
(i) FILES MAINTAINED ON SPARE PARTS INVENTORY, MAJOR EQUIPMENT SPECIFICATIONS, AND PARTS AND EQUIPMENT SUPPLIERS.	☒	☐	☐
(j) INSTRUCTIONS FILES KEPT FOR OPERATION AND MAINTENANCE OF EACH ITEM OF MAJOR EQUIPMENT.	☒	☐	☐
(k) OPERATION AND MAINTENANCE MANUAL MAINTAINED.	☒	☐	☐
(l) SPCC PLAN AVAILABLE.	☒	☐	☐
(m) REGULATORY AGENCY NOTIFIED OF BY PASSING. *(Dates ______ ______)*	☐	☐	☒
(n) ANY BY-PASSING SINCE LAST INSPECTION.	☐	☐	☒
(o) ANY HYDRAULIC AND/OR ORGANIC OVERLOADS EXPERIENCED.	☐	☐	☒

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OMB No. 158-R0073

[redacted]

PERMIT NO.

SECTION J - Compliance Schedules

PERMITTEE IS MEETING COMPLIANCE SCHEDULE. ☐ YES ☐ NO ☒ N/A *(Further explanation attached ______)*

CHECK APPROPRIATE PHASE(S):

- ☐ (a) THE PERMITTEE HAS OBTAINED THE NECESSARY APPROVALS FROM THE APPROPRIATE AUTHORITIES TO BEGIN CONSTRUCTION.
- ☐ (b) PROPER ARRANGEMENT HAS BEEN MADE FOR FINANCING *(mortgage commitments, grants, etc.)*.
- ☐ (c) CONTRACTS FOR ENGINEERING SERVICES HAVE BEEN EXECUTED.
- ☐ (d) DESIGN PLANS AND SPECIFICATIONS HAVE BEEN COMPLETED.
- ☐ (e) CONSTRUCTION HAS COMMENCED.
- ☐ (f) CONSTRUCTION AND/OR EQUIPMENT ACQUISITION IS ON SCHEDULE.
- ☐ (g) CONSTRUCTION HAS BEEN COMPLETED.
- ☐ (h) START-UP HAS COMMENCED.
- ☐ (i) THE PERMITTEE HAS REQUESTED AN EXTENSION OF TIME.

SECTION K - Self-Monitoring Program

Part 1 – Flow measurement *(Further explanation attached ______)*

	YES	NO	N/A
PERMITTEE FLOW MEASUREMENT MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS:	☒	☐	☐
(a) PRIMARY MEASURING DEVICE PROPERLY INSTALLED.	☒	☐	☐
TYPE OF DEVICE: ☐ WEIR ☒ PARSHALL FLUME ☐ MAGMETER ☐ VENTURI METER ☐ OTHER *(Specify* Sonic			
(b) CALIBRATION FREQUENCY ADEQUATE. *(Date of last calibration ______)*	☒	☐	☐
(c) PRIMARY FLOW MEASURING DEVICE PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
(d) SECONDARY INSTRUMENTS *(totalizers, recorders, etc.)* PROPERLY OPERATED AND MAINTAINED.	☒	☐	☐
(e) FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGES OF FLOW RATES.	☒	☐	☐

Part 2 – Sampling *(Further explanation attached ______)*

	YES	NO	N/A
PERMITTEE SAMPLING MEETS THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS	☒	☐	☐
(a) LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES	☒	☐	☐
(b) PARAMETERS AND SAMPLING FREQUENCY AGREE WITH PERMIT.	☒	☐	☐
(c) PERMITTEE IS USING METHOD OF SAMPLE COLLECTION REQUIRED BY PERMIT. IF NO ☐ GRAB ☒ MANUAL COMPOSITE ☐ AUTOMATIC COMPOSITE FREQUENCY 8h	☒	☐	☐
(d) SAMPLE COLLECTION PROCEDURES ARE ADEQUATE.	☒	☐	☐
(i) SAMPLES REFRIGERATED DURING COMPOSITING	☐	☐	☐
(ii) PROPER PRESERVATION TECHNIQUES USED	☐	☐	☐
(iii) FLOW PROPORTIONED SAMPLES OBTAINED WHERE REQUIRED BY PERMIT	☐	☐	☒
(iv) SAMPLE HOLDING TIMES PRIOR TO ANALYSES IN CONFORMANCE WITH 40 CFR 136.3	☐	☐	☐
(e) MONITORING AND ANALYSES BEING PERFORMED MORE FREQUENTLY THAN REQUIRED BY PERMIT.	☐	☐	☐
(f) IF (e) IS YES, RESULTS ARE REPORTED IN PERMITTEE'S SELF-MONITORING REPORT.	☐	☐	☐

Part 3 – Laboratory *(Further explanation attached ______)*

	YES	NO	N/A
PERMITTEE LABORATORY PROCEDURES MEET THE REQUIREMENTS AND INTENT OF THE PERMIT. DETAILS	☐	☐	☐
(a) EPA APPROVED ANALYTICAL TESTING PROCEDURES USED. *40 CFR 136.3*	☐	☐	☐
(b) IF ALTERNATE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED.	☐	☐	☐
(c) PARAMETERS OTHER THAN THOSE REQUIRED BY THE PERMIT ARE ANALYZED.	☐	☐	☐
(d) SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT	☐	☐	☐
(e) QUALITY CONTROL PROCEDURES USED	☐	☐	☐
(f) DUPLICATE SAMPLES ARE ANALYZED. ___ % OF TIME	☐	☐	☐
(g) SPIKED SAMPLES ARE USED. ___ % OF TIME	☐	☐	☐
(h) COMMERCIAL LABORATORY USED.	☐	☐	☐
(i) COMMERCIAL LABORATORY STATE CERTIFIED.	☐	☐	☐

LAB NAME MD Chem + Testing

LAB ADDRESS Topeka, KS

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	PERMIT NO.

SECTION L - Effluent/Receiving Water Observations *(Further explanation attached ______)*

L NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	VISIBLE FLOAT SOL	COLOR	OTHER

(Sections M and N: Complete as appropriate for sampling inspections)

SECTION M - Sampling Inspection Procedures and Observations *(Further explanation attached ______)*

- ☐ GRAB SAMPLES OBTAINED
- ☐ COMPOSITE OBTAINED
- ☐ FLOW PROPORTIONED SAMPLE
- ☐ AUTOMATIC SAMPLER USED
- ☐ SAMPLE SPLIT WITH PERMITTEE
- ☐ CHAIN OF CUSTODY EMPLOYED
- ☐ SAMPLE OBTAINED FROM FACILITY SAMPLING DEVICE

COMPOSITING FREQUENCY ____________________ PRESERVATION ____________________

AN EFRIGERATED DURING COMPOSITING: ☐ YES ☐ NO

AM REPRESENTATIVE OF VOLUME AND NATURE OF DISCHARGE ____________________

SECTION N - Analytical Results *(Attach report if necessary)*

3. The inspection revealed the following violations of Kansas Hazardous Waste Administrative Regulations:

a. Kuhlman Diecasting Company has not notified the Kansas Department of Health and Environment that they are generating waste cyanide solution from an electroplating operation. This notification is required by K.A.R. 28-31-4(e).

b. Kuhlman Diecasting Company did not have the words "Hazardous Waste" or the accumulation start date marked on one drum of waste 1,1,1-Trichloroethane, one drum of waste cyanide solution, and the gondola of wastewater treatment sludge as required by K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

c. One (55-gallon) drum of waste 1,1,1-Trichloroethane located in the maintenance shop was open which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

d. Upon request of the inspector, Kuhlman Diecasting Company could not provide the required placards which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.33,

e. Kuhlman Diecasting Company is not conducting weekly inspections of the hazardous waste storage areas as required by K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34 or documenting these inspections in a log as required by K.A.R. 28-31-4(d).

f. Kuhlman Diecasting Company has not conducted a hazardous waste management personnel training program since May 16, 1985, which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

g. Kuhlman Diecasting Company has not made arrangements with the emergency response agencies to familiarize them with the properties of hazardous wastes handled, layout of the facility, and the types of injuries which could result which is a violation of K.A.R. 28-31-4, incorporating by reference 40 CFR 262.34.

4. The inspection also revealed that Kuhlman Diecasting Company has been disposing of waste paint and paint thinner by dumping it on the ground outside of their paint booths, on southwest corner of the plant. The waste paint and paint thinner meet the definition of "solid waste" as described in K.S.A. 65-3402(a). The disposal of the waste paint and paint thinner by open dumping is a violation of K.S.A. 65-3409(a)(5).

5. Based on correspondence received from Kuhlman Diecasting Company, steps are being taken to correct the areas of noncompliance which were identified by the Kansas Department of Health and Environment.

6. Upon finding that a person has violated any provision of K.S.A. 65-3441, the Director of the Division of Environment, pursuant to K.S.A. 65-3446, may impose a penalty not to exceed $10,000 which shall constitute an actual and substantial economic deterrent to the violation for which it is assessed and, in the case of a continuing violation, every day such violation continues shall be deemed a separate violation.

7. Upon finding that a person has violated any provision of K.S.A. 65-3409, the Director of the Division of Environment, pursuant to K.S.A. 65-3419, may impose a penalty not to exceed $500 which shall constitute an actual and substantial economic deterrent to the violation for which it is assessed and, in the case of a continuing violation, every day such violation continues shall be deemed a separate violation.

8. The Director of the Division of Environment concludes that the actions and omissions by Kuhlman Diecasting Company described in Section 3 of this Order constitute violations of K.A.R. 28-31-4 and therefore, a violation of K.S.A. 65-3441(a)(4). Furthermore, the Director of the Division of Environment concludes that the actions described in Section 4 of this Order constitute violations of K.S.A. 65-3409(a)(5).

Order

The Director of the Division of Environment finds that Kuhlman Diecasting Company should be assessed an administrative penalty for the above noted violations of K.S.A. 65-3441 and K.S.A. 65-3409, to deter future violations of the Kansas Solid and Hazardous Waste Statutes and Regulations. Therefore, pursuant to K.S.A. 65-3446(a) and K.S.A. 65-3419, Kuhlman Diecasting Company is hereby assessed and ordered to pay an administrative penalty of $6,000 for violations of K.A.R. 28-31-4, K.S.A. 65-3441 and K.S.A. 65-3409.

Kuhlman Diecasting Company is further ordered to submit payment of all penalties ($6,000) to the Kansas Department of Health and Environment, Forbes Field, Building 740, Topeka, Kansas 66620, within thirty (30) days of receipt of this Order. Notice confirming payment of the civil penalty should be sent to the Legal Office, Department of Health and Environment, Forbes Field, Building 728, Topeka, Kansas 66620.

Appeal Rights

Kuhlman Diecasting Company may appeal this Order by filing a written Notice of Appeal which states the specific legal and factual grounds upon which relief is requested. Said written Notice of Appeal must be sent to Jack D. Walker, M.D., Secretary, Department of Health and Environment, Forbes Field, Building 740, Topeka, Kansas 66620. Such Notice of Appeal must be received by the Secretary within 15 days from the date this Order is received.

IT IS BY THE DIRECTOR OF THE DIVISION OF ENVIRONMENT SO ORDERED ON THIS 11th DAY OF MARCH 1987.

James A. Power, Jr., Acting Director
Division of Environment

Certificate of Mailing

I hereby certify that on the 11th day of March 1987, a true and correct copy of the above foregoing Order was mailed to Mr. Phillip Meeker, Kuhlman Diecasting Company, 164th and Mission Road, Stanley, Kansas 66223; and to Resident Agent for Kuhlman Diecasting Company, Mr. William E. Brumwell, 164th and Mission Road, Stanley, Kansas 66223, by depositing the same in a properly addressed envelope, postage prepaid, certified mail, return receipt requested, in the U.S. mail.

Michelle West
Staff Member

Certified Mail Nos. 128 656 116 Mr. Phillip Meeker
128 656 117 Mr. William E. Brumwell

BUREAU OF WASTE MANAGEMENT

PENALTY ASSESSMENT WORKSHEET

Name of Facility: Kuhlman Diecasting Co.
Address: 164th. & Mission Rd.
Stanley, Ks.

Violation number	Violation	Penalty Range	Penalty Assessed
1	Failure to notify for cyanide solution	500 - 2000	$500
7	1 open container	50-200 per drum	$50
8	Failure to mark 3 containers: "Haz. waste" or accum. start date X 3	25-100 per drum	$~~300~~ 150
5	No placards	500 - 2000	$500
17	No weekly inspections X3 3 storage areas	500 - 2000	$3000
18	No personnel training since 5/16/85	500 - 2000	$1250
22	No arrangements with local authorities	400 - 1500	$400
	illegal disposal of solid waste		$500

Other Factors: $6,000

Total $~~6,500~~ 6,350

KUHLMAN DIECASTING COMPANY

May 13, 1987

RECEIVED
MAY 15 1987
K. D. H. E.
NORTHEAST D'S'T'RICT

Division of Environment
Bureau of Waste Management
Department of Health & Environment
808 West 24th Street
Lawrence, Kansas 66046-9417

ATTENTION: Mr. Jim Fischer

Dear Mr. Fischer:

Enclosed is a typed copy of the Emergency/Contingency Plan for Kuhlman Diecasting Company. Copies of this contingency plan have been sent to all Emergency Response Teams by certified mail.

The paint contaminated soil behind the paint shop has been removed and -t into drums. We are waiting for permission from Mr. Linn to dispose of a soil at the Miami County Landfill.

Also enclosed is a list containing chemicals used in our Quality Control Lab. The quantity is based on weekly useage. The disposal methods for lab wastes are enclosed in this list.

If I can supply you with other needed information, please feel free to contact my office.

Sincerely,

KUHLMAN DIECASTING COMPANY

Connie L Catron

Connie Catron
Chemical Engineer

CC:mh
Encls:

MIKE HAYDEN
Governor
JACK D. WALKER, M.D.
Secretary

STATE OF KANSAS

Forbes Field
Topeka, KS 66620-0001
(913) 862-9360

DEPARTMENT OF HEALTH AND ENVIRONMENT

May 13, 1987

Ms. Connie L. Catron
Kuhlman Diecasting Company
P. O. Box 23218
Stanley, Kansas 66223

Re: Industrial Solid Waste Disposal Authorization Number 2071

Dear Ms. Catron:

We have considered your request dated May 6, 1987, for disposal of approximately six cubic yards of paint contaminated soil.

Approval is given to dispose of this waste at the Miami County landfill operating under Kansas Permit 256 provided the following conditions are met:

1. Approval to deliver the waste must be obtained from the landfill operator prior to transporting the waste to the landfill. The final decision on whether to accept or reject the waste rests with the landfill operator. Please contact David Bilderback, Landfill Supervisor, telephone 913-294-4377 to obtain approval. If the landfill operator refuses to accept this waste you should contact us to determine alternate disposal options.

2. The waste must be transported separately to the landfill and be identified to the operator upon delivery.

3. Kansas Administrative Regulation 28-29-23(r) requires solid waste disposal facilities to maintain a log of commercial or industrial wastes received such as sludges, liquids, and barreled waste. The log must indicate the source and quantity of waste and the disposal location thereof. The industrial waste authorization number should be used as identification when entering the shipment into the log.

4. This approval is valid for only one shipment to the landfill. If additional shipments are required you must contact us to receive another disposal authorization.

If you have any questions, feel free to contact me.

Sincerely yours,

Charles H. Linn

Charles H. Linn, P.E., Chief
Solid Waste Section
Bureau of Waste Management

d/REK/mw

C John Paul Goetz
David Bilderback
Northeast District - Lisa Larsen

KUHLMAN DIECASTING COMPANY

April 17, 1987

This request was denied — Generator has requested disposal authorization for Miami Co. L/F

Johnson County Environmental Department
P. O. Box 39
Mission, Kansas 66201

ATTENTION: Ms. Prilutsky, Environmental Specialist

SUBJECT: Special Waste Disposal Request for contaminated soil.

Dear Ms. Prilutsky:

We are requesting permission to dispose of Reportedly Paint Contaminated Soil at a sanitary landfill in Johnson County. The disposal request is being made in response to a clean-up order from Kansas Department of Health and Environment.

22 drums of paint contaminated soil

Enclosed is the Waste Disposal Request Form and the analytical data for the soil.

If I can supply you with any other needed information, please feel free to contact my office.

Very truly yours,

KUHLMAN DIECASTING COMPANY

Connie Catron
Chemical Engineer

CC:mh

REPORT OF RCRA COMPLIANCE INSPECTION

KUHLMAN DIE CASTING COMPANY

STANLEY, KANSAS

EPA ID NO.: KSD006325013

CONDUCTED MAY 6, 1982

BY

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VII
ENVIRONMENTAL SERVICES DIVISION

INTRODUCTION

At the request of the Air and Waste Management Division, a compliance evaluation inspection of the Kuhlman Plant was conducted on May 6, 1982. This investigation was made to determine whether the Kuhlman facility is in compliance with the State of Kansas Interim Status Hazardous Waste regulations established under the Resource Conservation and Recovery Act of 1976, as amended. The inspection was performed to investigate potential problems found during a State of Kansas inspection conducted January 15, 1982, and to determine whether the facility should be issued an Interim Status Compliance Letter. This narrative report and attachments presents the results of that EPA inspection.

PARTICIPATING PERSONNEL

Kuhlman: William E. Brumwell, Vice President
Phillip Meeker, Office Manager

KDHE: G. Paul Belt, Bureau of Environmental Sanitation

U.S. EPA: Craig W. Smith, P.E., Environmental Engineer

FACILITY DESCRIPTION

This plant die casts zinc parts and plates zinc, aluminum and plastic parts with copper, nickel and chromium. Approximately 1,000 tons per year of zinc alloy (approximately 4% aluminum) are die cast with approximately one-half the zinc parts being plated on site. Approximately 90% of the parts plated are zinc, approximately 5% are aluminum and 5% are plastic. An adequate process description may be found in the March 10-13, 1980, Water Compliance Monitoring Inspection. Additional information about the operations at this facility is in a copy of the company's brochure (attached). In late 1980, the company began operating an additional automated hoist plating line.

is plant has generated waste plating sludge (F006) since 1972 when the plating wastewater treatment plant came on line. From 1972 until late 1980, unfiltered wastewater treatment sludge was pumped to an "evaporation" lagoon on the northwestern part of the site. Mr. Meeker stated that the sludge in this lagoon measures approximately 90 feet x 120 feet x 1 foot deep (10,800 cubic feet, 400 cubic yards). This lagoon is not shown in the EPA water inspector's map, but is visible in the aerial photograph that accompanies the attached soils data. Since late 1980, the sludge has been thickened on a gravity paper filter and deposited on a covered waste pile pursuant to a KDHE request. This covered waste pile consists of a fixed roof petroleum storage tank with a large door cut in the side at ground level. It is pictured in the appendix. The wastewater treatment system liquor flows to the industrial waste lagoon for final settling then on to the Blue River. This lagoon is shown on the EPA water inspection report map.

DISCUSSION

On May 6, 1982, at approximately 10:00 a.m., the author met with Messrs. Brumwell and Meeker in the Vice President's office. The author presented credentials, explained the purpose and scope of the inspection, reviewed the process description, discussed the process changes described above, discussed the composition and amount of the various waste streams and their disposition and completed the checklist (copy attached). Then, at the author's request, the company representatives conducted a tour of the casting, machining and finishing, plating, painting, and wastewater reatment areas in the plant building. The tour of the plant grounds included the inactive sludge lagoon and the active covered waste pile, but did not include the industrial wastewater lagoon. The author was not aware of the existence of the wastewater lagoon at the time of the inspection, but was informed of its existence by Mr. Joseph Joslin of EPA in a conversation following the inspection. At the end of the inspection, the author conducted a brief exit interview and reported on his findings. Although confidentiality issues were not specifically discussed, no company representative expressed any concerns about confidentiality or objected to photographs.

FINDINGS AND CONCLUSIONS

Copies of four waste analyses are attached. The three earlier analyses are of sludge taken from the filter discharge. The most recent analysis was performed on a sample of sludge taken about half way down near the center of the inactive lagoon per Mr. Brumwell. He stated that they had switched labs because of costs, service, and uncertainty about the accuracy of results. As indicated in the file, this company submitted, then later withdrew, a delisting petition for their wastes. Based on process knowledge, Mr. Brumwell stated that the sludge currently being generated will probably remain hazardous due to its nickel content, which is greater due to operation of the new automated hoist plating line. Since the sludge stored (disposed of) in the inactive lagoon was

generated prior to operation of the new plating line its nickel content is expected to be lower per Mr. Brumwell. He described the lagoon construction as a cut and fill operation where a bulldozer pushed earth from the center of the lagoon area outward to form the berm on two sides. The river levee forms the other two lagoon sides. Soils data in the appendix indicates that the soil type expected to be found at this site is highly permeable as compared to tight clay soils. Therefore, over time, rainfall may have passed through the sludge leaching its hazardous constituents and reducing their concentration in the stored sludge. Since no detailed geologic assessment of this site is known to exist and since ground water monitoring is not being performed, it is not known whether leachate migration has occurred. Nonetheless, Mr. Brumwell expressed intent to continue pursuing a delisting petition for the sludge in this inactive storage lagoon.

The inspection checklist, attached, sites specific deficiencies in complying with the Part 265 requirements. Those requirements have been basically ignored b9 this company.

The active waste pile, referred to above and pictured in the appendix, is considered a waste pile rather than a storage tank because the former tank which forms the cover over and the base under the pile is incapable of storing any significant quantity of liquids, slurries or flowable sludges. Mr. Brumwell stated that the floor is made of steel covered with tar paper and tar. The waste piled in this structure is effectively sheltered from the wind, thereby, minimizing fugitive dusting. Mr. Brumwell stated that, at the time of the inspection, approximately 1,600 cubic feet of sludge was being stored in this enclosure.

In the conversation with Mr. Joslin following this inspection, he stated that some sludge had settled to the bottom of the industrial waste lagoon which receives the plating wastewater treatment system liquor. This material should be quantified and analyzed.

At one time Kuhlman had accumulated approximately 25 55-gallon drums of listed waste, paint cleanup solvents (predominantly toluene and isopropyl alcohol per Mr. Brumwell). These wastes were shipped to McKesson under the attached manifest. At the time of this inspection, no such wastes were being stored on the site due to a lower generation rate. Large quantities of solvent are used for cleaning a masker painter which has been relatively inactive lately. Paint booth filters are burned on the site and had not been analyzed, per Mr. Meeker. The only other wastes generated include approximately one barrel per year of degreaser sludge, parts polisher/buffer lint (with abrasive) and trash.

EXIT INTERVIEW

In this discussion, the author cited the general lack of compliance with the Part 265 requirements and Kuhlman's relative inactivity on pursuring approval of a waste delisting petition. The November 17, 1980 Federal Register, which discussed the exemptions for wastewater treatment facilities, was discussed and a copy was left.

Craig W. Smith, P.E.
Environmental Engineer
Date: 5/24/82

John R. Helvig
Chief, Air Section
Date: 5-24-82

Attachments

E[illegible]IDENTIFICATION NUMBER

RCRA INSPECTION REPORT - INTERIM STATUS STANDARDS

I. General Information:

(A) Facility Name: See letterhead Brunswick Meeker

(B) Street: ______

(C) City: ______ (D) State: ______ (E) Zip Code: ______

(F) Phone: ______ (G) County: ______

(H) Operator: ______

(I) Street: ______

(J) City: ______ (K) State: ______ (L) Zip Code: ______

(M) Phone: ______ (N) County: ______

(O) Owner: ______

(P) Street: ______

(Q) City: ______ (R) State: ______ (S) Zip Code: ______

(T) Phone: ______ (U) County: ______

(V) Type of Ownership: ______ Federal ______ Municipal ✓ Privately held Corporation ______ State ______ County

(W) Date of Inspection: 4/5 (Q) Time of Inspection (From) 10 A (To) ______

(X) Weather Conditions: It drizzel ≈50°F

(Y) Person(s) Interviewed | Title | Telephone

M

) Inspection Participants | Title | Telephone

WS

Belt | state

II. Description of Site Activity

none shipped yet

(A) no Generator (Form 2)

(B) ____ Transporter (Form 3)

(C) no Chemical, Physical and Biological Treatment (Form 4)

(D) x Storage (Form 5) bulk in tanks.

(E) ____ Landfill (Form 6)

(F) ____ Incineration (Form 7)

(____ Land Treatment (Form 4)

(H) ____ Thermal Treatment (Form 7)

(I) Comments: other = impoundment

[illegible] sludge fr 70 then until 80 to

≈64-70 to river or discharge

It been 16+ yrs

Supplemental forms (Listed in Parathesis) must be completed for each activity inspected. Attach all Supplemental forms to this report.

	Yes	No	Not Inspected	See Remark Number
(J) Has this facility Submitted a Part A Permit Application?	✓ late			

RCRA COMPLIANCE INSPECTION REF :
GENERATORS CHECKLIST

none yet.

Section A - EPA Identification No.

1. Does Generator have EPA I.D. No.? ___ Yes ___ No

   a. If yes, EPA I.D. No. ____________________

262.21 **Section B - Manifest**

1. Does generator ship waste off-site? ___ Yes ___ No

   see attached waste solvent shipment

   a. If no, do not fill out Sections B and D.

   b. If yes, identify primary off-site facility(s) Use narrative explanations sheet.)

2. Does generator use Manifest? ___ Yes ___ No

261.5 a. If no, is generator a small quantity generator? ___ Yes ___ No

   1. If yes, does generator indicate this when sending waste to a T/S/D facility ___ Yes ___ No

   b. If yes, does manifest include the following information?

   1. Manifest Document No. ___ Yes ___ No

   2. Generators Name, Mailing Address, Telephone No. ___ Yes ___ No

   3. Generator EPA I.D. No. ___ Yes ___ No

   4. Transporter(s) Name and EPA I.D. No. ___ Yes ___ No

   5. a. Facility Name, Address and & EPA I.D. No. ___ Yes ___ No
      b. Alternate Facility Name, Address and EPA ID NO. ___ Yes ___ No
      c. Instructions to return to generator if undeliverable? ___ Yes ___ No

   6. Waste information required by DOT - Shipping name, quantity, (weight, or vol.) containers (type and number.) ___ Yes ___ No

   7. Emergency Information (optional) (special handling instructions, phone no.) ___ Yes ___ No

see us

(8) Is the following certification on each manifest form? ___ Yes ___ No

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the EPA.

(9) Does Generator retain copies of Manifests? ___ Yes ___ No

If yes, complete a through e.

a. (1) Did generator sign and date all manifests? ___ Yes ___ No
(2) Who signed for generator? Name ___________ Title ___________

b. (1) Did generator obtain handwritten signature and date of acceptance from initial transporter? ___ Yes ___ No
(2) Who signed and dated for transporter? Name ___________ Title ___________

c. Does generator retain one copy of manifest signed by generator and transporter? ___ Yes ___ No

d. Do returned copies of manifest include facility owner/operator signature and date of acceptance? ___ Yes ___ No

e. Does generator retain copies for 3 years? ___ Yes ___ No

Section C - Hazardous Waste Determination

262.12 1. Does generator generate solid waste(s) listed in Subpart D (List of Hazardous Waste)? ___ Yes ___ No

a. If yes, list wastes and quantities (include EPA Hazardous Waste No.) F006

2. Does generator generate solid waste(s) that exhibit hazardous characteristics? (corrosovity, ignitability, reactivity, EP toxicity) ___ Yes ___ No

a. If yes, list wastes and quantities (include EPA Hazardous Waste No.) EP

b. Does generator determine characteristics by testing or by applying knowledge of processes? ___________ see analysis

1. If determined by testing, did generator use test methods in Part 261, Subpart C (or Equivalent)? ___ Yes ___ No

a. If equivalent test methods used, attach copy of equivalent methods used.

8. Are there any other solid wastes generated by generators? ___ Yes ___ No

If yes, did generator test all wastes to determine non-hazardous characteristics? ___ Yes ___ No

1. If no, list wastes and quantities deemed non-hazardous or processes from which non-hazardous waste was produced? (Use additional sheet if necessary.)

trash to [illegible]

dust collectors serve buffing & polishing [illegible]

lint & buffing [illegible] ... trash 1 bbl/wk or less

[illegible] to chrome plating

Section D - Pre-Transport Requirements

1. Does Generator package waste in accordance with 49 CFR 173 178, and 179? (DOT requirements) ___ Yes ___ No

265.174 2. a. Are containers to be shipped leaking or corroding? ___ Yes ___ No
b. Use sheet to describe containers and condition.
c. Is there evidence of heat generation from incompatible wastes in the containers? ___ Yes ___ No

262.32 3. Does the generator use DOT labeling requirements in accordance with 49 CFR 172? ___ Yes ___ No

4. Does the generator mark each package in accordance with 49 CFR 172? ___ Yes ___ No

5. Is each container of 110 gallons or less marked with the following label? ___ Yes ___ No

Label saying: HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal. If found, contact the nearest policy or public safety authority or the U.S. Environmental Protection Agency.

Generator's Name and Address ____________

____

Manifest Document Number ____________

see extra taken

262.33 6. Does generator have placards to offer to transporters? ✓ Yes ___ No

262.34 7. Accumulation Time

a. Are containers used to temporarily store waste before transport? ✓ Yes ___ No

to me hard
we 1/81
s pipid

1. If yes, is each container clearly dated?
Also, fill out rest of No. 7 (Accum. Time) ____ Yes ✓ No

b. 1. Does generator inspect containers for leakage or corrosion? (265.174 - inspections) ✓ Yes ____ No
2. If yes, with what frequency? roughly daily - would notice

c. Does generator locate containers holding ignitable or reactive waste at least 15 meters (50 feet) from the facility's property line? ✓ Yes ____ No
(265.176 - Special Requirements for Ignitable or Reactive wastes)
per M

NOTE: If tanks used, fill out checklist for tanks.

d. Are the containers labeled and marked in accordance with Section D 3, 4, & 5 of this form? ____ Yes ____ No
for

NOTE: If generator accumulates waste on-site, fill out checklist for General Facilities, Section B - Preparedness and Prevention, Section C - Contingency Plan and Emergency Procedures

e. Does generator comply with requirements for personnel training? (Attach checklist for 265.16 - Personnel Training) ____ Yes ____ No

8. Describe storage area. Use photos and narrative explanation sheet.

Section E - Recordkeeping and Records

1. Does gnerator keep the following reports for 3 years?

a. Manifests and signed copies from designated facilities? forever Yes ____ No
b. Annual reports na Yes ____ No
c. Exception Reports na Yes ____ No
d. Test results forever ~~Yes~~ ____ No

2. Where are records kept (at facility or elsewhere)? ____________
3. Who is in charge of keeping the records? Name ____________ Title ________

Section F - Special Conditions

262.50 1. Has generator received from or transported to a foreign source any hazardous waste? ____ Yes ✓ No
a. If yes, has he filed a notice with the Regional Administrator? ____ Yes ____ No
b. Is this waste manifested and signed by Foreign consignee? ____ Yes ____ No
c. If generator transported wastes out of the country, has he received confirmation of delivered shipment? ____ Yes ____ No
na

RCRA COMPLIANCE INSPECTION REPORT
FACILITIES CHECKLIST

Section A - General Facility Standards

262.12 1. Does facility have EPA Identification No.? ✓ Yes ___ No

A. If yes, EPA I.D. No. ______ see A ______
If no, explain ______________________

262.50 2. Has facility received hazardous waste from a foreign source? ___ Yes ✓ No

A. If yes, has he filed a notice with the Reg. Admin. N/a ___ Yes ___ No

265.13 **Waste Analysis**

3. Does facility maintain a copy of the waste analysis plan at the facility? ___ Yes ✓ No

A. If yes, does it include

(1) Parameters for which each waste will be analyzed? ___ Yes ___ No

(2) Test methods used to test for these parameters? ___ Yes ___ No

(3) Sampling method used to obtain sample? ___ Yes ___ No

just take a sample and send to lab

(4) Frequency with which the initial analysis will be reviewed or repeated? ___ Yes ___ No

(5) (for off-site facilities) Waste analyses that generators have agreed to supply? ___ Yes ___ No

(6) (for off-site facilities) Procedures which are used to inspect and analyze each movement of hazardous waste including:

a. Procedures to be used to determine the identity of each movement of waste? ___ Yes ___ No

b. Sampling method to be used to obtain representative sample of the waste to be identified? ___ Yes ___ No

265 4. Does the facility provide adequate security through

A. 24-hour surveillance system? (e.g. television monitoring or guards) ___ Yes ___ No

<u>OR</u>

B. (1) Artificial or natural barrier around facility (e.g. fence or fence and cliff)? ✓ Yes ___ No
Describe ___
AND
no guard / 2 employees live on property
3 shifts 5 days/week.

(2) Means to control entry through entrances (e.g. attendant, television monitors, locked entrance, controlled roadway access)? ___ Yes ___ No
Describe plt personnel

<u>General Inspection Requirements</u>

265.15 (b) 5. Does the owner/operator maintain a written schedule at the facility for inspecting:

a. Monitoring equipment? ___ Yes ✓ No

b. Safety and emergency equipment? ___ Yes ✓ No

c. Security devices? ___ Yes ✓ No

d. Operating and structural equipment? ___ Yes ✓ No

e. Types of problems of equipment?

1. malfunction ___ Yes ✓ No

2. operator error ___ Yes ✓ No

3. discharges ___ Yes ✓ No

265.15 (d) 6. Does the owner/operator maintain an inspection log? ___ Yes ✓ No

A. If yes, does it include:

(1) Date and time of inspection? ___ Yes ✓ No

(2) Name of inspector? ___ Yes ___ No

(3) Notation of observations? ___ Yes ___ No

(4) Date and nature of repairs or remedial action? ___ Yes ___ No

B. Are there any malfunctions or other deficiencies not corrected? (Use narrative explanation sheet). ___ Yes ___ No

265.16 Personnel Training

7. Does the owner/operator maintain Personnel Training Records at the facility? ___ Yes ✓ No
How long are they kept? OJT no records.

A. If yes, do they include:

(1) Job title and written job description of each position? ___ Yes ___ No ?
via union contract
one word titles defined by union contract

(2) Description of type and amount of training? ___ Yes ✓ No

(3) Records of training given to facility personnel? ___ Yes ✓ No

265.17 Requirements for Ignitable, Reactive or Incompatible Waste

(a) 8. Does facility handle ignitable or reactive wastes? ___ Yes ___ No ? have in the past

A. If yes, is waste separated and confined from sources of ignition or reaction, (open flames, smoking, cutting and welding, hot surfaces, frictional heat) sparks (static, electrical or mechanical), spontaneous ignition (e.g. from heat producing chemical reactions) and radiant heat? ___ Yes ___ No

1. If yes, use narrative explanations sheet to describe separation and confinement procedures.
2. If no, use narrative explanation sheet to describe sources of ignition or reaction.

stored outside

paint in separate bldg., stm. heated

B. Are smoking and open flame confined to specifically designated locations? ___ Yes ___ No   outside

C. Are "No Smoking" signs posted in hazardous areas? ___ Yes ✓ No   per Decker

(b) 9. Check containers

A. Are containers leaking or corroding?   form   ___ Yes ___ No

B. Is there evidence of heat generation from incompatible wastes? ___ Yes ___ No
(Use narrative explanations sheet to describe condition of containers.)

265.31 Section B - Preparedness and Prevention

1. Is there evidence of fire, explosion or contamination of the environment?   form   ___ Yes ___ No

If yes, use narrative explanations sheet to explain.

265.32 2. Is the facility equipped with

A. Internal communication or alarm system?   phone in paint shop in main plant   none in solvent storage area   ___ Yes ___ No

(1) Is it easily accessible in case of emergency? ___ Yes ___ No

B. Telephone or two-way radio to call emergency response personnel? ✓ Yes ___ No

C. Portable fire extinguishers, fire control equipment spill control equipment and decontamination equipment?   water spray & fire ext throughout plant   ✓ Yes ___ No   none in waste area

265.33 (1) Is this equipment tested to assure its proper operation? ✓ Yes ✓ No   hoses in plant

D. Water of adequate volume for hoses, sprinklers or water spray system?   in paintbooth only   ___ Yes ___ No

(1) Describe source of water   n/a   none for waste

265.35 3. Is there sufficient aisle space to allow unobstructed movement of personnel and equipment? four only 2 tbls? ___ Yes ___ No

26_. 4. Has the owner/operator made arrangements with the local authorities to familiarize them with characteristics of the facility? (layout of facility, properties of hazardous waste handled and associated hazards, places where facility personnel would normally be working, entrances to roads inside facility, possible evacuation routes.) Stanley FD has visited ___ Yes ___ No

265.50 5. In the case that more than one police and fire department might respond, is there a designated primary authority? dw ___ Yes n/a ___ No

a. If yes, list primary authority ______

265.52 (a) 6. Does the owner/operator have phone numbers of and agreements with State emergency response teams, emergency response contractors and equipment suppliers? Goetz Rite Balti. ___ Yes ___ No no ERT * works emergen handy

Are they readily available to all personnel? ___ Yes ___ No not here

(c) 7. Has the owner/operator arranged to familiarize local hospitals with the properties of hazardous waste handled and types of injuries that could result from fires, explosions, or releases at the facility? comp. doctor is familiar Dr. McLain Heather ___ Yes ___ No

8. If State or local authorities decline to enter, is this entered in the operating record? ? ___ Yes ___ No

265.52 Section C - Contingency Plan and Emergency Procedures

1. Is a contingency plan maintained at the facility? not per se ___ Yes ___ No

a. If yes, is it a revised SPCC Plan? paint shop supervisor ___ Yes ___ No

2. Is there an emergency coordinator on site at all times? ___ Yes ___ No

Section D - Manifest System, Recordkeeping and Reporting

265.71 1. Does facility receive waste from off-site? ___ Yes ✓ No

a. If yes, does the owner/operator retain copies of all manifests? ___ Yes ___ No

(1) Are the manifests signed and dated and returned to the generator? ___ Yes ___ No

(2) Is a signed copy given to the transporter? ___ Yes ___ No

2. Does the facility receive any waste from a rail or water (bulk shipment) transporter? ___ Yes ___ No

a. If yes, is it accompanied by a shipping paper? ___ Yes ___ No

(1) Does the owner/operator sign and date the shipping paper and return a copy to the generator? ___ Yes ___ No

(2) Is a signed copy given to the transporter? ___ Yes ___ No

265.72 3. Has the owner/operator received any shipments of waste which were inconsistent with the manifest? (manifest discrepancies) ___ Yes ___ No

a. If yes, has he attempted to reconcile the discrepancy with the generator and transporter? ___ Yes ___ No

1. If no, has Regional Administrator been notified? ___ Yes ___ No

265.73 4. Does the owner/operator keep a written operating record at the facility? ___ Yes ___ No

A. If yes, does it include:

(1) Description and quantity of each hazardous waste received? ___ Yes ___ No

(2) Location and quantity of each hazardous waste at each location? ___ Yes ___ No

(3) Records and results of waste analyses? ___ Yes ___ No

(4) Reports of incidents involving implementing of the contingency plan? ___ Yes ___ No

(5) Records and results of required inspections? ___ Yes ___ No

(6) Monitoring, testing or analytical data? ___ Yes ___ No

(7) Closure cost estimates and for disposal facilities post-closure cost estimates? (Not effective until May 19, 1981.) ___ Yes ___ No

5.76

5. Has the facility received any waste (that does not come under the small generater exclusion) not accompanied by a manifest? ___ Yes ___ No

a. If yes, has he submitted an unmanifested waste report to the Regional Administrator? ___ Yes ___ No

RCRA Checklist for Use and Management of Containers
(Subpart I Section 26_ .70 - General Operating Requirements"

R.O. USE

Inspection file No:

Reviewer:

Date Reviewed:

Form "I"

Facility:

Address:

Generator ID Number:

Facility Inspection Representative:

Title:

Telephone Number:

questions contained in this checklist apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as Section 265.1 provides otherwise.

Regs. C.F.R.		
171	1. Are all containers in good condition, i.e., not showing signs of leakage or corrosion or any other deterioration/deformation? form	Yes No
172	2. Are containers lined or made of materials compatible with hazardous wastes placed into them so that the container will not react or corrode with the hazardous wastes? solvents steel stay	Yes No
173(a)	3. Are all containers holding hazardous waste kept closed during storage? form	Yes No
174	4. Are areas where hazardous waste containers are stored inspected by the owner/operator at least once a week? daily informally	Yes No
15(d) 15(b)	5. Is an inspection log maintained? (See question #5 of TSD checklist.) no	Yes No
.176	6. Are containers holding ignitable or reactive waste located at least 50 ft. from the facility's property line? yes per interview	Yes No
.177(a)	7. Are incompatible wastes placed in the same container? (See Appendix 5 for examples.) no per interview	Yes No
.177(c)	8. Are storage containers holding hazardous wastes which are incompatible with nearby materials stored in containers, tanks, piles, or surface impoundments separated by dikes, berms, walls or other devices? form	Yes No

haven't begun bbl'ing sludge yet

wpart .
1

WASTE PILES CHECKLIST

sludge or tank

NOTE: Waste piles may also be managed as a landfill.

2 1. Is the pile containing hazardous waste protected from wind? ✓ yes ___ no

5-252 2. Is a representative sample of waste from each incoming shipment analyzed before the waste is added to the pile to determine the compatibility of the wastes? ___ yes ___ no

none incoming

3. Does the analysis include a visual comparison of color and texture? ___ yes ___ no

5-253 4. Is the leachate or run-off from the pile considered a hazardous waste? (Effective November 19, 1981) ___ yes ___ no

not tested

a. If yes, is the pile managed with the following?

(1) An impermeable base compatible with the waste? ___ yes ___ no
(2) Run on diversion? ___ yes ___ no
(3) Leachate and run-off collection? ___ yes ___ no

has steel base covered w/ tarp

or

b. 1. Is the pile protected from precipitation and run-on by some other means? ___ yes ___ no

covered w/ tarp

55 5. Are ignitable or reactive wastes placed in the pile? ___ yes ___ no

a. If yes, does the addition of the waste result in the waste or mixture no longer meeting the definition? (Use narrative explanation sheet to describe procedure) no ___ yes ___ no

or

n/a

b. Is the waste protected from sources of ignition or reaction? ___ yes ___ no

(1) If yes, use narrative explanations sheet to describe separation and confinement procedures.

(2) If no, use narrative explanations sheet to describe sources of ignition or reaction.

steel shell

6. Is the pile separated from other sources of reaction by a dike, berm or wall? X yes ___ no

7. Is there evidence of fire, explosion, gaseous emissions, leaching or other discharge? (Use narrative explanation sheet) ___ yes ___ no

no
sludge is not drying out at backside

Subpart K

SURFACE IMPOUNDMENTS CHECKLIST

1. Are there any surface impoundments which are not being used which the facility does not plan to use in the future? ___yes ✓no

   a. If yes, has all hazardous waste and hazardous waste residue been removed from the impoundment? ___yes ✓no

2. Are impoundments presently used to treat or store waste? ✓yes __no

   a. If no, do not complete rest of form.
   b. If yes, check impoundments.

263.222 3. Does the impoundment appear to maintain at least 2 feet (60 cm) of freeboard? ___yes __no

waiting for it to dry out to clean out

4. Is there evidence of overtopping of the dike? ___yes __no

263.223 5. Does the impoundment have a containment system? ___yes __no

   a. Does the earthen dike have a protective cover (e.g. grass, shale, rock) to minimize wind and water erosion? (Use narrative explanations sheet) ___yes __no

done

6. What wastes are treated in the impoundment? (Use narrative explanations sheet)

no test

263.225 7. Are waste analyses and trial tests conducted on these wastes? ___yes __no

   a. If not, does the owner/operator have written documented information on similar treatment of similar wastes? ✓yes __no

see notes have one getting record

8. Is this information retained in the operating record? ___yes __no

on file

9. Is the impoundment inspected daily to check freeboard level? ___yes __no

10. Is the impoundment, dikes and vegetation surrounding the dike inspected weekly to detect leaks, deterioration or failures? ___yes __no

no

done

2.

11. Does the facility maintain a record of the closure plan on site? (Effective May 19, 1981) ____yes ✓ no

12. Are ignitable or reactive wastes placed in the impoundment? ____yes____no

no

a. If no, do not complete b and c.
b. If yes, are they treated, rendered or mixed before or immediately after placement in the impoundment so it no longer meets the definition of ignitable or reactive? ____yes____no

or

c. Is the impoundment used solely for emergencies? ____yes____no

13. Are incompatible wastes placed in the impoundment? ____yes ✓ no no, only wastewaters

See [illegible]

28. Additional reports:

    a. releases, fires and explosions ______

    b. groundwater contamination ______

    c. facility closure ______

Groundwater Monitoring

29. Applicability:

    a. check applicability ______

    b. operation and maintenance of a system ______

    c. waiver of requirement ______

no groundwater monitoring whatsoever per Brunell & Meeker

30. Groundwater monitoring system:

    a. presence ______

    b. number and placement of wells ______

    c. maintenance of wells ______

    d. well integrity ______

31. Sampling and analysis:

    a. sampling and analysis plan ______

    b. records of sampling and analysis ______

32. Preparation, evaluation and response:

    a. outline of water quality assessment program ______

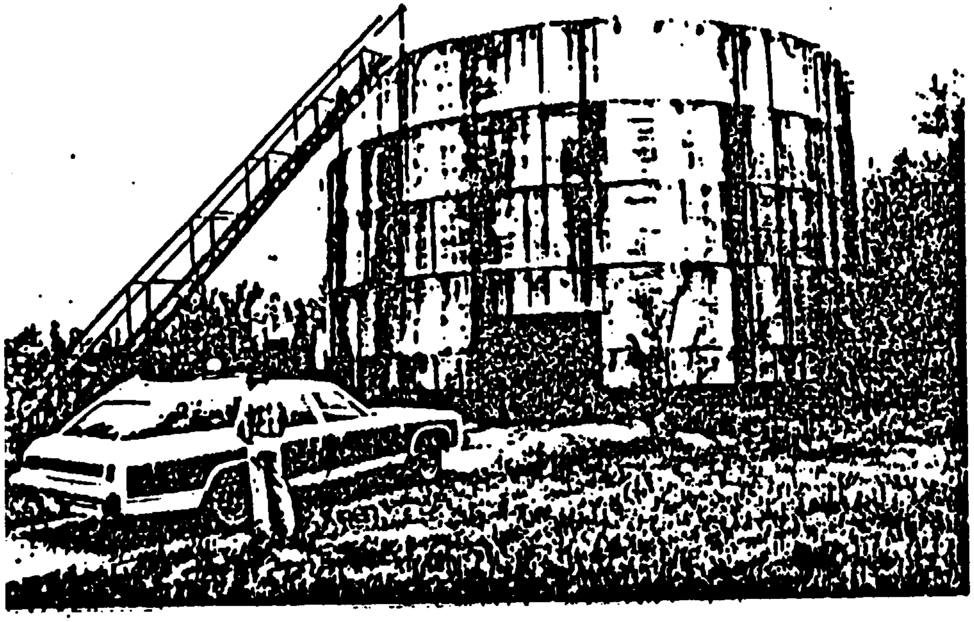
    b. adequacy of outline ______

33. Recordkeeping and reporting:

    a. groundwater analysis records ______

    b. reports of groundwater monitoring information to Regional Administrator ______

    c. annual groundwater quality reports ______



ormer fixed roof petroleum storage tank forming the
lating sludge waste pile enclosure.

Interior view of the enclosure at left
showing the plating sludge waste.

'nactive plating sludge "evaporation" lagoon.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII

In Re:)
)
KUHLMAN DIECASTING COMPANY) No. 83-H-004
)
Respondent.)

MOTION TO EXTEND TIME FOR COMPLETION OF CLOSURE PLAN

The Respondent, Kuhlman Diecasting Company ("Kuhlman"), by and through its attorneys, hereby moves for an extension of time to complete the closure activities required under the November 7, 1983 Order entered in the above-captioned case to and including March 7, 1984 for the following reasons:

1. In the order accompanying the November 7, 1983 Initial Decision, Kuhlman was required to begin closure activities within 10 days of approval of the plan by EPA and to "complete all closure activities within 90 days of approval of the plan." Since EPA had approved the closure plan shortly before the order, which was filed November 9, 1983, both EPA and Kuhlman had agreed that the 90 day period was to end on February 7, 1984.

2. Kuhlman has been proceeding diligently to attempt to complete all closure activities within 90 days, but, for a number of reasons has been unable to do so and requests until March 7, 1984 to complete these closure activities.

3. The additional time is needed to close the storage ponds previously used by Kuhlman to dispose of its electroplating sludge. Rather than using these ponds, Kuhlman has had a new filter on order to use in connection with its permitted outfall. There were unexpected delays in delivery of this new filter. Although Kuhlman ordered the filter on September 9, 1983 and was promised delivery by October 21, 1983, Kuhlman did not actually receive the filter until December 9, 1983. In addition, there were delays in approval of the use of the new filter by the Kansas Department of Health and Environment (KDHE). Further additional delays resulted from unusually severe winter weather in the Kansas City area. Despite this severe weather, Kuhlman has made substantial progress in completing all closure activities required by EPA.

5. Attached as Exhibit A is a general chronology regarding the Closure Plan setting forth Kuhlman's efforts both to obtain approval for its closure plan and to complete closure activities.

6. Ms. Cheryle Micinski of the Regional Counsel's Office of EPA has told Kuhlman's attorneys that she needs to consult with the technical staff of EPA before she can state EPA's position on this motion.

WHEREFORE, Kuhlman respectfully requests an extension of time until March 7, 1984 to complete its closure activities.

BROWN, KORALCHIK & FINGERSH

J. Daniel Stewart

J. Daniel Stewart
Mercantile Tower
1101 Walnut, Suite 1207
Kansas City, Missouri 64106
(816) 421-2500

ATTORNEY FOR RESPONDENT

I hereby certify that the original of the foregoing Motion was filed by mail with the Regional Hearing Clerk, EPA, Region VII, 324 E. Eleventh Street, Kansas City, Missouri 64106, and that copies of the motion were served by mail on: (1) Honorable Thomas B. Yost, Administrative Law Judge, U. S. Environmental Protection Agency, 345 Courtland Street, Atlanta, Georgia, and (2) Cheryle Micinski, Regional Counsel, U. S. Environmental Protection Agency, 324 E. Eleventh Street, Kansas City, Missouri 64106 on this 1st day of February, 1984.

J. Daniel Stewart

EXHIBIT A: Chronology re Closure Plan

03/01/83	Kuhlman met with Willis Wilson of A. C. Kirkwood and instructed him to investigate methods of polishing effluent.
03/18/83	Draft closure plan submitted.
04/19/83	Response from EPA denying on site treatment.
05/16/83	Kuhlman met Willis Wilson and representatives of Parkson concerning possible polishing methods using their equipment.
05/23/83	Response to EPA response modifying draft plan.
06/08/83	Kuhlman decided to test Bateman Engineering continuous flow screen filter for polishing effluent and ordered.
06/27/83	Kuhlman received Bateman filter and began testing it.
07/14/83	Final proposed closure plan submitted to EPA.
07/21/83	Kuhlman received a smaller screen from Bateman for testing.
Aug. 83	Request for clarification of Closure Plan from EPA.
08/15/83	Hearing before Administrative Law Judge in Kansas City.
09/09/83	Kuhlman ordered Parkson Dynasand filter; expected delivery 6 weeks (October 21st)
09/11/83	Kuhlman returned Bateman filter.
09/20/83	Clarification of Closure Plan as requested in August.
09/30/83	Kuhlman received draft of report from Willis Wilson for KDHE concerning modifications to treatment plant.
10/18/83- 10/28/83	Ground water wells installed.
10/21/83	Kuhlman submitted final engineering report on treatment plant modifications to KDHE for their review.
11/01/83	Notice to proceed with Closure Plan from EPA.
11/10/83	Kuhlman called Don Carlson of KDHE in regard to their review of the treatment plant modification. He said they were still reviewing.
11/18/83	First sampling ground water Monitoring.
12/09/83	Kuhlman received Parkson filter.
12/14/83	Began Closure of Storage Pond.

12/22/83	Kuhlman received sand for Parkson filter.
01/03/84	Completed initial removal.
01/05/84	Sampled subsoil in and around Storage Pond.
01/05/84	Repeat sampling.
01/05/84	Kuhlman talked to Don Carlson regarding number and types of samples required to approve changing outfall of effluent using Parkson filter.
01/06/84	Removal of supernate from polishing pond.
01/09/84	Received permission from KDHE to close one of the polishing ponds.
01/10/84	Began stabilization of sludge.
01/13/84	Finished installation of Parkson filter and began testing.
01/16/84	Eegan submitting composite water samples to lab in preparation for gaining approval by KDHE for changing outfall.
01/25/84	Sludge removal complete.

ENVIRONMENTAL SPECIALISTS, INC.

February 14, 1984

SOILS ANALYSIS TREND SUMMARY
for Kuhlman Diecasting Company

On January 4, 1984, eight (8) soil samples were taken from the site of the excavated sludge storage pond and the surrounding levee at the Kuhlman Diecasting facility in Stanley, Kansas. Two samples from each location were taken. The first sample was taken from the existing surface level and the second sample was obtained from a level eighteen (18) inches below the surface. Complete chain of custody records were maintained in accordance with the procedure referenced in the Kuhlman site closure plan. On January 5, 1984, three (3) soil samples were taken from background areas for comparison. Two samples from each location were obtained; one at the existing surface and the latter at a depth of eighteen (18) inches. Again, complete chain of custody records were maintained. The approximate locations of each soil sample are indicated on the attached map. The General Testing Laboratory analysis of each of the eleven (11) soil samples are attached as well.

Several conclusions can be reached from a close examination of this analysis. However first, one should notice the values for the background samples. Various causes for the higher values reported from station 26 have been considered e.g. ponding, fall-out, and traffic. At present, no clear determination can be made about the distinct cause for these higher values with the available data.

The concentrations for the parameters measured in the attached analysis are well below the levels for which an environmental concern is mandated. As an example, cadmium is allowed to be landfarmed

3001 E. 83rd Street. Kansas City. Mo. 64132. 816 523-5081 Toll Free 800-821-3584

into the soil at a rate of 2.0 kg/ha per year through June 30, 1984 and at a rate of 1.25 kg/ha through December 31, 1986. Assuming a soil density of 2700 lbs/cu.yd., these values are equivilent to 5 ppm and 2.5 ppm, respectively, in the top 6" of soil. Please refer to the attached copy of § 264.276 for more detailed information. The values for cadmium at the Kuhlman facility are all well below these application rates.

As another example, the State of California uses TTLC levels as the clean-up criterion for hazardous waste sites located within the state. A copy of these values is attached. To summarize the attached table for the parameters measured at the Kuhlman facility:

Cadmium	100 mg/kg
Chromium VI	500 mg/kg
Chromium III	2500 mg/kg
Nickel	2000 mg/kg

The values obtained from the soil analysis at the Kuhlman facility are all well below these values. Environmental Specialists, Inc. feels that given the available data, the 20:1 EP Toxicity leachate test for these soils would prove them to be classified as non-hazardous. Considering the fact that the source of further contamination has been removed and that these soils will be re-graded to drain reduces the opportunity for movement by these contaminants. The values obtained from sludge storage pond bottom and surrounding levee also show slight impact over the values obtained from the background soils.

Environmental Specialists, Inc. believes that the remedial excavation of six (6) inches of soil removed with the plating sludge was sufficient to satisfy the intent and requirement of the Kuhlman site closure plan. Any further excavation of soil would prove arbitrary in fulfilling the intent of the required environmental clean-up of the site. The remaining soils pose no threat to human health or the environment.

The final attachment is from The Encyclopedia of Soil Science Part 1 and it concerns the natural trace element content of soils. The ppm range for Cd is an average of 0.5 with a range of 0.01-0.07 given depending upon the type of soil. The average for Cr is 100 with a range of 5 to 3,000. For Ni the average is 40 with a range of 5 to 5,000. It is also interesting to note that Ni contents increase with depth in soils.

As soon as the remedial activity is completed upon the old polishing pond, soil samples will be collected, analyzed, and a report in this format will be given.

Respectfully submitted,

ENVIRONMENTAL SPECIALISTS, INC.

Leslie Y. Wilson

Leslie Y. Wilson
Environmental Coordinator

LYW:mm

Summary Analysis of Soil Samples
For Kuhlman Diecasting Company
By Environmental Specialists, Inc.

2/10/84

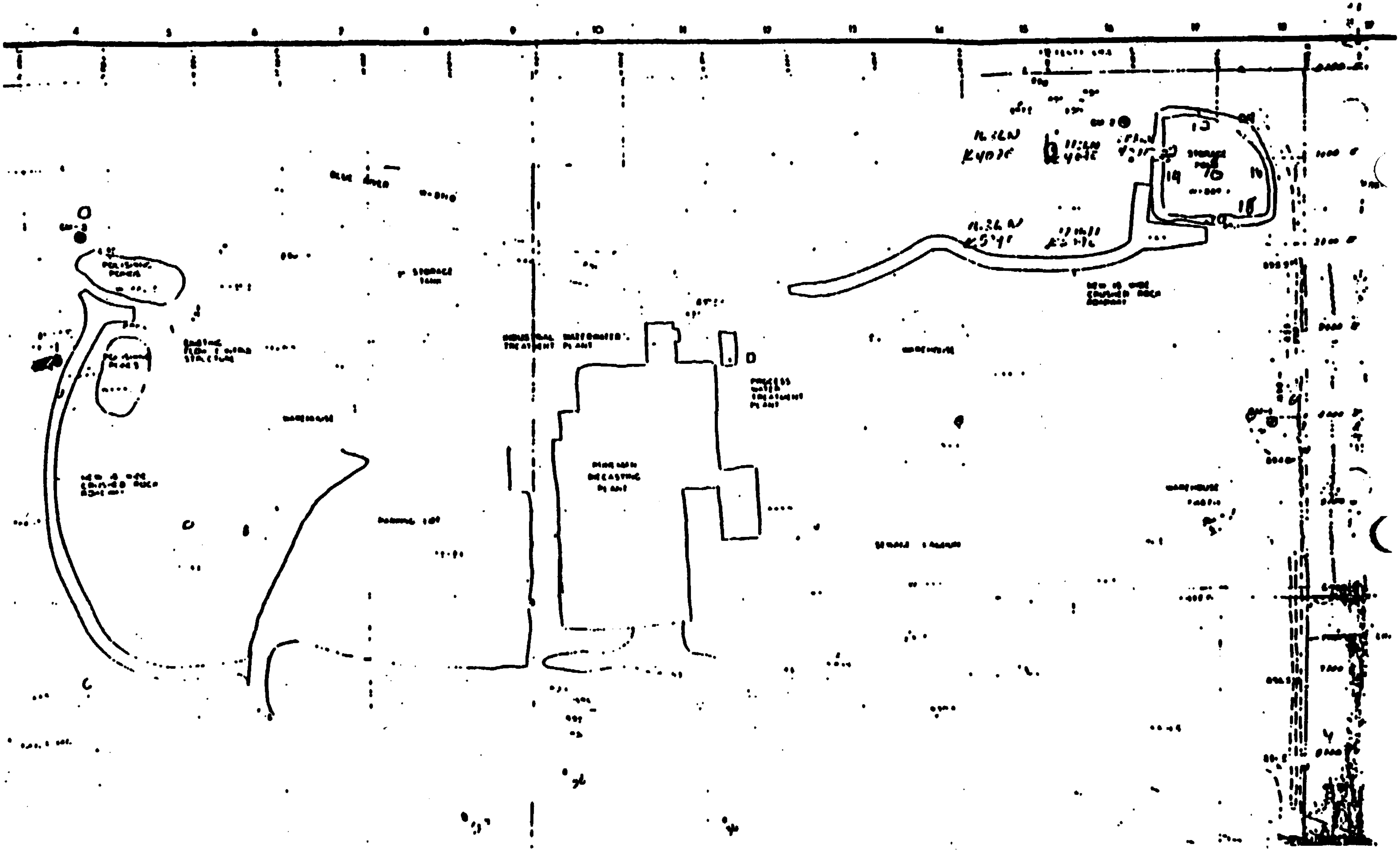
Geographic Area:	Station	Report Code	Cd	Cr	Ni	Cn
Pond Bottom	10-S	48821-A	0.5	19	33	ND
	10-18"	B	0.45	23	34	ND
Pond Bottom	12-S	C	0.65	12	23	ND
	12-18"	D	0.75	17.5	35	ND
Pond Bottom	14-S	E	0.65	11	19.5	ND
	14-18"	F	0.45	11	20	ND
Pond Bottom	16-S	G	0.7	14	22.5	ND
	16-18"	H	0.5	10.5	21.5	ND
Pond Bottom	18-S	I	0.3	17.5	25.5	ND
	18-18"	J	0.7	13	24.5	ND
Levee	20-S	K	0.5	12	16.5	ND
	20-18"	L	0.6	13.5	18.5	ND
Levee	22-S	M	0.4	18	22	ND
	22-18"	M	0.7	14	17.5	ND
Levee	24-S	O	0.7	14	17.5	ND
	24-18"	P	0.9	14.5	25	ND
Back Ground	26-S	Q	0.75	8.8	15	ND
	26-18"	R	0.5	11	19.5	ND
Back Ground	28-S	S	0.3	7.4	13	ND
	28-18"	T	0.4	8.8	15	ND
Back Ground	30-S	U	0.45	9.5	16.5	ND
	30-18"	V	0.4	8.9	17	ND
Back Ground	Ave- Surface	Q,S,U	.5	8.6	14.8	
Average	Ave - 18"	R,T,V	.43	9.6	17.2	

Gm#1 1738 N
399 E

Gm#3 379 N
419 E

Gm#2 1502 N
90 E

Gm#4 356 N
281 E



tential for migration of hazardous constituents to ground water or surface water.

[47 FR 32361, 26, 1982, as amended at 48 FR 14294, Apr. 1, 1983]

§ 264.273 Design and operating requirements.

The Regional Administrator will specify in the facility permit how the owner or operator will design, construct, operate, and maintain the land treatment unit in compliance with this section.

(a) The owner or operator must design, construct, operate, and maintain the unit to maximize the degradation, transformation, and immobilization of hazardous constituents in the treatment zone. The owner or operator must design, construct, operate, and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under § 264.272. At a minimum, the Regional Administrator will specify the following in the facility permit:

(1) The rate and method of waste application to the treatment zone;

(2) Measures to control soil pH;

(3) Measures to enhance microbial or chemical reactions (*e.g.*, fertilization, tilling); and

(4) Measures to control the moisture content of the treatment zone.

(b) The owner or operator must design, construct, operate, and maintain the treatment zone to minimize run-off of hazardous constituents during the active life of the land treatment unit.

(c) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the treatment zone during peak discharge from at least a 25-year storm.

(d) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(e) Collection and holding facilities (*e.g.*, tanks or basins) associated with run-on and run-off control systems must be emptied or otherwise man-

maintain the design capacity of the system.

(f) If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator must manage the unit to control wind dispersal.

(g) The owner or operator must inspect the unit weekly and after storms to detect evidence of:

(1) Deterioration, malfunctions, or improper operation of run-on and run-off control systems; and

(2) Improper functioning of wind dispersal control measures.

§§ 264.274—264.275 [Reserved]

§ 264.276 Food-chain crops.

The Regional Administrator may allow the growth of food-chain crops in or on the treatment zone only if the owner or operator satisfies the conditions of this section. The Regional Administrator will specify in the facility permit the specific food-chain crops which may be grown.

(a)(1) The owner or operator must demonstrate that there is no substantial risk to human health caused by the growth of such crops in or on the treatment zone by demonstrating, prior to the planting of such crops, that hazardous constituents other than cadmium:

(i) Will not be transferred to the food or feed portions of the crop by plant uptake or direct contact, and will not otherwise be ingested by food-chain animals (*e.g.*, by grazing); or

(ii) Will not occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or on identical portions of the same crops grown on untreated soils under similar conditions in the same region.

(2) The owner or operator must make the demonstration required under this paragraph prior to the planting of crops at the facility for all constituents identified in Appendix VIII of Part 261 of this chapter that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

(3) In making a demonstration under this paragraph, the owner or operator

les, available data, or, in the case of existing units, operating data, and must:

(i) Base the demonstration on conditions similar to those present in the treatment zone, including soil characteristics (*e.g.*, pH, cation exchange capacity), specific wastes, application rates, application methods, and crops to be grown; and

(ii) Describe the procedures used in conducting any tests, including the sample selection criteria, sample size, analytical methods, and statistical procedures.

(4) If the owner or operator intends to conduct field tests or greenhouse studies in order to make the demonstration required under this paragraph, he must obtain a permit for conducting such activities.

(b) The owner or operator must comply with the following conditions if cadmium is contained in wastes applied to the treatment zone:

(1)(i) The pH of the waste and soil mixture must be 6.5 or greater at the time of each waste application, except for waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less;

(ii) The annual application of cadmium from waste must not exceed 0.5 kilograms per hectare (kg/ha) on land used for production of tobacco, leafy vegetables, or root crops grown for human consumption. For other food-chain crops, the annual cadmium application rate must not exceed:

Time period	Annual Cd application rate (kilograms per hectare)
Present to June 30, 1984	2.0
July 1, 1984 to Dec. 31, 1986	1.25
Beginning Jan. 1, 1987	0.5

(iii) The cumulative application of cadmium from waste must not exceed 5 kg/ha if the waste and soil mixture has a pH of less than 6.5; and

a pH of 6.5 or greater or is maintained at a pH of 6.5 or greater during crop growth, the cumulative application of cadmium from waste must not exceed: 5 kg/ha if soil cation exchange capacity (CEC) is less than 5 meq/100g; 10 kg/ha if soil CEC is 5-15 meq/100g; and 20 kg/ha if soil CEC is greater than 15 meq/100g; or

(2)(i) Animal feed must be the only food-chain crop produced;

(ii) The pH of the waste and soil mixture must be 6.5 or greater at the time of waste application or at the time the crop is planted, whichever occurs later, and this pH level must be maintained whenever food-chain crops are grown;

(iii) There must be an operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The operating plan must describe the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses; and

(iv) Future property owners must be notified by a stipulation in the land record or property deed which states that the property has received waste at high cadmium application rates and that food-chain crops must not be grown except in compliance with paragraph (b)(2) of this section.

§ 264.277 [Reserved]

§ 264.278 Unsaturated zone monitoring.

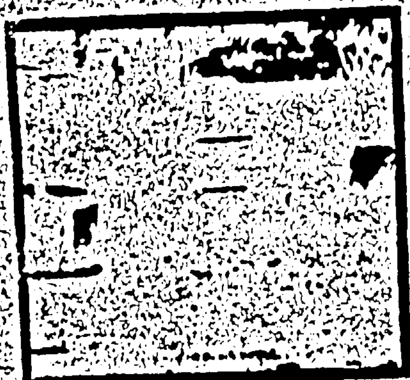
An owner or operator subject to this subpart must establish an unsaturated zone monitoring program to discharge the following responsibilities:

(a) The owner or operator must monitor the soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone.

(1) The Regional Administrator will specify the hazardous constituents to be monitored in the facility permit. The hazardous constituents to be monitored are those specified under § 264.271(b).

(2) The Regional Administrator may require monitoring for principal hazardous constituents (PHCs) in lieu of the constituents specified under

California Standards‡
(Hazardous Waste)



Substance	STLC (mg/kg) (net wgt.)	TTLC (mg/kg) (net wgt.)
Aldrin	0.14	1.4
Antimony and compounds	100	500
Arsenic and compounds	5	500
Asbestos	—	10,000
Barium and compounds (excluding Barite)	100	10,000
Beryllium and compounds	7.5	75
Cadmium and compounds	1	100
Chlordane	.25	2.5
Chromium and chromium (VI) compounds	5	500
Chromium and chromium (III) compounds	25	2500
Cobalt and compounds	80	8000
Copper and compounds	2.5	250
DDT, DDE, DDD (TDE)	0.1	1.0
2,4 Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8.0
Dioxin (TCDD)	0.001	0.01
Endrin	0.02	0.2
Fluoride Salts	180	18,000
Heptachlor	0.47	4.7
Kepone	2.1	21.0
Lead and compounds, Inorganic	5	1000
Lead and compounds, organic	—	13 (dry wgt. basis)
Lindane	0.4	4
Mercury and compounds	0.2	20
Methoxychlor	10	100
Mirex	2.1	21
Molybdenum and compounds	350	3500
Nickel and compounds	20	2000
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCB's)	1.2*	12*
Selenium and compounds	1	100
Silver and compounds	5	500
Thallium and compounds	7	700
Toxaphene	0.5	5
Trichloroethylene	204	2040
2,4,5-Trichlorophenoxypropionic acid (Silvex)	1	10
Vanadium and compounds	24	2400
Zinc and compounds	25	2500

*NOTE: Until further information is available, the Hazardous Waste Management Branch (California Department of Health Services) is currently using STLC and TTLC limits of 7 mg/kg and 50 mg kg respectively for PCB's.

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Yatsuk, E. P., et al., 1971. *Rotary Soil Working Machines* (Rotatsionnye pochvoobrabatyvayushchie mashiny). Moscow, USSR: Machine Construction Publishing House, 255p.

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Cross-references: *Agronomy; Management of Soils; Moisture Management; Profiles, Physical Modification; Soil Mechanics; Soil Physics; Soil Structure; Zero-tillage.*

TOXIC ELEMENTS IN PLANTS—See VOL. IVA

TOXIC ELEMENTS IN SOILS—See POLLUTION, VOL. XVI: SOIL POLLUTION

TRACE ELEMENTS

Fourteen elements in the crust of the earth (aluminum, carbon, calcium, iron, hydrogen, potassium, magnesium, nitrogen, sodium, oxygen, phosphorus, sulfur, silicon, and titanium) constitute over 99% of the total elemental content. The remaining elements are the so-called trace elements. The words "trace elements" are generally used for those elements occurring in the soil in minute amounts without regard to their requirement by organisms. The occurrence of trace elements in soils as well as their reaction with soil constituents is of interest to the agronomist, soil scientist, and even the exploration geochemist. Accounts detailing the geographic distribution, forms (inorganic, organic, adsorbed, complexed, fixed, etc.), and elemental content of soils are given in the following noteworthy works by Swaine (1955), Vinogradov (1959), Mitchell (1965), Kubota and Jacobs (1971), Fraticinaso (1972), and Aubert and Pinta (1977). The following list of trace elements is mentioned because information regarding their concentration in the soil is generally available: silver, arsenic, gold, boron, barium, beryllium, bromine, cadmium, cerium, chlorine, cobalt, chromium, cesium, copper, fluorine, gallium, germanium, hafnium, mercury, iodine, indium, lanthanum, lithium, manganese, molybdenum, niobium, nickel, lead, radium, rubidium, antimony, scandium, selenium, tin, strontium, tantalum, thorium, thallium, uranium, vanadium, wolfram, yttrium, zinc, and zirconium.

The term *micronutrients* (q.v.) is used for trace elements in the soil that are essential for healthy development of plants, animals, or microorganisms (boron, chlorine, cobalt, chromium, copper, fluorine, iodine, manganese, molybdenum, nickel, selenium, vanadium, and zinc and possibly barium, bromine, strontium, and wolfram).

Trace Element Content

Trace element composition of soils is determined in terms of total and extractable amounts present per unit weight of dry soil (Table 1). Total amount is commonly measured by dry ashing (500 to 550°C for 3 to 4 h) or by wet ashing with a mixture of perchloric and nitric or sulfuric acids. Extractable amounts, obtained to evaluate availability to higher plants, are determined by using mineral acids (for example, 0.1 N HCl), organic acids (for example, acetic, citric), and chelating agents (for example, EDTA, DTPA). Hot water extraction is also done, especially for trace elements that occur as anions (boron, molybdenum, and selenium).

Distribution in Soil Profiles

The pedological factors involved in profile differentiation of the trace elements include the following (Mitchell, 1965; Korte et al, 1976, Aubert and Pinta, 1977):

1. Surface enrichment because of trace elements taken up by plants. This is especially obvious in profiles with surface horizons rich in organic matter (q.v.).
2. Leaching (q.v.) of mobilized constituents such as boron, lithium, manganese, or selenium either completely out of the profile or to zones of accumulation. This is particularly important in tropical soils of humid regions.
3. Translocation, in the course of soil-forming processes such as podzolization, of trace elements together with iron and aluminum. Organic and organic-mineral complexes are probably involved.
4. Mobilization of trace elements through breakdown of soil minerals as a result of alternate wetting and drying.
5. Mechanical translocation of clay, which increases in the layers of the clay accumulation the contents

TABLE 1. Trace Element Content of Soils.

Element	ppm* Total	ppm* Extractable	Comment
Ag	0.1(0.1–5)	0.02(0.01–0.05)	Tightly bonded by organic and inorganic soil constituents. Usually less than 0.01 ppm in plants.
As	6(0.1–40)	2.7(0.03–11)	Accumulates in clay soils. Leached in acid sandy soils. Closely resembles P chemically. Soils containing enough As to be toxic to mammals occur in Argentina and New Zealand.
Au	<1	–**	Stays in oxidized zone in soil formation. Accumulates in soils through solubilization and reprecipitation.
B	10(2–130)	1.9(0.01–130)	Highest in saline and alkaline soils. In parts of California plants and animals may be poisoned by excessive B in the soil. Deficiencies in B lead to poor crops in many other areas. Present in soil largely as H_3BO_3. Can be readily leached in acid soil. Lime promotes fixation.
Ba	500(100–3500)	138(4–3500)	More common in soils near mines where Ba toxicity to plants may occur. Can be fixed by clay minerals such as montmorillonite.
Be	6(0.1–40)	–	Acts in soil similarly to Al. Not accumulated by plants.
Br	5(1–10)	–	Enriched in soil organic matter. Considered nonessential and nontoxic to plants.
Cd	0.5(0.01–0.7)	0.06(0.01–0.5)	Acts in soil similarly to Zn. High levels of Zn in soil can reduce Cd uptake by plants.
Ce	50(30–50)	–	Concentrates in soil clays. Humus reduces Ce uptake. Chelates increase solubility and leaching. Some mobility in soils. Much remains within a few centimeters of surface.
Cl	100	10(7–50)	Much higher in alkaline soils, near the sea, and in salt deserts. A major exchangeable anion in many soils.
Co	8(1–40)	1.1(0.001–15.4)	Higher in soils derived from basalt or serpentine. Extensive areas of soil deficiency are known, which can cause diseases of ruminant mammals.
Cr	100(5–3000)	0.3(0.01–3.9)	Cr(VI) more mobile in soils than Cr(III). Accumulates in roots and is not translocated. Usually less than 1 ppm in plants. Highest in soils derived from basalt or serpentine. Such soils may have an adapted flora.
Cs	6(0.3–25)	–	Can be fixed on montmorillonite.
Cu	20(2–100)	2.9(0.002–19.2)	Strongly adsorbed by humus. Extensive areas of soil deficiency, as in northern Germany, cause plant and animal diseases. Toxicity is rare. Soils able to fix large amounts of Cu.
F	200(30–300)	–	Fixed in many clay minerals and in apatite. Vegetation from F-rich soils in Madras and South Africa toxic to grazing mammals. F deficiency is associated with dental decay.
Ga	30(0.4–300)	–	Accumulates in humus layer and in illuvial horizons. Congener of Al. Seldom occurs in concentrations over 1 ppm in plants.
Ge	1(1–50)	–	Adsorbed by humus, especially in alkaline soils. More reactive than Si. Most Ge salts have low toxicity to man and plants. Reacts similarly to Si in soils and waters.
Hf	6	–	Chemically similar to its congener Zr. Low toxicity to plants and mammals.
Hg	0.03(0.01–0.8)	–	Lowest in upper layer of soil since it volatilizes.
I	5	0.01	Strongly adsorbed by humus. Extensive areas of soil deficiency, resulting in mammalian goiter.
In	0.1	–	Congener of Al.

TABLE 1. continued

Element	ppm* Total	ppm* Extractable	Comment
La	30(1–5000)	–	Concentrates in clay fraction. Addition of chelating agent increases soil mobility.
Li	30(7–200)	–	Li^+ freely mobile in soils.
Mn	850(100–4000)	110(15–170)	May be a major exchangeable cation in very acid soils. Oxidation state (Mn^{2+} or MnO_2) depends on microbial action. Available form: Mn^{2+}. Toxicities occur on poorly drained and acid soils. Remedied by liming, drainage. Mn toxicity sometimes found in steamed soils. Deficiencies chiefly on neutral or alkaline soils, particularly those high in organic matter. Mn deficient soils lead to infertility in mammals.
Mo	2(0.2–5)	0.9(0.001–4.8)	Adsorbed by humus, especially in alkaline soils. A few soils are rich enough in Mo to yield herbage toxic to animals, while others give poor crops owing to Mo deficiency.
Nb	24	–	Essentially unavailable in soils. Little leaching. Uptake of Nb by plants limited.
Ni	40(5–5000)	18(0.01–403)	Higher in soils derived from serpentine where it may limit or prevent the growth of woody plants, although an adapted flora survives. Ni contents increase with depth in soils.
Pb	10(2–200)	4.4(0.05–46)	Low soluble amounts in most soils. Higher in some limestone soils. Strongly adsorbed by humus.
Ra	0.8×10^{-6} (0.3–2 × 10^{-6})	–	Chemistry of Ra similar to Ca. Leaches readily in many soils. Not highly mobile in plants. All isotopes radioactive.
Rb	100(20–600)	–	Can be fixed by some clay minerals.
Sb	2–10(?)	–	Decreasing pH increases sorption of Sb on soil. Moves in neutral and alkaline soils, not acid soils. Sb taken up by plants, fixed in root, but some accumulates in leaves. Moderately toxic to plants.
Sc	7(10–25)	–	Congener of Al. Sc content related to clay content of soil. Is translocated downward. Plants contain less than 0.1 ppm.
Se	0.2(0.01–38)	0.1(0.005–9.1)	Chemistry similar to [illegible]. Adsorbed by humus, especially in alkaline soils. Vegetation from Se-rich soils may be toxic to mammals, as in Queensland, Ireland, South America, western United States, and [illegible] areas of low rainfall.
Sn	10(2–200)	1.4(0.03–6.5)	Strongly [illegible] less than 2 ppm in plants. Sn in plant not related to Sn in soil.
Sr	300(50–1000)	–	Chemical properties similar to those of Ba and Ca. Concentrations as high as [illegible] in plants. Sr^{2+} may partially replace Ca^{2+}.
Ta	2?	–	Essentially unavailable in soils. Little Ta leaches with water in soil. Little Ta uptake by plants, and Ta concentrates in roots.
Th	5(0.1–12)	–	Accumulates in [illegible] fraction. Not available for plant uptake.
Ti	0.1	–	Congener of Al [illegible] (100 ppm).
U	1(0.9–9)	–	Accumulates in [illegible]

Wayne Kaiser

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

APR 23 1987

Mr. Phillip Meeker
Kuhlman Diecasting Company
164th and Mission Road
Stanley, Kansas 66223

Dear Mr. Meeker:

RE: Kuhlman Diecasting Company, KSD006325013

This letter provides the Environmental Protection Agency (EPA) and Kansas Department of Health and Environment (KDHE) guidance on completion of closure activities for Resource Conservation and Recovery Act (RCRA) surface impoundments at your facility. The RCRA surface impoundments are: sludge storage pond, and east and west polishing ponds. Previous discussions between yourself, your consultants Mr. Skach and Mr. Overton, and EPA staff have centered on extent of removal of contaminated soil during closure, groundwater monitoring and groundwater contamination.

We have reviewed the closure activities conducted to date, i.e., waste and contaminated soil removal and soil sampling results. We have also reviewed the results of your groundwater monitoring program and the Comprehensive Monitoring Evaluation (CME) prepared by EPA and have concluded there is groundwater contamination at your facility. Therefore, the surface impoundments cannot meet the clean closure requirements of 40 CFR 265.228(b) because contaminated subsoil (groundwater) remains in place. Since clean closure cannot be accomplished, we require the surface impoundments be capped in accordance with the requirements of 40 CFR 265.310 and post-closure groundwater monitoring per 40 CFR 265.310 be performed. A proposed cap design and a post-closure plan should be submitted by June 15, 1987.

The east and west polishing ponds are considered to be RCRA regulated units since both ponds received hazardous waste after July 26, 1982. Land disposal units, such as these polishing ponds, which received waste on or after July 26, 1982, are regulated units subject to Part 264, Subpart F groundwater monitoring requirements through either an operating or post-closure permit. Since the east and west polishing ponds are closing, the Part 264, Subpart F groundwater monitoring requirements will be carried out through a post-closure permit. The post-closure permit application including a Part 264 Subpart F groundwater monitoring program will be requested at a later date.

Please note that the post-closure permit application must address Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA). Section 3004(u) requires that all permits issued after November 8, 1984 address corrective action for releases of hazardous waste or hazardous

RECEIVED
APR 23 1987
RCOM SECTION

constituents from solid waste management units (SWMUs) regardless of when waste was placed in the unit, whether or not the unit is closed, and whether or not the unit was intended to manage solid or hazardous waste. The SWMUs at your facility would include at a minimum, the sludge storage pond, east and west polishing ponds, and closed tanks. In the near future EPA will be conducting a RCRA Facility Assessment (RFA) at your facility. Information collected during this assessment along with historical information indicating that there are releases of hazardous waste or constituents at the facility will be used to determine future actions at this site.

If you have any questions on this letter, please contact Karen Flournoy or Michael Wolfram at (913) 236-2888.

Sincerely yours,

Michael J. Sanderson
Chief, RCRA Branch
Waste Management Division

cc: John Goetz, KDHE

Document Review
7/3/86

Environmental and Toxic Waste Management
Oil-Water Recovery/Sludge Ponds, Waste Lagoons
D... ation/Stabilization, Chemical Waste Treatment
A... , Disposal/PCB-Dioxin Destruction
Turnkey, On Site Treatment Facilities
Regulatory Compliance Assistance/Audits
Contingency/Remedial Plans/TSCA-RCRA

Telex No. 437240 OLPK USA, Cable AMI

ETI
of North America
Suite 228, 4550 W. 109th Street
Overland Park, KS USA 66211
913-381-6708
1-800-255-0530

December 12, 1984

DEC 13 1984

Ms. Karen Flournoy
U.S. EPA Region VII
324 11th Street
Kansas City, Missouri 64106

Re: Kuhlman Diecasting Company;
EPA I.D. #KSD006325013
Soil Sampling Results

Dear Karen:

Pursuant to your telecon with Mr. Overton, we confirm that we can meet at your offices on January 2, 1985. To facilitate your review of the project please find the following enclosures:

1) sludge pond sampling results.
2) sludge pond dimensions.
3) sludge pond grid locations.

The east and west polishing ponds located south of the Kuhlman facility were sampled on October 2-5, 1984. Each of the two polishing ponds were divided into six grid areas on the floor and four grid areas on the dikes with each grid consisting of five sample points. Pond dimensions, grid locations and sample points for each pond are shown on figures 1, 2 and 3. Three samples were collected at each sample point (surface, 18" and 36" deep). The five sample points within each grid were composited by depth, in Langston's labs and analyzed for total levels of cadmium, chromium, nickel and ph. Copies of results are included.

Sampling was done with the aid of a 36" portable auger, shelby-tube and a pick-ax, depending on sludge type and sample location. Significant amounts of cementitious fly-ash were encountered in the east pond so the portable auger was used to obtain samples at various depths. A pick-ax was used on the dike area to chip away the embankment and soil samples were obtained at the three specified depths. The west polishing pond samples were obtained using a shelby-tube since the sludge was considerably softer than the east pond. A pick-ax was used to obtain dike samples.

During the sampling operations, efforts were taken to minimize cross contamination of the samples. This included washing the shelby-tube and sample shovel with water in between discrete samples. Each sample was put into a zip-lok bag and sealed. Each sample was labeled with sample location, depth, date, time and initials. Appropriate chain of custody forms were maintained.

We apologize for the delays in getting this meeting scheduled and hope this has not inconvenienced you. If you have any questions, please do not hesitate to call.

Sincerely,

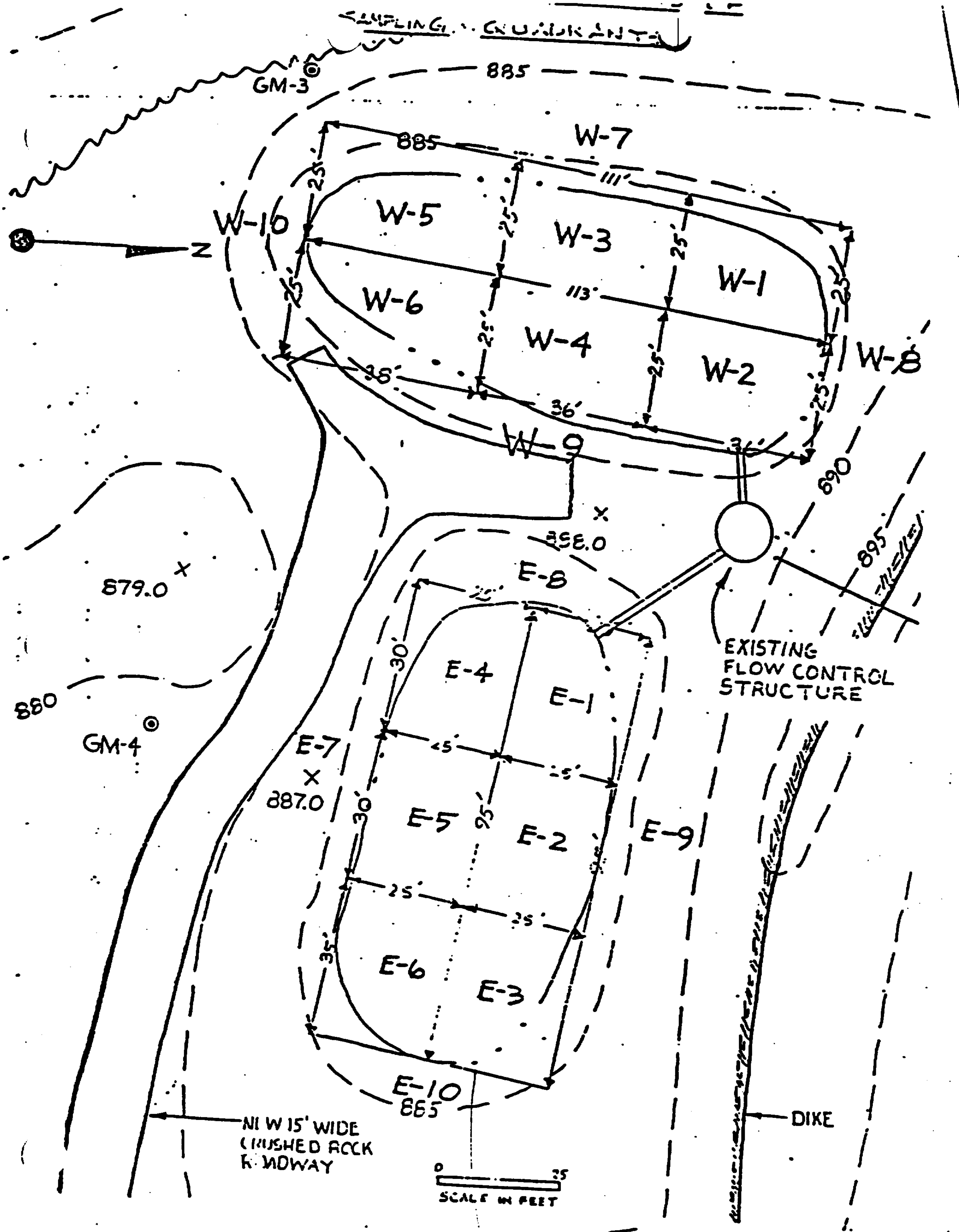
ETI OF NORTH AMERICA, INC.

Robert F. Škach, PE
Vice President

RFS:iaa

encl.

cc: Cheryle Micinski, Attorney, EPA
Wayne Kaiser - EPA
Don Carlson - KDHE
John Goetz - KDHE
Phillip Meeker - Kuhlman w/encl.


885
GM-3
W-7
885
111'
25
25'
25'
W-5
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W-10
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113'
25'
W-6
25'
25'
W-4
W-8
W-2
25'
38'
36'
25'
W-9
36'
890
888.0
E-8
879.0
895
25'
30'
E-4
E-1
EXISTING
FLOW CONTROL
STRUCTURE
880
GM-4
E-7
25'
25'
887.0
30'
E-5
95'
E-2
E-9
25'
25'
35'
E-6
E-3
E-10
885
NEW 15' WIDE
CRUSHED ROCK
ROADWAY
DIKE
0
25
SCALE IN FEET
Fig. 1

EAST POND SAMPLING

GRID LOCATIONS

N

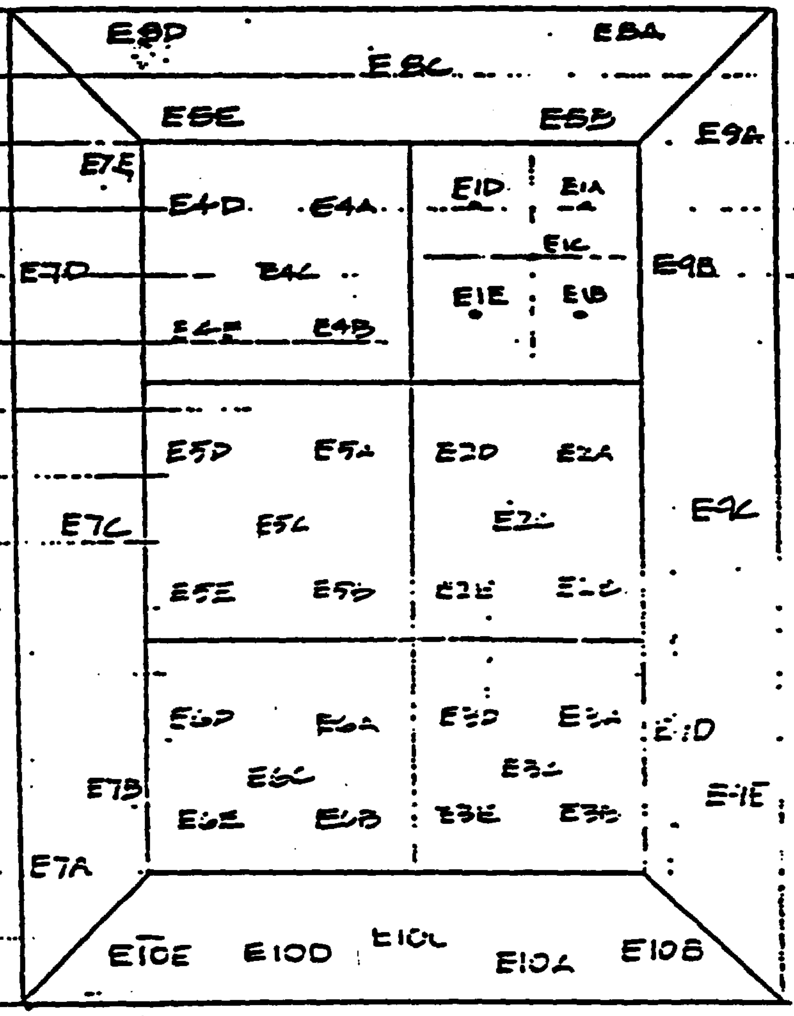


Fig. 2

LANGSTON LABORATORIES, INC.

Laboratory Report

Date Received: October 5, 1984
Time Received: 8:00 am
Date Completed: October 22, 1984

Submitted by: ETI of North America
P. O. Box 7784
Overland Park, KS 66211
Attn: Mr. Robert Skach

LLI Project No.: 84-4178

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E1-S	Total Nickel	770 mg/kg
	Total Chromium	540 mg/kg
	Total Cadmium	0.78 mg/kg
	pH	9.7
E1-18	Total Nickel	220 mg/kg
	Total Chromium	86 mg/kg
	Total Cadmium	0.82 mg/kg
	pH	10.8
E1-36	Total Nickel	68 mg/kg
	Total Chromium	64 mg/kg
	Total Cadmium	0.77 mg/kg
	pH	9.6
E2-S	Total Nickel	500 mg/kg
	Total Chromium	190 mg/kg
	Total Cadmium	0.79 mg/kg
	pH	9.3

Comments: Assays performed on a composite of five individual samples.

Approved: [signature]
Alan Kerschen
Laboratory Director

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E2-18	Total Nickel	280 mg/kg
	Total Chromium	60 mg/kg
	Total Cadmium	1.09 mg/kg
	pH	10.7
E2-36	Total Nickel	110 mg/kg
	Total Chromium	110 mg/kg
	Total Cadmium	0.73 mg/kg
	pH	9.7
E3-S	Total Nickel	220 mg/kg
	Total Chromium	200 mg/kg
	Total Cadmium	0.60 mg/kg
	pH	9.0
E3-18	Total Nickel	69 mg/kg
	Total Chromium	76 mg/kg
	Total Cadmium	0.74 mg/kg
	pH	9.2
E3-36	Total Nickel	20 mg/kg
	Total Chromium	15 mg/kg
	Total Cadmium	0.56 mg/kg
	pH	9.0
E4-S	Total Nickel	810 mg/kg
	Total Chromium	795 mg/kg
	Total Cadmium	0.72 mg/kg
	pH	9.3

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E4-18	Total Nickel	830 mg/kg
	Total Chromium	990 mg/kg
	Total Cadmium	0.86 mg/kg
	pH	10.1
E4-36	Total Nickel	49 mg/kg
	Total Chromium	72 mg/kg
	Total Cadmium	0.79 mg/kg
	pH	9.1
E5-S	Total Nickel	1,300 mg/kg
	Total Chromium	1,450 mg/kg
	Total Cadmium	0.89 mg/kg
	pH	9.4
E5-18	Total Nickel	640 mg/kg
	Total Chromium	820 mg/kg
	Total Cadmium	0.94 mg/kg
	pH	10.3
E5-36	Total Nickel	32 mg/kg
	Total Chromium	29 mg/kg
	Total Cadmium	0.52 mg/kg
	pH	9.7
E6-S	Total Nickel	530 mg/kg
	Total Chromium	410 mg/kg
	Total Cadmium	0.66 mg/kg
	pH	9.0

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E6-18	Total Nickel	445 mg/kg
	Total Chromium	405 mg/kg
	Total Cadmium	0.77 mg/kg
	pH	10.2
E6-36	Total Nickel	230 mg/kg
	Total Chromium	230 mg/kg
	Total Cadmium	0.95 mg/kg
	pH	10.1

LANGSTON LABORATORIES, INC.

Laboratory Report

Date Received: October 5, 1984
Time Received: 1:00 pm
Date Completed: October 22, 1984

Submitted by: ETI of North America
P. O. Box 7784
Overland Park, KS 66211
Attn: Mr. Robert Skach

LLI Project No.: 84-4185

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E7-S	Total Nickel	670 mg/kg
	Total Chromium	490 mg/kg
	Total Cadmium	0.49 mg/kg
	pH	8.6
E7-18	Total Nickel	110 mg/kg
	Total Chromium	100 mg/kg
	Total Cadmium	0.50 mg/kg
	pH	7.9
E7-36	Total Nickel	74 mg/kg
	Total Chromium	110 mg/kg
	Total Cadmium	0.49 mg/kg
	pH	7.6
E8-S	Total Nickel	600 mg/kg
	Total Chromium	410 mg/kg
	Total Cadmium	0.95 mg/kg
	pH	9.6

Comments: Assays performed on a composite of five individual samples.

Approved: [signature]
Alan Kerschen
Laboratory Director

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

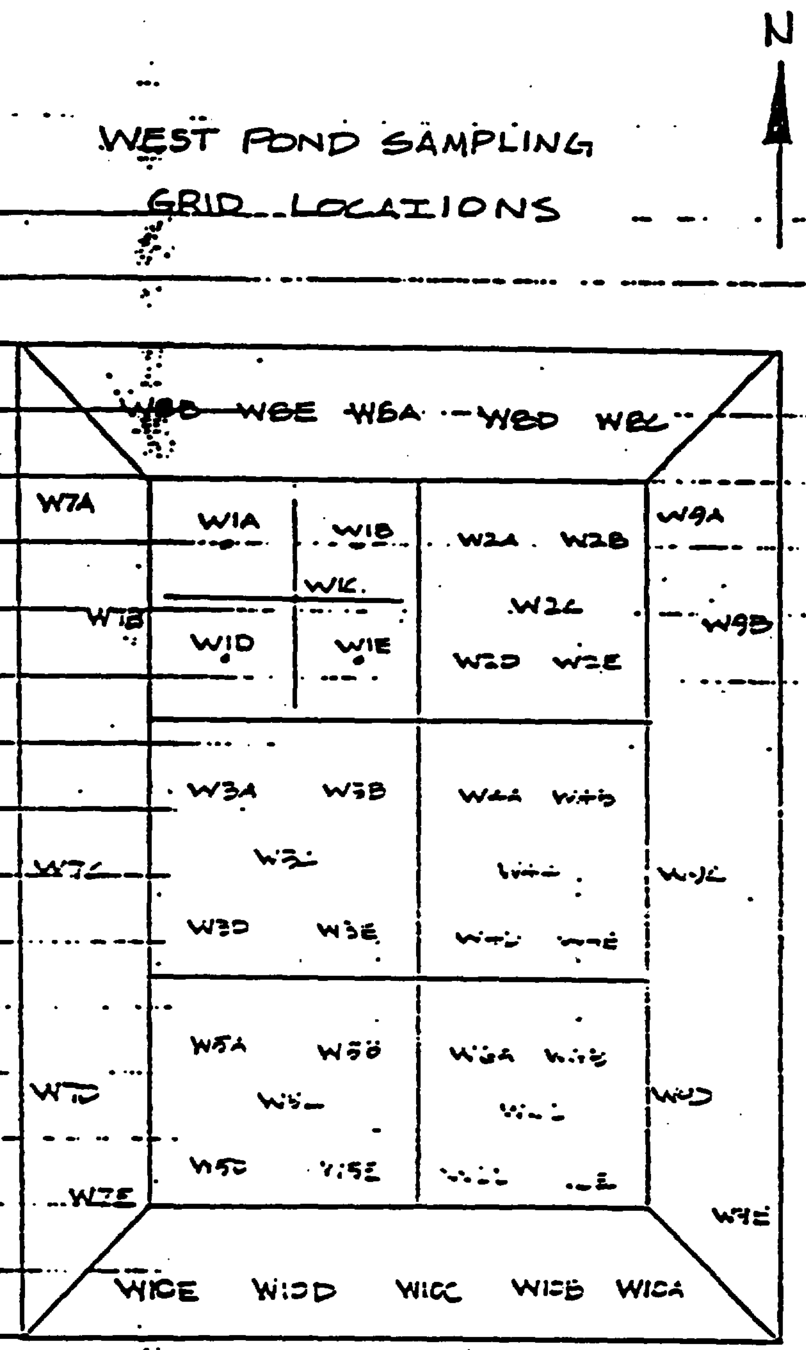
Sample Identification	Analysis	Results
E8-18	Total Nickel	630 mg/kg
	Total Chromium	510 mg/kg
	Total Cadmium	0.88 mg/kg
	pH	9.3
E8-36	Total Nickel	980 mg/kg
	Total Chromium	1,000 mg/kg
	Total Cadmium	0.71 mg/kg
	pH	10.2
E9-S	Total Nickel	1,200 mg/kg
	Total Chromium	470 mg/kg
	Total Cadmium	0.56 mg/kg
	pH	8.4
E9-18	Total Nickel	140 mg/kg
	Total Chromium	69 mg/kg
	Total Cadmium	0.49 mg/kg
	pH	7.7
E9-36	Total Nickel	110 mg/kg
	Total Chromium	40 mg/kg
	Total Cadmium	0.43 mg/kg
	pH	8.0
E10-S	Total Nickel	240 mg/kg
	Total Chromium	260 mg/kg
	Total Cadmium	0.73 mg/kg
	pH	8.9

Sample Description: Soil Samples from East Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
E10-18	Total Nickel	76 mg/kg
	Total Chromium	48 mg/kg
	Total Cadmium	0.48 mg/kg
	pH	8.1
E10-36	Total Nickel	54 mg/kg
	Total Chromium	31 mg/kg
	Total Cadmium	0.53 mg/kg
	pH	8.3

WEST POND SAMPLING

GRID LOCATIONS



LANGSTON LABORATORIES, INC.

Laboratory Report

Date Received: October 5, 1984
Time Received: 8:00 am
Date Completed: October 22, 1984

Submitted by: ETI of North America
P. O. Box 7784
Overland Park, KS 66211
Attn: Mr. Robert Skach

LLI Project No.: 84-4178

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W1-S	Total Nickel	490 mg/kg
	Total Chromium	390 mg/kg
	Total Cadmium	0.57 mg/kg
	pH	9.0
W1-18	Total Nickel	56 mg/kg
	Total Chromium	34 mg/kg
	Total Cadmium	0.57 mg/kg
	pH	8.8
W1-36	Total Nickel	43 mg/kg
	Total Chromium	24 mg/kg
	Total Cadmium	0.62 mg/kg
	pH	9.0
W2-S	Total Nickel	750 mg/kg
	Total Chromium	510 mg/kg
	Total Cadmium	0.55 mg/kg
	pH	9.6

Comments: Assays performed on a composite of five individual samples.

Approved: [signature]
Alan Kerschen
Laboratory Director

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W2-18	Total Nickel	88 mg/kg
	Total Chromium	26 mg/kg
	Total Cadmium	0.51 mg/kg
	pH	8.6
W2-36	Total Nickel	100 mg/kg
	Total Chromium	43 mg/kg
	Total Cadmium	0.61 mg/kg
	pH	7.6
W3-S	Total Nickel	830 mg/kg
	Total Chromium	680 mg/kg
	Total Cadmium	0.64 mg/kg
	pH	9.5
W3-18	Total Nickel	44 mg/kg
	Total Chromium	50 mg/kg
	Total Cadmium	0.48 mg/kg
	pH	8.4
W3-36	Total Nickel	43 mg/kg
	Total Chromium	72 mg/kg
	Total Cadmium	0.55 mg/kg
	pH	8.8
W4-S	Total Nickel	810 mg/kg
	Total Chromium	740 mg/kg
	Total Cadmium	0.59 mg/kg
	pH	9.2

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W4-18	Total Nickel	110 mg/kg
	Total Chromium	110 mg/kg
	Total Cadmium	0.60 mg/kg
	pH	8.0
W4-36	Total Nickel	64 mg/kg
	Total Chromium	93 mg/kg
	Total Cadmium	0.64 mg/kg
	pH	8.7
W5-S	Total Nickel	45 mg/kg
	Total Chromium	58 mg/kg
	Total Cadmium	0.47 mg/kg
	pH	8.4
W5-18	Total Nickel	42 mg/kg
	Total Chromium	66 mg/kg
	Total Cadmium	0.55 mg/kg
	pH	8.8
W5-36	Total Nickel	52 mg/kg
	Total Chromium	54 mg/kg
	Total Cadmium	0.47 mg/kg
	pH	8.8
W6-S	Total Nickel	360 mg/kg
	Total Chromium	180 mg/kg
	Total Cadmium	0.59 mg/kg
	pH	9.2

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W6-18	Total Nickel	110 mg/kg
	Total Chromium	130 mg/kg
	Total Cadmium	0.52 mg/kg
	pH	8.9
W6-36	Total Nickel	59 mg/kg
	Total Chromium	140 mg/kg
	Total Cadmium	0.53 mg/kg
	pH	8.9

LANGSTON LABORATORIES, INC.

Laboratory Report

Date Received: October 5, 1984
Time Received: 1:00 pm
Date Completed: October 22, 1984

Submitted by: ETI of North America
P. O. Box 7784
Overland Park, KS 66211
Attn: Mr. Robert Skach

LLI Project No.: 84-4185

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W7-S	Total Nickel	130 mg/kg
	Total Chromium	84 mg/kg
	Total Cadmium	0.59 mg/kg
	pH	7.7
W7-18	Total Nickel	290 mg/kg
	Total Chromium	210 mg/kg
	Total Cadmium	0.50 mg/kg
	pH	7.8
W7-36	Total Nickel	280 mg/kg
	Total Chromium	200 mg/kg
	Total Cadmium	0.51 mg/kg
	pH	8.1
W8-S	Total Nickel	90 mg/kg
	Total Chromium	150 mg/kg
	Total Cadmium	0.47 mg/kg
	pH	7.6

Comments: Assays performed on a composite of five individual samples.

Approved: [signature]
Alan Kerschen
Laboratory Director

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W8-18	Total Nickel	180 mg/kg
	Total Chromium	135 mg/kg
	Total Cadmium	0.52 mg/kg
	pH	8.1
W8-36	Total Nickel	170 mg/kg
	Total Chromium	140 mg/kg
	Total Cadmium	0.53 mg/kg
	pH	8.3
W9-S	Total Nickel	160 mg/kg
	Total Chromium	120 mg/kg
	Total Cadmium	0.49 mg/kg
	pH	8.8
W9-18	Total Nickel	540 mg/kg
	Total Chromium	430 mg/kg
	Total Cadmium	0.61 mg/kg
	pH	8.6
W9-36	Total Nickel	280 mg/kg
	Total Chromium	260 mg/kg
	Total Cadmium	0.56 mg/kg
	pH	8.8
W10-S	Total Nickel	125 mg/kg
	Total Chromium	80 mg/kg
	Total Cadmium	0.50 mg/kg
	pH	7.7

Sample Description: Soil Samples from West Pond at Kuhlman Diecasting, Stanley, Kansas Collected by R.V. Vantuyl October 2-4, 1984

Sample Identification	Analysis	Results
W10-18	Total Nickel	63 mg/kg
	Total Chromium	38 mg/kg
	Total Cadmium	0.45 mg/kg
	pH	7.9
W10-36	Total Nickel	64 mg/kg
	Total Chromium	38 mg/kg
	Total Cadmium	0.43 mg/kg
	pH	8.4

KUHLMAN DIECASTING COMPANY

Report on the Decontamination of the Old Petroleum Storage Tank.

DATE: May 23, 1983

On May 10th Kuhlman Diecasting Company began the removal of the metal plating sludge stored in the old Petroleum Storage tank. The sludge was removed manually with shovels and placed into multilayer cloth/plastic bags with a 1 cubic yard capacity. The sludge was combined with the sludge that was currently being generated from the facility. These bags are currently awaiting transportation by US PCI to their disposal facility.

After the sludge was removed from the tank, the floor and walls were rinsed to gather up any additional sludge. The contaminated water was collected in (55) gallon steel drums and recycled through the facilities waste water treatment plant.

Respectfully Submitted,

Phillip Meeker

Phillip Meeker
Kuhlman Diecasting Company

case file 123

onmental and Toxic Waste Management
ater Recovery/Sludge Ponds, Waste Lagoons
ification/Stabilization, Chemical Waste Treatment
ttor nsal/PCB-Dioxin Destruction
ite Treatment Facilities
lato mpliance Assistance/Audits
gency/Remedial Plans/TSCA-RCRA

no. 437240 OLPK USA, Cable AMI
hone 913-381-6708

ETI
of North America

Suite 228, 4550 W. 109th Street
Overland Park, KS USA 66211

July 5, 1984

Ms. Karen Flournoy
U.S. EPA Region VII
324 11th Street
Kansas City, Missouri 64106

Re: Kuhlman Diecasting Company;
EPA I.D. #KSD006325013
Blue River Cu and Zn Analytical Results

Dear Karen:

In our last meeting, you requested that Kuhlman Diecasting provide information about copper and zinc concentrations in the Blue River adjacent to the Kuhlman Facility. Surface water samples were collected on May 31 for purposes associated with the Ground ter Assessment Program, and these samples were also analyzed for pper and zinc. In all, 10 samples were collected and analyzed. The sample locations are shown on the attached map and include six from the Blue River, one from an upstream tributary and three from on-site impoundments.

1) BR-1 is on the Blue River well upstream of the facility where a power transmission line right-of-way exists.
2) BR-2 is immediately adjacent to the main building where one of the storm water outlets passes through the levee.
3) BR-3 is just upstream of the final polishing pond which was cleaned out this spring.
4) BR-4 is downstream from the old sludge ponds and below the Camp Branch Creek.
5) BR-5 is at the Mission Road bridge.
6) BR-6 is well downstream where Kenneth Road crosses the Blue River.
7) Tributary is from Camp Branch Creek upstream of the influence of the Blue River at the railroad bridge.
8) Lagoon is from the waste water lagoon.
9) Res. 1 is from the make-up water reservoir next to the main building.
10) SW is from standing surface water adjacent to ground water monitoring well GW-1.

RECEIVED
JUL 6 1984
AIR AND HAZARDOUS MATE

Copper concentrations in the Blue River appear to be .010 mg/l or less upstream of the facility; the level increases below the outfall by .002 mg/l and decreases in the downstream direction rapidly so that concentrations as measured at the Mission Road bridge are back to .010 mg/l. Copper concentrations in the impounded water at the site are higher than the upstream level by a maximum of .005 mg/l. For reference the EPA secondary drinking water guidelines for welfare is 1 mg/l.

Zinc concentrations in the Blue River behave in a fashion similar to copper. The concentration increase by .002 mg/l below the facility, but then concentrations continue to drop in the downstream direction to below the levels above the facility. The first sample is .004 mg/l while the final downstream sample if .001 mg/l. Of all the samples, the highest concentration is in the waste water lagoon at .028 mg/l. For reference, the EPA secondary drinking water guidelines suggest a limit of 5 mg/l of zinc for welfare.

The Blue River sample locations were selected on the basis of illustrating changes in water quality with reference to influence imposed by the Kuhlman Facility. For this reason, the upstream location BR-1 was selected as it was well outside the influence of the site. The second location, BR-2, was established to detect ground water influences from one of the historic sludge ponds if possible; in reality this site on occasion may be affected by back-water and reflect outfall water quality. The remaining sites are spread out to sample potential influences from waste water outfalls, reclaimed sludge ponds and major tributaries. The final sample site, BR-6, was selected based on access, and being far enough downstream to receive all probable groundwater discharges from the site.

The understood purpose of acquiring this data is to answer remaining questions regarding potential problems from copper and zinc that might originate from the Kuhlman Facility. As previously advised, the two elements are not used in processes at the Kuhlman Facility, and any discharges would be incidental resulting from metal products being processed that contained alloy concentrations of the metals. The EPA purpose was aimed at determining if monitoring of the metals in groundwater was necessary. It does not appear that copper and zinc would prove to be a concern in groundwater since there is no source for contamination. In addition, the known solubility controls on copper and zinc in natural waters (both surface and ground water), contamination is not probable. We recently measured the pH of the soil in the west polishing pond after it was cleaned and it was at 8.0.

Given these facts, Kuhlman's position is that analysis of groundwater for copper and zinc is not necessary.

In reference to my letter to you dated June 25 regarding the groundwater monitoring program, please disregard my reference to the chromium levels in samples GW-2 and GW-3 being above regulatory minimums. In fact, they are considerably lower than the federal primary drinking water standards of 0.05 mg/liter.

Additional data obtained from this and subsequent surface and ground water sampling programs will be addressed in our final report in Phase IV as described in our March 13 Assessment Plan.

If you have any questions regarding these matters, please do not hesitate to contact me.

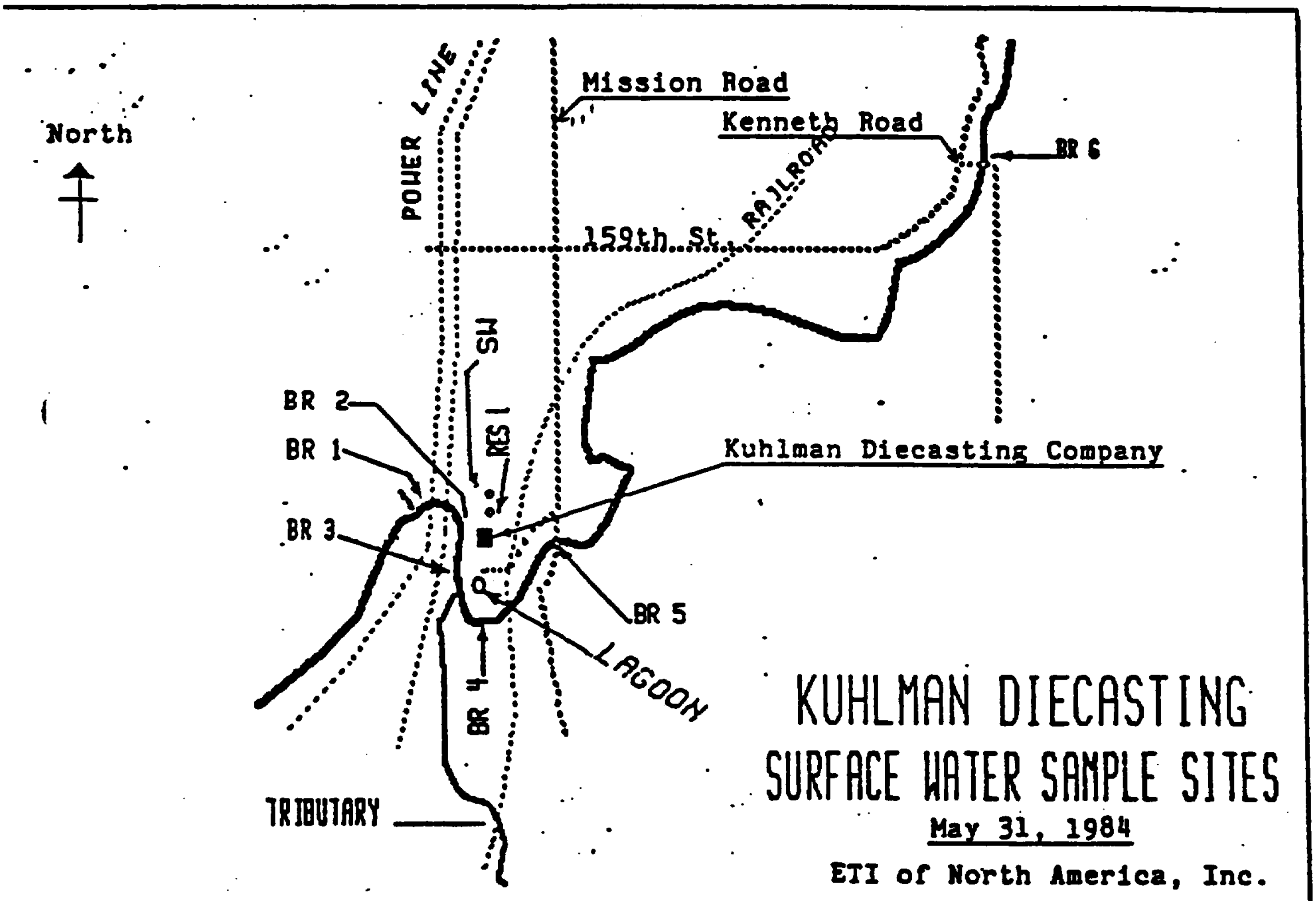
Sincerely,

ETI OF NORTH AMERICA, INC.

Robert F. Skach, P.E.
Vice President

RFS/tp

cc: Cheryle Micinski, Attorney, EPA
Wayne Kaiser - EPA
Don Carlson - KDHE
John Goetz - KDHE
Phillip Meeker - Kuhlman
Daniel Stewart - Brown, Koralchick & Fingersh



North
POWER LINE
Mission Road
Kenneth Road
RAILROAD
BR 6
159th St.
SW
RES 1
BR 2
BR 1
BR 3
Kuhlman Diecasting Company
BR 5
LAGOON
BR 4
TRIBUTARY
KUHLMAN DIECASTING
SURFACE WATER SAMPLE SITES
May 31, 1984
ETI of North America, Inc.

KUHLMAN DIECASTING COMPANY

Surface Water Samples *

	EPA Guide-lines	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6	TRIB.	LAGOON	RES. 1	S.W.
H	-	7.7	7.8	7.8	7.8	7.8	7.9	8.0	7.5	8.1	7.6
xpper ;/l	1.0	<0.01	<0.01	0.012	0.011	<0.01	<0.01	<0.01	0.013	0.013	0.015
nc ;/l	5.0	0.004	0.004	0.005	0.006	0.005	<0.001	<0.001	0.028	0.006	0.005

*Samples Collected 5/31/84 by ETI of North America, Inc., and Analyzed by Langston Laboratories, Inc.

KUHLMAN DIECAS·ING COMPANY

Surface Water Samples *

	EPA Guide-lines	BR-1	BR-2	BR-3	BR-4	BR-5	BR-6	TRIB.	LAGOON	RES. 1	S.W.
	-	7.7	7.8	7.8	7.8	7.8	7.9	8.0	7.5	8.1	7.6
per /l	1.0	<0.01	<0.01	0.012	0.011	<0.01	<0.01	<0.01	0.013	0.013	0.015
nc /l	5.0	0.004	0.004	0.005	0.006	0.005	<0.001	<0.001	0.028	0.006	0.005

*Samples Collected 5/31/84 by ETI of North America, Inc., and Analyzed by Langston Laboratories, Inc.

KUHLMAN DIECASTING COMPANY

RECEIVED NOV 12 1987

November 10, 1987

Jacobs Engineering
12600 W. Colfax Avenue,
Suite A300
Lakewood, Colorado 80215

Attention: Ms. Anne Harrington

Dear Ms. Harrington,

As per your request, enclosed is a copy of the Laboratory report and Bill of Lading for Paint contaminated soil. The subject soil was removed from our paint shop area as requested by Mr. Fisher of Kansas Department of Health and Environment.

We trust that the information is helpful, should you require any further assistance, please contact our office.

Sincerely,

Kuhlman Dieceasting Company

Connie L Hawkins

Connie Hawkins
Environmental Control Coordinator

CH/wb
Enclosure: 2

Stanley Division: P.O. Box 23218, Stanley, Kansas 66223, Tel. 913-681-2351 TWX 910-749-6413

RECEIVED
MAR 04 1987

LANGSTON LABORATORIES, INC.
Research • Testing • Problem Solving
2005 W. 103rd Terrace (B) • Leawood, KS 66206-2695 • Ph. 913-341-7800

LABORATORY REPORT

CLIENT: Kuhlman Diecasting Co., Inc.
P. O. Box 23218
Stanley, KS 66223
ATTN: Dwayne Kiewitt

RECEIVED: December 18, 1986 (5:00 pm)
COMPLETED: February 27, 1987
LLI NO.: 86-1086

SAMPLE DESCRIPTION: Soil

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
Soil	E. P. Toxicity	
	Arsenic	< 0.25 mg/liter
	Barium	< 5.0 mg/liter
	Cadmium	< 0.05 mg/liter
	Chromium	1.67 mg/liter
	Lead	< 0.25 mg/liter
	Mercury	< 0.01 mg/liter
	Selenium	< 0.05 mg/liter
	Silver	< 0.25 mg/liter

APPROVED: Alan Kerschen
Alan Kerschen
Vice President

SAMPLE DESCRIPTION: Soil

SAMPLE IDENTIFICATION	ANALYSIS	RESULTS
Soil	Chloromethane	< 1,000 µg/kg
	Bromomethane	< 1,000 µg/kg
	Vinyl Chloride	< 1,000 µg/kg
	Chloroethane	< 1,000 µg/kg
	Methylene Chloride	1,700 µg/kg
	Acetone	16,500 µg/kg
	Carbon Disulfide	< 500 µg/kg
	1,1-Dichloroethene	< 500 µg/kg
	1,1-Dichloroethane	< 500 µg/kg
	1,2-Dichloroethene (total)	> 500 µg/kg
	Chloroform	< 500 µg/kg
	1,2-Dichloroethane	< 500 µg/kg
	2-Butanone	< 1,000 µg/kg
	1,1,1-Trichloroethane	< 500 µg/kg
	Carbon Tetrachloride	< 500 µg/kg
	Vinyl Acetate	< 1,000 µg/kg
	Bromodichloromethane	< 500 µg/kg
	1,2-Dichloropropane	< 500 µg/kg
	cis-1,3-Dichloropropene	< 500 µg/kg
	Trichloroethene	< 500 µg/kg
	Dibromochloromethane	< 500 µg/kg
	1,1,2-Trichloroethane	< 500 µg/kg
	Benzene	< 500 µg/kg
	trans-1,3-Dichloropropene	< 500 µg/kg
	Bromoform	< 500 µg/kg
	4-Methyl-2-Pentanone	< 1,000 µg/kg
	2-Hexanone	< 1,000 µg/kg
	Tetrachloroethene	< 500 µg/kg
	1,1,2,2-Tetrachloroethane	< 500 µg/kg
	Toluene	< 500 µg/kg
	Chlorobenzene	< 500 µg/kg
	Ethylbenzene	< 500 µg/kg
	Styrene	< 500 µg/kg
	Xylene (total)	1,050 µg/kg

RAIGHT BILL OF LADING—SHORT FORM—Original—Not Negotiable.

[illegible]

OM: KUHLMAN DIECASTING CO.

1/2/87	CARRIER: Kuhlman Diecasting Truck	SHIPPED FROM STANLEY KANSAS	CARRIER'S NUMBER
			SHIPPER'S NUMBER: 6287

(Mail or street address of consignee—For purposes of notification only)

IGNED TO Miami County Landfill

INATION 327 Hospital Drive

Paola, Kansas

[illegible]

DELIVERING CARRIER ________ CAR INITIALS ________ NO. ________

CARTONS	PURCHASE ORDER NUMBER	PART NAME OR NUMBER	NUMBER PER CTN.	QUANTITY	KEY CODE	WEIGHT SUB. TO COR.	CLASS OR RATE	COL.
28	each, 55 gallon drums of contaminated soil.						60	
	Paid 6/2/87 Bob Gillespie					11,036		
	$ 33.60 paid cash							
	account # 44710							
	Miami Co. Landfill					There Wt. 11200		
	Gatlin, Weighmaster							

A - (1135) PLATES, NAME, METAL OR STEEL

B - (8030) AUTO ENGINE, DRIVING GEAR, OR STEERING GEAR PARTS NOIBN, WHITE METAL ALLOY

C - (8065) AUTOMOBILE PARTS NOIBN WHITE METAL ALLOY ZINC OR ZINC ALLOY

D - (0219) AUTOMOBILE BODY PARTS NOI, OR TRIM, BODY, FENDER, FRONT END, REAR END OR ROOF; DENSITY MORE THAN 10 • P.C.F.

E - ZINC OR ZINC ALLOY CASTINGS, OVER 50%, ZINC. N.O.I. OR ALUM. CASTINGS OVER 50% ALUM. WITH OR WITHOUT INSERTS.

F -

Shipper, Per ________ Agent, Per ________

1

Kuhlman Diec ting Company, INC.

PHONE 816, 231-6902 — 7300 EAST 17TH STREET, KANSAS CITY, MISSOURI 64126
PHONE 913, 681-2352 — 164TH STREET AND MISSION ROAD, STANLEY, KANSAS 66084

AFFILIATED WITH
MONROE CITY DI ING CO.,
MONROE CITY, M. URI

DIE CASTINGS OF ZINC AND ALUMINUM ALLOYS

DATE SHIPPED	SHIPPED VIA	SHIPPED FROM		INVOICE NUMBER
		KANSAS CITY, MISSOURI	STANLEY, KANSAS	
7-28-87	KD truck			72887

SOLD TO
(IF DIFFERENT FROM SHIP TO)

PLEASE REMIT TO:

MONROE CITY DIECASTING CO.

MONROE CITY, MO. 63456

SHIP TO Miami County Land fill

TERMS:

ROUTE

CARTONS	PURCHASE ORDER NUMBER	PART NAME OR NUMBER	NUMBER PER CTN.	QUANTITY	CODE	WEIGHT			PRICE	AMOUNT
12	Drum	Contaminated Soil								

Paid 7/29/87

Dennis F Morgan

THIS IS YOUR ORIGINAL INVOICE *Thank You*

JACOBS ENGINEERING GROUP INC. 05A00599

PHONE CONVERSATION RECORD

Conversation with:

Name Steve Broslavick

Company KS Dept of Health

Address Topeka, KS

Phone (913) 296-5556

Date 4/19/88

Time 3:30 AM/PM (PM circled)

☒ Originator Placed Call

☐ Originator Received Call

W.O. NO.

Subject Status of Kuhlman's NPDES Permit.

Notes: KDHE had drafted new effluent limits based on EPA's metal finishing effluent guidelines. They had placed the Permit on a 30 day Public Notice and have received comments back from Kuhlman. They will not be reissuing an NPDES Permit to Kuhlman until these comments are resolved. In the meantime Kuhlman is still monitoring their effluent based on the "Existing Permit" limitations (see Jan 13 1987 letter from KDHE to Mr. Mecker) & their expired permit which is acceptable to KDHE. Steve mentioned that KDHE is real close to reissuing the permit and asked who he could get a copy of the draft RFA from at EPA. I gave him my Primary Contact name.

☐ File

☐ e File / /

☐ Follow-Up By:

☐ Copy/Route To:

Follow-Up-Action:

Originator's Initials AH

State of Kansas . . . Mike Hayden, Governor

DEPARTMENT OF HEALTH AND ENVIRONMENT

Jack D. Walker, M.D., Secretary

Forbes Field
Topeka, Kansas 66620-0110
913-862-9360

January 13, 1987

Mr. Phillip W. Meeker
Kuhlman Diecasting Company
P. O. Box 23218
Stanley, Kansas 66223

Re: Kansas Water Pollution Control Permit
No. I-M026-P001, (KS-0001881)

Dear Mr. Meeker:

The State of Kansas, Department of Health and Environment has been delegated the authority to administer the National Pollutant Discharge Elimination System (NPDES) permit program. The primary function of the program is to regulate wastewater discharges into waters of the United States. The NPDES permit issued to The Kuhlman Diecasting Company, Stanley facility will expire on November 2, 1987.

Enclosed is an informational packet for renewal of the referenced permit. The packet consists of the following material:

1. A one page State discharge application form with fee.

2. EPA consolidated permit program application Form 1-General information.

3. EPA consolidated permit program application Form 2C-Wastewater discharge information.

4. Regulation 28-16-56-Sewage permit fees.

5. An electroplating/metal finishing industrial questionnaire.

Please complete the Industrial Questionnaire, State Form, Form 1 and Form 2C permit application forms and return them along with a check made out to the Kansas Department of Health and Environment for the fee indicated. Upon receipt of the completed application forms we will proceed in processing the discharge permit.

On October 28, 1986 we meet with Kuhlman Diecasting Company officials to discuss the remedial actions taken to date in order to bring the Stanley facility into compliance with their NPDES permit limitations. At this time we would like to provide to Kuhlman the proposed concentration limitations which will be incorporated into your new permit. These proposed concentrations limitations were based on State Water Quality Standards. The existing and proposed effluent concentration limitations are summarized below for comparison purposes:

	Existing Permit Limitations (mg/l)		Proposed Effluent Limitations (mg/l)	
Pollutant	Daily Ave.	Daily Max.	Daily Ave.	Daily Max
BOD5	25	35	25	40
TSS	25	35	24	35
Oil & Grease	10	15	10	15
Hexavalent Chromium	--	.2	.02	.03
Total Chromium	.5	1	.5	1.3
Cooper	--	.5	.02	.04
Nickel	--	.5	.43	1.0
Zinc	--	.5	.18	.23
Free Cyanide	--	--	.01	.02
Total Cyanide	--	.05	N/A	N/A

Mass limitations may also be established in the new permit. They will be derived using the maximum 30 day flow value reported in EPA Form 2C and the concentration limitations. In the event the Environmental Protection Agency amends or promulgates the BPT, BAT, and/or BCT effluent guidelines for a specific point source category or any of the subcategories covering your industry, the permit will be revoked and reissued to incorporate the new limitation(s). EPA's mass limitations are usually technology based. Information in the questionnaire will allow us to determine the appropriate point source category covering your industry.

The proposed concentration limitations should be used by Kuhlman in evaluating whether the existing wastewater treatment system is adequate for permit compliance. Should you have any questions regarding the permit application forms, please contact me.

Sincerely,

Steve Broslavick

Steve Broslavick, P.E.
Environmental Engineer
Industrial Programs Section
Bureau of Water Protection

bd
Enclosure
cc: Northeast District

INDUSTRIAL PERMIT APPLICATION REQUEST

Bethel.

1. Please send:

    ______ State Non-Overflowing Permit Application

    ✓ State Discharging Permit Application

    ✓ Forms 1 and II

    I have → ✓ Other Electroplating / Metal Finishing Industrial Questionnaire

2. To: Mr. Phillip W. Meeker
    Kuhlman Diecasting Company
    P.O. Box 4318
    Stanley, Kansas 66283

3. Facility location Stanley, KS 66283

4. Receiving Stream Big Blue River

5. If quarry, washing or nonwashing N/A

6. New or existing facility

7. If existing: State Permit No. I-MO36-P001

    Federal Permit No. KS-0001881

8. Permit fee $320.00

Date: 1-9-87

Engineer SB

cc: ______ District

18

UNIT STATES ENVIRONMENTAL PROTE ION A NCY

DATE: 25 MAY 1982

SUBJECT: Transmittal of RCRA Compliance Inspection Report

FROM: John R. Helvig *John R. Helvig*
Chief, Air Section, ENSV/FINV

TO: Michael J. Sanderson
Acting Chief, ARWM/AWCM

This memorandum transmits the following report of compliance inspection performed by the Air Section, Field Investigations Branch, Environmental Services Division:

Facility	EPA I.D. No.	Inspector
Kuhlman Die Casting Company Stanley, Kansas	KSD006325013	Craig W. Smith

Attachment

EPA-ARHM/PEST

MAY 26 1982

Region VII K.C., MO

EPA Form 1320-6 (Rev. 3-76)

324

7/1/88 Report continued...

Site: Kuhlman
ID #: KSD[illegible]
Break: 19.4
Other: AR

JACOBS

TES IV

DUPLICATES

TES IV
CONTRACT NO. 68-01-7351
WORK ASSIGNMENT #99

RCRA FACILITY ASSESSMENT
OF
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

APPENDICES V - IX
VOLUME 2

JE JACOBS ENGINEERING GROUP INC.
ENVIRONMENTAL SYSTEMS DIVISION

IN ASSOCIATION WITH:
TETRA TECH
METCALF & EDDY
ICAIR LIFE SYSTEMS
KELLOGG CORPORATION
GEO/RESOURCE CONSULTANTS
BATTELLE PACIFIC NORTHWEST LABORATORIES
DEVELOPMENT PLANNING AND RESEARCH ASSOCIATES

U.S. ENVIRONMENTAL PROTECTION AGENCY

TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITE

TES IV
229 CONTRACT NO. 68-01-7351
WORK ASSIGNMENT #99

RCRA FACILITY ASSESSMENT
OF
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

APPENDICES V - IX
VOLUME 2

Appendix V

Site Sampling Plan

Kuhlman Diecasting Facility

SITE SAMPLING PLAN
FOR
KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

PREPARED FOR:
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VII
TECHNICAL ENFORCEMENT CONTRACT NO. 68-01-7351

BY:
JACOBS ENGINEERING GROUP INC.
12600 WEST COLFAX AVENUE, SUITE A300
LAKEWOOD, CO 80215
(303) 232-7093

DRAFT: AUGUST 14, 1987
REVISED: SEPTEMBER 4, 1987

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

Jacobs Engineering Group Inc. (Jacobs) received Work Assignment #99 to conduct a RCRA Facility Assessment (RFA) at the Kuhlman Diecasting Company (Kuhlman) near Stanley, Kansas. The purpose of the RFA is to identify release(s)/potential release(s) that may require further investigation. There are three main components of an RFA: 1) Preliminary Review (PR), 2) Visual Site Inspection (VSI), and 3) Sampling Visit (SV). The PR and VSI were conducted during the week of June 22-25, 1987. This report is the sampling plan for the SV portion of the RFA. The purpose of the sampling visit is to obtain information regarding releases from several solid waste management units (SWMUs) identified during the file review and the visual site inspection. The SV focuses on obtaining further documentation of releases from SWMUs through the collection and analysis of new sampling data.

2.0 SITE BACKGROUND

The Kuhlman Diecasting Company is located approximately 2.4 miles southeast of Stanley, Kansas, in the floodplain of the Blue River. The area is characterized as a rural setting containing both industry and farmland.

Since 1964, Kuhlman Diecasting has been engaged in the manufacturing of zinc, aluminum and plastic diecastings for a variety of commercial and industrial services including automotive, small appliances, and telecommunications at the site. The Kuhlman operation employs an electroplating process that utilizes chromium, nickel and copper platings on the zinc and aluminum diecasting.

In 1983, Kuhlman ceased disposing of electroplating sludge and waste fluids in three surface impoundments and a petroleum storage tank. According to EPA, sludge has been removed from all units in accordance with a RCRA Compliance Order. However, some contaminated soil remains within the site boundary. Samples from a groundwater monitoring system for the facility has indicated that there are elevated levels of chromium and nickel in the groundwater. Final closure of the impoundments at the site has not been completed.

Prior to Kuhlman Diecasting Company's purchase of the property, the site had contained an old pipeline pumping station with a minimum of seven large petroleum storage tanks. Several wells, located in the area of a former petroleum tank farm, show evidence of hydrocarbon contamination.

The Kuhlman facility also has a National Pollutant Discharge Elimination System (NPDES) discharge permit that allows discharge to the Blue River. However, according to EPA, Kuhlman has frequently exceeded its discharge limits for heavy metals.

3.0 PROPOSED SAMPLES AND ANALYSES

The sample locations were chosen to: 1) identify the source of the petroleum contamination on site; 2) determine the extent of the heavy metal contamination; and 3) to determine the effect of the Kuhlman Diecasting Company's operations on the Blue River. Figure 3.1 is a map identifying the sample locations discussed in Sections 3.1 through 3.4.

All samples collected will be submitted to the Region VII Laboratory for analyses or distribution to various analytical laboratories under the U.S. EPA's Contract Laboratory Program (CLP). At the Region VII Laboratory's direction, samples may be shipped to a specified CLP laboratory. All analytical methods and detection limits are defined in the CLP's statement of work (SOW). All equipment used in the sampling process shall be decontaminated prior to initial use, as well as between all sampling locations. The field decontamination procedures are outlined in Section 4.5 of this sampling plan. The sampling techniques that will be employed for the different media are described briefly in Section 4.0 entitled Sampling Methodology. The sampling procedures are further detailed in the Standard Operating Procedures (SOP) located in Jacobs' Region VII Quality Assurance Project Plan (QAPjP). The specific SOP's that will be utilized are listed in Sections 3.1 through 3.4 of this sampling plan. A total of 34 samples is estimated, plus four duplicates, two trip blanks, one field blank for dissolved metals, and four equipment blanks.

3.1 Groundwater Samples

3.1.1 Observation Wells GM-1, GM-2, GM-10, and GM-11

As identified from the VSI and PR, these wells appear to be located in a zone of oil contamination. The wells are completed 29.5, 29.5, 32.5, and 20 feet below land surface, respectively. Water levels will be measured, the wells evacuated, groundwater samples collected and critical field measurements (pH, temperature, and specific conductivity) will be obtained at each well. Section 4.3 contains a brief discussion of the groundwater sampling techniques. The sampling procedures are further delineated in Jacobs QAPjP (SOP #8, Section 3.4 and Section 3.4.3). A duplicate sample will be taken from GM-11. The procedures for the duplicate sample are outlined in Section 3.5.1.

Analyses: CLP SOW for dissolved and total metals, volatile organics, cyanides, base/neutral acids, TOX, and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine the exact nature and amounts of petroleum, solvent, and heavy metal contamination.

3.1.2 Observation Wells GM-8, GM-9, and GM-14

These wells could not be located during the VSI. According to Kuhlman's contractor, they are still in existence and will be located prior to the SV. If one of these wells cannot be found, it will be substituted by GM-13. The above three wells range in depth from 30, 20 and 23.5 feet below land surface. Observation well GM-13 has a total depth of 27.5 feet below land surface. From each of the three wells, water levels will be measured, the wells evacuated, groundwater samples collected and critical field measurements (pH, temperature, and specific conductivity) will be obtained at each well. Section 4.3 contains a brief discussion of the groundwater sampling techniques. The sampling procedures are further delineated in Jacobs QAPjP (SOP #8, Section 3.4 and Section 3.4.3).

Analyses: CLP SOW for dissolved and total metals, volatile organics, cyanides, base/neutral acids, TOX, and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine the exact nature and extent of the petroleum, heavy metal and/or solvent contamination.

3.1.3 Observation Wells GM-4, GM-5, and GM-6

These wells are located down gradient of the polishing ponds and range in depths from 19.5, 17.5, and 10 feet below land surface. From each well water levels will be measured, the wells evacuated, groundwater samples collected and critical field measurements (pH, temperature, and specific conductivity) will be obtained at each well. Section 4.3 contains a brief discussion of the groundwater sampling techniques. The sampling procedures are further delineated in Jacobs QAPjP (SOP #8, Section 3.4 and Section 3.4.3).

Analyses: CLP SOW for dissolved and total metals, volatile organics, cyanides, base/neutral acids, TOX and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine the extent of the petroleum

contamination, the nature and the amount of the heavy metal contamination, and to determine if there has been solvent contamination.

3.2 Surface Water Samples

3.2.1 Blue River Background Sample (SW-1)

The river will be sampled before it flows around the Kuhlman property. A depth composite grab sample will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #6, Section 3.2 to Section 3.2.2) and Section 4.2 of this sampling plan. The exact sampling location will be determined during the SV.

Analyses: CLP SOW for dissolved and total metals, cyanides, base/neutral acids, TOX, and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine the degree of contamination of the river before it comes in contact with the Kuhlman Diecasting Company.

3.2.2 Blue River (SW-2) Prior to NPDES Outfall

The water sample will be taken across from the sludge storage pond. A depth composite grab sample will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #6, Section 3.2 to Section 3.2.2) and Section 4.2 of this sampling plan. The exact location of the sample will be determined during the SV.

Analyses: CLP SOW for dissolved and total metals, cyanides, base/neutral acids, TOX and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductances (SOP #3).

Rationale: To determine the degree of contamination of the river from the sludge storage pond and/or the oil plume at Kuhlman.

3.2.3 NPDES Outfall (SW-3) to the Blue River

The sample will be representative of the treated waste water that is discharged to the Blue River from the facility. A 24 hour composite sample will be obtained via an ISCO sampler in accordance to procedures specified in EPA's Standard Operating Procedures Manual.

Analyses: CLP SOW for dissolved and total metals, cyanides,

base/neutral acids, TOX and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine the concentrations of the specified parameters entering the Blue River from Kuhlman.

3.2.4 Downstream Blue River Sample (SW-4)

The water sample will be taken downstream from the facility. A depth composite grab sample will be obtained in accordance to the procedures specified in Jacobs' QAPjP (SOP #6, Section 3.2 to Section 3.2.2) and Section 4.2 of this sampling plan. The exact sampling location will be determined during the SV. A duplicate sample will be taken from this location. The procedures for the duplicate sample are outlined in Section 3.5.1.

Analyses: CLP SOW for dissolved and total metals, cyanides, base/neutral acids, TOX, and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine whether Kuhlman is still utilizing the polishing ponds.

3.2.5 Polishing Pond Influent (SW-5)

During the VSI, water was noted flowing out of the outfall pipe. When Kuhlman began closure of the polishing ponds, that outfall was supposed to have been terminated. The sample will be representative of the water entering the east polishing pond. If it is still flowing, a composite grab sample will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP No. 6, Section 3.2 to Section 3.2.2) and Section 4.2 of this sampling plan.

Analyses: CLP SOW for dissolved and total metals, cyanides, base/neutral acids, TOX, and TOC. Jacobs' QAPjP for temperature (SOP #1), pH (SOP #2), and specific conductance (SOP #3).

Rationale: To determine whether Kuhlman is still utilizing the polishing ponds.

3.3 Sediment Samples

3.3.1 Background Blue River Sediment Sample (SED-1)

A composite grab sample will be taken from the surface sediment underlying the location where SW-1 was obtained.

The sample will be obtained by a pond dipper (similar to a scoop with a six foot extension) or a hand corer in accordance to procedures specified in Jacobs' QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine the extent of sediment contamination upstream from Kuhlman.

3.3.2 Blue River Sediment Sample (SED-2)

A composite grab sample will be taken from the surface sediment underlying the location where SW-2 was obtained. The sample will be obtained by a pond dipper (similar to a scoop with a six foot extension) or a hand corer in accordance to procedures specified in Jacobs' QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine the extent of sediment contamination due to the sludge storage pond and/or the oil plume at Kuhlman.

3.3.3 Blue River Sediment Sample (SED-3)

A composite grab sample will be taken from the surface sediment underlying the location where SW-4 was taken. The sample will be obtained by a pond dipper (similar to a scoop with a six foot extension) or a hand corer in accordance to procedures specified in Jacobs QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine the overall pollution attributable to Kuhlman Diecasting Company.

3.3.4 Pond Sediment Sample (SED-4)

The sample will be taken at the base of the outfall sample SW-5 in the east polishing pond. A composite grab sample will be taken from the surface sediment underlying the location where SW-5 was taken. The sample will be obtained by a pond dipper (similar to a scoop with a six foot

extension) or a hand corer in accordance to procedures specified in Jacobs' QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan. A duplicate sample will be taken from this location. The procedures for the duplicate sample are outlined in Section 3.5.1.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether Kuhlman is still utilizing the polishing ponds.

3.3.5 Pond Sediment Sample (SED-5)

The sample will be taken at the base of the outfall into the west polishing pond. A composite grab sample will be taken from the surface sediment underlying the outfall into the west polishing pond. The sample will be obtained by a pond dipper (similar to a scoop with a six foot extension) or a hand corer in accordance to procedures specified in Jacobs' QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether Kuhlman is still utilizing the polishing ponds.

3.3.6 Lagoon Sediment Samples (SED-6, SED-7)

The samples will be taken at the base of the influents into the sanitary lagoons. Separate composite grab samples will be taken from the surface sediment underlying the influents into both lagoons. The sample will be obtained by a pond dipper (similar to a scoop with a six foot extension) or a hand corer in accordance to procedures specified in Jacobs' QAPjP (SOP #4, Section 2.3 to Section 2.3.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether Kuhlman disposed of wastewater into the sanitary lagoons in the past.

3.4 Soil Samples

3.4.1 Soil Samples S-1 and S-2

The soil samples will be taken along the south and east

border around the sludge pond. Dependant on site conditions, the sample will be obtained at each location by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to limitations of the sampling equipment). The composite soil samples will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether an old petroleum tank that had been located there previously had leaked product and whether heavy metals had leaked out of the sludge pond.

3.4.2 Soil Samples S-3 and S-4

The soil samples will be taken adjacent to the northern perimeter of an old petroleum storage tank that is currently being used as a warehouse. Dependant on site conditions, the sample will be obtained at each location by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to limitations of the sampling equipment). The composite soil samples will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether the petroleum tank had leaked fuel and what the extent of the heavy metals contamination is.

3.4.3 Soil Samples S-5, S-6 and S-7

The soil samples will be taken adjacent to a concrete slab which is the remains of a petroleum storage tank. Dependant on site conditions, the sample will be obtained at each location by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to limitations of the sampling equipment). The composite soil samples will be obtained in accordance to

procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.2) and Section 4.1 of this sampling plan. A duplicate sample will be taken from S-5. The procedures for a duplicate sample are outlined in Section 3.5.1.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether the petroleum tank had leaked fuel and whether heavy metals contamination might exist there.

3.4.4 Soil Samples S-8 and S-9

The soil samples will be taken adjacent to the concrete slab located east of the railroad tracks. Dependant on site conditions, the sample will be obtained at each location by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to limitations of the sampling equipment). The composite soil samples will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.3) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine whether the petroleum tank that once existed there had leaked fuel and whether heavy metals contamination might exist there.

3.4.5 Soil Samples S-10 and S-11

The soil samples will be taken on either side of ARCO's oil pipeline. Sample locations have not been identified on Figure 3.1 as it is not known exactly where the pipeline crosses the property. At the time of sampling, the pipeline will be staked out by ARCO personnel and the samples will be taken on either side of and adjacent to the pipeline. Dependant on site conditions, the sample will be obtained at each location by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to limitations of the sampling equipment). The composite soil samples will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.3) and Section 4.1 of this sampling plan. The exact sample locations will be determined during the SV.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine if the pipeline is the cause of the oil contamination and to determine whether heavy metals contamination might exist there.

3.4.6 Background Soil Sample S-12

The soil sample will be taken northeast of the location of GM-14 within the right-of-way of the road after it exits Kuhlman property. The location will be taken as far away from the road as possible but within the right-of-way. Dependant on site conditions, the sample will be obtained by either a hand corer or a Little Beaver hand auger. The sample will be a composite from the core/cuttings that will be continuously collected from one foot below land surface to the water table or to a depth of six feet (due to the limitations of the sampling equipment). The composite soil samples will be obtained in accordance to procedures specified in Jacobs' QAPjP (SOP #3, Section 2.2 and Section 2.2.2) and Section 4.1 of this sampling plan.

Analyses: CLP SOW for total metals, cyanides, base/neutral acids, volatile organics, TOX, and TOC.

Rationale: To determine background soil conditions.

3.5 QA/QC Procedures

A number of quality control samples will be collected to ensure that all data produced are valid, defensible, and allow good comparison of data.

Sampling methods detailed in this sampling plan and the QAPjP are to be strictly adhered to; deviations or additions to this plan will be carefully documented in a bound field notebook.

3.5.1 Duplicates

A duplicate will be collected from each of the four sample mediums (groundwater, surface water, sediments, soil). The duplicate samples will be taken at GM-11, SW-4, SED-4, and S-5. The composite samples taken from those locations will be doubled in volume and will be divided between the duplicate and nonduplicate sample containers. The analytical procedures for the duplicate samples will be the same as those specified for the nonduplicate samples.

3.5.2 Blanks

To insure adequate quality control, a trip blank will be included with each shipment of ground and surface water samples. A minimum of two trip blanks will be included and analyzed for VOA's, total metals, cyanides, base/neutral acids, TOX, and TOC. As specified by Bob Dona (U.S. EPA Region VII LAB), one field blank will also be included and will be analyzed for dissolved metals. The trip blanks and field blank will be obtained from the Region VII lab. A minimum of four rinsate blanks will also be included to verify proper decontamination procedures for the equipment used in sampling the different media. The rinsate samples will be analyzed for total metals, dissolved metals, cyanides, TOX, TOC, and base/neutral acids.

3.6 Documentation

Sample documentation will consist of:

- Photographs of sample areas,
- Site logbook account including sample collection information, personnel on site, actions taken, and
- Field data sheets, container labels, and sample tags (to be prepared by Region VII lab).

The sampling team leader will be responsible for all documentation completion. The field data sheets provided by the EPA Region VII laboratory will be completed at the time of sample collection. All field observations, field generated forms, and labels will be noted in the field notebook. Photographs, if permitted, will be logged in the notebook and labeled when returned from the developing laboratory.

4.0 SAMPLING METHODOLOGY

4.1 Composite Soil/Sediment Samples

All composite soil/sediment samples will be taken from the areas specified in the sampling plan (Figure 3.1). The sample will be extracted from the medium at the specified depth utilizing a teflon pond dipper with attached stainless steel rod or a hand auger/corer as conditions deem appropriate. The individual samples will be composited in a disposable aluminum pie plate or a stainless steel bowl. Prior to being transferred to a sample container, the sample will be homogenized as thoroughly as possible with a stainless steel sampling spoon. All samples will be taken in accordance with procedures outlined in Jacobs' QAPjP.

4.2 Surface Water Samples

All surface water samples will be obtained from the areas specified in the sampling plan (Figure 3.1).

Dependent on the condition of the Blue River, the surface water and associated sediment samples will be obtained as close to the center of the river as can be safely reached. All of the surface water samples will be obtained prior to the sediment samples. The river bank will be flagged and the distance to shore will be measured in order to be able to return to those locations for the sediment sample. To avoid additional sediment contamination of the samples, the surface water and associated sediment samples will be collected commencing at the downstream location and terminating at the upstream location.

All grab surface water samples will be obtained by immersing a 5 gallon stainless steel bucket in the sampling media. The VOA containers will be hand dipped into the stream and filled prior to obtaining the 5-gallon sample. Temperature, pH, and specific conductivity measurements will be made from a portion of the 5 gallon sample directly after the sample has been obtained. The sample will then be poured into the sample containers with as little agitation as possible in accordance with Jacobs' QAPjP. The sampling location will be exactly noted and photographed for future reference.

4.3 Groundwater Samples

All groundwater samples will be obtained from the wells specified in the sampling plan (Figure 3.1).

The static water elevations in each well in addition to the total depth of each well will be measured to within 0.01 foot prior to sampling. This information is required to calculate the volume of stagnant water in the well. In order to ensure the groundwater sample is representative of the formation, a minimum of three casing volumes from each well will be withdrawn utilizing a teflon bailer. An indication analysis such as pH, temperature, or conductivity shall be used to assure that complete well purging and water stabilization has occurred. Temperature, pH, and specific conductance measurements will then be made at the time of sample collection. The sample containers will then be filled directly from the bailer. The sample procedures are further detailed in Jacobs' QAPjP (SOP #8, Section 3.4 and Section 3.4.3).

4.4 Dissolved Metal Samples

All dissolved metal samples will be filtered via a disposable nalgene filter unit prior to being poured into a sample

container. All samples will be filtered in accordance to procedures specified in the Jacobs' QAPjP.

4.5 Field Decontamination

When equipment is to be non-dedicated it should be field decontaminated as summarized below:

1. Brush off loose dirt with soft bristle brush or cloth
2. Rinse thoroughly with tap water
3. Wash in nonphosphate detergent in tap water
4. Rinse thoroughly with distilled water
5. Rinse with pesticide grade hexane or acetone
6. Rinse thoroughly with deionized water
7. Air dry in dust free environment
8. Store in plastic bags

5.0 HEALTH AND SAFETY CONSIDERATIONS

All field personnel should thoroughly review the site safety plan and understand the safety considerations and should establish emergency procedures prior to site entry. All personnel must be subject to an active medical surveillance program and be authorized for use of respiratory protection.

Determination of appropriate level of protection should be made by surveillance with a HNU photoionization detector. Levels of protection criteria are summarized below:

Level D	<5 ppm above off-site ambient and nuisance odors
Level C	5 ppm above off-site ambient
Level B	5 ppm to 20 ppm
Leave Site	>20 ppm

All measurements are to be in the breathing zone.

The immediate hazard is skin contact with waste materials. Coveralls or Tyvecs (Polytyvec will be used for the ground and surface water sampling) should be worn for general body protection. Gloves (nitrile or better) should be worn during sample collection and handling. Standard minimum protective gear of steel-toed boots, hard hat, and safety glasses are required.

Sampling personnel should be equipped with safety belts (MSA code orange or yellow) equipped with safety lines whenever collecting samples in the river. Hip waders will be worn by the person collecting the surface water samples.

No eating, drinking, smoking or other hand-to-mouth activities will be allowed on site except in facility designated areas and after proper decontamination.

These standards are to be considered minimum; all of Kuhlman Diecasting's guidelines will be adhered to and will supersede Jacobs' standards if they are more stringent.

6.0 SAMPLE PACKAGING, LABELING AND PRESERVATION

The sample packaging/staging area location will be determined on a daily basis based upon proposed sample locations, visibility, safety and the facility's cooperation. All samples will be transferred into the appropriate bottles with fluorocarbon resin-lined caps (QAPjP). Fluorocarbon lined caps shall be used for samples suspected to contain organics. Bottles and caps will be supplied and decontaminated prior to use by an approved laboratory. Upon containerization, each sample will be labeled with a unique sample number and traffic report (QAPjP). After labeling, the sample containers will be placed in an appropriately sized plastic bag, sealed, and placed on ice in a secured cooler (QAPjP). A field notebook will be kept documenting each sample collected, location and sample number.

Immediately upon collecting a sample, Jacobs personnel will label each appropriate sample container. The label is marked with a unique serialized number to be determined by the lab and the parameter(s) to be analyzed are identified on it. Duplicate containers will be assigned identical numbers with the exception of a "D" as designated by the lab.

All samples will be packaged, labeled and preserved according to standard U.S. EPA Region VII procedures and Department of Transportation regulations as required in 49 CFR. (See Table 6.1 for sample containers and preservation requirements.)

7.0 CHAIN-OF-CUSTODY

Once a sample is collected, containerized, preserved, and labeled, Jacobs personnel will enter the appropriate information on a standard Region VII field chain of custody form (Figure 7.1). The custody record will provide the necessary information to cross reference the sample number to the specific sampling location and will provide the date of collection as well as documentation of custody. Detailed components and procedures are described in Jacobs' QAPjP. The site investigation team will

TABL .1

Containers and Analysis for SV Kuhlman Diecasting

SAMPLE LOCATIONS	SAMPLE MATRIX	ANALYTICAL PARAMETER	SAMPLE CONTAINER	SAMPLE PRESERVATIVE	SPECIAL INSTRUCTIONS
S-1 S-2 S-3	Soils	Total metals/ Cyanides	8 oz glass jar	ICE	NONE
S-4 S-5 S-5 (Dup.)		Base/Neutral Acids	8 oz glass jar	ICE	NONE
S-6 S-7 S-8 S-9 S-10 S-11		Volatiles	2-120 ml VOA vials	ICE	Place vials in a 1 liter cubitainer with a carbon thimbal
S-12 13 Total		TOX	8 oz glass jar	ICE	NONE
		TOC	8 oz glass jar	ICE	NONE
SED-1 SED-2 SED-3	Sediment	Total metals/ Cyanides	8 oz glass jar	ICE	NONE
SED-4 SED-4 (Dup.) SED-5		Base/Neutral Acids	8 oz glass jar	ICE	NONE
SED-6 SED-7 8 Total		Volatiles	2-120 ml VOA vials	ICE	Place vials in a 1 liter cubitainer with a carbon thimbal
		TOX	8 oz glass jar	ICE	NONE

TABLE 6.1 (Continued)

Containers and Analysis for SV Kuhlman Diecasting

SAMPLE LOCATIONS	SAMPLE MATRIX	ANALYTICAL PARAMETER	SAMPLE CONTAINER	SAMPLE PRESERVATIVE	SPECIAL INSTRUCTIONS
		TOC	8 oz glass jar	ICE	NONE
GM-1 GM-2 GM-10 GM-11	Groundwater*	Dissolved metals	1 liter Cubitainer	1 ml Conc. HNO3 to pH 2.0	Field Filtration Required
GM-11 (Dup.) GM-8 GM-9 GM-14		Total metals	1 liter Cubitainer	1 ml Conc. HNO3 to pH 2.0	NONE
GM-4 GM-5 GM-6		Cyanides	1 liter Cubitainer	1 ml Conc. NaOH to pH 12.0	NONE
11 Total		Base/Neutral Acids	1 80 oz amber jug	ICE	NONE
		Volatiles	2-40 ml VOA vials	ICE	No air space in vials; place vials in a cubitainer with a carbon thimbal
		TOX	1-80 oz amber jug	ICE	NONE
		TOC	4 oz bottle	1 ml Conc. HCl to pH 2.0	NONE

TABLE 6.1 (Continued)

Containers and Analys[illegible] or SV Kuhlman Diecasting

SAMPLE LOCATIONS	SAMPLE MATRIX	ANALYTICAL PARAMETER	SAMPLE CONTAINER	SAMPLE PRESERVATIVE	SPECIAL INSTRUCTIONS
SW-1 SW-2 SW-3 SW-4 SW-4 (Dup.) SW-5	Surface Water (SW)* and Equipment Rinsate Blanks (EB)	Dissolved metals	1 liter Cubitainer	1 ml Conc. HNO_3 to pH 2.0	Field Filtration Required
		Total metals	1 liter Cubitainer	1 ml Conc. HNO_3 to pH 2.0	NONE
EB-1 EB-2 EB-3 EB-4		Cyanides	1 liter Cubitainer	1 ml Conc. NaOH to pH 12.0	NONE
10 Total		Base/Neutral Acids	1 80 oz amber jug	ICE	NONE
		TOX	1-80 oz amber jug	ICE	NONE
		TOC	4 oz bottle	1 ml Conc. HCl to pH 2.0	NONE
FB-1 1 Total	Field Blank	Dissolved metals	1 liter Cubitainer	1 ml Conc. HNO_3 to pH 2.0	Field Filtration Required
TB-1 TB-2	Trip Blank	Total metals	1 liter Cubitainer	1 ml Conc. HNO_3 to pH 2.0	NONE
2 Total		Cyanides	1 liter Cubitainer	1 ml Conc. NaOH to pH 12.0	NONE
		Base/Neutral Acids	1 80 oz amber jug	ICE	NONE

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TABLE 6.1 (Continued)

Containers and Analysis for SV Kuhlman Diecasting

SAMPLE LOCATIONS	SAMPLE MATRIX	ANALYTICAL PARAMETER	SAMPLE CONTAINER	SAMPLE PRESERVATIVE	SPECIAL INSTRUCTIONS
		Volatiles	2-40 ml VOA vials	ICE	No air space in vials; place vials in a cubitainer with a carbon thimbal
		TOX	1-80 oz amber jug	ICE	NONE
		TOC	4 oz bottle	1 ml Conc. HCl to pH 2.0	NONE

Sample Total: 45

* Temperature, specific conductance, and pH will be measured in the field.

Figure 7.1

Region VII Chain of Custody Record

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION DAY MONTH YEAR	SHEET of

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CONTAINER	BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (CONDITION OF SAMPLES UPON RECEIPT, OTHER SAMPLE NUMBERS, ETC.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
____ PIECE(S) CONSISTING OF ____ BOX(ES) ____ ICE CHEST(S); OTHER ____	____ COMMERCIAL CARRIER: ____ ____ COURIER ____ SAMPLER CONVEYED ____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED UNSEALED ☐			☐ SEALED UNSEALED ☐	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED UNSEALED ☐			☐ SEALED UNSEALED ☐	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
☐ SEALED UNSEALED ☐			☐ SEALED UNSEALED ☐	

7-EPA-8262(Revised 5/85)

deliver the samples directly to the Regional Laboratory, will offer a completed chain-of-custody form for signature to the sample receiver, and will retain the carbon copy receipt.

8.0 SAMPLING PERSONNEL

Sampling Team Leader	Anne Harrington
Sampling Team	Byron Kesner

9.0 SAMPLING ACTIVITIES SCHEDULE

September 1987	Equipment Staging
September 1987	Sampling

10.0 CONTAMINATED OR POTENTIALLY CONTAMINATED TRASH

Kuhlman Diecasting Company will be requested to take, contain, and dispose of all contaminated trash generated during the sampling activity. In the event of refusal by Kuhlman Diecasting Company to take the contaminated trash, it will be double bagged and brought back to the U.S. EPA Regional Laboratory for storage at the Region VII RCRA TSD facility.

11.0 SAMPLE SPLITS

Kuhlman Diecasting management personnel have been offered the opportunity to receive split samples. They will be required to provide their own sample containers.

12.0 SAMPLING METHODS QUALITY CONTROL CHECKS AND PROCEDURES

- o For all samples, the sample extraction implement will either be dedicated to the sample then disposed of, or thoroughly decontaminated prior to use on another sample.
- o All sampling personnel will be required to avoid actions potentially causing cross contamination of sampling media.
- o Liquid samples will be transferred to the sample container in a way that minimizes agitation and aeration.
- o Sample extraction equipment will not be placed upon the ground or other potentially contaminated surfaces prior to use.
- o On-site sample management will be meticulous in order to preserve the quality of the data.

13.0 REQUIRED EQUIPMENT

Survey Instruments:

HNU
specific conductance meter
pH meter
35 mm camera/film

Protective Equipment:

(10) Tyvec suits
(10) Polytyvec suits
(1) box of inner gloves
(1) box of nitrile outer gloves
(2) ultra twin/canister mask
(10) organic vapor/dust cartridges or canisters
(3) rolls of duct tape
(1) 100 ft. measuring tape
(1) hip waders

Sample Packaging Materials:

(96) 8 oz. glass jars
(72) 40 ml VOA vials
(84) 1 liter cubitainers
(48) 80 oz amber jugs
(72) 120 ml glass jars
(30) 4 oz bottles
(2) bags vermiculite
(200) plastic bags
(2) rolls fiber tape
(4) boxes of garbage bags
(3) sets of cooler labels
bags of ice

Decontamination Equipment:

(2) wash tubs
(2) orchard sprayers
(1) box of "Alconox"
(2) gallons of pesticide grade hexane
(1) box of sanitizer (mask)
(2) laboratory rinse bottles
(1) waste solvent container
5-gallon water jugs
assorted brushers
distilled water
de-ionized water

Sampling Equipment:

(25) Nalgene disposable filters
(1) aluminum garden shovel/scoop
(1) pond dipper
(1) hand auger (Little Beaver)
(1) thin wall tube sampler
(1) teflon bailer
(2) stainless steel buckets
(30 yds) disposable nylon rope
(1) thermometer

Documentation Materials:

site logbook
chain-of-custody sheets
preprinted sample jar labels
preprinted field sheets
receipt-for-samples form

7/1/88
Report continued...

Appendix VI

Sampling Visit

Kuhlman Diecasting Facility

KUHLMAN DIECASTING COMPANY
STANLEY, KANSAS

SAMPLING VISIT
LOGBOOK NOTES
OF
Anne Harrington, Hydrogeologist
Byron Kesner, Environmental Scientist
Paul Clement, Hydrogeologist
Gene Czyzewski, Hydrogeologist
Chris Williams, Hydrogeologist
Jacobs Engineering Group Inc.

Facility Description

Facility:	Kuhlman Diecasting Company Stanley, Kansas
EPA Identification Number:	KSD006325013
Date of Visit:	September 21-26, 1987
EPA Representatives:	Marilyn Mattione Bill Pedicino Bob Dona
Jacobs Representatives:	Anne Harrington, Hydrogeologist Byron Kesner, Environmental Scientist Paul Clement, Hydrogeologist Terence Hagen, Environmental Scientist Gene Czyzewski, Hydrogeologist Chris Williams, Hydrogeologist
Facility Representative:	Connie Hawkins, Environmental Control Officer Randy Overton, Consultant Mike Chamberlain, Consultant

Note: Due to the number of people on site, two separate logbooks were ~~pt.

9/20/87 Sunday

7:17 am Flight Den → KC
w/ 3 coolers & 1 box $90 shipping charge
dropped off coolers, box, & luggage &
stored them in National Van & returned
to Eastern airlines and picked up
Paul Clement and Byron Kesner at 1207 hrs pm
We returned to the van, loaded it up
and drove to Ed Clemens house,
where we got the little Beaver & verbal instructions
on how to use it; Ed then drove
to their JEG office & we followed
and picked up other equipment
being stored there. Returned to hotel
at 1500 hours. Repacked van from
1630 - 1700 hours. Left for dinner &
then left for Chris Williams at 1830 hours
picked up the HNU* did some shopping
for distilled water, (returned to hotel @ 1930 hours.
*HNU read 75 with calibration gas
Received a call from Barry North
@ 0930 AM hours, He will be auditing us
on Tuesday.

(20)

7/21/87 Monday

Arrived at EPA LAB @ 0730 hours
and left @ 1120 hours.
We picked up bottles, preservatives,
D.I. H_2O 25 gallons, trip blank, ISCO
sampler, thindals (carbon), Field sheets, 5 coolers,
chain of custody sheets, & sample tags.
Met Harry, Joyce Woods, Bob Ames,
Joe Joslin
Cleaned the ISCO ~~sampler~~ (the 24 bottles) AH
1) brush & Alconox & H_2O
2) Tap water rinse
3) DI rinse (distilled water)
4) Acetone
5) methanol ~~Methanol~~ AH 6) Methylene Chloride
7) Acetone (due to observed methylene chloride residual)
Left the Little Beaver at
the Lab in order to conserve on
space. Talked to Marylin re hours & $'s.
Arrived @ Kuhlman @
1306 hours

21

not here today - will be in

(Mike Chamberlain) + Randall Overton w/ Disturbed Lands Research Institute

Met with Randy Overton - He took us around to the wells so we could get HNU readings to determine level we needed to be in.

.2 Background HNU

70 ppm for well #8 — 65 bails

.02 ppm in breathing zone

90 ppm for well #9 — 30 bails

0.6 ppm in breathing zone

.2 ppm for well #10 — 70 bails

.2 ppm for " #11 — 40 bails

5.2 ppm for well #2 — ≈ 60 bails

.2 " for breathing zone

.2 ppm for well #1 — 70 bails

.2 ppm " " #17

1.4 ppm for well #14

0 ppm " " #13

22

HNU readings cont

@ 2 ppm bhs #4

2 ppm bhs #5

2 ppm bhs #6

~~Sampled~~ Well #5 & set up ISCO

Sampler, Bob Dona observed 1300 - 1730 hours

left site @ ~~9pm~~ 2100 hours

41 hours 15 min for three people (13 hours 45 min)

9/22/87 - Tuesday

Barry took samples to the lab with

Paul - will join us on site. Byron &

I went to the site ~~at~~ lost earlier

at the same time as Barry & Paul

0935 Began decon of bailer

& other necessary sampling equipment

rest of field notes are in Byron's

notebook. Mike Chamberlin,

Bob Dona, &

Barry North,

bad day for over site

left site @ 1910 hours

Kohl — (23)

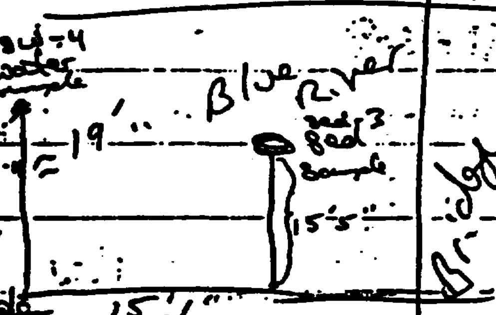
9/23/87

Marilyn requested Anne H sample river with her while the guys sampled the wells GM-1, GM-10, GM-

11:18 Looks - looked for sampling locations

12:30 - collected sed ~~sample~~

15' 5"



15' 1" 13:30 collected surface water sample

8.0 oz jar - take pH, SC, & temp readings

- filter dissolved metals into 2 cubies

- pour some of the contents of cubie into a 4th cubie

- preserve.

Notes for Byron & Paul

Samplers + ass't.: Randy Overton (ass't), Marilyn Mattigne (ass't), Anne Herrington (sampler)

SW - 4, + Dup

SED - 3

Blue River water samples

SW-4 measurements

pH = 8.3 @ 1333

conductivity = 445.0

temp = 23°C

tore a hole in waders = water leaked in

took shower @ Marilyn Mattioni's house for decon. & changed clothes. See additional notes in Byron's notebook.

[signature]

3e

DATE
9-24-87

Soil Sampler S-14

Background Sample — Bob Dora = observer

Samplers:
Setup 1115 — Byron Kesner
Began drilling 1124 — Gene Cyzenski
Terence Hagen

1124 2 photos | side

1- w/ mission road as reference

0-1' discarded 1 of catch for sample

Sampling @ 6' Began 1140

~~HNU~~

Finished 1150 Sampling

HNU Reading @ 1155

1.1. ppm

1 split taken by Kuhlman

(26)

9-24-87 Soil Samples S-14

Background [illegible]

Setup 1115

Began drilling 1124

1124 2 photos 1 side

1 w/ missing road as reference

1 of catch for sample

Sampling @ 6' Began 1140

HNU [illegible]

Finished 1150 Sampling

HNU Reading @ 1155

1.1 ppm

(27) 8

Soil Samples S-9

DATE 9-24-87

Began 1245

Sampling began at 1302

1308 - NOTE:

Entire area where tank pad (concrete) was excavated has a wooden cover in places - where there are areas (i.e., holes) which are covered.

0-1' discarded 1-5' composite collected

Sampling finished at 1310

Dark grey clay
massive, dry

Samplers
Byron Kesner
Gene Czyzewski
Terence Hayes

1 split taken by Kuhlman

28

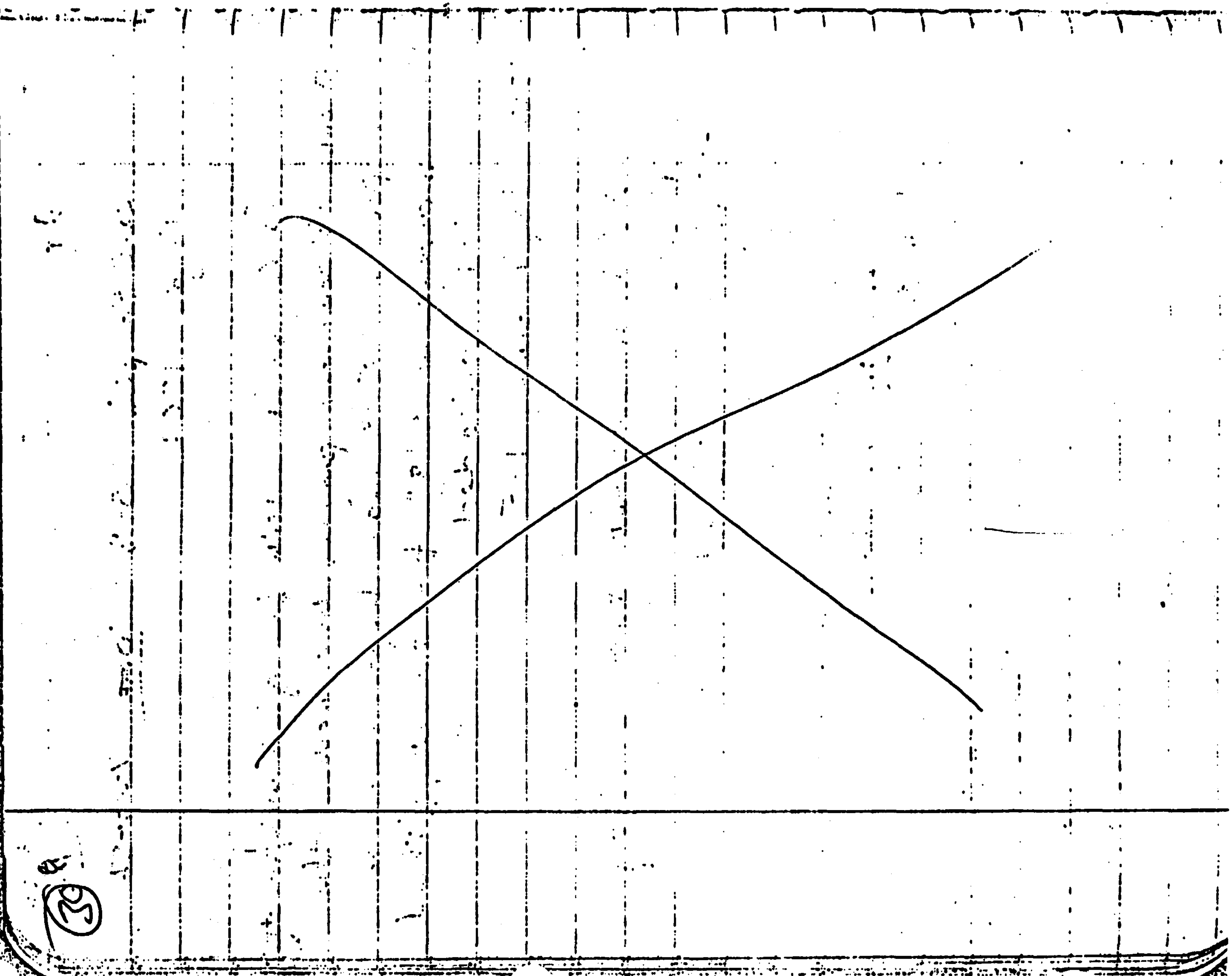
Soil Sampler S-8 DATE 9-24-87
Began 1507

Sampling point 10'6" fr grill work/concret
REFUSAL: No downward progress was made at this point. S-8 was therefore moved to
1517 a distance of 5'8" fr concrete/grill wal
0-1' discarded
1535 Sample taken 1-5'

Soil is a chestnut brown clay moist.
Finished sampling at 1550

HNU Reading 0.0 1551
1 split taken by Kuhlman
Finished 1552

Samplers
Byron Kesner
Gene Cyzewski
Terence Hagen



(31)

Soil Sample S.-7

DATE 9-24-87

Begin @ 1710

Sample point 5 ft 4 in ft from Concrete Slab.

g.w. @ 6'

Sampling began at 1804

The plastic soil is a black clay, very mois very plastic in consistency

Finished sampling at 1829

HNU reading 3.4ppm @ 1830

1 split taken by Kuhlman

Samplers: Gene Czyzewski
Terry Hagen
Byron Kesner

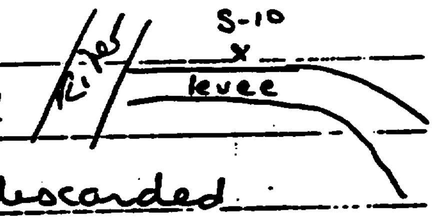
32

(75)

Pipeline

S-10 Soil Sample 9-25-87

Began at site @ 1607



0-1' depth soil discarded

~~HNU re~~ BTK

Sample point ~~ft from Pipeline~~ BTK

~~marker~~ BTK 18.6" ft from fence (tree & fence

Sample composite taken 1-6' depth

HNU Reading at 3' 70 ppm @ 1622

Soil

Chestnut brown - slightly moist

silty clay

Finished sampling @ 1634

1 Splits taken by Kuhlman

HNU @ 6' 1634

5 ppm

Samplers

Byron Kesner

Gene Czyzewski

Paul Clement

9B

S-11 Pipeline 9-25-87
Soil Sample

Began at 1702

0-1' depth soil sample discarded

~~HNU @ 3'~~ BTK

HNU Reading at 3' 6.7 ppm 170:

Sample point 16'4" ~~[illegible]~~ BTK ft from fence

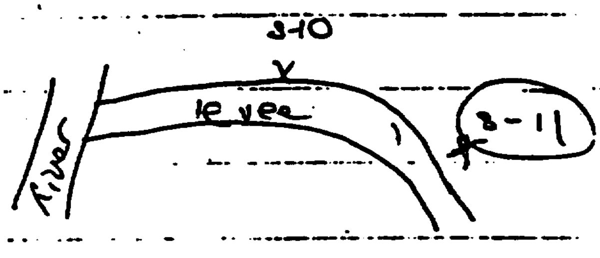
Sampling began @ ~~1707~~ BTK

Sample composite taken at 1-6'

HNU at 6' @ 1724
14.5 ppm

Sampling Finished at 1722

1 split taken by Kukla



Samplers
Byron Kasner
Gene Czyzewski
Paul Clement

38

[illegible]

Steve Kacvinsky, ARCO rep
was on-site and observed the
drilling near the pipeline. He also
took a split in a plastic bag.

Gene Czyzewski

4.6

9/26/87 0851

Trip blank

Prepared with DI water

from laboratory for containers

that laboratory did not give us

full for blanks

0910 measured parameters for deionized water

pH - 6.95

SC: ~~9.5~~ 9.5

Temp: 24.5°c

pH meter : Chemtrix type 400 serial # 1120

cond meter : Chemtrix type 700 serial # 1167

0845 pH meter calibrated on 3 points

pH 7.0 → pH 4 → pH 10.

temp of a distilled H_2O water taken

for a temp Reference 25°C

Conductivity meter calibrated to

1990 umhos. a screw driver

was used to calibrate the set screw.

williams
0934 - Clements
Begin Sampling at S-6 0935
Note gravel on surface
clear away - 40" [illegible]
approximately 3.0' from border of
tank - Same location as map.
0944 at 3 ft HNU = 22 ppm
6.0 Ft HNU = 17 ppm
textural change at 2.5 to 3'
0-2.5' Brown silty clay / some organics - roots
rocks etc
2.5-6.0' silty clay - increasing clay content
with depth - becoming more plastic
with increased water content
TD = 6.0' 10:03

1036 Sampling S-5
williams, Clements
Note upper 2" = Gravel material
Location 44" North of tank as on
map.

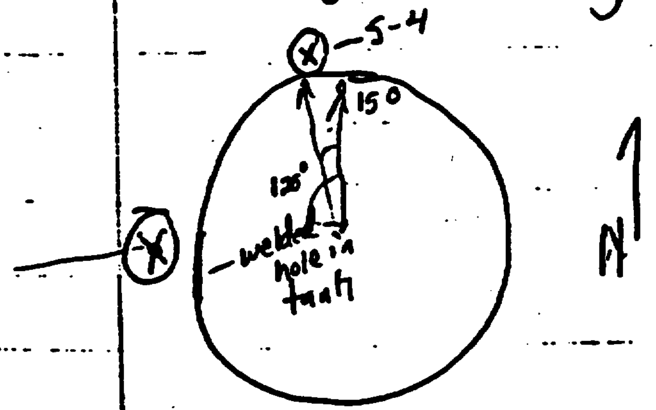
1.5' Top Soil - Dk brown / roots - rocks etc
some Organic matter.
1.5' - 6.0' plastic / motted - Lt brw to
DK brown silty clay - clay content
increasing w/ depth - some small
subangular pebbles
TD = 6.0'
Hnu 30' = 0ppm 6.0' 1ppm
1104 End no odor -

1135 preperation of Equipment blank
for soil samples - William / Clem
augers will be deconed by
the usuall method then augers,
spoons etc.
As an equipment blank the
final DI rinse will be collected
in - stainless steel bucket then
transferred to sample containers
in order of decreased volatility.
Prior to collecting this sample

the Stainless bucket was
Thoroughly deconed.
all preservatives were added.
Note this equipment blank
was collected after S-6, S-B
Equip blank S-4, S-3.

Finish
1155 the following data was collected
from the blank
pH = 8.2 Temp = 28°C Cond = 9.7 µmhos/c

1249- Begin Sampling S-4 Williams/Chance

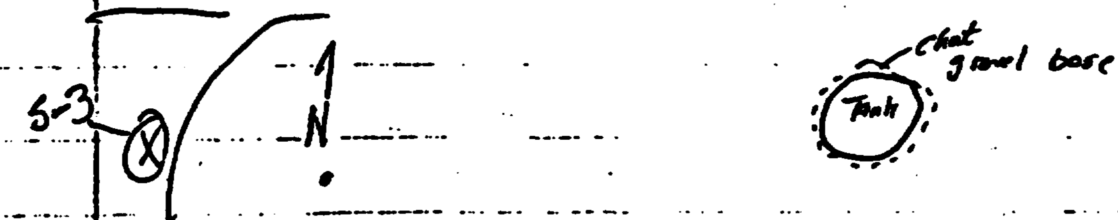


S-4 78" from tank

TD=6.0'
Hnu-3.0' = 0.5ppm
-6.0' = 0.5ppm
Description: silty clay loam - lt to Dk brown - color change at ~ 3.5-4.0 Ft: becoming more clayey and plastic
No odors or apparent oil + grease contamination
End 1310

Sampling at S-3 - west/southwest side of tank

1331 Williams / Clements



Location: 6.6' from tank / outside of gravel base
Hnu 3.0' = 0.5ppm
Hnu 6.0' = 20ppm
Bkg. .5ppm
TD=6.0' 1347 Finish

S-3 - Description 1.5-6.0
Silty Clay loam - clayey - Lt to
Dk Brown - Moderately plastic/stiff -
Top Soil 0-1.5 No water

Sampling at S-1
Location on east edge of old
lagoon w/in the lagoon area (i.e.
west of the dike
Begin 1444 Hnu = 3.0' = 0.5ppm
End 1502 = 6.0' = 1.5ppm
Bkg = 0.5ppm
Soil Lt to Dk brown - Slig-mod plasticity -
white Specs at 1.0-2.0 ft unknown

Sampling at Location S-2
1540
3.0' Hnu = 0.5ppm
6.0' Hnu = 2.5ppm
0'-.5' - dried sludge - greenish tint - copper
.5-3.5 - Lt brown - slightly plastic, silty clay
becoming stiffer with depth
some very small granular sand & pebbles

in clay -
3.5-4.5 same as above
4.5-6.0 soil is becoming more
grey slight odor of petrolium
silty clayey material

End 1559

Connie Catron Environmental Control Coordinator
Alfred Furiae - Eng. Services Mgr.
Phil Meelon - General Manager 09

Kullna Diecast Visual Site Inspection

PROCESSES: Electroplating

0940 $FePO_5$ system

alkaline cleaner 1st tank

water rinse

$FePO_5$

Chromate conversion coating - pretreatment

w/ Cr_2

water rinse

final seal rinse

depending on type of metal - process varies slightly

All used as pretreatment before Paint

Painting

parts are dried on line - and painted w/ an electrostatic spray gun (neg charged paint particles

→ oven room - baked - cured

overflow on rinse tanks w/ leads to waste treatment tanks

double overflow on Cr tank for Cr^{+6} treatment reduced to Cr^{+3}

Sodium metabisulfite + AgO_2

Steel, Zinc & Al parts are coated and/or painted

Plating Room - down - i.e. not operational

CN Cu plate

H_2SO_4 Cu plate

Ni plating (nickel Sulfate)

Alkaline cleaner / then Acid cleaner.

w/ rinses in between.

All drains run to treatment system

non-contact cooling water which only comes in contact w/ dyes (i.e. diecast equip)

treat ≤~30g/day without it affecting the waste water treatment plant

Hauten oil used to operate diecast machines.

Runoff treated - collected in sump

oil is water soluble - biodegradable goes through treatment plant

1½ yrs - now goes to treatment

previously drummed and shipped offsite.

Morocco Energy picks up oil/water mixture. 100 drums disposed via pump truck

Previously <2 yr used for (90% H₂O) oil suppression on driveways.

drums crushed/~~emp~~ and hauled away.

→ Ni stripper corrosive HW drum accumulation area. Approx. 9 drums in area.

Filter press

Sludge from hydroxide Precip Cr^{3+}, Ni,

Analyses run on filter press material (requested a copy)

collected in gondola 21 cy capacity

Goes to: USPI land fill in OK.

Analyses are consistent over time.

Plating

parts go into emulsion cleaner

↓

spray wash - alkaline cleaner

CUCN waste plating soln
goes to CYANOKEM - Michigan (Detroit)
for disposal (313) 933-1850

1026 CuCn bath will last several
years. It is regenerated w/
additions rather than have the tanks
changed.

All CN stored separately
from other chemicals next
to CN bath.

1 tank inactive will be
filtered back through to the
Ni tank. Aqua ammonia stored at
tank.

Acid storage at end of
plating loops.

~~Acid spill~~ OK. Water seepage through wall.

Nitric Acid sludges in open
labeled drums. Liner is taped on
top.

Ni salts will be transferred
to sludge gondola
HW label 4/1/87

7

Nitric sludge - liquid label faded. 5/11/8

Kuhl - check into recycling these wastes

3 accumulation areas facility

CN -
Nitric Acids
Paint Shop - toluene sludge
etc

Stripper accumulation area
will be discontinued

Holding tanks - for problems & unexpected pumpings from plating line - emergency Storage. Kept in a non production area for contingency use
pH 12-13

some bottoms in these tanks.
these sludges are vacuumed out
liquid goes to treatment plant
sludge goes to filter press

Pumping station at tank pumps
H_2O to Dyna Sand filter →
to NPDES discharge

TREATMENT

$Cr^{6+} \longrightarrow$ ~~E~~ Cr^{3+}

HSO_2-

Sodium meta bisulfate

Drain brings in non segregate rinses

Segregated rinses are piped in separately

Ni - Caustic

Cr - $Cr^{6+} \rightarrow Cr^{3+}$ reduction

CN - chloride treatment with calcium hypochlorite

Chemistry of CN chlorination:

CN - Cynate ph $\rightarrow$ CO_2

H_2SO_4

All waste waters treated and meet in a mixing tank (1st mixing area) - 1st Polymer treatment

Second treatment

atonic polymer + lime

precipate metals into sludge.

4-5 dump loads / day

Metal precipitate settling tank outside. On property before purchase
Refinished 1 Feb 87. Checked for soundness
Concrete lined: pH 8-9 range of filtered waste water before discharge
6"-8" ~~1'~~ freeboard at the very most

*(need 2' freeboard?)

This is not a RCRA unit.
Bldg scheduled to be built over settling tank in the very near future.
One area will need to be built up with construction before a structure is built over it.

Panhandle Eastern Pipeline runs through site in a North - South direction

Underground Storage Tanks - to be removed as soon as Radian empties the tanks (oil tanks 3 full) 1 empty. - Sinclair oil pumping stat. while the tanks are being removed KS RCRA has requested to be on site.

SITE HISTORY

Sinclair moved out and a wheat company took over the tanks - wheat storage.
Furniture Mfg in this plant. plating furniture
Kuhlman took over this company for plating

10

moved in during early 60's

Sludge lagoons and polishing ponds were used during

The site is called Redell siting i.e. a RR site with houses.

Polishing Ponds and sludge ponds have been closed - No cap installed yet.

Approximately dump trucks of soil removed.

Empty tanks are used for parts storage

Water reservoirs were never used.
River water + rain water.
City water brought in by 1984

Out Briefing

by Hume

① Settling tank crack.
freeboard.

② Drum accumulation areas need more access and aisle space. Possibly put drums on pallets to facilitate inspections.

③ Need to indicate in notification of VSI that the VSI includes a tour of the Monitoring wells.

④ Randy Overton has sampled for the month of May (Groundwater).

⑤ inlet of water to polishing pond (Pond should be dry.)
Closed 2 yrs ago. Water in ponds is rainwater.
Kullman is seeking money to cap the ponds.

1,1,1 trichloroethane use discontinued.

KUHLMAN ~~VSI~~ BTK RFA
SAMPLING VISIT

9-21-87

0730 Arrived at EPA Region 7 lab to pick up sample bottles, Deionized water, preservation, ice chests, and the Isco Sampler Model 2100. The entire Sampler was cleaned out.

Each of the Sample bottles (24) were washed with water and Alconox. Rinsed with DI water.

A Solvent rinse process using

Acetone → Hexane → Methlene Chloride

was used.

Midway through this process one of the lab's chemists (Ken) recommended changing the Hexane rinse to Methanol.

After all bottles were rinsed, I rerinsed them with acetone to remove a film which was deposited from the methlene chloride.

All bottles were air dried before replacing the caps.

Byron Ken[illegible]

14

9/22/87 - calculated in am during drive to site
Bailer conversions from opposite page
H_2O level measurements.

Need 26.4 ≈ 27 bails ⇒ well #5

" 9 bails well #6

27.29 ≈ 28 bails ⇒ Well # 4

~~Field Measurements~~ am

75 bails ⇒ well # 2

56.3 ≈ 57 ~~58~~ bails ⇒ well # 1

21 bails ⇒ well #11

52.3 ≈ 53 bails ⇒ well #10

HNU: 90 ppm
breathing: 6 ppm
zone
16.8 ≈ 17 bails ⇒ well # 9

70 ppm
.2
49.8 ≈ 50 bails ⇒ well # 8

47.3 ≈ 48 bails ⇒ well # 14

Bails represent 3x the saturated thickness in the well. These #'s are for baseline bailing - will probably be increased - but will be well dependent (ie recharge dependent)

[signature]

9/21/87 Paul Clement measuring water levels at Hullman Diecasting start at 3:49

Well #5 WL = 7.98' TD = 19.03' + 4.
SU = 19 9/16" measure to top of PVC
17.046 → TD - SU

Well #6 WL = 7.26' TD = 11.02'
SU = 10 7/8" measure to top of PVC

Well #4 WL = 9.00' TD = 20.41'
SU = 3.13' measure to top of outer steel

Well #2 WL = 13.60' TD = 32.15'
SU = 3.14' measure to top of outer stee

Well #1 WL = 6.07' TD = 29.23'
SU = 2.25' measure to top of PVC

Well #11 WL = 7.72' TD = 16.52'
SU = 3.33' measure to top of PVC

Well # 10 WL = 7.71' TD = 29.25'
SU = 3.12' measure to top of PVC

Well # 9 WL = 7.33' TD = 19.47
SU = 1.32' measure to top of PVC

Well #8 WL = 7.99 TD = 28.55'
SU = 2.03 measure to top of PVC

Well # 14 WL = 3.77' TD = 23.30'
SU = 9 5/8" measure to top of PVC

subtract 4 1/4" from all TD

16

Samplers (Paul Clements, Byron Kegner, Anne Herrington)

Field Measurements

	(1)	(2)	(1)	(2)
Well # 5 in woods	pH	pH	SC	SC
	6.5	6.69	9500	9570

Time	Temp	
1730	15.2°C	Sampled this well 1st - Mike Chamberlain's recommendation as it recharges faster & we are losing light fast

bailed dry at 24th bail. took next couple of bails & ~~put~~ poured them into a stainless steel bucket & took the above readings (emptied bucket in between) & then proceeded to pour the additional bail into Mike ~~Christopher~~ Chamberlain's (consultant for facility) and our container's, added preservatives under the light of our head light and filtered the dissolved metals sample & preserved it.

Left site @ 2100 hours after dinner on the ISCO. Problem with the ISCO - would not rotate bottles - had to be done manually every ... Byron was finally able to fix it.

ISCO Sampler 9-21-87 1

24 time proportioned samples to be taken each glass container = 350.0 ml each

Isco samples prepared

	Time	
Isco prepared for sampling	1650	
Sample Blank (TOX)	1745	(80 ml)
Sample # 1 taken	1811	

24 hr cycle
1 - 350 ml sample taken per hr.

Bryan Kesner

8 mi N exit @ Holiday Inn 169 turn right @ stoplight turn left 15 1st.

22 September 1987

0920 BK checked on Isco sampler sequencing of samples
017 - next sample
36 min remaining to sample.
Kuhlman took split

Photo 1 ISCO sampler
Photo 2 sample intake
Photo 3 dial lights.
Sample composited at 1746
pH 8.8 Cond. 1200 temp. 16°C

green ppt @ bottom of stainless steel buckets apparently the autoclave sampler was having problems before we arrived according to Connie.
9/22/87

Well #6 - Paul Clements, Anne Harrington, Byron Kesne
Began bailing @ 10:00 hours
10 ~~2~~ 6 hours completed bailing 12 bails
took SC reading 1040, 1010, 980
Temp 16°C, 16°C, 16°C
pH 7.3, 6.3, 6.6

1110 completed sampling

Well # 4 - Anne Harrington; Paul Clements
1412 hours completed bailing
SC 9600, 10300 40 bails total
pH 6.7, 6.9
Temp 18.5

Kohlman (Mike Chamberlin) took a split.

observers on site: Bob Dona, Barry North

~~SED~~ BK
~~SED~~ # ~~SED~~ BK SW5
SW-5 — Byron Kesner, Paul Clement } samplers

Temp. 28°C @ 1645
pH 8.6 @ 1644
conductivity 1150 @ 1644
1 grab sample w/ steel Bucket @ 1420
Dissolved Metals 1420 HNO_3 Filtered 144[illegible]
Total Metals 1420 HNO_3 Filtered 1515
Cyanides 1420 NaOH
TOX 1420
TOC 1420
Base/Neutral Acids 1435

SED 4 & SED 4 duplicate
grab sample w/ steel Basin @ 1405

2 [illegible] 4 - 8oz glass jars 1410
2 2 - 40ml VOA Vials 1410
Samplers
Byron Kesner
Paul Clement

Observers
Bob Dima
Barry North

Byron Kesner
3,980
2nd
1
6

Groundwater monitoring well #11
DATE: 9/23/87

Began bailing 1056

3 casing volume = 21 bails

pH = 7.1 @ 1215
conductivity = 390.0
temp = 21°C

pH = 6.9 @ 1219
conductivity = 340.0
temp = 20.8°C

Sampling began @ 1221

Finished sampling at 1250

Duplicate of all samples taken

Samplers: Byron Kesner
& GM-1, GM-10, GM-11 Paul Clements

Observer: Bill Pedieino till a 1200 hrs
Bob Dona

Groundwater monitoring well #10 A#

DATE: 9/22/87

Began Bailing 1117 23

3 casing volumes = 53 bails

Bailed 58 bails 1150

pH = 6.3

conductivity 410.0

Temp 18.1 °C

~~Samples taken beginning 11~~

Time 1154

Conductivity 450.0

pH 6.5

Temp 17.0

Samples taken beginning @ 1155

Finished Sampling at 1210

AH
18.

Groundwater monitoring well #1

Began bailing @ 16 56 Date: 9/~~22~~/87 23 AH

3 casing volumes = 57 bails

pH 7.6
Conductivity 610.0 time: 1712
Temp. 19°C

pH = 7.5
Conductivity 640.0 time: 1714
Temp: 17.8°C

Samples taken beginning @ 1716

Finished Sampling at 1725

Equipment Blank taken at 1800
& preserved

Byron Kasner, Paul Grant, Ann
Harrington

SW-5

Retake ~~9/22/87~~ 9/23/87 AH @ 1855

time 1900

Temp 23.5 °C

pH 11.0

SC ~~7~~ AH 780.0

Ann Harrington stood ~~other~~ below box and held sample bottles directly under exit pipe so water flowed directly into the bottles. Byron Kesner took the readings.

Completed preserving samples and left site at 1255 hours

[signature]

9/24/82

Anne Harrington + Paul Clements Samplers for

GM2, GM8, +GM9 1100 hours began bailing GM-2 - could n
got bailer down the well

11:49 am began bailing Well #8
30 bails - bailed dry @ 20 bails

1200 hours sampled.
cond = 920 pH = 6.9 Temp = 18.5°
= 1230 6.6
= 1220

1510 hours begin bailing well #9

at 35 bails at 15 30 hours.
cond = 630 pH = 6.9 Temp = 20°C
at 45 bails 620 6.4 17.8

sampled at 60 bails at 1555 hours
cond = 580 pH = 6.6 Temp = 18.7°

1706 hours began bailing well # 14
There is a yellowish brown staining
on casing and the water forms bubbles

at 30 bails at 1717 hours
cond = 510 pH = 6.4 Temp = 17.5°

at 40 bails at 1722 hours
cond = 550 pH = 6.3 Temp = 15.6°C

at 50 bails at 1720 hours
cond = 560 pH = 6.4 Temp = 15.8 °C

1746 hrs - at conclusion of sample collection
cond = 510 pH = 6.3 *Temp = 18.2 °C

Samplers for GM-17 < Byron Kesner, Gene Czyzewski
*not representative of true ground water temp

9/25/87 pH calibration meter reads 4.2 for pH = 4 buffer, 10.0 for pH = 10 buffer
cond calibrated at 1990 umhos

started bailing GM1 at 0930 hours.

at 70 bails at 1018 hours
cond = 540 pH = 6.4 Temp = 18

at 72 bails at 1020 hours
cond = 490 pH = 6.3 Temp = 17.5

well sampled at 1022 hours

Jim Harrington bailed
Gene Czyzewski took measurement
Bob Warren observed.

022587

Samplers:
OMII - Redo Gene & Byron

1209 pH 6.9 at 85 bails
Conductivity 350.0
Temp 23°C

1212 pH 6.6 at 35 bails
conductivity 355.0
Temp. 22°C

1213 Begin sampling

at 1258 hours sample SW-2 was collected from the Blue River. Temp = 21°C
8 feet from the bank.
Samplers: Anne Harrington & Paul Clements

32

9/25/84

1340 Anne sprained her left ankle attempting to cross over a barbed ~~[illegible]~~ wire fence in hip waders. She & Paul were on their way to the Blue River for DW-1

Samplers

GM-10 Redoo Gene Czyzewski
Byron Kesner

@ ~~35~~ 30 bails 1348

pH = 6.4

conductivity ~~[illegible]~~ 480.0

Temp. 18.5°C

@ 1357 40 bails samplers

pH = 6.5 same as above

conductivity = 500.0

Temp = 18°C

@ 53 bails (3 casing volumes) 1404

pH = 6.5

conductivity = 500.0

temp = 18.0°C

Sampling began at 1405

0730 9-26-87

Arrived on site. Preparing to collect samples. Facility representative is not on site. The facility is not operating at this time. Expect facility rep to arrive about 0800.

S-W6 09-26-87

Began sampling 0939 Kesner, Czyzewski

site is a small outlet (e.g. spring) into the Blue River

Samples were taken at the bank of the outfall water

water is clear in color. - slight green (algae) color in larger sample containers.
3-photos taken of sampling process at SW-6 outlet

1 - closeup of outfall w/ flag to mark sample point.

organic ("peat bog") decaying vegetation smell at site.

Finished Sampling at 0950

Sample point for SW-6 outfall is 13.0 ft from concrete dam at NPDES outfall on Blue River

1017 pH meter recalibrated from 6.7 to 7.0 using the buffer solution.
1021 SC meter recalibrated to 1990

SW-6

pH 8.0 @ 1022
SC 1700.0 @ 1022

Temp 25°C @ 1025

SED - 8 09-26-87

Began sampling at 0952 at outfall point where SW-6 was sampled.

Bottom sediment BTK ~~Sludge~~ is a black muck.

Finished sampling at 0959

Sludge sample taken at SW-6 outfall approximately 13 ft. from Concrete dam

~~1023 pH meter re calibrated~~ BTK

Samplers: Czyzewski, Kesner

SW-1 9-26-87

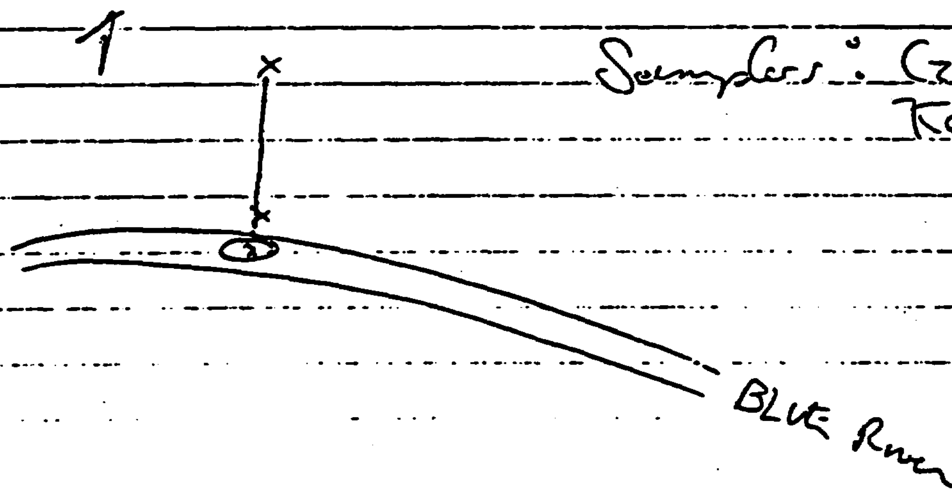
Sapling began at 1103

Finished sampling 1110

pH meter 1237
at pH 7.0 no calibration necessary

pH = 7.2 @ 1236
cond. = 550.0 @ 1236
temp = 27°C @ 1237

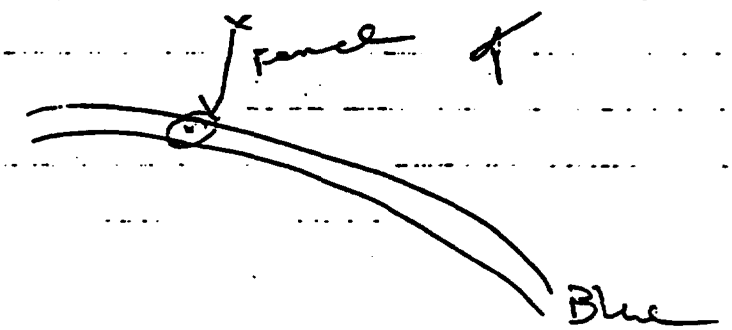
Samplers: Czyzewski
Kesner



SED 1 Samplers: Czyzewski, Kesner

Began sampling at 1121
Finished Sampling at 1144

Sample taken 3' from River Bank at Property Fence line.
Sample is Black - highly organic - with twigs sticks, etc. Photos of sampling & sampling point at 1212 hours Paul Clement took a picture of S-5 and a picture of S-6 beaver holes.



Kesner & Czyzewski

~~1223~~ 1226 (BK) Equipment Blank EB-3 for sediments taken for rinsate of shovel, stainless steel pail, and stainless steel spoon.

ph meter ~~recalibrated~~ check (BTK) for 7.0 @ 1242
no calibration necessary
conductivity meter recalibrated to 1990 @ 1244

pH = 7.3 @ 1243
SC = 110.0 @ 1245
temp ≈ 29°C @ 1244

SED-5 Samplers: Czyzewski, Kosner

Began at 1310

Sampling was in NW corner of pond. Sample collected by using a stainless steel Bucket w/ rope. The bucket collected the sample along the bottom of the pond

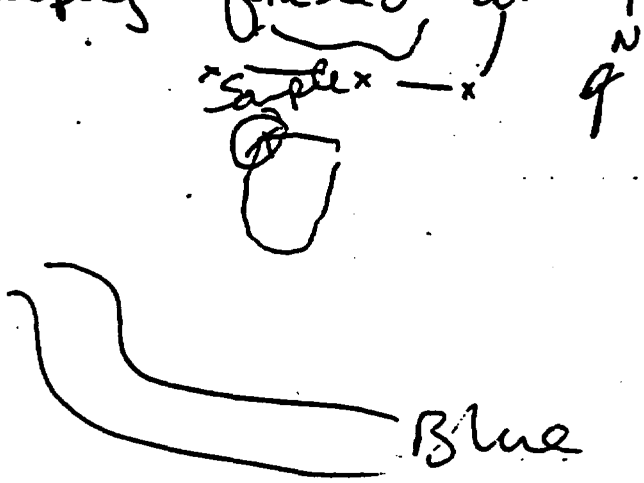
Sampling began at 1317

Sludge is a black plastic semi-solid sludge. Relatively uniform in consistency. No noticeable odor

Sampling finished at ~~1356~~ 1336 BK.

Photos of sampling & relative position of sampling point

Sampling finished at 1413.



Sed 6 Samplers: Gyrenti; 9-26-87
Kosner

Began at 1346

Sampling by stainless bucket and rope at North West corner of pond at outfall

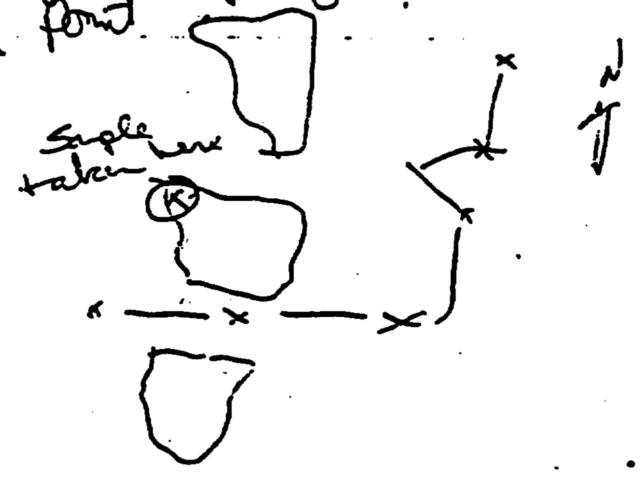
sludge is black highly organic sludge - plastic and uniform in consistency

No specific odor observed

Sampling began at 1348

Sampling finished at 1356

Photos of sampling & relative position of sampling point



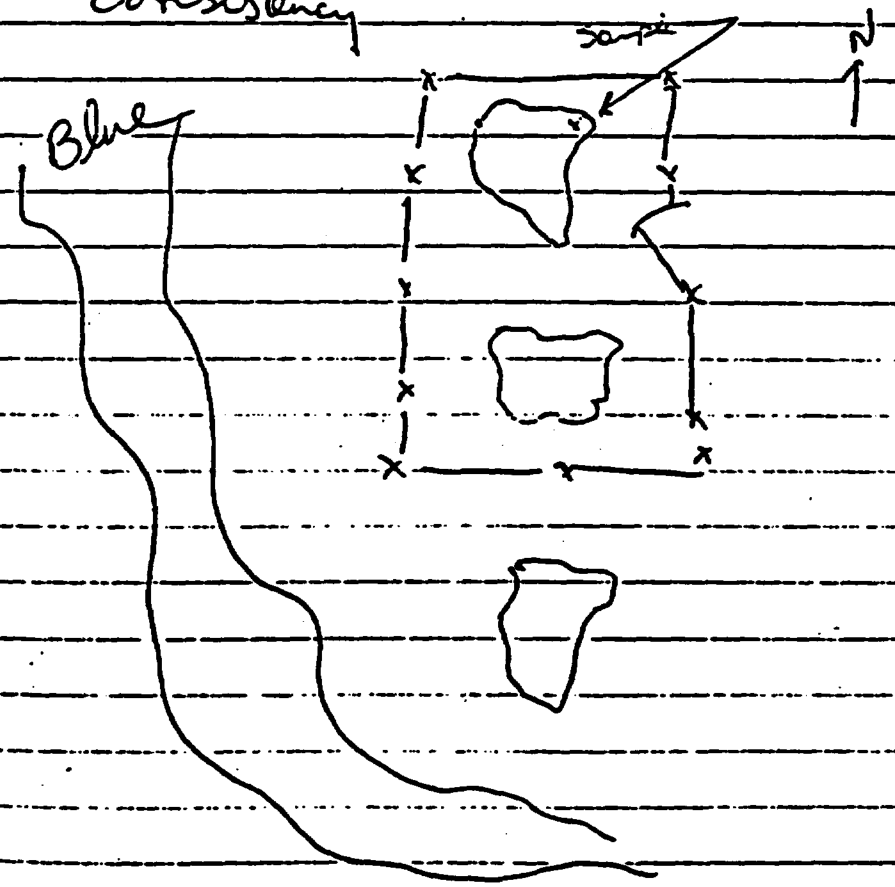
Sed 7 Samples: Czyzewski, Kover 9 26 87

Began at 1406

Sampling point is in the North East corner of North most sediment pond.

photos of sampling and relative position of sample point

Brown sludgy sample with a strong raw sewage smell more liquid than solid - uniform consistency



SED-2 - Samplers: Czyzewski, Kegner 9-26-87

Began @ 1448

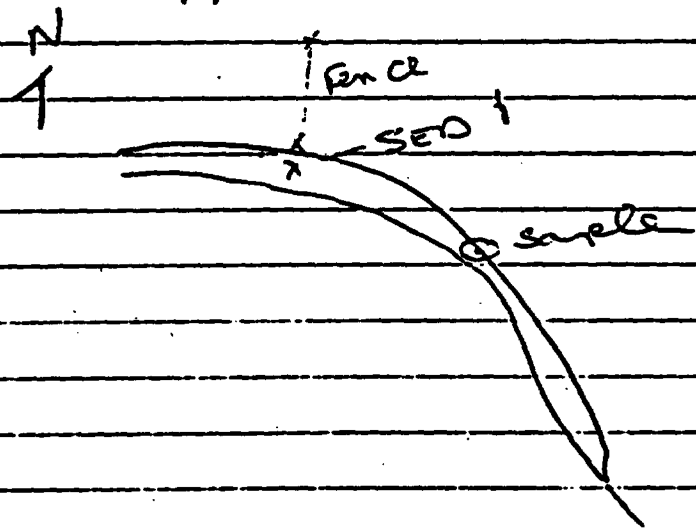
Sample taken sampling point for SW-2.

Sampling began at 1452
Sampling ended at 1515

Photo to reference sampling point

Bottom sample very rocky w/ black fine clay sediment mixed

No apparent odor.



Sampling completed & left site @ 1519

Appendix VII

Sample Documentation

From

Sampling Visit

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Anne Harrington	Kuhlman Diecasting RFA	21 / 9 / 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	1 liter CUBITAINER	8 oz BOTTLE	16 oz BOTTLE	8 oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS-OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
7-ADJ11-010	3	1	1	1	1	X					
7-ADJ11-042		1				X					
7-ADJ11-021	2	1	1	1	1	X					

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

1 ICE CHEST(S): OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ____

____ COURIER

____ SAMPLER CONVEYED

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Paul H. Clement ☐ SEALED UNSEALED ☐	9/22/87	7:45	Robert B Doran ☐ SEALED UNSEALED ☐	lab holding & shipment
RELINQUISHED BY ☐ SEALED UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

7-EPA-9262(Revised 5/85)

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Firm Name and Address Kuhlman Diecasting Co. 164th Mission Rd. P.O. Box 23218 Stanley, Kansas 66223 Name of Individual Connie L Hawkins-Caton Title Environmental Control Coordinator
Date Collected 9/21/87 | Samples were: ( ) Purchased	(X) Received no charge ( )Borrowed
Sample Numbers 7-A0511-001 7-A0511-010	Amount paid for Samples
Duplicate Samples Requested 7-A0511-010 (X) Yes ( ) No	Method of Payment ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

Signature (Owner, Operator, or Agent)		Title
Connie L Hawkins-Caton		Environmental Control Coordinator
Name of Inspector	**Title**	**Inspector's Signature**
Anne Harrington	Hydrogeologist	[signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

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87 ACTNO: ADJ11 SAMNO: 010 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WELL GM-5 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ 12:20 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/21/87 12:30 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

pH = 6.69
S.C. = 9510 umho/cm
Temp = 15.2 °C

SAMPLE COLLECTED BY : [signature]

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY – REGION VII

SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 65115

STATION IDENTIFICATION

SURVEY NO. ADJ11 SURVEY LEADER ANNE HARRINGTON STORET NO.

DESCRIPTION FIELD EQUIPMENT BLANK ISCO 2100

GRAB SAMPLE DATA

FLOW	TEMP °C AIR 00020	TEMP °C WATER 00010	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER
00059 (GPM) / 00061 (CFS)							TOX	

COLLECTION DATE YR 87 MO 09 DAY 21 TIME 1745 SAMPLER NAME CODE ____ LAB NO ADJ11042

			00400					

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COMPOSITE SAMPLE DATA

BEGIN DATE YR ____ MO ____ DAY ____ TIME ____ LAB NO. ____

END DATE. YR. ____ MO ____ DAY ____ TIME ____ EQUIPMENT CODE ____

FLOW RATE ____ 50050 MGD ____ 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE ____

WATER CHEMISTRY

LAB NO ____

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
250ml glass	BLUE	ICE		X	TOX

CONTACT: ____ SAMPLE SPLIT ☐ YES ☒ NO

REMARKS: ____

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F.. 87 ACTNO: ADJ11 SAMNO: 021 QCC: F MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: FIELD BLANK-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 02/21/87 __:__ NORTH: ____
STORET/SAROAD NO: ______ prepared at lab. DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
2 VOA VIALS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
~~CUBI~~	~~GREY~~	~~FILTER, HNO3~~		~~CONT DISSOLVED METALS~~
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY :

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER (Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Jane Harrington	Kuhlman Diecasting	22 / 9 / 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	1 Liter CUBITAINER	8 oz BOTTLE	32 oz BOTTLE	4 oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	[illegible]	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
7-ADJ11-011	3	1	1	1	1	X					
7-ADJ11-009	3	1	1	1	1	X					
7-ADJ11-016	3	1	1	1		X					
7-ADJ11-026		4			1			X			
7-ADJ11-026D		4			1			X			
7-ADJ11-014	3	1	1	1		X					
7-ADJ11-022	3	1	1	1	1	X					

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

2 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ____

____ COURIER

X SAMPLER CONVEYED

____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Jane Harrington — SEALED ☐ UNSEALED ☐	9/23/87	753	Woods — SEALED ☐ UNSEALED ☒	Analysis
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Firm Name and Address Kuhlman Diecasting Co. 164th Mission Rd. P.O. Box 23218 Stanley, Kansas 66223 Name of Individual Connie L Hawkins-Catron Title Environmental Control Coordinator
Date Collected 7/22/87 | Samples were: ( ) Purchased	(X) Received no charge ( ) Borrowed
Sample Numbers 7-ADJ11-011, 7-ADJ11-007 7-ADJ11-046, 7-ADJ11-026, 7-ADJ11-026 7-ADJ11-014, 7-ADJ11-022	Amount paid for Samples
Duplicate Samples Requested 7-ADJ11-014, 7-ADJ11-009, 7-ADJ11-011 (X) Yes ( ) No	Method of Payment ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

Signature (Owner, Operator, or Agent)		Title
Connie L Hawkins-Catron		Environmental Control Coordinator
Name of Inspector	**Title**	**Inspector's Signature**
Anne Harrington	Hydrogeologist	[signature]

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 011 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WELL GM-6 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ 11:L0 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

pH - 6.6
Temp = 16 °C
S.C. = 980 umhos/cm

SAMPLE COLLECTED BY : [signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

.: 87 ACTNO: ADJ11 SAMNO: 009 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 14:L2 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

pH = 6.9
S.C. = 10,300 umhos/cm
Temp = 18.5 °C

SAMPLE COLLECTED BY : [signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

. . 87 ACTNO: ADJ11 SAMNO: 016 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: POLISHING POND INFLUENT SW-5 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 14:20 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Temp 28 °C
pH 8.6
S.C. 1150 umhos/cm

SAMPLE COLLECTED BY : Bryan Kesner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 026 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: EAST POLISHING POND SED-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 11:05 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY : Byron Keonen

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

. 87 ACTNO: ADJ11 SAMNO: 026 QCC: D MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: EAST POLISHING POND SED-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 11:05 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY : Byron Kesner________

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 014 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: NPDES OUTFALL SW-3 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 17:46 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

pH = 8.8
S.C. = 1200 umhos/cm
Temp. = 16°C

SAMPLE COLLECTED BY :

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

. 87 ACTNO: ADJ11 SAMNO: 022 QCC: F MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: FIELD BLANK-2 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
2 VOA VIALS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY : [signature]

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address	Firm Name and Address
U.S. EPA, Region VII ENSV Division 25 Funston Road Kansas City, Kansas 66115	Kuhlman Diecasting Co 164th Mission Rd Stanley Kansas 66223 Name of Individual Connie Hawkins-Catron Title Environmental Control Coordinator
Date Collected: 9/23 - 9/26/87	Samples were: ( ) Purchased (X) Received no charge ( ) Borrowed
Sample Numbers: SEE BELOW	Amount paid for Samples
Duplicate Samples Requested: SPLIT (X) Yes ( ) No	Method of Payment: ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

9/23/87	9/24/87	9/26/87
7-ADJ11-003	7-ADJ11-006	7-ADJ11-019F
7-ADJ11-004	7-ADJ11-007	7-ADJ11-024
7-ADJ11-004	7-ADJ11-005	7-ADJ11-028
7-ADJ11-001	7-ADJ11-038	7-ADJ11-027
7-ADJ11-017	7-ADJ11-041	7-ADJ11-029
7-ADJ11-025	7-ADJ11-037	7-ADJ11-035
7-ADJ11-015	7-ADJ11-036	7-ADJ11-042
7-ADJ11-015	9/25/87	7-ADJ11-034
	7-ADJ11-060	7-ADJ11-034D
	7-ADJ11-061	7-ADJ11-023
	7-ADJ11-061D	7-ADJ11-033
	7-ADJ11-013	7-ADJ11-032
	7-ADJ11-062	7-ADJ11-030
		7-ADJ11-031
		7-ADJ11-071
		7-ADJ11-018F

7ADJ11 012

Signature (Owner, Operator, or Agent)		Title
Connie L. Hawkins-Catron		Environmental Control Coordinator
Name of Inspector	Title	Inspector's Signature
Anne H. Harrington	Hydrogeologist	[signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVI S DIV. 25 FUNSTON RD. KA S CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 004 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WELL GM-11 DATE ~~TIME~~ FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ___
SMD NO: ______ SHIP NO: 00 LAB: ___ END: 9/23/87 12:[illegible] NORTH: ___
STORET/SAROAD NO: ______ DOWN: ___

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Time: 1215

pH = 6.9

conductivity = 340.0

temp. = 20.8 °C

SAMPLE COLLECTED BY : Bryan Kiener

FIELD SHEET
U.S. ENVIRO ENTAL PROTECTION AGENCY, GION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KAN S CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 004 QCC: D MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-11 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ 12:56 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/23/87 __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_2SO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Time: 1219

pH = 6.9

conductivity = 340.0

temp. = 20.8 °C.

SAMPLE COLLECTED BY : Byron Keener

FIELD SHEET
U.S. ENVIRONM_AL PROTECTION AGENCY, R__ON VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANS_ CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 001 QCC: _ MEDIA: WATER PL: DONA/JACOBS

_TIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
_OCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ _:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/23/87 5:26 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		~~CONT~~ DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Time: 1714
pH = 7.5
conductivity = 640.0
temp. = 17.8 °C

SAMPLE COLLECTED BY : Byron Kerner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 017 QCC: F MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: EB-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ___
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/22/87 6:30 NORTH: ___
STORET/SAROAD NO: ______ PRC DOWN: ___

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO_3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER, HNO_3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	PRC ~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY : Bryan Kesner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 025 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: BLUE RIVER SED-3 DATE AND TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/23/87 12:30 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:
~~Time 1333~~ BD
~~pH = 8.3~~ BD
~~Conductivity 445.0~~ BD
~~Temperature 23.0°C~~ BD

SAMPLE COLLECTED BY : [signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

': 87 ACTNO: ADJ11 SAMNO: 015 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: BLUE RIVER SW-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/23/87 __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

SAMPLE COLLECTED BY : [signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 015 QCC: D MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: BLUE RIVER SW-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ___
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ___
STORET/SAROAD NO: ______ DOWN: ___

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED DMETALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Time : 1333
pH : 8.3
Conductivity 445.0
temp 23.0°C

SAMPLE COLLECTED BY : [signature]

FIELD SHEET

ENV[illegible]NMENTAL PROTECTION AGENCY — RE[illegible]ON VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, [illegible]SAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. ADJ11 SURVEY LEADER Anne Harrington STORET NO

DESCRIPTION Trip Blank

GRAB SAMPLE DATA

FLOW (GPM / CFS)	TEMP °C AIR	TEMP °C WATER	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER

COLLECTION DATE YR 87 MO 09 DAY 27 TIME ____ SAMPLER NAME CODE ____ SAS NO. ADJ11043

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ SAS NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ SAS NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ SAS NO ____

COMPOSITE SAMPLE DATA

BEGIN DATE: YR ____ MO ____ DAY ____ TIME ____ SAS NO. ____

END DATE: YR ____ MO ____ DAY ____ TIME ____ EQUIPMENT CODE ____

FLOW RATE ____ MGD ____ 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE ____

WATER CHEMISTRY SAS NO. ____

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	White	HNO_3			Metals
Cubi	Grey	NaOH			Cyanides
Glass	Purple	Iced			Semivolatiles ~~BNA~~
2 VOA Vials	Lime	Iced			Volatiles
Amber Bottle	Blue	None			TOX
4oz bottle	Blue	H_3PO_4			TOC

CONTACT ____ SAMPLE SPLIT ☐ YES ☐ NO

REMARKS ____

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
HARRINGTON ANNE	KUHLMAN DIECASTING	24 / 9 / 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	1L CUBITAINER	8 AMB BOTTLE	80 AMB BOTTLE	4 PLAST BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
7-ADT11 005	3	1	1	1	1	X					
7-ADT11-006	3	1	1	1	1	X					
7-ADT11-044	2	1	1	1	1	X					
7-ADT11-007	3	1	1	1	1	X					
~~7-ADT11-036~~											
		4 oz GLASS									
7-ADT11-036	—	4	—	—	1		X				
7-ADT11-037	—	4	—	—	1		X				
7-ADT11-038	—	3	—	—	1		X				
7-ADT11-041	—	4	—	—	1		X				

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

2 ICE CHEST(S); OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ____

____ COURIER

X SAMPLER CONVEYED

____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Byron T. Kesner — SEALED ☐ UNSEALED ☒	9-25-87	0840	J. Woods — SEALED ☐ UNSEALED ☒	Analysis
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

7-EPA-9262(Revised 5/85)

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 005 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WELL GM-8 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/24/87 1350 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Temp = 18.5 °C
pH = 6.6
S.C = 1200 umhos

SAMPLE COLLECTED BY : [signature]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 006 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-9 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/24/87 1530 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI.	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

S.C. = 620 umho/cm
pH = 6.4
Temp = 17.6 °C

SAMPLE COLLECTED BY : E.L. Cieszewski

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY — REGION VII

SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 65115

STATION IDENTIFICATION

SURVEY NO. ARJ11 SURVEY LEADER Anne Harrington STORET NO. ______

DESCRIPTION Trip blank

GRAB SAMPLE DATA

FLOW	TEMP °C AIR 00020	TEMP °C WATER 00010	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER
☐ 00059 (GPM) ☐ 00061 (CFS)								

COLLECTION DATE YR 87 24 DAY 9 TIME ______ SAMPLER NAME CODE ______ LAB NO. ARJ11-044

			00400					

COLLECTION DATE YR ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COMPOSITE SAMPLE DATA

BEGIN DATE YR ______ MO ______ DAY ______ TIME ______ LAB NO. ______

END DATE YR ______ MO ______ DAY ______ TIME ______ EQUIPMENT CODE ______

FLOW RATE ______ 50050 MGD ______ 50052 1000's OF GAL. DURING COMPOSITE PERIOD SAMPLER NAME CODE ______

WATER CHEMISTRY LAB NO ______

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	Blue ~~[illegible]~~	HNO_3			Metals
Glass	Blue ~~[illegible]~~	Ice			Semivolatiles
2 VOA vials	~~[illegible]~~ Blue	Iced			Volatiles
Cubi	Blue	NaOH			Cyanide Total
4 oz bottle	Blue	H_3PO_4			TOC
Amber bottle	Blue	None			TOX

CONTACT: ______ SAMPLE SPLIT ☐ YES ☐ NO

REMARKS: ______

7-EPA-9263 (6/73) GSA-MC-75-1600

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

: 87 ACTNO: ADJ11 SAMNO: 007 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY.DES: KUHLMAN.DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-14 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/24/87 1146 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

SC = 510 umhos/cm
pH = 6.3
Temp = 17.2°C

SAMPLE COLLECTED BY : E.J. C[illegible]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 037 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF. LATITUDE: ___ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: EAST SLAB SOIL S-8 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/23/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/24/87 __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:

moist, chestnut brown clay

HNU Reading @ 1.5-5 ft = 0.0 ppm

SAMPLE COLLECTED BY : Byron Kesner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY- KS 66115

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87 ACTNO: ADJ11 SAMNO: 036 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KAS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WEST SLAB SOIL S-7 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/23/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/24/87 15:29 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:
very moist, black clay
HNU reading @ 3.4 ppm
taken @ 1530

SAMPLE COLLECTED BY : Byron Kesner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 038 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: EAST SLAB SOIL S-9 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/~~23~~/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/24/87 13:02 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:

dark grey. clay
massive
dry

SAMPLE COLLECTED BY : Byron Kesner

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

~~: 87 ACTNO: ADJ11 SAMNO: 041 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: -- -- --
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: -- -- --

---

SAMPLE DES: BACKGROUND SOIL S-12 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/23/87~~ --:-- EAST: ----
SMO NO: ------ SHIP NO: 00 LAB: --- END: 09/24/87 11:40 NORTH: ----
STORET/SAROAD NO: ------ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:

dark grey clay loam
massive, perhaps
slightly silty
moist

HNU Reading @ 1155
1.1 ppm

SAMPLE COLLECTED BY : Byron Kesner

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Anne Harrington	Kuhlman Diecasting	25 / 09 / 87	1 of 1

NTS OF SHIPMENT

SAMPLE NUMBER	liter CUBITAINER	8oz BOTTLE	80oz BOTTLE	4oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
7-A0J11-060	3	1	1	1	1	X					
7-A0J11-061	3	1	1	1	1	X					
7-A0J11-0610	3	1	1	1	1	X					D
7-A0J11-013	3	1	1	1	—	X					
7-A0J11-062	3	1	1	1	1	X					

TYPE OF CONTAINERS — NUMBERS OF CONTAINERS PER SAMPLE NUMBER; SAMPLED MEDIA

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

2 ICE CHEST(S): OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ____

____ COURIER

____ SAMPLER CONVEYED ____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
[signature] SEALED / UNSEALED ✓	9/25/87	5:00	SEALED / UNSEALED	
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY

7-EPA (6/85)

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY – REGION VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. ADJ11 SURVEY LEADER Anne Harrington STORET NO. ____

DESCRIPTION 6M-1

GRAB SAMPLE DATA

FLOW ☐ 00059 (GPM) ☐ 00061 (CFS)	TEMP °C AIR 00020	TEMP °C WATER 00010	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER

COLLECTION DATE YR 87 25 DAY 09 TIME ____ SAMPLER NAME CODE ____ LAB NO ADJ11-060

			00400					

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR ____ MO ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COMPOSITE SAMPLE DATA

BEGIN DATE: YR ____ MO ____ DAY ____ TIME ____ LAB NO. ____

END DATE: YR ____ MO ____ DAY ____ TIME ____ EQUIPMENT CODE ____

FLOW RATE ____ 50050 MGD ____ 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE ____

WATER CHEMISTRY

LAB NO ____

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	Blue	HNO_3			Metals
Glass	Blue	Iced			Semivolatiles
2 VOA vials	lime	Iced			Volatiles
Cubi	Blue	NaOH			Cyanide, total
4 oz. bottle	Blue	H_3PO_4			TOC
Amber bottle	Blue	None			TOX

CONTACT: ____ SAMPLE SPLIT ☐ YES ☐ NO

REMARKS. ____

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY – REGION VII

SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. ADJ11 SURVEY LEADER Anne Harrington STORET NO ______

DESCRIPTION GM-11

GRAB SAMPLE DATA

FLOW	TEMP °C AIR 00020	TEMP °C WATER 00010	PH	DO	FECAL COLI.	OIL & GREASE	OTHER	OTHER
☐ 00059 (GPM) ☐ 00061 (CFS)								

COLLECTION DATE YR. 87 25 DAY 09 TIME ______ SAMPLER NAME CODE ______ LAB NO AAT11-061

			00400					

COLLECTION DATE YR. ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR. ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR. ______ MO ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COMPOSITE SAMPLE DATA

BEGIN DATE YR ______ MO ______ DAY ______ TIME ______ LAB NO ______

END DATE YR. ______ MO. ______ DAY ______ TIME ______ EQUIPMENT CODE ______

FLOW RATE ______ 50050 MGD ______ 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE ______

WATER CHEMISTRY

LAB NO ______

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	White / Grey	HNO_3			metals
Glass	Purple	Iced			Semivolatiles
2 VOA VIALS	Lime Green	~~Ea~~ Iced			Volatiles
Cubi	Green	NaOH			Cyanide, Total
4 oz. bottle	Blue	H_3PO_4			TOC
Amber bottle	Blue	None			TOX

CONTACT: ______ SAMPLE SPLIT ☐ YES ☐ NO

REMARKS: ______

7-EPA-0263 (6/75)

FIELD SHEET
ENVIRONMENTAL PROTECTION AGENCY – REGION VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. ADJ11 SURVEY LEADER Anne Harrington STORET NO. ____

DESCRIPTION 6M-11D

GRAB SAMPLE DATA

FLOW	TEMP. °C AIR 00020	TEMP. °C WATER 00010	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER
00059 (GPM) / 00061 (CFS)								

COLLECTION DATE YR. 87 MO. 25 DAY 09 TIME ____ SAMPLER NAME CODE ____ LAB NO ADJ11-061D

			00400					

COLLECTION DATE YR. ____ MO. ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR. ____ MO. ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COLLECTION DATE YR. ____ MO. ____ DAY ____ TIME ____ SAMPLER NAME CODE ____ LAB NO ____

COMPOSITE SAMPLE DATA

BEGIN DATE: YR. ____ MO. ____ DAY ____ TIME ____ LAB NO. ____

END DATE: YR. ____ MO. ____ DAY ____ TIME ____ EQUIPMENT CODE ____

FLOW RATE: ____ 50050 MGD ____ 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE ____

WATER CHEMISTRY

LAB NO. ____

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	White/Grey	HNO_3			metals
Glass	Purple	Iced			Semi volatiles
2 VOA VIALS	Lime	Iced			Volatiles
Cubi	Green	NaOH			Cyanide, Total
4 oz. bottle	Blue	H_3PO_4			TOC
Amber bottle	Blue	None			TOX

CONTACT: ____ SAMPLE SPLIT ☐ YES ☐ NO ____

REMARKS: ____

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 013 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: BLUE RIVER SW-2 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: ~~09/22/87~~ __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/25/87 12:58 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

1258 hours
Temp = 21°C
8 ft. from bank

SAMPLE COLLECTED BY : Anne Harrington

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY – REGION VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. ADJ 11 SURVEY LEADER Anne Harrington STORET NO.

DESCRIPTION GM-10

GRAB SAMPLE DATA

FLOW 00057 (GPM) / 00061 (CFS)	TEMP. °C AIR 00020	TEMP. °C WATER 00010	PH 00400	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER

COLLECTION DATE YR. 87 25 DAY 09 TIME SAMPLER NAME CODE LAB NO ADJ11-062

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COMPOSITE SAMPLE DATA

BEGIN DATE: YR. MO. DAY TIME LAB NO

END DATE: YR. MO. DAY TIME EQUIPMENT CODE

FLOW RATE 50050 MGD 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE

WATER CHEMISTRY

LAB NO.

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
Cubi	White/Gray				metals
Glass	Purple				Semi volatiles
2 VOA VIALS	Lime				Volatiles
Cubi	Green				Cyanide, Total
4oz. bottle	Blue				TOC
Amber Bottle	Blue				TOX

CONTACT: SAMPLE SPLIT ☐ YES ☐ NO

REMARKS:

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print): Scobs / Dona
NAME OF SURVEY OR ACTIVITY: 7ADJ11
DATE OF COLLECTION (DAY MONTH YEAR): 9/25-9/26/87
SHEET 1 of 1

CONTENTS OF SHIPMENT: Water / Soils

SAMPLE NUMBER	1G CUBITAINER	80 oz BOTTLE	8 oz BOTTLE	4 oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
ADJ11070	2	1	1	1	1	X					
ADJ11039			4		1		X				
ADJ11040			4		1		X				

DESCRIPTION OF SHIPMENT

____ PIECE(S) CONSISTING OF ____ BOX(ES)

____ ICE CHEST(S): OTHER ____

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ____

____ COURIER

____ SAMPLER CONVEYED

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
E J Cyzewski — SEALED / UNSEALED X	9-28-87	0947	J Woodt — SEALED / UNSEALED	Analysis
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY — REGION VII

SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 66115

STATION IDENTIFICATION

SURVEY NO. 7A0V11 SURVEY LEADER Jacobs / Dona STORET NO.

DESCRIPTION TRIP BLANK

GRAB SAMPLE DATA

FLOW 00059 (GPM) / 00061 (CFS)	TEMP. °C AIR 00020	WATER 00010	PH 00400	DO	FECAL COLI.	OIL & GREASE	OTHER	OTHER

COLLECTION DATE YR. 87 MO. ~~09~~ DAY 26 TIME 0910 SAMPLER NAME CODE LAB NO A0V11 070

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COLLECTION DATE YR. MO. DAY TIME SAMPLER NAME CODE LAB NO

COMPOSITE SAMPLE DATA

BEGIN DATE: YR. MO. DAY TIME LAB NO

END DATE: YR. MO. DAY TIME EQUIPMENT CODE

FLOW RATE: 50050 MGD 50052 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE

WATER CHEMISTRY

LAB NO

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
2 VOA VIALS		Iced			VOLATILES
1 l cubi		HNO_3			TOTAL METALS
1 l cubi		NaOH			CYANIDES
1 80oz AMBER		ICE			B/N ACIDS
1. 8oz AMBER		ICE			TOX
1. 4oz		~~HCL~~ ew H_3PO_4			TOC

CONTACT: SAMPLE SPLIT ☐ YES ☐ NO

REMARKS:

PH 6.95 SU
SC 9.5 umhos/cm
Temp 24.5° C

Comments: DI water from lab used to fill TOC, TOX B/N Acids, Ca. metals.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 039 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: PIPELINE SOIL S-10 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/25/87 16:27 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/25/87 16:34 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS:
Hnu - 3.0' = 70ppm
6.0 = 5.0ppm
Composite 1.0-6.0'
Soil: slightly Moist/silty clay - Chestnut brown
TD = 6.0'

SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 040 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: -- -- --
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: -- -- --

SAMPLE DES: PIPELINE SOIL S-11 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/25/87 12:02 EAST: ---
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/25/87 12:22 NORTH: ---
STORET/SAROAD NO: ______ DOWN: ---

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC

COMMENTS: Composite 1.0-6.0'
Hnu 3.0' = 6.7ppm
6.0' = 14.5ppm

soil: slightly moist / silty clay - Chestnut brown

TD = 6.0'

SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY MONTH YEAR)	SHEET
[illegible]/Dona	7ADJ11 / Kuhlman	26 09 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	1L CONTAINER	8oz BOTTLE	2oz BOTTLE	4oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
7ADJ11 071	3	1	1	1	1	X					
7ADJ11 018F	3	1	1	1		X					
7ADJ11012	3	1	1	1		X					

NUMBERS OF CONTAINERS PER SAMPLE NUMBER

DESCRIPTION OF SHIPMENT

19 PIECE(S) CONSISTING OF — BOX(ES)

1 ICE CHEST(S); OTHER —

MODE OF SHIPMENT

___ COMMERCIAL CARRIER: ___

___ COURIER

X SAMPLER CONVEYED

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
F. Cyzewski — SEALED / UNSEALED X	9-28-87	0947	Jwoolt — SEALED / UNSEALED X	Analysis
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED / UNSEALED	DATE	TIME	RECEIVED BY — SEALED / UNSEALED	REASON FOR CHANGE OF CUSTODY

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY — REGION VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 65115

STATION IDENTIFICATION

SURVEY NO. ADJ11 ~~GW~~ CW SURVEY LEADER Jacobs/Dana STORET NO

DESCRIPTION SW-6

GRAB SAMPLE DATA

FLOW 00059 (GPM) / 00061 (CFS)	TEMP. °C AIR 00020	TEMP. °C WATER 00010	PH	DO	FECAL COLI	OIL & GREASE	OTHER	OTHER
COLLECTION DATE YR. 87 MO. 9 DAY 26 TIME 0939						SAMPLER NAME CODE	LAB NO ADJ11071	
			00400					
COLLECTION DATE YR MO DAY TIME						SAMPLER NAME CODE	LAB NO	
COLLECTION DATE YR MO DAY TIME						SAMPLER NAME CODE	LAB NO	
COLLECTION DATE YR MO DAY TIME						SAMPLER NAME CODE	LAB NO	

COMPOSITE SAMPLE DATA

BEGIN DATE. YR. 87 MO 09 DAY 26 TIME 0939 LAB NO

END DATE. YR. 87 MO. 09 DAY 26 TIME 0950 EQUIPMENT CODE

FLOW RATE: 50050 MGD 50053 1000's OF GAL DURING COMPOSITE PERIOD SAMPLER NAME CODE

WATER CHEMISTRY LAB NO

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
2 VOA		ICED			VOLATILES
1 l. CUBITAINER		1ML HNO_3			DISSOLVED METALS
1 l CUBITAINER		1ML HNO_3			TOTAL METALS
1 l CUBITAINER		1ML NaOH			CYNIDES
1 80 OZ AMBER		ICE			B/N ACIDS
1 8 OZ AMBER		ICE			TOX
1 4oz BOTTLE		1ML CONC H_3PO_4			TOC

CONTACT: SAMPLE SPLIT ☐ YES ☐ NO

REMARKS:

pH = 8.0
SC = 1700.0
TEMP 25°C
COLOR clear

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F 17 ACTNO: ADJ11 SAMNO: 018 QCC: F MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: EB-2 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/~~25~~ 26/87 11:35 EAST: ----
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/~~25~~ 26/87 11:55 NORTH: ----
STORET/SAROAD NO: ______ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	~~HCL~~ H_3PO_4	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Soils/Taken of equipment rinsate: Rinsate water used for final rinse in decon: (i.e laborato. DI water) collected in Stainless Steel bucket than transferred to sample containers
pH: 8.2
SC: 9.7 umhos/cm
Temp: 28°C

SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 012 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: BLUE RIVER SW-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/~~22~~ 26/87 11:03 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/26/87 11:10 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

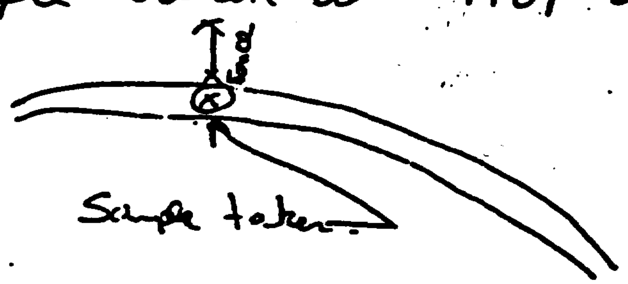
CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

pH - 7.2 @ 1236
SC - 550.0 @ 1236
Temp - 27°C @ 1237

Color: slight algal green color
odor: None noticeable
Comments:

Sample taken at Property line



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER (Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY MONTH YEAR)	SHEET
Jacobs / Dona	7ADJ11 / Kuhlman	26 09 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	1L CONTAINER	8oz BOTTLE	80oz BOTTLE	4oz BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
ADJ11-019F	3	1	1	1		X					
ADJ11-024	3	3			1			X			
ADJ11-028	3	3			1			X			
ADJ11-027	3	3			1			X			
ADJ11-029	3	3			1			X			

TYPE OF CONTAINERS — NUMBERS OF CONTAINERS PER SAMPLE NUMBER

DESCRIPTION OF SHIPMENT

22 PIECE(S) CONSISTING OF ______ BOX(ES)

1 ICE CHEST(S); OTHER ______

MODE OF SHIPMENT

___ COMMERCIAL CARRIER: ______

___ COURIER

X SAMPLER CONVEYED

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
F Cyzewski — SEALED / UNSEALED ☒	9-28-87	0947	D Woods — SEALED ☐ UNSEALED ☐	Analysis
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY — SEALED ☐ UNSEALED ☐	DATE	TIME	RECEIVED BY — SEALED ☐ UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 019 QCC: F MEDIA: WATER PL: DONA/JACOBS

CITY DES: KUHLMAN DIECASTING REF LATITUDE: -- -- --
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: -- -- --

SAMPLE DES: EB-3 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 12:26 EAST: ----
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/26/87 12:44 NORTH: ----
STORET/SAROAD NO: ______ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS

COMMENTS:

sediments

pH: 7.3
SC: 110.0
temp: 29.0°C

Equipment blank for sediment collection equipment.
taken from rinsate of shovel, stainless steel pail and
stainless steel spoon

PH meter checked at 1246 for calibration
7.0 recorded - No calibration necessary

Conductivity meter recalibrated to 1990 units @ 1244

PH = 7.3
SC = 110.0
temp. = 29.0°C

SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 024 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

A. .VITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ ___ ___

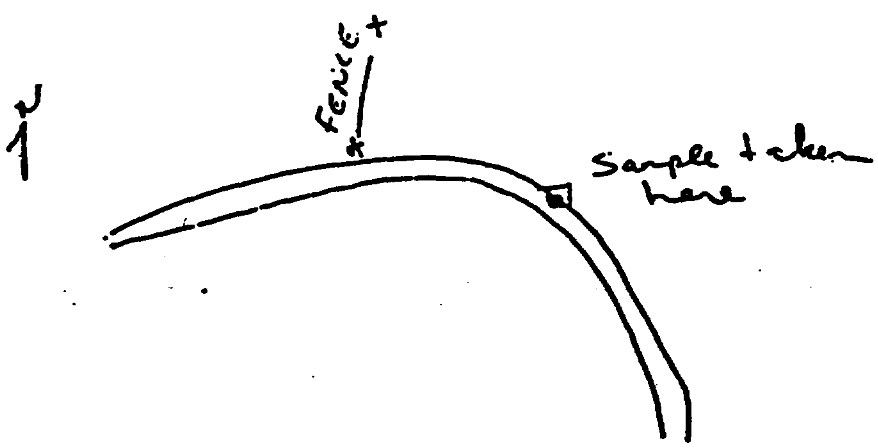
SAMPLE DES: BLUE RIVER SED-2 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 14:48 EAST: ____
SMO.NO: ______ SHIP NO: 00 LAB: ___ END: 09/26/87 15:15 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	—	—	Halogen, Total Organic

COMMENTS:

Color: black
odor: No apparent odor
comments: sample taken at SW-2
sampling point at 5 ft from shore (knee deep water)
Description: Bottom sample very rocky with
black fine clay sediment mixed into sample.



SAMPLE COLLECTED BY : Czyzewski, Gerner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 028 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: SOUTH LAGOON SED-6 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 13:16 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/26/87 13:36 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

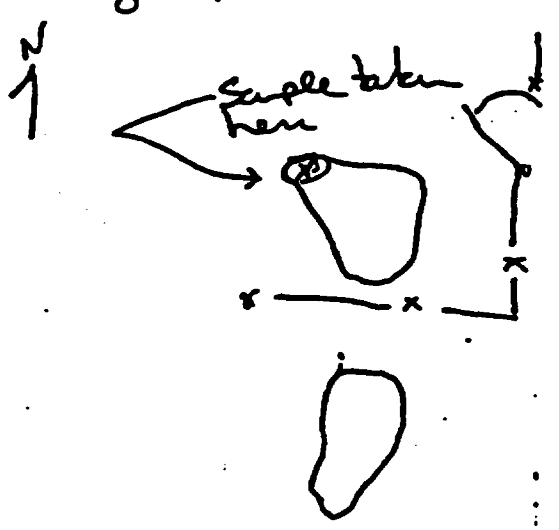
ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass				Halogen, Total Organic

COMMENTS:

Color: black
Odor: None
Comments: black highly plastic organic sludge uniform in consistency

Description:
a stainless steel bucket & rope were used to gather the sludge in the NW corner of the sludge storage pond - SED-5



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 027 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: ___ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WEST POLISHING POND SED-5 DATE TIME FROM REF FT
LOCATION: STANLEY KS BEG: 09/22/87 13:10 EAST: ____
SMO NO: ______ SHIP NO: 00. LAB: ___ END: 9/26/87 U_:36 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

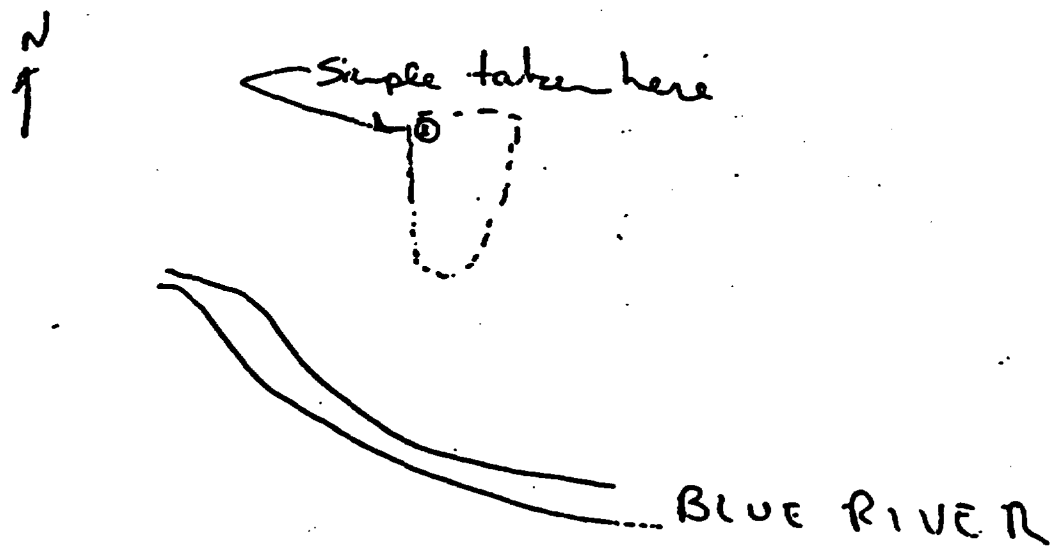
ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	—	—	Halogen, Total Organic

COMMENTS:

Color: black
odor: None noticable
comments: plastic ; uniform in consistency

Description: Sampling point in NW corner of sanitary lagoon (south most pond closest to the Blue River



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

FY: 87 ACTNO: ADJ11 SAMNO: 029 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: NORTH LAGOON SED-7 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/25/87 14:06 EAST: ___
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/26/87 14:13 NORTH: ___
STORET/SAROAD NO: ______ DOWN: ____

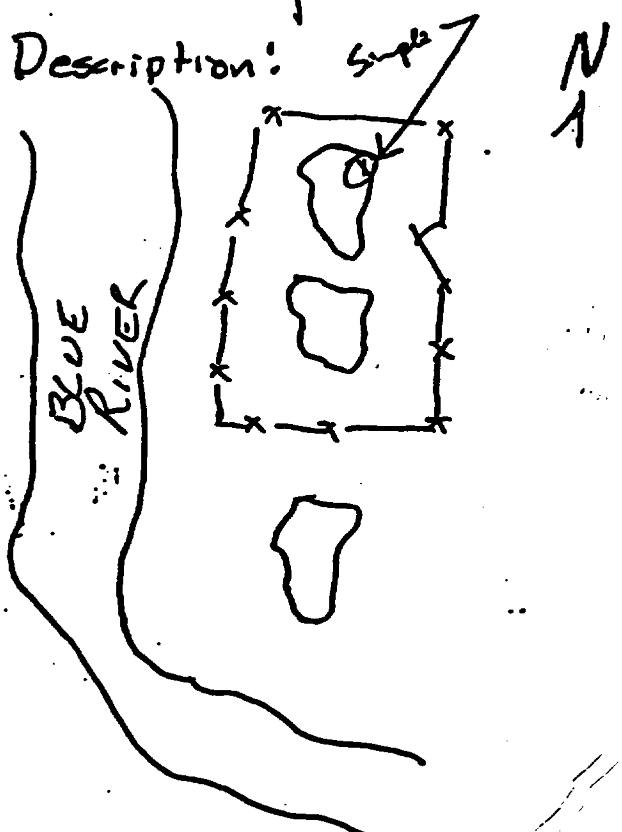
ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogen, Total Organic

COMMENTS:

Color: brown sludgy
Odor: raw sewage
Comments: more liquid than solid, uniform consistency

Description:



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER (Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
?obs/Dana	7ADJ11 / Kuhlman	26 09 87	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	CUBITAINER	8oz BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
7ADJ11-035		4			1		X				S-6
7ADJ11-022		4			1		~~X~~	X			SED-8
7ADJ11-034		4			1		X				S-5
7ADJ11-034D		4			1		X				S-5
7ADJ11-023		4			1			X			SED-1
7ADJ11-033		4			1		X				S-4
7ADJ11-032		4			1		X				S-3
7ADJ11-030		4			1		X				S-1
7ADJ11-031		4			1		X				S-2

DESCRIPTION OF SHIPMENT

45 PIECE(S) CONSISTING OF ______ BOX(ES)

1 ICE CHEST(S); OTHER ______

MODE OF SHIPMENT

____ COMMERCIAL CARRIER: ______

____ COURIER

X SAMPLER CONVEYED

(SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
F. Gizewski SEALED / UNSEALED ☒	9-28-87	0947	J. Woods ☐ SEALED / UNSEALED ☒	Analysis
RELINQUISHED BY ☐ SEALED / UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED / UNSEALED ☐	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED / UNSEALED ☐	DATE	TIME	RECEIVED BY ☐ SEALED / UNSEALED ☐	REASON FOR CHANGE OF CUSTODY

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F 37 ACTNO: ADJ11 SAMNO: 035 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WEST SLAB SOIL S-6 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/~~25~~ 26/87 09:24 EAST: ___
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/26/87 10:10 NORTH: ___
STORET/SAROAD NO: ______ DOWN: ___

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogens, Total Organic

COMMENTS: Composite 1.0-6.0'
Hnu = 3.0' = 22ppm
6.0' = 17ppm
Bkg = .5ppm

Slightly plastic lgt to Dk Brown, silty clay

odor: none
Comments - some root + organic matter 0-2.5'

TD = 6.0'

SAMPLE COLLECTED BY : Czapowski, Kesner, Clements, Williams

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY — REGION VII
SURVEILLANCE AND ANALYSIS DIVISION, 25 FUNSTON ROAD, KANSAS CITY, KANSAS 65115

STATION IDENTIFICATION

SURVEY NO. ADT 11-072 SURVEY LEADER Jacobs / Dona STORET NO.

DESCRIPTION SED-8

GRAB SAMPLE DATA

FLOW	TEMP. °C		PH	DO	FECAL COLI.	OIL & GREASE	OTHER	OTHER
☐ 00059 (GPM) ☐ 00061 (CFS)	AIR 00020	WATER 00010						

COLLECTION DATE YR. 87 MO. 09 DAY 26 TIME 0952 SAMPLER NAME CODE ______ LAB NO ADT 11-072

			00400					

COLLECTION DATE YR. ______ MO. ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR. ______ MO. ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COLLECTION DATE YR. ______ MO. ______ DAY ______ TIME ______ SAMPLER NAME CODE ______ LAB NO ______

COMPOSITE SAMPLE DATA

BEGIN DATE: YR 87 MO 09 DAY 26 TIME 0952 LAB NO ______

END DATE: YR. 87 MO. 09 DAY 26 TIME 0959 EQUIPMENT CODE ______

FLOW RATE ______ 50050 MGD ______ 50052 1000's OF GAL. DURING COMPOSITE PERIOD SAMPLER NAME CODE ______

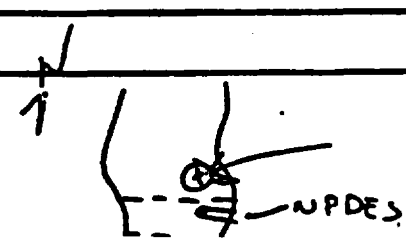
WATER CHEMISTRY LAB NO ______

SAMPLE CONTAINER	TAG COLOR	PRESERVATIVE	LABORATORY MOBILE	LABORATORY REGION	ANALYSES
1 8oz Glass		Ice			Total Metal/Cyanide
1 8oz Glass		Ice			B/N Acids
1 8oz Glass		Ice			TOC
1 8oz Glass		Ice			TOX
2- 40ML Vial		Ice			Volatiles

CONTACT: ______ SAMPLE SPLIT ☐ YES ☐ NO

REMARKS: ______

Color - Black - organic
Odor - decayed organic



FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F 87 ACTNO: ADJ11 SAMNO: 034 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WEST SLAB SOIL S-5 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 10:26 EAST: ----
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/26/87 11:04 NORTH: ----
STORET/SAROAD NO: ______ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
	—	None	—	Halogens, Total Organic

COMMENTS:

Composite 1.0-6.0'

Color: Lt to Dk brown

odor: None

Comments: Hnu 3.0' = 0ppm Hnu 6.0' = 1.ppm
Bkg: .5ppm

Description: Lt to Dk brown, slightly plastic becoming more plastic w/depth, roots-organics in top 1.5'

TD=6.0'

SAMPLE COLLECTED BY : Czyzewski, Kesaec, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F 37 ACTNO: ADJ11 SAMNO: 034 QCC: D MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WEST SLAB SOIL S-5 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 10:36 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/26/87 11:04 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogens, Total Organic

COMMENTS:
composite 1.0-6.0'
Color: Lt to Dk brown

Odor: None

Comments: 3.0' Hnu=0.5ppm 6.0' Hnu=1.0ppm
Bkg 0.5ppm

Description: Lt to Dk brown, slightly plastic - becoming more plastic w/depth, roots - organics in top 1.5'

TD=6.0'

SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

F 87 ACTNO: ADJ11 SAMNO: 023 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: -- -- --
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: -- -- --

SAMPLE DES: BLUE RIVER SED-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 11:21 EAST: ----
SMO.NO: ------ SHIP NO: 00 LAB: --- END: 09/26/87 11:44 NORTH: ----
STORET/SAROAD NO: ------ DOWN: ----

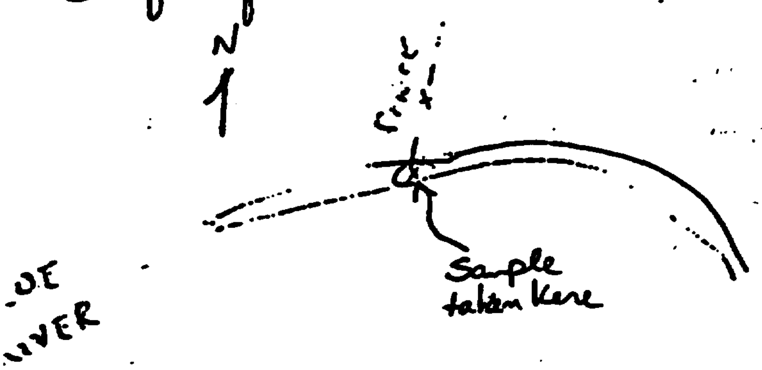
ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None		Halogen, Total Organic

COMMENTS:

Color: black.
odor: organic
comments: highly organic with twigs, sticks, etc.

Description: Sediment taken at property line in the Blue River approximately 5 ft from shore (knee deep water)



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 033 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WHSE SOIL S-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/~~22~~/87 12:49 EAST: ----
SMO NO: ------ SHIP NO: 00 LAB: --- END: 09/26/87 13:10 NORTH: ----
STORET/SAROAD NO: ------ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogen, Total Organic

COMMENTS:
Composite (1.0 - 6.0')
Color: Lt to Dk brown

Odor: None-

Comments: Hnu = 3.0' = 0ppm 0.5ppm Hnu = 6.0' = 1ppm
Bkg = .5ppm

Description: Lt to Dk brown/roots organics near surface becoming more clayey w/depths - silty clay loam - Color change Lt to Dark brown at @ 3.5 to 4.0'

TD = 6.0'

SAMPLE COLLECTED BY : Czeprawski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 032 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: WHSE SOIL S-3 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 12:31 EAST: ___
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 09/26/87 13:41 NORTH: ___
STORET/SAROAD NO: ______ DOWN: ___

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogens, Total Organic

COMMENTS:

Composite (1.0-6.0')
Color: Lt to Dk Brown

odor: None Hnu 3.0' = 0.5ppm
Hnu 6.0' = 2.0ppm
Bkg -0.5 ppm

comments: /

Description: Top Soil 0-1.5'
1.5-6.0' Silty Clay loam/clayey Lt to Dk brown
Moderately Stiff

TD=6.0'

SAMPLE COLLECTED BY: Czapewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV, 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 030 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: SLUDGE POND SOIL S-1 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/26/87 14:41 EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: 9/26/87 15:02 NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogens Total Organic

COMMENTS:

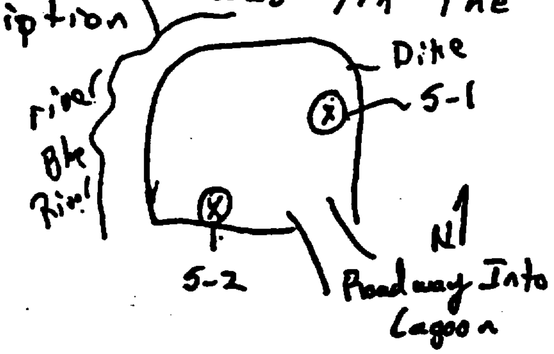
Composite 1.0-6.0'

Color: Lt to Dk brown

Odor: Hnu 3.0' = 0.5ppm, 6.0' = 1.5' Bkg = 0.5ppm

comments: Top .8' - a green colored sludge/dried material - appears to be Cu oxidation - This interval was w/in the 0-12" interval so it was discarded

Description



Lt to Dk Brown - small white specs in some (1.0-2.0')
Slightly silty clay - appeared to be natural material -
Moderately plastic.

TD = 6.0'

SAMPLE COLLECTED BY: Czyzewski, Kesoec, Clements williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

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87 ACTNO: ADJ11 SAMNO: 031 QCC: _ MEDIA: SOIL PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: __ __ __

SAMPLE DES: SLUDGE POND SOIL S-2
LOCATION: STANLEY KS
SMO NO: ______ SHIP NO: 00 LAB: ___
STORET/SAROAD NO: ______

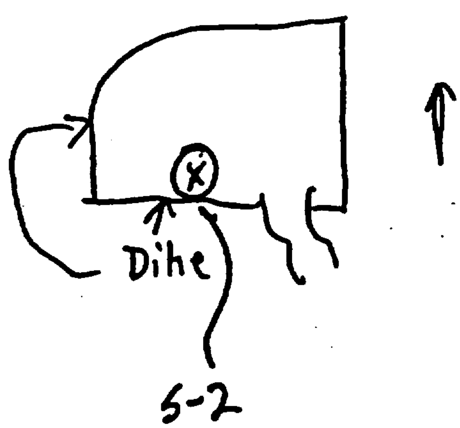
	DATE	TIME	FROM REF PT
BEG:	09/~~23~~ 25/87	15:40	EAST: ____
END:	09/24/87	15:59	NORTH: ____
			DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
GLASS	WHITE	ICED		METALS
GLASS	LIME	ICED		VOLATILES
GLASS	PURPLE	ICED		SEMIVOLATILES
GLASS	GREEN	NONE	SJ25	CYANIDE
GLASS	BLUE	NONE	SQ03	CARBON, TOTAL ORGANIC
Glass	—	None	—	Halogens, Total Organic

COMMENTS:

Color: lt brown turning gray at 4.5-5.0'
Odor: 4.5-5.0 Ft. Petro-odor
Comments: Hnu 3.0' = 0.5ppm
6.0' = 3-4ppm
Bkg = 0.5ppm
Description: dried sludge at surface - green - brown to lt grey - becoming more grey w/depth



SAMPLE COLLECTED BY : Czyzewski, Kesner, Clements, Williams

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

T 87 ACTNO: ADJ11 SAMNO: 020 QCC: F MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: ___ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: EB-4 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
CUBI	GREY	FILTER, HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Surface water.

No ~~rinsate~~ EB taken as SW samples were collected directly from surface water bodies. gw 9/25/87

VOID

SAMPLE COLLECTED BY : Cay

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 008 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE:___ __ __

SAMPLE DES: WELL GM-13 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ____
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ____
STORET/SAROAD NO: ______ DOWN: ____

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Optional Well not Sampled

SAMPLE COLLECTED BY : ____________________

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

87 ACTNO: ADJ11 SAMNO: 002 QCC: _ MEDIA: WATER PL: DONA/JACOBS

ACTIVITY DES: KUHLMAN DIECASTING REF LATITUDE: __ __ __
LOCATION: STANLEY KS PROJECT NUM: A60 PT: LONGITUDE: ___ __ __

SAMPLE DES: WELL GM-2 DATE TIME FROM REF PT
LOCATION: STANLEY KS BEG: 09/22/87 __:__ EAST: ----
SMO NO: ______ SHIP NO: 00 LAB: ___ END: __/__/__ __:__ NORTH: ----
STORET/SAROAD NO: ______ DOWN: ----

ANALYSIS REQUESTED:

CONTAINER	COLOR	PRESERVATIVE	MGP	NAME
CUBI	WHITE	HNO3		METALS
GLASS	PURPLE	ICED		SEMIVOLATILES
2 VOA VIALS	LIME	ICED		VOLATILES
CUBI	GREY	FILTER,HNO3		CONT DISSOLVED METALS
CUBI	GREY	NAOH	WJ25	CYANIDE, TOTAL
4 OZ BOTTLE	BLUE	HCL	WQ03	CARBON, TOTAL ORGANIC
AMBER BOTTLE	BLUE	NONE	WQ08	HALOGEN, TOTAL ORGANIC

COMMENTS:

Not sampled / Bailer would not go down well - defect in well casing
CW 9/25/87

SAMPLE COLLECTED BY : Harrington, Kesner, Clements

Appendix VIII

Photographic Documentation

of

Sampling Visit

PHOTOGRAPH # 1
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Anne Harrington obtaining sediment sample (SED-3) in the Blue River upstream from the bridge.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/23/87 Time: 1230 hours

Photographer: Marilyn Mattione

Film: Kodak

File: 05A00599

Witness: Randy Overton

PHOTOGRAPH # 2
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Anne Harrington obtaining SW-2 in Blue River due west of the intact petroleum storage tank located north of the plant bldg.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/25/87 Time: 1258 hours

Photographer: Paul Clement

Film: Kodak

File: 05A00599

Witness: Anne Harrington

Photo-ku

PHOTOGRAPH # 3
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of G. Czyzewski (holding Little Beaver) and T. Hagen obtaining background soil sample S-14 adjacent to grass farm and NE of site.

Location: Kuhlman Diecasting Company
Stanley, Kansas

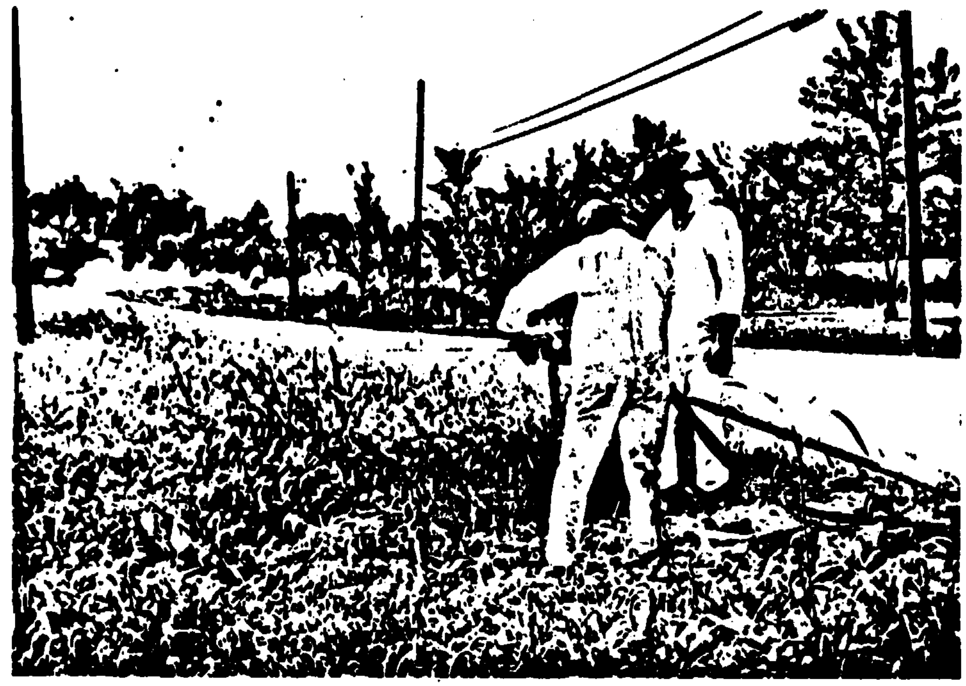
Date: 9/24/87 **Time:** 1130 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Terence Hagen



PHOTOGRAPH # 4
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of G. Czyzewski and T. Hagen obtaining background sample S-14. The pick-up in the background has left the entrance road to Kuhlman.

Location: Kuhlman Diecasting Company
Stanley, Kansas

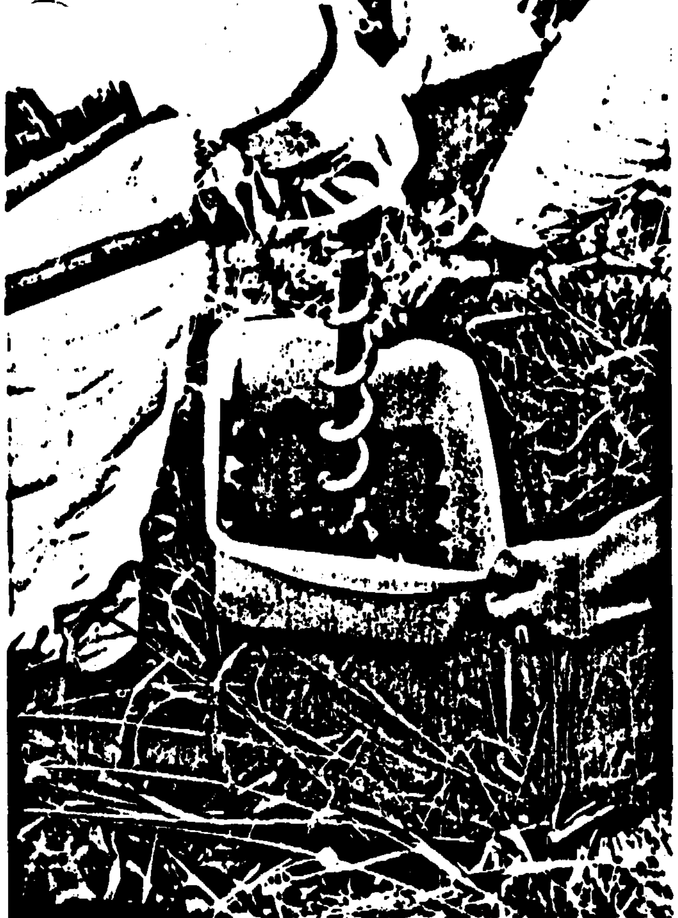
Date: 9/24/87 **Time:** 1132 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski



PHOTOGRAPH # 5

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski sending auger down for sample at S-14. T. Hagen is holding the deconned bucket that catches the soil as it comes up the auger. HNU reading of completed hole = 1.1 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/24/87 **Time:** 1135 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

PHOTOGRAPH # 6

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: T. Hagen (left) and G. Czyzewski at S-9 filling sample containers from soil taken from 1' to 6' below land surface.

Location: Kuhlman Diecasting Company
Stanley, Kansas

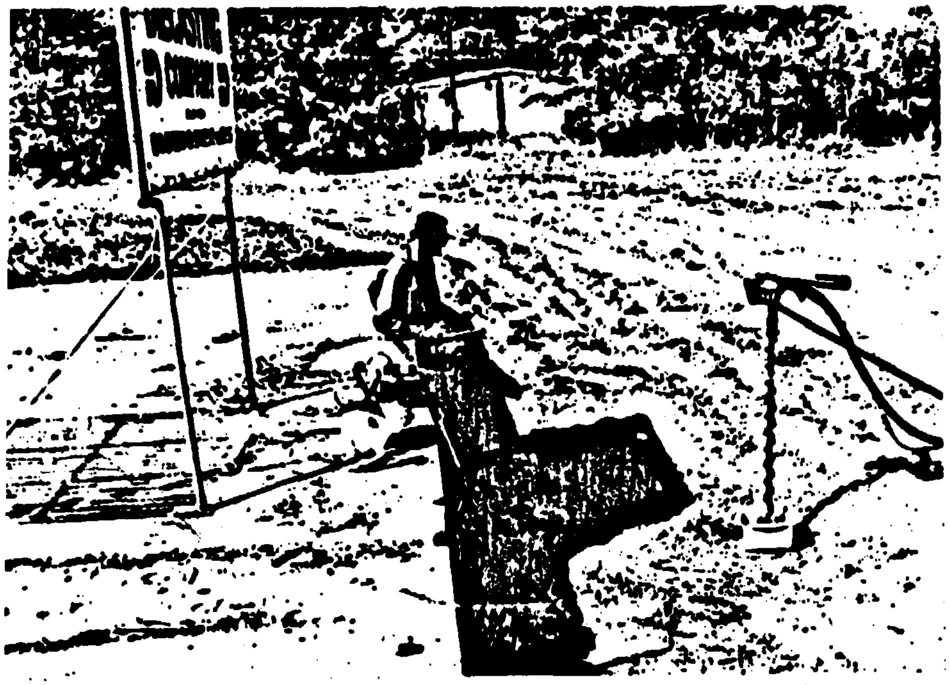
Date: 9/24/87 **Time:** 1310 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski



PHOTOGRAPH # 7
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View looking north of the Little Beaver set up at S-8 with Bob Dona (EPA) observing. Located near inter-. section of Mission and entrance road.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/24/87 **Time:** 1507 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Terence Hagen

PHOTOGRAPH # 8
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of S-7 (flag), located 5'4'' south from the concrete slab. An HNU reading from the completed hole=3.4 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/24/87 **Time:** 1830 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Anne Harrington

PHOTOGRAPH # 9

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski (bailing) and B. Kesner (holding sample container) obtaining sample from GM-10. Petroleum storage tank and plant building in background.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/25/87 **Time:** 1420 hours

Photographer: Paul Clement

Film: Kodak

File: 05A00599

Witness: Anne Harrington

PHOTOGRAPH # 10

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski pouring groundwater sample (GM-10) directly from bailer into TOX bottle held by B. Kesner. Water reservoir is to the left.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/25/87 **Time:** 1423 hours

Photographer: Paul Clement

Film: Kodak

File: 05A00599

Witness: Anne Harrington

PHOTOGRAPH # 11
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View looking west includes pipeline post, orange flag at S-10, and river bank in upper left-hand corner. At 3', HNU=70 ppm; at 6', HNU=5 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/25/87 Time: 1600 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

PHOTOGRAPH # 12
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of SW-11 (flag) taken between property fence and the levee. Not pipeline post by the fence. At 3', HNU=6.7 ppm; at 6', HNU=14.5 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

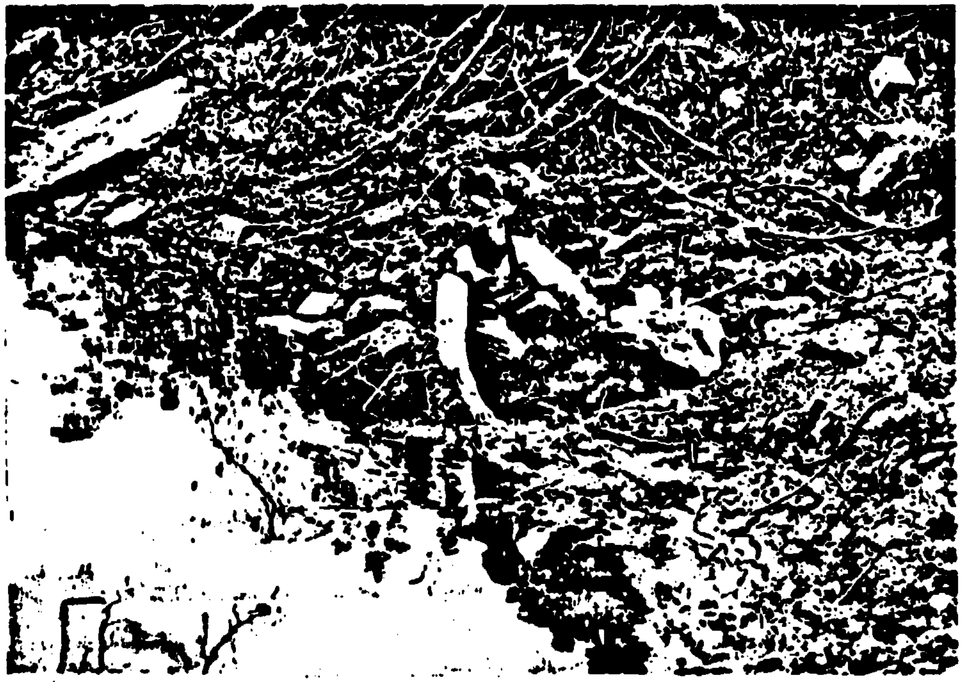
Date: 9/25/87 Time: 1730 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski



PHOTOGRAPH # 13

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski taking surface water sample SW-6 from the seep found by Bob Dona (EPA) and located just north of the NPDES discharge pipe.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 0940 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

PHOTOGRAPH # 14

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Close-up of SW-6 location. SED-8 was taken where the flag is locate Water can be seen bubbling at that location. No pipe was observed.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1000 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

PHOTOGRAPH # 15

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of S-5 (flag) located 44" N of concrete slab. At 3', HNU=0 ppm; at 6', HNU=1 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1105 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Chris Williams

PHOTOGRAPH # 16

OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of S-6 (flag) located approximately 3' from the NE side of the concrete slab. At 3', HNU=22 ppm; at 6', HNU=17 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1015 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Chris Williams

PHOTOGRAPH # 17
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski putting sample SED-5 obtained via bucket and rope from the NW corner of the west polishing pond into sample containers.

Location: Kuhlman Diecasting Company
Stanley, Kansas

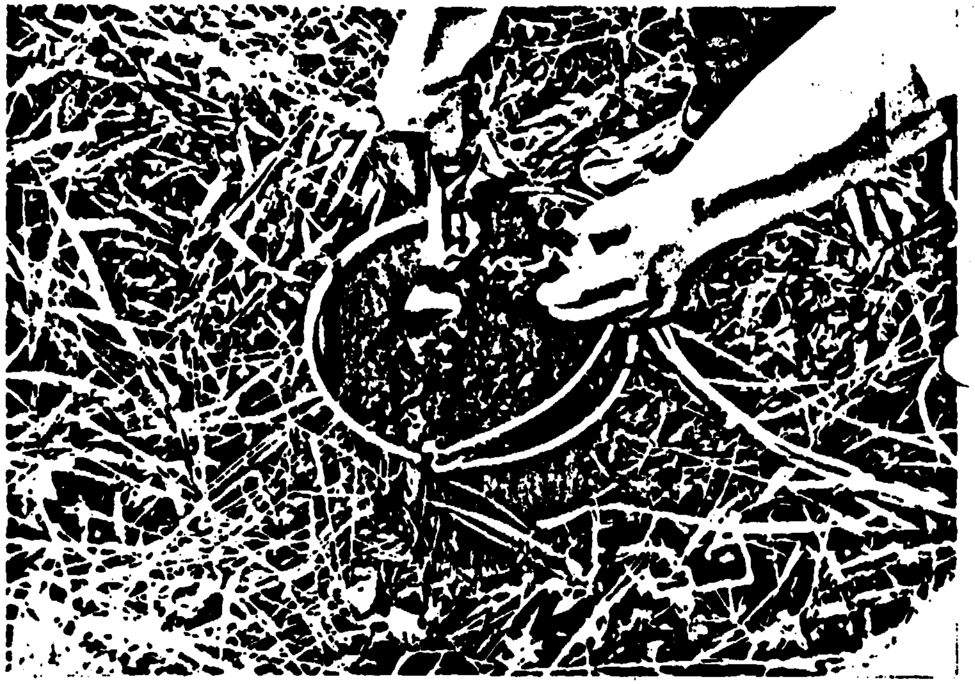
Date: 9/26/87 **Time:** 1320 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski



PHOTOGRAPH # 18
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Close-up view of sample obtained from SED-5. The sample was a bl(plastic semi-solid sludge with a relative uniform consistency.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1322 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

Photo-ku

PHOTOGRAPH # 19
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: Due to steepness of the banks and depth to the sludge, G. Czyzewski obtained SED-6 via a stainless steel bucket and rope from the NW corner of the south sanitary sewage lagoon.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1346 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski

PHOTOGRAPH # 20
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: G. Czyzewski obtaining sample SED-7 near discharge outlet in NE corner of the north sanitary sewage lagoon.

Location: Kuhlman Diecasting Company
Stanley, Kansas

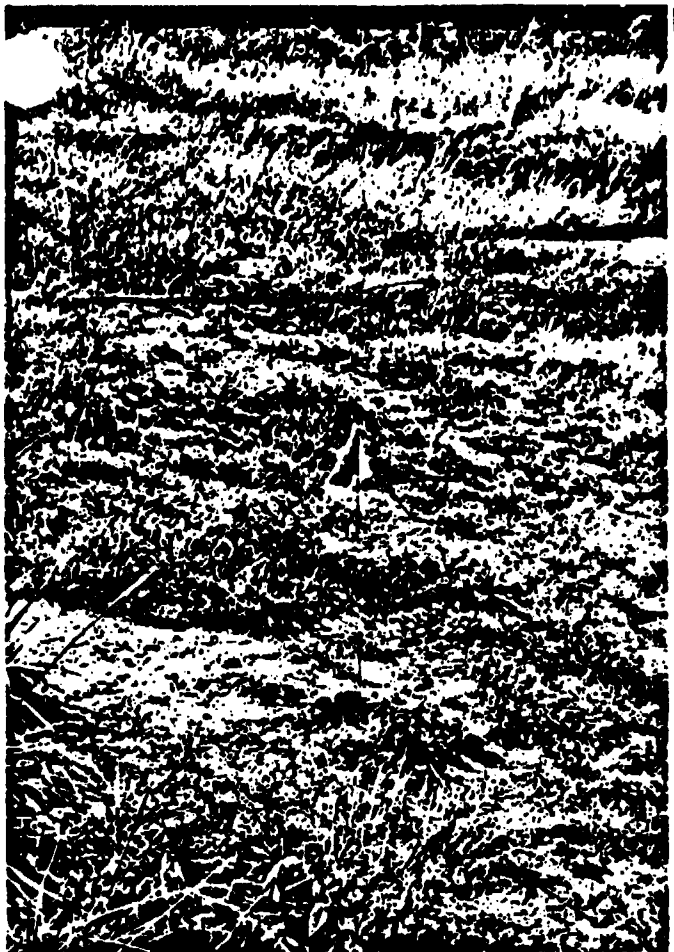
Date: 9/26/87 **Time:** 1410 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Gene Czyzewski



PHOTOGRAPH # 21
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of S-1 (flag) located west of the dike and just inside the south wall of the sludge lagoon area. At 3', HNU = 0.5 ppm; at 6', HNU = 1.5 ppm.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1510 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Chris Williams

PHOTOGRAPH # 22
OFFICIAL PHOTOGRAPH - JACOBS ENGINEERING

Subject: View of S-2 (flag) located just inside the east wall of the sludge lagoon. At 3', HNU = 0.5 ppm; at 6', HNU = 2.5 ppm with slight petroleum odor. Dried sludge from 0-0.5'- see log notes.

Location: Kuhlman Diecasting Company
Stanley, Kansas

Date: 9/26/87 **Time:** 1610 hours

Photographer: Byron Kesner

Film: Kodak

File: 05A00599

Witness: Chris Williams

7/1/88
Report continued...

Appendix IX

Sampling Visit

Site Safety Plan

ES4-503-0079-B2-0002

JACOBS ENGINEERING
SITE SAFETY PLAN

A. GENERAL INFORMATION

Site Name: Kuhlman Diecasting Company Project No. 05A00599

Dates of Visit September 21-25, 1987

Objective(s): To conduct the sampling visit of the RCRA Facility Assessment (RFA)

Original Safety Plan: Yes: X No: ____ Modification Number ____

Site Address: Street Number 164th and Mission Road

City Stanley

County Johnson

State Kansas Zip Code 66223

Site Contact: Connie Hawkins Phone (913) 681-2351

Directions to Site: From Kansas City, Kansas, take 35 South to 69 South to 150 East to Mission Road and go South on Mission to 164th and Mission.

Map Attached: Yes: X No: ____

Survey Description: ____ ____ SEC 16 T 14S R 25E

If Remote Location: Latitude NA Longitude NA

Site History: Since 1964, Kuhlman Diecasting has been engaged in the manufacturing of zinc, aluminum and plastic diecastings for a variety of commercial and industrial services including automotive, small appliances, and telecommunications at the site. The Kuhlman operation employs an electroplating process that utilizes chromium, nickel and copper platings on the zinc and aluminum diecasting.

In 1983, Kuhlman ceased disposing of electroplating sludge and waste fluids in three surface impoundments and a petroleum storage tank. According to EPA, sludge has been removed from all units in accordance with a RCRA Compliance Order. However, some contaminated soil remains within the site boundary. Samples from a groundwater monitoring system for the facility has indicated that there are elevated levels of chromium and nickel in the groundwater. Final closure of the impoundments at the site has not been completed.

Prior to Kuhlman Diecasting Company's purchase of the property, the site had contained an old pipeline pumping station with a minimum of seven large petroleum storage tanks. Several wells, located in the area of a former petroleum tank farm, show evidence of hydrocarbon contamination.

The Kuhlman facility also has a National Pollutant Discharge Elimination System (NPDES) discharge permit that allows discharge to the Blue River. However, according to EPA, Kuhlman has frequently exceeded its discharge limits for heavy metals.

Physical Description:

Size of Site: Approx. 39 acres

Terrain: Flat, floodplain of Blue River

Weather: ______

Urban ______ Residential ______ Commercial ______ Industrial ______

Rural X Remote ______

Status: Active X Inactive ______ Unknown ______

SITE/WASTE CHARACTERISTICS

Materials Involved:

Name Chromium

TLV 0.5 mg/m^3 (TWA) IDLH 500 mg/m^3

Overexposure Symptoms Chromic acid or chromate salts have irritant effects on the skin and respiratory passages lend to ulceration. Oral ingestion may lead to severe irritation of the gastrointestinal tract, circulatory shock, and renal damage.

Name Nickel

TLV 1 mg/m^3 (TWA) IDLH

Overexposure Symptoms May cause dermatitis in sensitive individuals. Ingestion of soluble salts causes nausea, vomiting and diarrhea.

Name Cadmium

.V 0.05 mg/m^3 (TWA) IDLH

Overexposure Symptoms Ingestion causes increased salivation, choking, vomiting, abdominal pain and diarrhea. Inhalation causes throat dryness, vomiting, cough, headache, chest pain, extreme restlessness and irritability.

Name Petroleum Products

TLV IDLH 4000 ppm (upper limit)

Overexposure Symptoms Inhalation can result in irritation of the eyes and nose. Drowsiness can also occur. Direct contact can cause dermatitis or chemical pneumonia. Gas or oil will cause taste and odor problems before reaching toxic levels.

Others: ______________________________

SPECIAL HAZARDS: ______________________________

____

Waste Types: Solid X Liquid X Gas ____

Waste Characteristics: Corrosive ____ Ignitable ____ Radioactive ____

Volatile X Toxic X Reactive ____ Unknown ____

Other ______________________________

C. HAZARD EVALUATION

Exposure Hazards (H = High, M = Moderate, L = Low, U = Unknown)

Inhalation M Skin Contact M Ingestion L Radioactive U

ɔlogical U Fire U Explosion U Unknown ____

Physical Hazards

Heat X Cold ____ Noise ____ Underground Utilities X

Overhead Utilities ____ Heavy Equipment ____ Ladders ____

Sharp Objects ____ Pressurized Airlines ____ Cylinders ____

Scaffolds ____ Unsecured Openings/Walls/Floors ____ Insects & Snakes X

Liquids in Open Containers, Ponds and Lagoons X Slip, Trip, Fall X

Other: ______________________________

Comments: The sampling will be taking place in non-production areas of the site. The only expected exposure to the hazardous substances would be skin contact or, in a few cases, from inhalation.

D. SITE SAFETY WORK PLAN

.e Control: Map/Sketch attached __X__ Site Secured __X__

Perimeter Identified __X__ Zones of Contamination Identified ______

Personal Protection: Level: A B C D

Why: Level C may be required for 4 wells due to petroleum contamination. Level D should be sufficient elsewhere.

Respiratory : SCBA ______ APR __X__ Model MSA

Cartridge/Canister Type GMC-H

Skin: Tyvek __X__ Poly Tyvek ______ Saran Tyvek ______ Acid Suit __X__

Rain Gear ______ Cotton Coveralls ______ Thermal Coveralls ______

Other Nuclear wet suit, will be worn for all liquid sampling.

Gloves: Inner __X__ Butyl ______ Nitrile __X__ Viton ______

Other ______

Field Monitoring Equipment & Materials: A photovac TIP will be used to monitor volatile organic compounds in the working space above the wells and when doing soil sampling. Level C will be used when the organic vapor concentration at personnel breathing zone exceeds background. Sampling in Level C will be terminated when the organic vapor concentration exceeds 5 ppm above background in the breathing zone, and respiratory protection reevaluated. A pH, S.C., and a thermometer will also be used on all water samples at the time of collection.

Description of Decontamination ed: Personal gear and equipme will be decontaminated as follows: 1) Brush off lose dirt; 2) Rinse equipment with tap water; 3) Wash in Alconox and tap water; 4) Rinse with distilled water; and 5) Air dry. All disposable equipment will be disposed of on site or at Region VII Lab. Any skin that has been contaminated will be thoroughly washed with soap and water while eyes that have been contaminated will be flushed with water for 5 minutes.

Site Entry Procedures: The facility contact (Connie Hawkins) will be contacted upon arrival.

Work Limitations (Time of Day, etc.): Daylight hours.

Investigation Derived Material Disposal: All disposable protective equipment and decon. water will be disposed of on-site unless otherwise specified.

E. EMERGENCY INFORMATION

Emergency Phone Numbers:

Ambulance	(911)
Hospital Emergency Room	Humana, 105th & Quivira, Overland Park
Poison Control Center	KU Medical Center (588-6633)
Fire	(911)
Police	(911)
Explosives Unit (if applicable)	

CHEMTREC	1-800-424-9300
TSCA Hotline	1-800-424-9062 or 202-554-1404
CDC	404-452-4100 or 404-329-2888
National Response Center	1-800-424-8802
Pesticide Information Center	1-800-845-7633
EPA ERT Emergency	201-321-6660
RCRA Hotline	1-800-424-9346
Bureau of Explosives	202-835-9500

Health and Safety Director	Dr. Barry E. North (303) 232-7093
Regional Safety Coordinator	Dr. Barry E. North (303) 232-7093
Project Manager	Gary Parker (913) 492-9218
Facility Contact	Connie Hawkins (913) 681-2351

Site Resources:

.ter Supply	To be determined on-site.
Nearest Phone	Same as above.
Radio	Same as above.
Other	

Directions to Hospital (Attach Map) Shawnee Mission Hospital

Turkey Creek Expressway to exit 75th.

Prepared by: Anne Harrington Date: 9/10/87

Reviewed by: ______ Date: ______

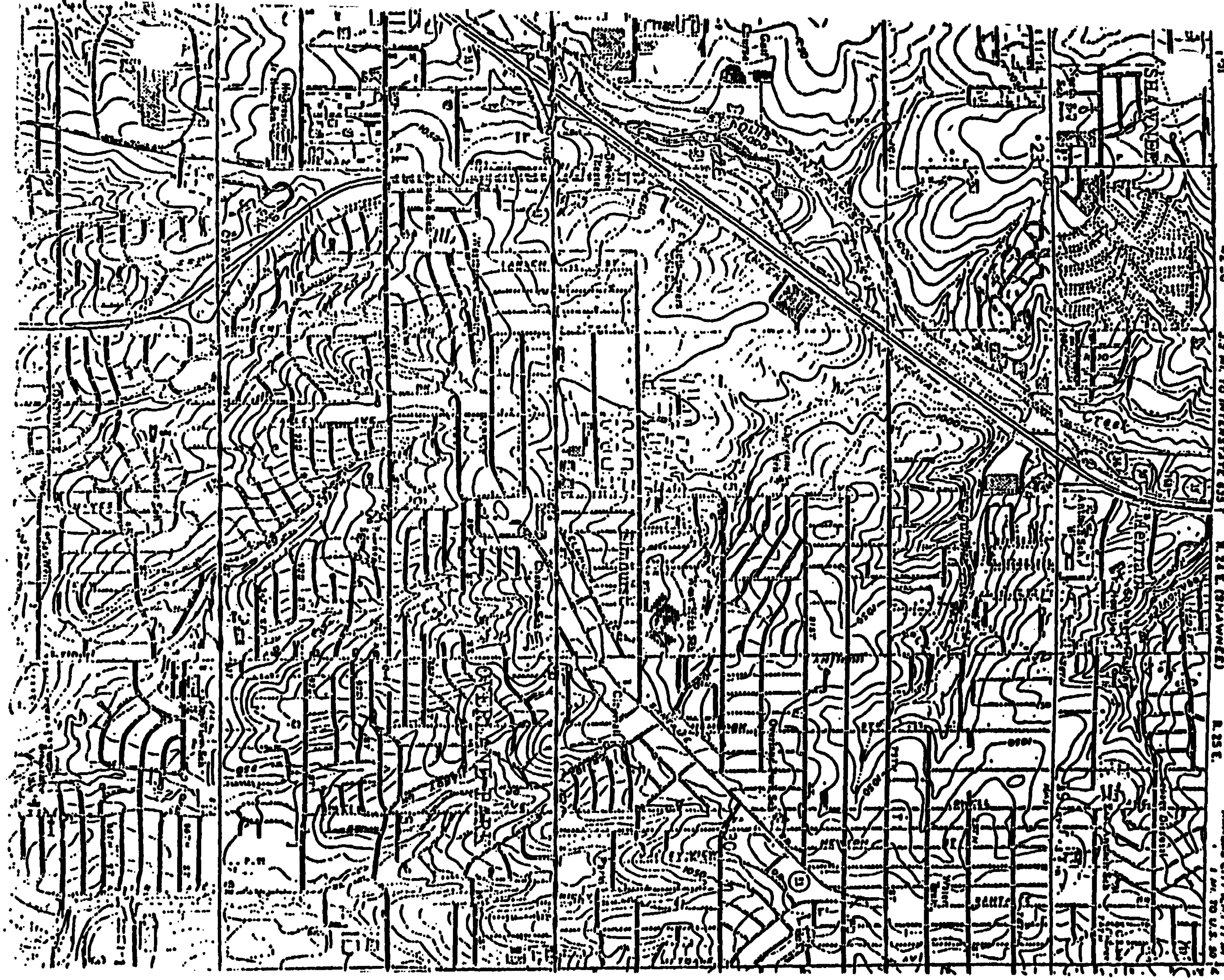
Approved by: ______ Date: ______

Jacobs HSO Reviewed by: Rick Cameron 9/17/87

Followup Required: Yes ______ No X

Followup Performed: Date: ______ With: ______

Comments: ______



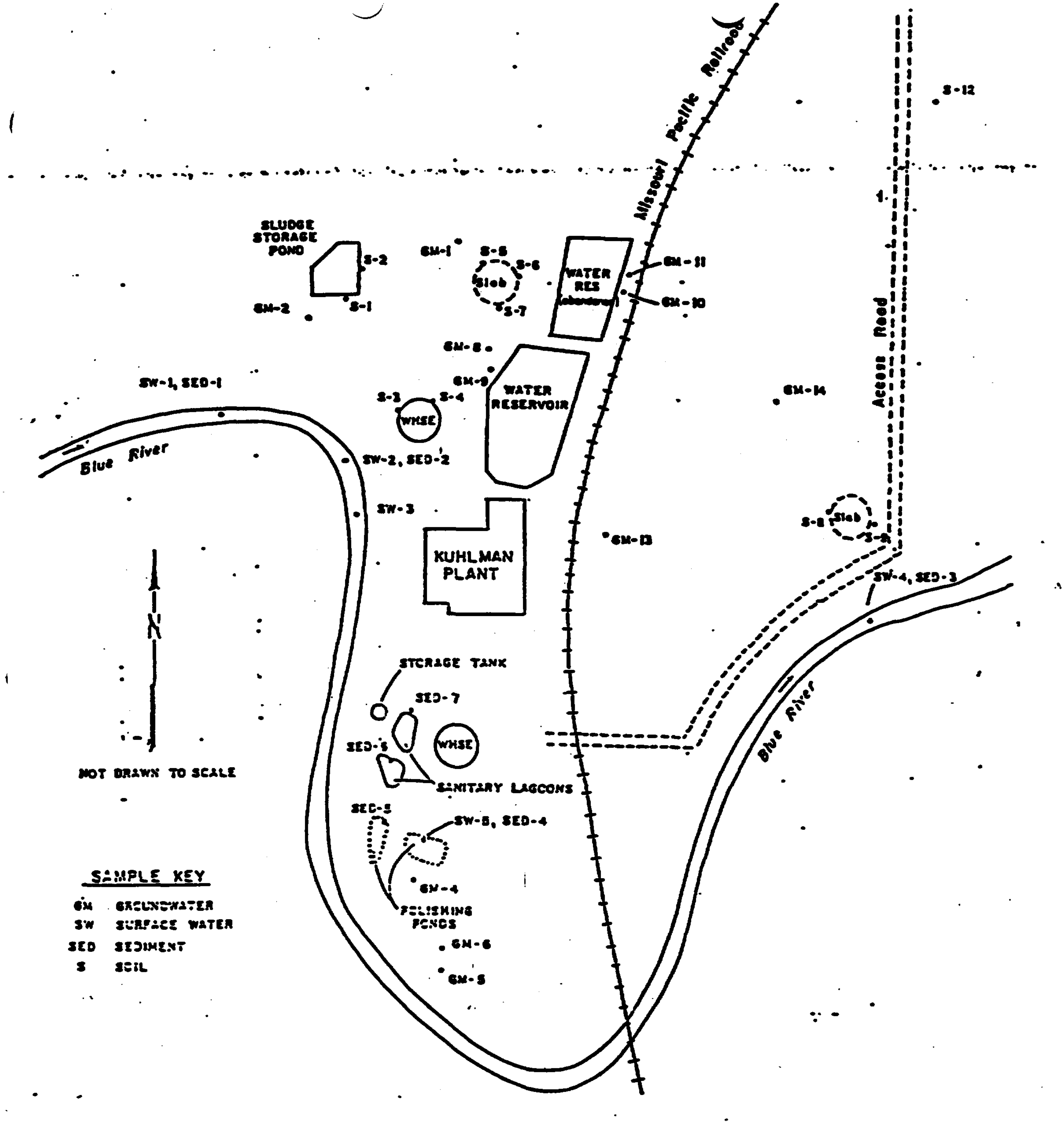


FIGURE 3.1

SAMPLE LOCATIONS MAP

(modified from ETI)

Appendix X

Data

From

Sampling Visit

RECEIVED JUN 24 1988

ANALYSIS REQUEST REPORT

FOR ACTIVITY: ADJ11

RBD
DONA/JACOBS

04/15/88 10:49:10

: 87 ACTIVITY: ADJ11 DESCRIPTION: KUHLMAN DIECASTING LOCATION: STANLEY KANSAS

STATUS: ACTIVE TYPE: SAMPLING - CONTRACT LAB ANALYSIS PROJECT: A60

30 DUE DATE IS 11/17/87. REPORT DUE DATE IS 12/ 8/87.

SPECTION DATE: 9/26/87 ALL DATA APPROVED BY LABO DATE: 01/27/88 FINAL REPORT TRANSMITTED DATE: 04/07/88

PECTED LABO TURNAROUND TIME IS 52 DAYS EXPECTED REPORT TURNAROUND TIME IS 73 DAYS

TUAL LABO TURNAROUND TIME IS 123 DAYS ACTUAL REPORT TURNAROUND TIME IS 194 DAYS

P. .	QCC	M	DESCRIPTION	CITY	STATE	STCRET/ SARDAD LOC NO	BEG. DATE	BEG. TIME	END. DATE	END. TIME
1		W	WELL GM-1	STANLEY	KANSAS	007435	09/23/87	17:25	/ /	:
3		W	WELL GM-10	STANLEY	KANSAS	007435	09/23/87	12:10	/ /	:
4		W	WELL GM-11	STANLEY	KANSAS	007435	09/23/87	12:50	/ /	:
4	D	W	WELL GM-11	STANLEY	KANSAS	007435	09/23/87	12:51	/ /	:
5		W	WELL GM-8	STANLEY	KANSAS	007435	09/24/87	12:00	/ /	:
6		W	WELL GM-9	STANLEY	KANSAS	007435	09/24/87	15:30	/ /	:
7		W	WELL GM-14	STANLEY	KANSAS	007435	09/24/87	17:46	/ /	:
9		W	WELL GM-4	STANLEY	KANSAS	007435	09/22/87	14:12	/ /	:
0		W	WELL GM-5	STANLEY	KANSAS	007435	09/21/87	17:30	/ /	:
1		W	WELL GM-6	STANLEY	KANSAS	007435	09/22/87	11:10	/ /	:
2		W	BLUE RIVER SW - 1	STANLEY	KANSAS	007435	09/26/87	11:03	/ /	:
3		W	BLUE RIVER SW - 2	STANLEY	KANSAS	007435	09/25/87	12:58	/ /	:
4		W	NPDES OUTFALL SW - 3	STANLEY	KANSAS	007435	09/22/87	17:46	/ /	:
5		W	BLUE RIVER SW - 4	STANLEY	KANSAS	007435	09/23/87	13:33	/ /	:
5	D	W	BLUE RIVER SW - 4	STANLEY	KANSAS	007435	09/23/87	13:34	/ /	:
6		W	POLISHING POND INFLUENT SW - 5	STANLEY	KANSAS	007435	09/22/87	14:20	/ /	:
17	F	W	EB - 1	STANLEY	KANSAS		09/23/87	06:30	/ /	:
18	F	W	EB - 2	STANLEY	KANSAS		09/26/87	11:35	/ /	:
19	F	W	EB - 3	STANLEY	KANSAS		09/26/87	12:26	/ /	:
21	F	W	FIELD BLANK - 1	STANLEY	KANSAS		09/21/87	:	/ /	:
22	F	W	FIELD BLANK - 2	STANLEY	KANSAS		09/22/87	:	/ /	:
23		S	BLUE RIVER SED - 1	STANLEY	KANSAS	007435	09/26/87	11:21	/ /	:
24		S	BLUE RIVER SED - 2	STANLEY	KANSAS	007435	09/26/87	14:48	/ /	:
25		S	BLUE RIVER SED - 3	STANLEY	KANSAS	007435	09/23/87	12:30	/ /	:
26		S	EAST POLISHING POND SED - 4	STANLEY	KANSAS	007435	09/22/87	14:05	/ /	:
26	D	S	EAST POLISHING POND SED - 4	STANLEY	KANSAS	007435	09/22/87	14:06	/ /	:
27		S	WEST POLISHING POND SED - 5	STANLEY	KANSAS	007435	09/26/87	13:10	/ /	:
[illegible]		S	SOUTH LAGOON SED - 6	STANLEY	KANSAS	007435	09/26/87	13:46	/ /	:
		[illegible]	[illegible] LAGOON SED - 7	STANLEY	KANSAS	007435	09/26/87	14:06	/ /	:

SAMP. NO.	QCC	M	DESCRIPTION	CITY	STATE	STORET/ SAROAD LOC NO	BEG. DATE	BEG. TIME	END. DATE	END. TIME
030		S	SLUDGE POND SOIL S-1	STANLEY	KANSAS	007435	09/26/87	14:44	/ /	:
031		S	SLUDGE POND SOIL S-2	STANLEY	KANSAS	007435	09/26/87	15:40	/ /	:
032		S	WHSE SOIL S-3	STANLEY	KANSAS	007435	09/26/87	13:31	/ /	:
033		S	WHSE SOIL S-4	STANLEY	KANSAS	007435	09/26/87	12:49	/ /	:
034		S	WEST SLAB SOIL S-5	STANLEY	KANSAS	007435	09/26/87	10:36	/ /	:
034	D	S	WEST SLAB SOIL S-5	STANLEY	KANSAS	007435	09/26/87	10:37	/ /	:
035		S	WEST SLAB SOIL S-6	STANLEY	KANSAS	007435	09/26/87	09:34	/ /	:
036		S	WEST SLAB SOIL S-7	STANLEY	KANSAS	007435	09/24/87	18:29	/ /	:
037		S	EAST SLAB SOIL S-8	STANLEY	KANSAS	007435	09/24/87	15:51	/ /	:
038		S	EAST SLAB SOIL S-9	STANLEY	KANSAS	007435	09/24/87	13:02	/ /	:
039		S	PIPELINE SOIL S-10	STANLEY	KANSAS	007435	09/25/87	16:07	/ /	:
040		S	PIPELINE SOIL S-11	STANLEY	KANSAS	007435	09/25/87	17:02	/ /	:
041		S	BACKGROUND SOIL	STANLEY	KANSAS	007435	09/24/87	11:40	/ /	:
042	F	W	FIELD EQUIP. BLANK-ISCO 2100		KANSAS		09/21/87	17:45	/ /	:
043	F	W	TRIP BLANK		KANSAS		09/27/87	:	/ /	:
044	F	W	TRIP BLANK		KANSAS		09/24/87	:	/ /	:
060		W	GW - 1		KANSAS	007435	09/25/87	10:22	/ /	:
061		W	GW - 11		KANSAS	007435	09/25/87	12:13	/ /	:
061	D	W	GW - 11		KANSAS	007435	09/25/87	12:14	/ /	:
062		W	GW - 10		KANSAS	007435	09/25/87	14:05	/ /	:
070	F	W	TRIP BLANK		KANSAS		09/26/87	09:10	/ /	:
071		W	SW - 6		KANSAS	007435	09/26/87	09:39	/ /	:
072		S	SED - 8		KANSAS	007435	09/26/87	09:52	/ /	:

TABLE OF CODES

ITY CONTROL AUDIT CODES
A = TRUE VALUE FOR CALIBRATION STANDARD
B = CONCENTRATION RESULTING FROM DUPLICATE LAB SPIKE
C = MEASURED VALUE FOR CALIBRATION STANDARD
D = MEASURED VALUE FOR FIELD DUPLICATE
F = MEASURED VALUE FOR FIELD BLANK
G = MEASURED VALUE FOR METHOD STANDARD
H = TRUE VALUE FOR METHOD STANDARD
K = CONCENTRATION RESULTING FROM DUPLICATE FIELD SPIKE
L = MEASURED VALUE FOR LAB DUPLICATE
M = MEASURED VALUE FOR LAB BLANK
N = MEASURED VALUE FOR DUPLICATE FIELD SPIKE
P = MEASURED VALUE FOR PERFORMANCE STANDARD
R = CONCENTRATION RESULTING FROM LAB SPIKE
S = MEASURED VALUE FOR LAB SPIKE
T = TRUE VALUE OF PERFORMANCE STANDARD
W = MEASURED VALUE FOR DUPLICATE LAB SPIKE
Y = MEASURED VALUE FOR FIELD SPIKE
Z = CONCENTRATION RESULTING FROM FIELD SPIKE

MEDIA CODES
A = AIR
T = BIOLOGICAL (PLANT & ANIMAL) TISSUE
H = HAZARDOUS MATERIALS/MAN MADE PRODUCTS
S = SEDIMENT, SLUDGE & SOIL
W = WATER

UNITS
NA = NOT APPLICABLE
PG = PICOGRAMS (1 X 10-12 GRAMS)
NG = NANOGRAMS (1 X 10-9 GRAMS)
UG = MICROGRAMS (1 X 10-6 GRAMS)
MG = MILLIGRAMS (1 X 10-3 GRAMS)
M3 = METER CUBED
MPH = MILES PER HOUR
SCM = STANDARD (1 ATM, 25 C) CUBIC METER
KG = KILOGRAM
L = LITER
C = CENTIGRADE DEGREES
SU = STANDARD (PH) UNITS
# = NUMBER
LB = POUNDS
IN = INCHES
M/F = MALE/FEMALE
M2 = SQUARE METER
I.D. = SPECIES IDENTIFICATION
GPM = GALLONS PER MINUTE
CFS = CUBIC FEET PER SECOND
MGD = MILLION GALLONS PER DAY
1000G= FLOW, 1000 GALLONS PER COMPOSITE
UMHOS= CONDUCTIVITY UNITS (1/OHMS)
NTU = TURBIDITY UNITS
PC/L = PICO (1 X 10-12) CURRIES PER LITER
MV = MILLIVOLT
SQ FT= SQUARE FEET
P/CM2= PICOGRAMS PER SQ. CENTIMETER
U/CM2= MICROGRAMS PER SQ. CENTIMETER

MP. NO. = SAMPLE IDENTIFICATION NUMBER
C = QUALITY CONTROL SAMPLE/AUDIT CODE
= MEDIA OF SAMPLE (A=AIR, T=TISSUE, H=HAZARDOUS MATERIAL, S=SEDIMENT/SOIL, W=WATER)
ORET/SAROAD LOC. NO. = A SAMPLING SITE LOCATION IDENTIFICATION NUMBER
G. DATE = THE DATE SAMPLING WAS STARTED
G. TIME = THE TIME SAMPLING WAS STARTED
D. DATE = THE DATE SAMPLING WAS ENDED
D. TIME = THE TIME SAMPLING WAS STOPPED
= RESERVED
= RESERVED
S = PESTICIDES BY CONTRACT
= DIOXINS/FURANS BY EPA
= EXPLOSIVES BY CONTRACT
D = FIELD MEASUREMENTS BY EPA
= MINERALS & DISSOLVED MATERIALS BY EPA
R = HERBICIDES BY EPA
= ION CHROMATOGRAPHY ANALYSES BY EPA
= METALS BY CONTRACT
C = BASE NEUTRALS BY CONTRACT
= FISH PHYSICAL DATA BY EPA
T = METALS BY EPA
= FISH TISSUE PARAMETERS BY EPA
= VOLATILES BY CONTRACT
= PESTICIDES BY EPA
= FLASH POINT ANALYSES BY EPA
= RESERVED
N = SEMIVOLATILE BY EPA
= CYANIDE PHENOL BY EPA
= RESERVED
OA = VOLATILE ORGANICS BY EPA
C = HERBICIDES BY CONTRACT
= RESERVED
= RESERVED
RK = ACTIVITY TRACKING PARAMETERS BY EPA

TORET DETECTION IDENTIFIERS
LANK = NO REMARKS
= DATA REPORTED BUT NOT VALID BY APPROVED QC PROCEDURES
= INVALID SAMPLE/DATA - VALUE NOT REPORTED
= LESS THAN (MEASUREMENT DETECTION LIMIT)
= DETECTED BUT BELOW THE LEVEL FOR ACCURATE QUANTIFICATION

ONTRACTOR/ IN HOUSE / FIELD		MEDIA GROUPS
IELD	= * * * * =	AF,TF,WF,ZZ
ONTRACTOR	= * * =	HC,HJ,HK,HO,SC,SJ,SK,SO,SW,TC,TJ, TK,TO,TW,WA,WC,WE,WJ,WK,WO,WW
N HOUSE	= * =	ALL OTHERS

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	001	003	004	0040	005	006	
WF01 WATER TEMP	°C	17.8	V:17.0	V:20.8	V:20.8	V:18.5	V:17.8	V:
WF05 PH, FIELD	SU	7.5	V:6.5	V:6.9	V:6.9	V:6.6	V:6.4	V:
WG16 CONDUCTIVITY	UMHOS	640	V:450	V:340	V:340	V:1220	V:620	V:
WJ01 SILVER, TOTAL	UG/L	10.0	UV:10.0	UV:10.0	UV:10.0	UV:10.0	UV:10.0	UV:
WJ02 ALUMINUM, TOTAL	UG/L	24000.0	V:200.0	UV:49000.0	V:49000.0	V:350.0	UV:120000.0	V:
WJ03 ARSENIC, TOTAL	UG/L	30.0	UV:10.0	UV:36.0	UV:42.0	UV:59.0	UV:100.0	UV:
WJ04 BARIUM, TOTAL	UG/L	970.0	V:200.0	UV:610.0	UV:600.0	UV:470.0	UV:2400.0	V:
WJ05 BERYLLIUM, TOTAL	UG/L	5.0	UV:5.0	UV:5.0	UV:5.0	UV:5.0	UV:9.7	V:
WJ06 CADMIUM, TOTAL	UG/L	8.4	V:5.0	UV:53.0	V:49.0	V:5.0	UV:45.0	V:
WJ07 COBALT, TOTAL	UG/L	21.0	MV:50.0	UV:17.0	MV:18.0	MV:50.0	UV:88.0	V:
WJ08 CHROMUIM, TOTAL	UG/L	34.0	V:10.0	UV:55.C	V:55.0	V:10.0	UV:150.0	V:
WJ09 COPPER, TOTAL	UG/L	45.0	UV:25.0	UV:140.0	UV:120.0	UV:25.0	UV:250.0	V:
WJ10 IRON, TOTAL	UG/L	35000.0	V:690.0	UV:52000.0	V:51000.0	V:11000.0	V:160000.0	V:
WJ11 MANGANESE, TOTAL	UG/L	6400.0	V:2400.0	V:3900.0	V:3900.0	V:4800.0	V:22000.0	V:
WJ12 NICKEL, TOTAL	UG/L	44.0	V:40.0	UV:53.0	V:55.0	V:40.0	UV:230.0	V:
WJ13 LEAD, TOTAL	UG/L	51.0	UV:5.0	UV:220.0	JV:200.0	JV:50.0	UV:43.0	UV:
WJ14 ANTIMONY, TOTAL	UG/L	60.0	UV:60.0	UV:60.0	UV:60.0	UV:60.0	UV:60.0	UV:
WJ15 SELENIUM, TOTAL	UG/L	50.0	UV:5.0	UV:50.C	UV:50.0	UV:5.0	UV:50.0	UV:
WJ16 THALLIUM, TOTAL	UG/L	10.0	UV:10.0	UV:10.0	UV:10.0	UV:10.0	UV:10.0	UV:
WJ17 VANADIUM, TOTAL	UG/L	75.0	V:50.0	UV:99.0	V:110.0	V:50.0	UV:290.0	V:
WJ18 ZINC, TOTAL	UG/L	140.0	V:65.0	UV:6900.0	V:6500.0	V:160.0	V:950.0	V:
WJ19 CALCIUM, TOTAL	UG/L	120000.0	V:60000.0	V:54000.0	V:56000.0	V:78000.0	V:300000.0	V:
WJ20 MAGNESIUM, TOTAL	UG/L	15000.0	V:6600.0	UV:15000.0	V:15000.0	V:7900.0	V:52000.0	V:
WJ21 SODIUM, TOTAL	UG/L	24000.0	UV:20000.0	UV:11000.0	UV:560000.0	V:28000.0	UV:37000.0	V:
WJ22 POTASSIUM, TOTAL	UG/L	4300.0	MV:5000.0	UV:5000.0	V:11000.C	V:5000.0	UV:15000.0	V:
WJ23 TIN, TOTAL	UG/L	N/A	N/A	N/A	N/A	N/A	N/A	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	001	003	004	004D	005	006
WJ24 MERCURY, TOTAL	UG/L	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV
WJ25 CYANIDE, TOTAL	UG/L	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
WJ26 SILVER, DISSOLVED	UG/L	10. UV	10.0 UV	10.C UV	10.0 UV	10.0 UV	10.0 UV
WJ27 ALUMINUM, DISSOLVED	UG/L	200. UV	200.0 UV	200.0 UV	200.0 UV	200.0 UV	200.0 UV
WJ28 ARSENIC, DISSOLVED	UG/L	10. UV	10.0 UV	16.0 V	13.0 V	59.0 V	29.0 V
WJ29 BARIUM, DISSOLVED	UG/L	520. V	110.0 MV	118.0 MV	120.0 MV	406.0 V	331.0 V
WJ30 BERYLLIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ31 CADMIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ32 COBALT, DISSOLVED	UG/L	50. UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV
WJ33 CHROMIUM, DSSOLVED	UG/L	10. UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
WJ34 COPPER, DISSOLVED	UG/L	25. UV	25.0 UV	25.0 UV	25.0 UV	25.0 UV	25.0 UV
WJ35 IRON, DISSOLVED	UG/L	360. UV	330.0 UV	218.0 UV	246.0 UV	10000.0 V	3230.0 V
WJ36 MANGANESE, DISSOLVED	UG/L	5900. V	2400.0 V	2580.0 V	2490.0 V	4680.0 V	13600.0 V
WJ37 NICKEL, DISSOLVED	UG/L	40. UV	40.0 UV	40.0 UV	40.0 UV	40.0 UV	40.0 UV
WJ38 LEAD, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ39 ANTIMONY, DISSOLVED	UG/L	60. UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV
WJ40 SELENIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ41 THALLIUM, DISSOLVED	UG/L	10. UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
WJ42 VANADIUM, DISSOLVED	UG/L	50. UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV
WJ43 ZINC, DISSOLVED	UG/L	20. UV	47.0 V	210.0 V	210.0 V	120.0 V	22.0 V
WJ44 CALCIUM, DISSOLVED	UG/L	100000. V	61000.0 V	39100.0 V	38900.0 V	76800.0 V	123000.0 V
WJ45 MAGNESIUM, DISSOLVED	UG/L	9800. V	6900.0 V	5580.0 UV	5590.0 UV	7900.0 V	19900.0 V
WJ46 SODIUM, DISSOLVED	UG/L	23000. UV	20000.0 UV	9790.0 UV	9800.0 UV	29700.0 UV	35700.0 V
WJ47 POTASSIUM, DISSOLVED	UG/L	5000. UV	5000.0 UV	5000.0 UV	5000.0 UV	5000.0 UV	5000.0 UV
WJ48 TIN, DISSOLVED	UG/L	N/A	N/A	N/A	N/A	N/A	N/A
WJ49 MERCURY, DISSOLVED	UG/L	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	001	003	004	C04C	005	006	
K01 PHENOL	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K03 BIS(2-CHLOROETHYL) ETHER	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K04 2-CHLOROPHENOL	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K05 1,3-DICHLOROBENZENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K06 1,4-DICHLOROBENZENE	UG/L	10.00	UV:13.00	UV:13.60	UV:10.00	UV:10.00	UV:13.00	UV
K07 BENZYL ALCOHOL	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K08 1,2-DICHLOROBENZENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K09 2-METHYLPHENOL (O-CRESOL)	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K11 4-METHYLPHENOL (M-CRESOL)	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K12 N-NITROSO-DIPROPYLAMINE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K13 HEXACHLOROETHANE	UG/L	10.00	UV:13.00	UV:13.C0	UV:10.00	UV:10.00	UV:13.00	UV
K14 NITROBENZENE	UG/L	10.00	UV:13.00	UV:13.0C	UV:10.00	UV:10.00	UV:13.00	UV
K15 ISOPHORONE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K16 2-NITROPHENOL	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K17 2,4-DIMETHYLPHENOL	UG/L	I	I :13.00	UV:13.C0	UV:I	I :I	I :13.00	UV
K18 BENZOIC ACID	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV
K19 BIS(2-CHLOROETHYOXY) METHANE	UG/L	10.00	UV:13.00	UV:13.00	UV:1G.00	UV:10.00	UV:13.00	UV
K20 2,4-DICHLOROPHENOL	UG/L	I	I :13.00	UV:13.C0	UV:I	I :I	I :13.00	UV
K21 1,2,4-TRICHLOROBENZENE	UG/L	10.00	UV:13.00	UV:13.0C	UV:10.00	UV:10.00	UV:13.00	UV
K22 NAPHTHALENE	UG/L	10.00	UV:13.00	UV:13.C0	UV:10.00	UV:10.00	UV:13.00	UV
K23 4-CHLOROANILINE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K24 HEXACHLOROBUTADIENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K25 4-CHLORO-3-METHYLPHENOL	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV
K26 2-METHYLNAPHTHALENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV
K27 HEXACHLOROCYCLOPENTADIENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	001	003	004	0040	005	006	
K28 2,4,6-TRICHLOROPHENOL	UG/L	I	I :13.00	UV:13.00	UV:I	I :I	I :13.00	UV:
K29 2,4,5-TRICHLOROPHENOL	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV:
K30 2-CHLORONAPHTHALENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K31 2-NITROANILINE (ORTHO NITROANILINE)	UG/L	50.00	UV:65.00	UV:65.00	UV:50.00	UV:50.00	UV:65.00	UV:
K32 DIMETHYLPHTHALATE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K33 ACENAPHTHYLENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K34 3-NITROANILINE	UG/L	50.00	UV:65.00	UV:65.00	UV:50.00	UV:50.00	UV:65.00	UV:
K35 ACENAPHTHENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K36 2,4-DINITROPHENOL	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV:
K37 4-NITROPHENOL	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV:
K38 DIBENZOFURAN	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K39 2,4-DINITROTOLUENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K40 2,6-DINITROTOULENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K41 DIETHYLPHTHALATE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K42 4-CHLOROPHENYL PHENYL ETHER	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K43 FLOURENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K44 4-NITROANILINE	UG/L	50.00	UV:65.00	UV:65.00	UV:50.00	UV:50.00	UV:165.00	UV:
K45 4,6-DINITRO-2-METHYLPHENOL	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV:
WK46 N-NITROSODIPHENYLAMINE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK47 4-BROMOPHENYL PHENYL ETHER	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK48 HEXACHLOROBENZENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK49 PENTACHLOROPHENOL	UG/L	I	I :65.00	UV:65.00	UV:I	I :I	I :65.00	UV:
WK50 PHENANTHRENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK51 ANTHRACENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK52 DI-N-BUTYL PHTHALATE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
WK53 FLUORANTHENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	001	003	C04	004D	005	006	
:54 PYRENE	UG/L	10.00	UV:13.00	UV:13.0C	UV:10.00	UV:10.00	UV:13.00	UV:
:55 BUTYL BENZYL PHTHALATE	UG/L	10.00	UV:13.00	UV:13.C0	UV:10.00	UV:10.00	UV:13.00	UV:
:56 3,3'-DICHLOROBENZIDINE	UG/L	20.00	UV:26.00	UV:26.C0	UV:20.00	UV:20.00	UV:26.00	UV:
:57 BENZO(A)ANTHRACENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
:58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:19.00	UV:13.00	UV:
:59 CHRYSENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
:60 DI-N-OCTYL PHTHALATE	UG/L	10.00	UV:13.00	UV:13.C0	UV:10.00	UV:2.00	NV:13.00	UV:
:61 BENZO(B)FLUORANTHENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
:62 BENZO(K)FLUORANTHENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
:63 BENZO(A)PYRENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K64 INDENO(1,2,3-CD)PYRENE	UG/L	10.00	UV:13.00	UV:13.C0	UV:10.00	UV:10.00	UV:13.00	UV:
K65 DIBENZO(A,H)ANTHRACENE	UG/L	10.00	UV:13.00	UV:13.00	UV:10.00	UV:10.00	UV:13.00	UV:
K66 BENZO(G,H,I)PERYLENE	UG/L	10.00	UV:13.00	UV:13.0C	UV:10.00	UV:10.00	UV:13.00	UV:
001 CHLOROMETHANE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
002 BROMOMETHANE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
003 VINYL CHLORIDE	UG/L	10.00	UV:1C.00	UV:10.C0	UV:10.00	UV:10.00	UV:10.00	UV:
004 CHLCROETHANE	UG/L	1C.00	UV:10.00	UV:10.C0	UV:10.00	UV:1C.00	UV:10.0C	UV:
005 METHYLENE CHLORIDE	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:5.00	UV:5.00	UV:
006 1,1-DICHLOROETHYLENE	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:5.00	UV:5.00	UV:
007 1,1-DICHLOROETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:
008 1,2-DICHLOROETHENE (TOTAL)	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:
009 CHLOROFORM	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:
010 1,2-DICHLOROETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:
011 1,1,1-TRICHLOROETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:5.00	UV:
012 CARBON TETRACHLORIDE	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:5.00	UV:5.00	UV:
013 BROMODICHLOROMETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.C0	UV:5.00	UV:5.00	UV:

ANALYSIS RECUEST DETAIL REPOR.   ACTIVITY: 7-ADJ11

COMPCUND	UNITS	001	003	004	004D	005	006
W014 1,2-DICHLOROPROPANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W015 BENZENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W016 1,3-DICHLOROPROPENE TOTAL	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W017 TRICHLOROETHYLENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W018 CIS-1,3-DICHLOROPROPENE	UG/L	5.00 UV	5.00 UV	5.0C UV	5.00 UV	5.00 UV	5.00 UV
W019 DIBROMOCHLCROMETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W020 1,1,2-TRICHLOROETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W021 2-CHLOROETHYLVINYL ETHER	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
W022 BROMOFORM	UG/L	5.00 UV	5.00 UV	5.00 UV	5.0C UV	5.00 UV	5.00 UV
W023 1,1,2,2-TETRACHLOROETHENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W024 TOLUENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W025 1,1,2,2-TETRACHLOROETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W026 CHLCROBENZENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W027 ETHYL BENZENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W028 ACETONE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	75.00 UV
W029 CARBON DISULFIDE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W030 2-BUTANONE	UG/L	I I	I I	I I	I I	I I	I I
W031 VINYL ACETATE	UG/L	10.00 UV	10.00 UV	10.C0 UV	10.00 UV	10.00 UV	10.00 UV
W032 2-HEXANONE	UG/L	10.00 UV	10.00 UV	10.0C UV	10.00 UV	10.00 UV	10.00 UV
W033 4-METHYL-2-PENTANONE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
W034 STYRENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
W035 XYLENES, TOTAL	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV	5.00 UV
WQ03 CARBON, TOTAL ORGANIC	MG/L	10.30 V	2.2 V	37.0 V	36.0 V	2.0 UV	98.0 V
WQ08 HALOGEN, TOTAL ORGANIC	UG/L	30 V	16 V	5 UV	5 UV	78 V	5 UV
ZZ01 SAMPLE NUMEER	NA	001 V	003 V	004 V	004 V	005 V	006 V
ZZ02 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: ?-ADJ11

COMPOUND	UNITS	007	009	010	011	012	013
F01 WATER TEMP	°C	18.2 V	18.5 V	15.2 V	16.0 V	27.0 V	21.0 V
F05 PH, FIELD	SU	6.3 V	6.9 V	6.7 V	6.6 V	7.2 V	
G16 CONDUCTIVITY	UMHOS	510 V	10300 V	9510 V	980 V	550 V	
J01 SILVER, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10.0 UV	10.0 UV	10.0 UV
J02 ALUMINUM, TOTAL	UG/L	710.0 UV	39000.0 V	49000. V	31000.0 V	720.0 UV	430.0 UV
J03 ARSENIC, TOTAL	UG/L	30.0 UV	27.0 UV	46. UV	31.0 UV	10.0 UV	10.0 UV
J04 BARIUM, TOTAL	UG/L	500.0 UV	760.0 V	830. V	620.0 UV	200.0 UV	200.0 UV
J05 BERYLLIUM, TOTAL	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
J06 CADMIUM, TOTAL	UG/L	5.0 UV	9.6 V	17. V	6.7 V	5.0 UV	5.0 UV
J07 COBALT, TOTAL	UG/L	50.0 UV	24.0 MV	22. MV	50.0 UV	50.0 UV	50.0 UV
J08 CHROMUIM, TOTAL	UG/L	10.0 UV	110.0 V	96. V	42.0 V	10.0 UV	36.0 V
J09 COPPER, TOTAL	UG/L	25.0 UV	94.0 UV	120. UV	34.0 UV	25.0 UV	49.0 UV
J10 IRON, TOTAL	UG/L	22000.0 V	48000.0 V	80000. V	42000.0 V	740.0 UV	520.0 UV
J11 MANGANESE, TOTAL	UG/L	4900.0 V	8000.0 V	4800. V	4900.0 V	540.0 V	520.0 V
J12 NICKEL, TOTAL	UG/L	40.0 UV	100.0 V	180. V	57.0 V	40.0 UV	15.0 MV
J13 LEAD, TOTAL	UG/L	5.0 UV	25.0 UV	42. UV	28.0 UV	5.0 UV	5.0 UV
J14 ANTIMONY, TOTAL	UG/L	60.0 UV	60.0 UV	60. UV	60.0 UV	60.0 UV	60.0 UV
J15 SELENIUM, TOTAL	UG/L	5.0 UV	50.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
J16 THALLIUM, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10.0 UV	10.0 UV	10.0 UV
J17 VANADIUM, TOTAL	UG/L	50.0 UV	96.0 V	130. V	72.0 V	50.0 UV	50.0 UV
J18 ZINC, TOTAL	UG/L	26.0 UV	220.0 V	280. V	130.0 V	20.0 UV	41.0 UV
J19 CALCIUM, TOTAL	UG/L	85000.0 V	150000.0 V	160000. V	150000.0 V	67000.0 V	66000.0 V
J20 MAGNESIUM, TOTAL	UG/L	10000.0 V	13000.0 V	18000. V	13000.0 V	8500.0 V	8700.0 V
J21 SODIUM, TOTAL	UG/L	25000.0 UV	96000.0 V	95000. V	96000.0 V	13000.0 UV	23000.0 UV
J22 POTASSIUM, TOTAL	UG/L	5000.0 UV	6600.0 V	10000. V	8300.0 V	3200.0 MV	6600.0 V
J23 TIN, TOTAL	UG/L	N/A	N/A	N/A	N/A	N/A	N/A

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	007	009	C10	C11	012	013
WJ24 MERCURY, TOTAL	UG/L	2.7 V	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV
WJ25 CYANIDE, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10.0 UV	10.0 UV	10.0 UV
WJ26 SILVER, DISSOLVED	UG/L	8.2 MV	10.0 UV	10.0 UV	8.0 MV	9.6 MV	10.0 UV
WJ27 ALUMINUM, DISSOLVED	UG/L	200.0 UV	200.0 UV	200.0 UV	200.0 UV	200.0 UV	200.0 UV
WJ28 ARSENIC, DISSOLVED	UG/L	32.0 V	10.0 UV	10.0 UV	9.8 MV	10.0 UV	10.0 UV
WJ29 BARIUM, DISSOLVED	UG/L	436.0 V	231.0 V	132.0 MV	118.0 MV	200.0 UV	135.0 MV
WJ30 BERYLLIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ31 CADMIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ32 COBALT, DISSOLVED	UG/L	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV
WJ33 CHROMIUM, DISSOLVED	UG/L	10.0 UV	10.0 UV	10.0 UV	10.0 UV	327.0 V	39.0 V
WJ34 COPPER, DISSOLVED	UG/L	25.0 UV	61.0 UV	50.0 UV	36.0 UV	200.0 UV	62.0 UV
WJ35 IRON, DISSOLVED	UG/L	20500.0 V	100.0 UV	3140.0 V	2750.0 V	100.0 UV	100.0 UV
WJ36 MANGANESE, DISSOLVED	UG/L	4960.0 V	5080.0 V	3540.0 V	4370.0 V	15.0 UV	490.0 V
WJ37 NICKEL, DISSOLVED	UG/L	40.0 UV	12.0 MV	40.0 UV	40.0 UV	152.0 V	18.0 MV
WJ38 LEAD, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ39 ANTIMONY, DISSOLVED	UG/L	60.0 UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV
WJ40 SELENIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	50.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ41 THALLIUM, DISSOLVED	UG/L	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
WJ42 VANADIUM, DISSOLVED	UG/L	50.0 UV	50.0 UV	50.0 UV	9.0 MV	50.0 UV	50.0 UV
WJ43 ZINC, DISSOLVED	UG/L	20.0 UV	21.0 V	20.0 UV	20.0 UV	32.0 V	22.0 V
WJ44 CALCIUM, DISSOLVED	UG/L	84700.0 V	125000.0 V	137000.0 V	139000.0 V	54600.0 V	65700.0 V
WJ45 MAGNESIUM, DISSOLVED	UG/L	10300.0 V	6240.0 UV	9130.0 V	9660.0 V	7420.0 V	8730.0 V
WJ46 SODIUM, DISSOLVED	UG/L	22900.0 UV	112000.0 V	99600.0 V	106000.0 V	192000.0 V	24900.0 UV
WJ47 POTASSIUM, DISSOLVED	UG/L	5000.0 UV	5000.0 UV	5000.0 UV	5020.0 V	7920.0 V	66600.0 V
WJ48 TIN, DISSOLVED	UG/L	N/A	N/A	N/A	N/A	N/A	N/A
WJ49 MERCURY, DISSOLVED	UG/L	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	007	009	010	011	012	013
01 PHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
03 BIS(2-CHLOROETHYL) ETHER	UG/L	10.00 UV	10.00 UV	10.C0 UV	10.00 UV	10.00 UV	10.00 UV
04 2-CHLOROPHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
05 1,3-DICHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
06 1,4-DICHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.C0 UV	10.C0 UV	10.00 UV	10.00 UV
07 BENZYL ALCOHOL	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
08 1,2-DICHLORCBENZENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.C0 UV	10.00 UV	10.00 UV
09 2-METHYLPHENOL (O-CRESOL)	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L	10.00 UV	10.00 UV	10.C0 UV	10.00 UV	10.00 UV	10.00 UV
11 4-METHYLPHENOL (M-CRESOL)	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.0C UV
12 N-NITROSO-DIPROPYLAMINE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.C0 UV	10.00 UV	10.00 UV
13 HEXACHLOROETHANE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
14 NITROBENZENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
15 ISOPHORONE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
16 2-NITROPHENOL	UG/L	I I	I I	10.C0 UV	10.00 UV	10.00 UV	10.00 UV
17 2,4-DIMETHYLPHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
18 BENZOIC ACID	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
19 BIS(2-CHLOROETHYOXY) METHANE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
20 2,4-DICHLOROPHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
21 1,2,4-TRICHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.0C UV	10.00 UV	10.00 UV	10.00 UV
22 NAPHTHALENE	UG/L	1C.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
23 4-CHLOROANILINE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
24 HEXACHLOROBUTADIENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
25 4-CHLORO-3-METHYLPHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K26 2-METHYLNAPHTHALENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	1C.00 UV
K27 HEXACHLOROCYCLOPENTADIENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	007	009	010	011	012	013
K28 2,4,6-TRICHLOROPHENOL	UG/L	I I	I I	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K29 2,4,5-TRICHLOROPHENOL	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
K30 2-CHLORONAPHTHALENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K31 2-NITROANILINE (ORTHC NITROANILINE)	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
K32 DIMETHYLPHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K33 ACENAPHTHYLENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K34 3-NITROANILINE	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
K35 ACENAPHTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K36 2,4-DINITROPHENOL	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
K37 4-NITROPHENOL	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
K38 DIBENZOFURAN	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K39 2,4-DINITROTOLUENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K40 2,6-DINITRCTOULENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK41 DIETHYLPHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK42 4-CHLOROPHENYL PHENYL ETHER	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK43 FLOURENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK44 4-NITROANILINE	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK45 4,6-DINITRO-2-METHYLPHENOL	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK46 N-NITROSODIPHENYLAMINE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK47 4-BROMOPHENYL PHENYL ETHER	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK48 HEXACHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK49 PENTACHLOROPHENOL	UG/L	I I	I I	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK50 PHENANTHRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK51 ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK52 DI-N-BUTYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK53 FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	007	009	010	011	C12	013
54 PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
55 BUTYL BENZYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
56 3,3'-DICHLOROBENZIDINE	UG/L	20.00 UV	20.00 UV	20.00 UV	20.00 UV	20.00 UV	20.00 UV
57 BENZO(A)ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
59 CHRYSENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
60 DI-N-OCTYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
61 BENZO(B)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
62 BENZO(K)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
63 BENZO(A)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
64 INDENO(1,2,3-CD)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
65 DIBENZO(A,H)ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
66 BENZO(G,H,I)PERYLENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
01 CHLOROMETHANE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV		
02 BROMOMETHANE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV		
03 VINYL CHLORIDE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV		
04 CHLOROETHANE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV		
05 METHYLENE CHLORIDE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
06 1,1-DICHLOROETHYLENE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
07 1,1-DICHLOROETHANE	UG/L	5.00 UV	6.00 JV	5.00 UV	5.00 UV		
08 1,2-DICHLOROETHENE (TOTAL)	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
009 CHLOROFORM	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
010 1,2-DICHLOROETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
011 1,1,1-TRICHLOROETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
012 CARBON TETRACHLORIDE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		
013 BROMODICHLOROMETHANE	UG/L	5.00 UV	5.00 UV	5.00 UV	5.00 UV		

ANALYSIS REQUEST DETAIL REPOR ACTIVITY: 7-ADJ11

COMPOUND	UNITS	007	009	010	011	012	013	
014 1,2-DICHLOROPROPANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
015 BENZENE	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:		
016 1,3-DICHLOROPROPENE TOTAL	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
017 TRICHLOROETHYLENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
018 CIS-1,3-DICHLOROPROPENE	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:		
019 DIBROMOCHLOROMETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
020 1,1,2-TRICHLOROETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
021 2-CHLOROETHYLVINYL ETHER	UG/L	10.00	UV:10.00	UV:1C.00	UV:10.00	UV:		
C22 BROPOFORM	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
023 1,1,2,2-TETRACHLOROETHENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
024 TOLUENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
025 1,1,2,2-TETRACHLORCETHANE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.CC	UV:		
W026 CHLCROBENZENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
W027 ETHYL BENZENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
W029 ACETONE	UG/L	10.00	UV:10.00	UV:14.00	UV:10.CO	UV:		
W029 CARBON DISULFIDE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
W030 2-BUTANCNE	UG/L	I	I :I	I :I	I :I	I :		
W031 VINYL ACETATE	UG/L	10.00	UV:10.00	UV:10.CO	UV:10.00	UV:		
W032 2-HEXANONE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:		
W033 4-METHYL-2-PENTANONE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:		
W034 STYRENE	UG/L	5.00	UV:5.00	UV:5.00	UV:5.00	UV:		
W035 XYLENES, TOTAL	UG/L	5.00	UV:5.00	UV:5.0C	UV:5.00	UV:		
WQ03 CARBON, TOTAL ORGANIC	MG/L	2.0	UV:45.0	V:40.C	V:98.0	V:38.0	V:39.0	V:
WQ08 HALOGEN, TOTAL ORGANIC	UG/L	28	V:15	V:	:130	V:13	V:55	V:
ZZ01 SAMPLE NUMBER	NA	007	V:009	V:010	V:011	V:012	V:013	V:
ZZ02 ACTIVITY CODE	NA	ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	014	015	015D	016	017F	018F
WF01 WATER TEMP	°C	16.0 V		23.0 V	28.C V		28.0 V
WF05 PH, FIELD	SU	8.8 V		8.3 V	8.6 V		8.2 V
WG16 CONCUCTIVITY	UMHOS	1200 V		445 V	1150 V		9.7 V
WJ01 SILVER, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10. UV	10.0 UV	10.0 UV
WJ02 ALUMINUM, TOTAL	UG/L	450.0 UV	1100.0 UV	920. UV	200. UV	200.0 UV	600.0 V
WJ03 ARSENIC, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10. UV	10.0 UV	44.0 V
WJ04 BARIUM, TOTAL	UG/L	200.0 UV	200.0 UV	300. UV	200. UV	200.0 UV	200.0 UV
WJ05 BERYLLIUM, TOTAL	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ06 CADPIUM, TOTAL	UG/L	5.0 UV	5.0 UV	5.0 UV	5.C UV	5.0 UV	5.0 UV
WJ07 COBALT, TOTAL	UG/L	50.0 UV	50.0 UV	50. UV	50. UV	50.0 UV	50.0 UV
WJ08 CHROMUIK, TOTAL	UG/L	430.0 V	10.0 UV	10. UV		10.0 UV	10.0 UV
WJ09 COPPER, TOTAL	UG/L	1300.0 V	25.0 UV	31. UV		25.0 UV	31.0 V
WJ10 IRON, TOTAL	UG/L	120.0 UV	1200.0 UV	1100. UV		100.0 UV	780.0 V
WJ11 MANGANESE, TOTAL	UG/L	15.0 UV	710.0 V	660. V		15.0 UV	25.0 V
WJ12 NICKEL, TOTAL	UG/L	430.0 V	40.0 UV	40. UV		40.0 UV	40.0 UV
WJ13 LEAD, TOTAL	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ14 ANTIMONY, TOTAL	UG/L	60.0 UV	60.0 UV	60. UV	60. UV	60.0 UV	60.0 UV
WJ15 SELENIUM, TOTAL	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
WJ16 THALLIUM, TOTAL	UG/L	10.0 UV	10.0 UV	10. UV	10. UV	10.0 UV	10.0 UV
WJ17 VANADIUM, TOTAL	UG/L	50.0 UV	50.0 UV	50. UV	50. UV	50.0 UV	50.0 UV
WJ18 ZINC, TOTAL	UG/L	330.0 V	43.0 UV	42. UV		20.0 UV	25.0 V
WJ19 CALCIUM, TOTAL	UG/L	55000.0 V	70000.0 V	70000. V		3800.0 MV	1600.0 MV
WJ20 MAGNESIUM, TOTAL	UG/L	7400.0 V	9600.0 V	9600. V		1400.0 MV	5000.0 UV
WJ21 SODIUM, TOTAL	UG/L	160000.0 V	36000.0 V	37000. V		6800.0 V	2200.0 MV
WJ22 POTASSIUM, TOTAL	UG/L	15000.C V	7800.0 V	7800. V		540.0 MV	5000.0 UV
WJ23 TIN, TOTAL	UG/L	N/A	N/A	N/A	N/A	N/A	N/A

ANALYSIS REQUEST DETAIL REPOR. ACTIVITY: 7-ADJ11

COMPOUND	UNITS	014	015	C150	C16	017F	018F
J24 MERCURY, TOTAL	UG/L	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV	.20 UV
J25 CYANIDE, TOTAL	UG/L	1C.0 UV	10.0 UV	11. JV		10.0 UV	10.0 UV
J26 SILVER, DISSOLVED	UG/L	10.0 UV	7.8 MV	10.C UV	10.0 UV	10.0 UV	10.0 UV
J27 ALUMINUM, DISSOLVEC	UG/L	200.0 UV	200.0 UV	200.0 UV	200.0 UV	2C0.0 UV	227.0 V
J28 ARSENIC, DISSOLVED	UG/L	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
J29 BARIUM, DISSOLVED	UG/L	143.0 MV	158.0 MV	154.0 MV	200.0 UV	200.0 UV	200.0 UV
J30 BERYLLIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
J31 CADMIUM, DISSOLVED	UG/L	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV	5.0 UV
J32 COBALT, DISSOLVED	UG/L	5C.0 UV	50.0 UV	50.C UV	50.0 UV	50.0 UV	50.0 UV
J33 CHROMIUM, DSSOLVED	UG/L	10.0 UV	10.0 UV	10.0 UV		10.0 UV	10.0 UV
J34 COPPER, DISSOLVED	UG/L	49.0 UV	25.0 UV	25.C UV		25.0 UV	25.0 UV
J35 IRON, DISSOLVED	UG/L	100.0 UV	100.0 UV	100.0 UV		100.0 UV	337.0 V
J36 MANGANESE, DISSOLVEC	UG/L	482.0 V	526.0 V	465.0 V		15.0 UV	6.0 MV
J37 NICKEL, DISSOLVED	UG/L	40.0 UV	40.0 UV	40.0 UV		40.0 UV	40.0 UV
J38 LEAC, DISSOLVED	UG/L	5.0 UV	5.0 UV	85.4 V		5.5 V	50.0 UV
J39 ANTIMONY, DISSOLVED	UG/L	60.0 UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV	60.0 UV
WJ40 SELENIUM, DISSOLVEC	UG/L	5.0 UV	5.0 UV	3.6 MV	5.0 UV	5.0 UV	5.0 UV
WJ41 THALLIUM, DISSOLVEC	UG/L	100.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV	10.0 UV
WJ42 VANADIUM, DISSOLVEC	UG/L	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV	50.0 UV
WJ43 ZINC, DISSOLVED	UG/L	20.0 UV	23.0 V	20.0 UV		20.0 UV	20.0 UV
WJ44 CALCIUM, DISSOLVED	UG/L	67300.0 V	72200.0 V	71600.0 V		5C00.0 UV	5000.0 UV
WJ45 MAGNESIUM, DISSOLVED	UG/L	8610.0 V	10200.0 V	101CC.0 V		5000.0 UV	5000.0 UV
WJ46 SODIUM, DISSOLVED	UG/L	19500.0 UV	39900.0 V	39380.0 V		5000.0 UV	5000.0 UV
WJ47 POTASSIUM, DISSOLVED	UG/L	5000.0 UV	9300.0 V	9460.0 V		5000.0 UV	5000.0 UV
WJ48 TIN, DISSOLVED	UG/L	N/A	N/A	N/A	N/A	N/A	N/A
WJ49 MERCURY, DISSOLVED	UG/L	.20 UV	.20 UV	0.20 UV	.20 UV	.20 UV	.20 UV

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	014	015	015D	016	017F	018F	
K01 PHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K03 BIS(2-CHLOROETHYL) ETHER	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K04 2-CHLOROPHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K05 1,3-DICHLOROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K06 1,4-DICHLOROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K07 BENZYL ALCOHOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K08 1,2-DICHLOROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K09 2-METHYLPHENOL (O-CRESOL)	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K11 4-METHYLPHENOL (M-CRESOL)	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K12 N-NITROSO-DIPROPYLAMINE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K13 HEXACHLOROETHANE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K14 NITROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K15 ISOPHORONE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K16 2-NITROPHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K17 2,4-DIMETHYLPHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K18 BENZOIC ACID	UG/L	50.00	UV:50.00	UV:50.00	UV:50.00	UV:50.00	UV:50.00	UV:
K19 BIS(2-CHLOROETHOXY) METHANE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K20 2,4-DICHLOROPHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K21 1,2,4-TRICHLOROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K22 NAPHTHALENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:1.00	MV:10.00	UV:
K23 4-CHLOROANILINE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K24 HEXACHLOROBUTADIENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K25 4-CHLORO-3-METHYLPHENOL	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K26 2-METHYLNAPHTHALENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:
K27 HEXACHLOROCYCLOPENTADIENE	UG/L	10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:10.00	UV:

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	014	015	C15D	016	017F	018F
WK28 2,4,6-TRICHLOROPHENOL	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK29 2,4,5-TRICHLOROPHENOL	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK30 2-CHLORONAPHTHALENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK31 2-NITROANILINE (ORTHO NITROANILINE)	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK32 DIMETHYLPHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK33 ACENAPHTHYLENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK34 3-NITROANILINE	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK35 ACENAPHTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK36 2,4-DINITROPHENOL	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK37 4-NITROPHENOL	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK38 DIBENZOFURAN	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK39 2,4-DINITROTOLUENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK40 2,6-DINITROTOULENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK41 DIETHYLPHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK42 4-CHLOROPHENYL PHENYL ETHER	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK43 FLOURENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK44 4-NITROANILINE	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK45 4,6-DINITRO-2-METHYLPHENOL	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK46 N-NITROSODIPHENYLAMINE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK47 4-BROMOPHENYL PHENYL ETHER	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK48 HEXACHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK49 PENTACHLOROPHENOL	UG/L	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV	50.00 UV
WK50 PHENANTHRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK51 ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK52 DI-N-BUTYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
WK53 FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	014	015	015D	016	017F	018F
K54 PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K55 BUTYL BENZYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K56 3,3'-DICHLOROBENZIDINE	UG/L	20.00 UV	20.00 UV	20.00 UV	20.00 UV	20.00 UV	20.00 UV
K57 BENZO(A)ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	10.00 UV	10.00 UV	110.00 UV	10.00 UV	11.00 JV	2.00 MV
K59 CHRYSENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K60 DI-N-OCTYL PHTHALATE	UG/L	10.00 UV	10.00 UV	2.00 MV	10.00 UV	10.00 UV	10.00 UV
K61 BENZO(B)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K62 BENZO(K)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K63 BENZO(A)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K64 INDENO(1,2,3-CD)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K65 DIBENZO(A,H)ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
K66 BENZO(G,H,I)PERYLENE	UG/L	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV	10.00 UV
Q03 CARBON, TOTAL ORGANIC	MG/L	16.0 V	4.6 V	4.8 V	29.0 V	2.0 UV	2.0 UV
Q08 HALOGEN, TOTAL ORGANIC	UG/L	1830 V	22 V	37 V	21 V	5 UV	5 UV
Z201 SAMPLE NUMBER	NA	014 V	015 V	015 V	016 V	017 V	018 V
Z202 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	022F	023	024	025
SJ01 SILVER	MG/KG				3.4 UV	3.7 UV	4.0 UV
SJ02 ALUMINUM	MG/KG				15000.0 V	14000.0 V	15000.0 V
SJ03 ARSENIC	MG/KG				3.4 JV	3.7 UV	4.8 JV
SJ04 BARIUM	MG/KG				200.0 V	190.0 V	210.0 V
SJ05 BERYLLIUM	MG/KG				1.7 UV	1.9 UV	2.0 UV
SJ06 CADMIUM	MG/KG				1.9 V	1.9 UV	2.2 MV
SJ07 COBALT	MG/KG				7.2 MV	8.9 MV	8.9 MV
SJ08 CHROMIUM	MG/KG				19.0 V	22.0 V	24.0 V
SJ09 COPPER	MG/KG				21.0 UV	20.0 UV	26.0 UV
SJ10 IRON	MG/KG				15000.0 V	17000.0 V	19000.0 V
SJ11 MANGANESE	MG/KG				320.0 V	380.0 V	660.0 V
SJ12 NICKEL	MG/KG				20.0 V	23.0 V	24.0 V
SJ13 LEAD	MG/KG				16.0 UV	14.0 UV	19.0 JV
SJ14 ANTIMONY	MG/KG				I I	I I	I I
SJ15 SELENIUM	MG/KG				1.7 UV	1.9 UV	2.0 UV
SJ16 THALLIUM	MG/KG				3.4 UV	3.7 UV	4.0 UV
SJ17 VANADIUM	MG/KG				30.0 V	30.0 V	32.0 V
SJ18 ZINC	MG/KG				62.0 V	150.0 V	80.0 V
SJ19 CALCIUM	MG/KG				5700.0 V	22000.0 V	29000.0 V
SJ20 MAGNESIUM	MG/KG				2400.0 V	2600.0 V	2700.0 V
SJ21 SODIUM	MG/KG				1700.0 UV	1900.0 UV	2000.0 UV
SJ22 POTASSIUM	MG/KG				1900.0 V	1700.0 MV	1700.0 MV
SJ23 TIN	MG/KG				N/A	N/A	N/A
SJ24 MERCURY	MG/KG				.17 UV	.32 V	.34 V
SJ25 CYANIDE	MG/KG				8.6 UV	9.4 UV	10.0 UV
SK01 PHENOL	UG/KG				1200 UV	1100 UV	1300 UV

ANALYSIS REQUEST DETAIL REPOR ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG				1200 UV	1100 UV	1300 UV
SK04 2-CHLOROPHENOL	UG/KG				1200 UV	1100 UV	1300 UV
SK05 1,3-DICHLOROBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK06 1,4-DICHLOROBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK07 BENZYL ALCOHOL	UG/KG				1200 UV	1100 UV	1300 UV
SK08 1,2-DICHLOPOBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG				1200 UV	1100 UV	1300 UV
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG				1200 UV	1100 UV	1300 UV
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG				1200 UV	1100 UV	1300 UV
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG				1200 UV	1100 UV	1300 UV
SK13 HEXACHLOROETHANE	UG/KG				1200 UV	1100 UV	1300 UV
SK14 NITROBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK15 ISOPHORONE	UG/KG				1200 UV	1100 UV	1300 UV
SK16 2-NITROPHENOL	UG/KG				1200 UV	1100 UV	1300 UV
SK17 2,4-DIMETHYLPHENOL	UG/KG				1200 UV	1100 UV	1300 UV
SK18 BENZOIC ACID	UG/KG				5600 UV	5300 UV	6200 UV
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG				1200 UV	1100 UV	1300 UV
SK20 2,4-DICHLOROPHENOL	UG/KG				1200 UV	1100 UV	1300 UV
SK21 1,2,4-TRICHLOROBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK22 NAPHTHALENE	UG/KG				1200 UV	1100 UV	1300 UV
SK23 4-CHLOROANILINE	UG/KG				1200 UV	1100 UV	1300 UV
SK24 HEXACHLOROBUTADIENE	UG/KG				1200 UV	1100 UV	1300 UV
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG				1200 UV	1100 UV	1300 UV
SK26 2-METHYLNAPHTHALENE	UG/KG				1200 UV	1100 UV	1300 UV
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG				1200 UV	1100 UV	1300 UV
SK28 2,4,6-TRICHLOROPHENOL	UG/KG				1200 UV	1100 UV	1300 UV

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
K29 2,4,5-TRICHLOROPHENOL	UG/KG				5600 UV	5300 UV	6200 UV
K30 2-CHLORONAPHTHALENE	UG/KG				1200 UV	1100 UV	1300 UV
K31 2-NITROANILINE	UG/KG				5600 UV	5300 UV	6200 UV
K32 DIMETHYLPHTHALATE	UG/KG				1200 UV	1100 UV	1300 UV
K33 ACENAPHTHYLENE	UG/KG				1200 UV	1100 UV	1300 UV
K34 3-NITROANILINE	UG/KG				560C UV	5300 UV	6200 UV
K35 ACENAPHTHENE	UG/KG				1200 UV	1100 UV	1300 UV
K36 2,4-DINITROPHENOL	UG/KG				5600 UV	5300 UV	6200 UV
K37 4-NITROPHENOL	UG/KG				5600 UV	5300 UV	6200 UV
K38 DIBENZOFURAN	UG/KG				1200 UV	1100 UV	1300 UV
K39 2,4-DINITROTOLUENE	UG/KG				1200 UV	1100 UV	1300 UV
SK40 2,6-DINITROTOULENE	UG/KG				1200 UV	1100 UV	1300 UV
SK41 DIETHYLPHTHALATE	UG/KG				1200 UV	1100 UV	1300 UV
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG				1200 UV	1100 UV	1300 UV
SK43 FLOURENE	UG/KG				1200 UV	1100 UV	1300 UV
SK44 4-NITROANILINE	UG/KG				5600 UV	5300 UV	6200 UV
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG				5600 UV	5300 UV	6200 UV
SK46 N-NITROSODIPHENYLAMINE	UG/KG				1200 UV	1100 UV	1300 UV
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG				1200 UV	1100 UV	1300 UV
SK48 HEXACHLOROBENZENE	UG/KG				1200 UV	1100 UV	1300 UV
SK49 PENTACHLOROPHENOL	UG/KG				5600 UV	5300 UV	6200 UV
SK50 PHENANTHRENE	UG/KG				1200 UV	11C0 UV	1300 UV
SK51 ANTHRACENE	UG/KG				1200 UV	1100 UV	1300 UV
SK52 DI-N-BUTYL PHTHALATE	UG/KG				120C UV	1100 UV	1300 UV
SK53 FLUORANTHENE	UG/KG				1200 UV	1100 UV	1300 UV
SK54 PYRENE	UG/KG				1200 UV	1100 UV	1300 UV

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
K55 BUTYL BENZYL PHTHALATE	UG/KG				1200 UV	1100 UV	1300 UV
K56 3,3'-DICHLOROBENZIDINE	UG/KG				2300 UV	2200 UV	2600 UV
K57 BENZO(A)ANTHRACENE	UG/KG				1200 UV	1100 UV	1300 UV
K58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG				1200 UV	360 MV	1300 UV
K59 CHRYSENE	UG/KG				1200 UV	1100 UV	1300 UV
K60 DI-N-OCTYL PHTHALATE	UG/KG				1200 UV	1100 UV	1300 UV
K61 BENZO(B)FLUORANTHENE	UG/KG				1200 UV	1100 UV	1300 UV
K62 BENZO(K)FLUORANTHENE	UG/KG				1200 UV	1100 UV	1300 UV
K63 BENZO(A)PYRENE	UG/KG				1200 UV	1100 UV	1300 UV
K64 INDENO(1,2,3-CD)PYRENE	UG/KG				1200 UV	1100 UV	1300 UV
K65 DIBENZO(A,H)ANTHRACENE	UG/KG				1200 UV	1100 UV	1300 UV
K66 BENZO(G,H,I)PERYLENE	UG/KG				1200 UV	1100 UV	1300 UV
S001 CHLOROMETHANE	UG/KG				17 UV	16 UV	19 UV
S002 BROMOMETHANE	UG/KG				17 UV	16 UV	19 UV
S003 VINYL CHLORIDE	UG/KG				17 UV	16 UV	19 UV
S004 CHLOROETHANE	UG/KG				17 UV	16 UV	19 UV
S005 METHYLENE CHLORIDE	UG/KG				8.5 UV	8.0 UV	8.0 MV
S006 1,1-DICHLOROETHYLENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S007 1,1-DICHLOROETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S008 TRANS-1,2-DICHLOROETHYLENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S009 CHLOROFORM	UG/KG				8.5 UV	8.0 UV	9.5 UV
S010 1,2-DICHLOROETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S011 1,1,1-TRICHLOROETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S012 CARBON TETRACHLORIDE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S013 BROMODICHLOROMETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S014 1,2-DICHLOROPROPANE	UG/KG				8.5 UV	8.0 UV	9.5 UV

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
S015 BENZENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S016 TRANS-1,3-DICHLOROPROPENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S017 TRICHLOROETHYLENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S018 CIS-1,3-DICHLOROPROPENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S019 DIBROMOCHLOROMETHANE	UG/KG				8.5 UV	2.0 UV	9.5 UV
S020 1,1,2-TRICHLOROETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S021 2-CHLOROETHYLVINYL ETHER	UG/KG				17 UV	16 UV	19 UV
S022 BROMOFORM	UG/KG				8.5 UV	8.0 UV	9.5 UV
S023 1,1,2,2-TETRACHLOROETHENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S024 TOLUENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S025 1,1,2,2-TETRACHLOROETHANE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S026 CHLOROBENZENE	UG/KG				9.5 UV	8.0 UV	9.5 UV
S027 ETHYL BENZENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S028 ACETONE	UG/KG				110 JV	16 UV	89 JV
S029 CARBON DISULFIDE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S030 2-BUTANONE	UG/KG				I I	I I	I I
S031 VINYL ACETATE	UG/KG				17 UV	16 UV	19 UV
S032 2-HEXANONE	UG/KG				17 UV	16 UV	19 UV
S033 4-METHYL-2-PENTANONE	UG/KG				17 UV	16 UV	19 UV
S034 STYRENE	UG/KG				8.5 UV	8.0 UV	9.5 UV
S035 XYLENES, TOTAL	UG/KG				8.5 UV	8.0 UV	9.5 UV
SQ03 CARBON, TOTAL ORGANIC	G/KG				31.0 V	59.0 V	20.0 V
WF01 WATER TEMP	°C	29.0 V					
WF05 PH, FIELD	SU	7.3 V					
WG16 CONDUCTIVITY	UMHOS	110 V					
WJ01 SILVER, TOTAL	UG/L	10. UV	10.0 UV	10.0 UV			

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
I02 ALUMINUM, TOTAL	UG/L	200.	UV:200.0	UV:200.0	UV:		
I03 ARSENIC, TOTAL	UG/L	50.	V:10.0	UV:10.C	UV:		
I04 BARIUM, TOTAL	UG/L	200.	UV:200.0	UV:200.0	UV:		
I05 BERYLLIUM, TOTAL	UG/L	5.0	UV:5.0	UV:5.0	UV:		
I06 CADMIUM, TOTAL	UG/L	5.0	UV:5.0	UV:5.0	UV:		
J07 COBALT, TOTAL	UG/L	50.	UV:50.0	UV:50.C	UV:		
J08 CHROMUIM, TOTAL	UG/L	10.	UV:10.0	UV:10.0	UV:		
J09 COPPER, TOTAL	UG/L	25.	UV:25.0	UV:25.C	UV:		
J10 IRON, TOTAL	UG/L	100.	UV:100.0	UV:100.0	UV:		
J11 MANGANESE, TOTAL	UG/L	15.	UV:15.0	UV:15.0	UV:		
J12 NICKEL, TOTAL	UG/L	40.	UV:40.0	UV:40.0	UV:		
J13 LEAD, TOTAL	UG/L	16.	JV:5.0	UV:5.0	UV:		
J14 ANTIMONY, TOTAL	UG/L	60.	UV:60.0	UV:60.0	UV:		
J15 SELENIUM, TOTAL	UG/L	5.0	UV:5.0	UV:5.0	UV:		
IJ16 THALLIUM, TOTAL	UG/L	10.	UV:10.0	UV:10.C	UV:		
IJ17 VANADIUM, TOTAL	UG/L	50.	UV:50.0	UV:50.0	UV:		
IJ18 ZINC, TOTAL	UG/L	20.	UV:20.0	UV:20.0	UV:		
IJ19 CALCIUM, TOTAL	UG/L	3400.	MV:5000.0	UV:5000.0	UV:		
IJ20 MAGNESIUM, TOTAL	UG/L	1300.	MV:5000.0	UV:500C.0	UV:		
WJ21 SODIUM, TOTAL	UG/L	5700.	V:5C00.0	UV:5000.0	UV:		
WJ22 POTASSIUM, TOTAL	UG/L	5000.	UV:5000.0	UV:500C.0	UV:		
WJ23 TIN, TOTAL	UG/L	N/A	N/A	N/A			
WJ24 MERCURY, TOTAL	UG/L	.20	UV:.20	UV:.20	UV:		
WJ25 CYANIDE, TOTAL	UG/L	10	UV:10.0	UV:10.0	UV:		
WJ26 SILVER, DISSOLVED	UG/L	10.0	UV:	10.0	UV:		
WJ27 ALUMINUM, DISSOLVED	UG/L	200.0	UV:	200.0	UV:		

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	C22F	023	024	025
WJ28 ARSENIC, DISSOLVED	UG/L	10.0 UV		10.0 UV			
WJ29 BARIUM, DISSOLVED	UG/L	200.0 UV		200.0 UV			
WJ30 BERYLLIUM, DISSOLVED	UG/L	5.0 UV		5.0 UV			
WJ31 CADPIUM, DISSOLVED	UG/L	5.0 UV		5.0 UV			
WJ32 COBALT, DISSOLVED	UG/L	50.0 UV		50.C UV			
WJ33 CHRGMIUM, CSSOLVED	UG/L	10.0 UV		10.C UV			
WJ34 COPPER, DISSOLVED	UG/L	46.0 V		38.0 V			
WJ35 IRON, DISSOLVED	UG/L	100.0 UV		100.0 UV			
WJ36 MANGANESE, DISSOLVED	UG/L	15.0 UV		15.C UV			
WJ37 NICKEL, DISSOLVED	UG/L	4C.0 UV		40.C UV			
WJ38 LEAC, DISSOLVED	UG/L	5.0 UV		5.0 UV			
WJ39 ANTIMONY, DISSOLVEC	UG/L	60.0 UV		60.G UV			
WJ40 SELENIUM, DISSOLVEC	UG/L	5.0 UV		5.0 UV			
WJ41 THALLIUM, CISSOLVEC	UG/L	10.0 UV		10.0 UV			
WJ42 VANADIUM, CISSOLVEC	UG/L	50.0 UV		50.C UV			
WJ43 ZINC, DISSOLVED	UG/L	20.0 UV		20.0 UV			
WJ44 CALCIUM, DISSOLVED	UG/L	3380.0 MV		500C.0 UV			
WJ45 MAGKESIUM, DISSOLVED	UG/L	1300.0 MV		5000.0 UV			
WJ46 SODIUM, DISSOLVED	UG/L	6380.0 V		5000.0 UV			
WJ47 POTASSIUM, DISSOLVED	UG/L	575.0 MV		5000.0 UV			
WJ48 TIN, DISSOLVED	UG/L	N/A		N/A			
WJ49 MERCURY, DISSOLVED	UG/L	.20 UV		.20 UV			
WK01 PHENOL	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK03 BIS(2-CHLOROETHYL) ETHER	UG/L	10.00 UV	10.00 UV	10.C0 UV			
WK04 2-CHLOROPHENOL	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK05 1,3-DICHLOROBENZENE	UG/L	10.00 UV	10.00 UV	10.0C UV			

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F		021F		C22F		023	024	025
WK06 1,4-DICHLOROBENZENE	UG/L	10.00	UV	10.00	UV	10.CG	UV			
WK07 BENZYL ALCOHOL	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK08 1,2-DICHLOROBENZENE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK09 2-METHYLPHENOL (O-CRESOL)	UG/L	1C.00	UV	10.00	UV	10.0C	UV			
WK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK11 4-METHYLPHENOL (M-CRESOL)	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK12 N-NITROSO-DIPROPYLAMINE	UG/L	10.00	UV	1C.00	UV	10.C0	UV			
WK13 HEXACHLOROETHANE	UG/L	1C.00	UV	10.00	UV	10.00	UV			
WK14 NITROBENZENE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK15 ISOPHORONE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK16 2-NITROPHENOL	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK17 2,4-DIMETHYLPHENOL	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK18 BENZOIC ACID	UG/L	50.00	UV	5C.00	UV	50.C0	UV			
WK19 BIS(2-CHLOROETHYOXY) METHANE	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK20 2,4-DICHLOROPHENOL	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK21 1,2,4-TRICHLOROBENZENE	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK22 NAPHTHALENE	UG/L	10.00	UV	1C.00	UV	10.00	UV			
WK23 4-CHLOROANILINE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK24 HEXACHLOROBUTADIENE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK25 4-CHLORO-3-METHYLPHENOL	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK26 2-METHYLNAPHTHALENE	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK27 HEXACHLOROCYCLOPENTADIENE	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK28 2,4,6-TRICHLOROPHENOL	UG/L	10.00	UV	10.00	UV	10.00	UV			
WK29 2,4,5-TRICHLOROPHENOL	UG/L	50.00	UV	50.00	UV	5C.C0	UV			
WK30 2-CHLORONAPHTHALENE	UG/L	10.00	UV	10.00	UV	10.C0	UV			
WK31 2-NITROANILINE (ORTHO NITROANILINE)	UG/L	50.00	UV	50.00	UV	50.C0	UV			

ANALYSIS REQUEST DETAIL REPL ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	022F	023	024	025
WK32 DIMETHYLPHTHALATE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK33 ACENAPHTHYLENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK34 3-NITROANILINE	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK35 ACENAPHTHENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK36 2,4-DINITROPHENOL	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK37 4-NITROPHENOL	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK38 DIBENZOFURAN	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK39 2,4-DINITROTOLUENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK40 2,6-DINITROTOULENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK41 DIETHYLPHTHALATE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK42 4-CHLOROPHENYL PHENYL ETHER	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK43 FLOURENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK44 4-NITROANILINE	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK45 4,6-DINITRO-2-METHYLPHENOL	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK46 N-NITROSODIPHENYLAMINE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK47 4-BROMOPHENYL PHENYL ETHER	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK48 HEXACHLOROBENZENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK49 PENTACHLOROPHENOL	UG/L	50.00	UV:50.00	UV:50.00	UV:		
WK50 PHENANTHRENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK51 ANTHRACENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK52 DI-N-BUTYL PHTHALATE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK53 FLUORANTHENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK54 PYRENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK55 BUTYL BENZYL PHTHALATE	UG/L	10.00	UV:10.00	UV:10.00	UV:		
WK56 3,3'-DICHLOROBENZIDINE	UG/L	20.00	UV:20.00	UV:20.00	UV:		
WK57 BENZO(A)ANTHRACENE	UG/L	10.00	UV:10.00	UV:10.00	UV:		

COMPOUND	UNITS	019F	021F	C22F	023	024	025
WK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	120.00 JV	7.00 MV	5.00 MV			
WK59 CHRYSENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK60 DI-N-OCTYL PHTHALATE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK61 BENZO(B)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK62 BENZO(K)FLUORANTHENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK63 BENZO(A)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK64 INDENO(1,2,3-CD)PYRENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK65 DIBENZO(A,H)ANTHRACENE	UG/L	10.00 UV	10.00 UV	10.00 UV			
WK66 BENZO(G,H,I)PERYLENE	UG/L	10.00 UV	10.00 UV	3.00 MV			
W001 CHLOROMETHANE	UG/L		10.00 UV	10.00 UV			
W002 BROMOMETHANE	UG/L		10.00 UV	10.00 UV			
W003 VINYL CHLORIDE	UG/L		10.00 UV	10.00 UV			
W004 CHLOROETHANE	UG/L		10.00 UV	10.00 UV			
W005 METHYLENE CHLORIDE	UG/L		4.00 MV	3.00 MV			
W006 1,1-DICHLOROETHYLENE	UG/L		5.00 UV	5.00 UV			
W007 1,1-DICHLOROETHANE	UG/L		5.00 UV	5.00 UV			
W008 1,2-DICHLOROETHENE (TOTAL)	UG/L		5.00 UV	5.00 UV			
W009 CHLOROFORM	UG/L		5.00 UV	5.00 UV			
W010 1,2-DICHLOROETHANE	UG/L		5.00 UV	5.00 UV			
W011 1,1,1-TRICHLOROETHANE	UG/L		5.00 UV	5.00 UV			
W012 CARBON TETRACHLORIDE	UG/L		5.00 UV	5.00 UV			
W013 BROMODICHLOROMETHANE	UG/L		5.00 UV	5.00 UV			
W014 1,2-DICHLOROPROPANE	UG/L		5.00 UV	5.00 UV			
W015 BENZENE	UG/L		5.00 UV	5.00 UV			
W016 1,3-DICHLOROPROPENE TOTAL	UG/L		5.00 UV	5.00 UV			
W017 TRICHLOROETHYLENE	UG/L		5.00 UV	5.00 UV			

ANALYSIS REQUEST DETAIL REPO. ACTIVITY: 7-ADJ11

COMPOUND	UNITS	019F	021F	022F	023	024	025
W018 CIS-1,3-DICHLOROPROPENE	UG/L		5.00 UV	5.00 UV			
W019 DIBROMOCHLOROMETHANE	UG/L		5.00 UV	5.00 UV			
W020 1,1,2-TRICHLOROETHANE	UG/L		5.00 UV	5.00 UV			
W021 2-CHLOROETHYLVINYL ETHER	UG/L		10.00 UV	10.00 UV			
W022 BROMOFORM	UG/L		5.00 UV	5.00 UV			
W023 1,1,2,2-TETRACHLOROETHENE	UG/L		5.00 UV	5.00 UV			
W024 TOLUENE	UG/L		5.00 UV	5.00 UV			
W025 1,1,2,2-TETRACHLORCETHANE	UG/L		5.00 UV	5.00 UV			
W026 CHLOROBENZENE	UG/L		5.00 UV	5.00 UV			
W027 ETHYL BENZENE	UG/L		5.00 UV	5.00 UV			
W028 ACETONE	UG/L		10.00 UV	6.00 MV			
W029 CARBON DISULFIDE	UG/L		5.00 UV	5.00 UV			
W030 2-BUTANONE	UG/L		I I	I I			
W031 VINYL ACETATE	UG/L		10.00 UV	10.00 UV			
W032 2-HEXANONE	UG/L		10.00 UV	10.00 UV			
W033 4-METHYL-2-PENTANONE	UG/L		10.00 UV	10.00 UV			
W034 STYRENE	UG/L		5.00 UV	5.00 UV			
W035 XYLENES, TOTAL	UG/L		5.00 UV	5.00 UV			
WQ03 CARBON, TOTAL ORGANIC	MG/L	2.0 UV	2.0 UV	2.0 UV			
WQ08 HALOGEN, TOTAL ORGANIC	UG/L	6 V	8 V	5 UV			
Z201 SAMPLE NUMBER	NA	019 V	021 V	022 V	023 V	024 V	025 V
Z202 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V

ANALYSIS REQUEST DETAIL REPOR. ACTIVITY: 7-ADJ11

COMPOUND	UNITS	026	026D	027	028	029	030	
J01 SILVER	MG/KG	3.2	UV:3.6	UV:5.9	UV:18.2	UV:57.C	UV:2.4	UV:
J02 ALUPINUM	MG/KG	16000.0	V:13000.0	V:11000.0	V:150C0.0	V:2100.0	V:16000.0	V:
J03 ARSENIC	MG/KG	6.6	JV:6.0	JV:59.0	UV:1R.2	UV:57.0	UV:3.2	JV:
J04 BARIUM	MG/KG	410.0	V:350.0	V:150.0	V:124.0	MV:230.0	MV:220.0	V:
J05 BERYLLIUM	MG/KG	1.6	UV:1.8	UV:2.9	UV:9.1	UV:29.0	UV:1.2	UV:
J06 CADMIUM	MG/KG	2.8	V:2.2	V:2.9	UV:9.1	UV:29.0	UV:2.5	V:
J07 COBALT	MG/KG	10.0	MV:8.5	MV:8.0	MV:90.9	UV:290.0	UV:9.0	MV:
J08 CHRCMIUM	MG/KG	690.0	V:380.0	V:95.C	V:380.0	V:250.0	V:96.0	V:
J09 COPPER	MG/KG	490.0	V:340.0	V:240.C	V:130.0	V:200.0	V:57.0	V:
J10 IRON	MG/KG	17000.0	V:16000.0	V:15000.0	V:16000.0	V:3400.0	V:19000.0	V:
J11 MANGANESE	MG/KG	480.0	V:340.0	V:280.0	V:220.0	V:37.0	V:600.0	V:
J12 NICKEL	MG/KG	1200.0	V:770.0	V:250.0	V:290.0	V:130.0	MV:130.0	V:
J13 LEAD	MG/KG	33.0	JV:40.0	JV:31.0	JV:72.0	JV:34.0	JV:16.0	UV:
J14 ANTIMONY	MG/KG	I	I :I	I :I	I :I	I :I	I :I	I :
SJ15 SELENIUM	MG/KG	1.6	UV:1.8	UV:2.9	UV:9.1	UV:29.0	UV:1.2	UV:
SJ16 THALLIUM	MG/KG	3.2	UV:3.6	UV:5.9	UV:18.2	UV:57.0	UV:2.4	UV:
SJ17 VANADIUM	MG/KG	38.0	V:33.0	V:20.0	MV:29.0	MV:290.0	UV:30.0	V:
SJ18 ZINC	MG/KG	950.0	V:1400.C	V:1000.0	V:690.0	V:7600.0	V:91.0	V:
SJ19 CALCIUM	MG/KG	26000.0	V:34000.0	V:18000.0	V:9100.0	V:9200.0	V:6300.0	V:
SJ20 MAGNESIUM	MG/KG	3900.0	V:3800.0	V:2800.0	V:3900.0	V:29000.0	UV:2900.C	V:
SJ21 SODIUM	MG/KG	1600.0	UV:1800.0	UV:2900.0	UV:2500.0	UV:7800.0	V:1220.C	UV:
SJ22 POTASSIUM	MG/KG	2000.0	V:2100.0	V:1600.0	MV:2600.0	MV:29000.0	UV:2200.0	V:
SJ23 TIN	MG/KG	N/A	:N/A	:N/A	:N/A	:N/A	:N/A	:
SJ24 MERCURY	MG/KG	.24	V:.44	V:1.4	V:8.2	V:2.9	UV:.12	UV:
SJ25 CYANIDE	MG/KG	7.9	UV:8.9	UV:.96	MV:45.5	UV:140.0	UV:6.1	UV:
SK01 PHENOL	UG/KG	1200	UV:1100	UV:1700	UV:470	PV:9500	UV:860	UV:

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	026	026D	027	028	029	030
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK04 2-CHLOROPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK05 1,3-DICHLOROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK06 1,4-DICHLOROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	420 MV	4700 MV	860 UV
SK07 BENZYL ALCOHOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK08 1,2-DICHLOROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	1200 UV	1100 UV	1700 UV	12000 V	6900 MV	860 UV
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK13 HEXACHLOROETHANE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK14 NITROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK15 ISOPHORONE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK16 2-NITROPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK17 2,4-DIMETHYLPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK18 BENZOIC ACID	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK20 2,4-DICHLOROPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK22 NAPHTHALENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK23 4-CHLOROANILINE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK24 HEXACHLOROBUTADIENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK26 2-METHYLNAPHTHALENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	026	026D	C27	028	029	030
SK29 2,4,5-TRICHLOROPHENOL	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK30 2-CHLORONAPHTHALENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK31 2-NITROANILINE	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK32 DIMETHYLPHTHALATE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK33 ACENAPHTHYLENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK34 3-NITROANILINE	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK35 ACENAPHTHENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK36 2,4-DINITROPHENOL	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK37 4-NITROPHENOL	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK38 DIBENZOFURAN	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK39 2,4-DINITROTOLUENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK40 2,6-DINITROTOULENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK41 DIETHYLPHTHALATE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK43 FLOURENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK44 4-NITROANILINE	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG	5600 UV	5100 UV	8500 UV	18000 UV	46000 UV	4200 UV
SK46 N-NITROSODIPHENYLAMINE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK48 HEXACHLOROBENZENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK49 PENTACHLOROPHENOL	UG/KG	5600 UV	5100 UV	8500 UV	1400 MV	46000 UV	4200 UV
SK50 PHENANTHRENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK51 ANTHRACENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK52 DI-N-BUTYL PHTHALATE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK53 FLUORANTHENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV
SK54 PYRENE	UG/KG	1200 UV	1100 UV	1700 UV	3700 UV	9500 UV	860 UV

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	026	026D	C27	028	029	030
SK55 BUTYL BENZYL PHTHALATE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK56 3,3'-DICHLOROBENZIDINE	UG/KG	2300	UV:2100	UV:3500	UV:7500	UV:19000	UV:1700 UV:
SK57 BENZO(A)ANTHRACENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	970	MV:830	MV:1400	MV:4200	V:4600	MV:860 UV:
SK59 CHRYSENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK60 DI-N-OCTYL PHTHALATE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK61 BENZO(B)FLUORANTHENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK62 BENZO(K)FLUORANTHENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK63 BENZO(A)PYRENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK64 INDENO(1,2,3-CD)PYRENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK65 DIBENZO(A,H)ANTHRACENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
SK66 BENZO(G,H,I)PERYLENE	UG/KG	1200	UV:1100	UV:1700	UV:3700	UV:9500	UV:860 UV:
S001 CHLOROMETHANE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13 UV:
S002 BROMOMETHANE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13 UV:
S003 VINYL CHLORIDE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13 UV:
S004 CHLOROETHANE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13 UV:
S005 METHYLENE CHLORIDE	UG/KG	4.0	MV:8.0	UV:4.0	MV:15	MV:70	UV:4.0 MV:
S006 1,1-DICHLOROETHYLENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:
S007 1,1-DICHLOROETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:
S008 TRANS-1,2-DICHLOROETHYLENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:
S009 CHLOROFORM	UG/KG	8.5	UV:8.0	UV:3.0	MV:5.0	MV:70	UV:6.5 UV:
S010 1,2-DICHLOROETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:
S011 1,1,1-TRICHLOROETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:23	UV:70	UV:6.5 UV:
S012 CARBON TETRACHLORIDE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:
S013 BROMODICHLOROMETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:23	UV:70	UV:6.5 UV:
S014 1,2-DICHLOROPROPANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5 UV:

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	026	026D	027	028	029	030	
S015 BENZENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
SC16 TRANS-1,3-DICHLOROPROPENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S017 TRICHLOROETHYLENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S018 CIS-1,3-DICHLOROPROPENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S019 DIBROMOCHLOROMETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S020 1,1,2-TRICHLOROETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S021 2-CHLOROETHYLVINYL ETHER	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13	UV:
S022 BROMOFORM	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S023 1,1,2,2-TETRACHLOROETHENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S024 TOLUENE	UG/KG	6.0	MV:8.0	UV:3.0	MV:23	MV:70	UV:6.5	UV:
S025 1,1,2,2-TETRACHLOROETHANE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S026 CHLOROBENZENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S027 ETHYL BENZENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S028 ACETONE	UG/KG	17	UV:100	JV:180	JV:560	JV:140	UV:13	UV:
S029 CARBON DISULFIDE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S030 2-BUTANONE	UG/KG	I	I :I	I :I	I :I	I :I	I :I	I :
S031 VINYL ACETATE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13	UV:
S032 2-HEXANONE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13	UV:
S033 4-METHYL-2-PENTANONE	UG/KG	17	UV:16	UV:26	UV:55	UV:140	UV:13	UV:
S034 STYRENE	UG/KG	8.5	UV:8.0	UV:13	UV:28	UV:70	UV:6.5	UV:
S035 XYLENES, TOTAL	UG/KG	8.5	UV:8.0	UV:13.0	UV:27.5	UV:70.0	UV:6.5	UV:
SQ03 CARBON, TOTAL ORGANIC	G/KG	20.0	V:20.0	V:27.0	V:104	V:160	V:6.4	V:
ZZ01 SAMPLE NUMBER	NA	026	V:026	V:027	V:028	V:029	V:030	V:
ZZ02 ACTIVITY CODE	NA	ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:

7/1/88 Report continued...

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	031	032	C33	034	0340	035
J01 SILVER	MG/KG	2.5 UV	2.5 UV	2.5 UV	2.4 UV	2.4 UV	2.5 UV
J02 ALUMINUM	MG/KG	15000.0 V	15000.0 V	13000.0 V	14000.0 V	13000.0 V	16000.0 V
J03 ARSENIC	MG/KG	3.8 JV	5.2 JV	3.8 JV	3.4 JV	4.6 JV	4.9 JV
J04 BARIUM	MG/KG	230.0 V	160.0 V	160.0 V	170.0 V	160.0 V	190.0 V
J05 BERYLLIUM	MG/KG	1.3 UV	1.2 UV	1.2 UV	1.2 UV	1.2 UV	1.2 UV
J06 CADMIUM	MG/KG	2.4 V	2.3 MV	2.0 V	2.6 V	2.3 V	2.3 V
J07 COBALT	MG/KG	8.0 MV	8.3 MV	8.8 MV	9.1 MV	9.8 MV	10.0 MV
J08 CHROMIUM	MG/KG	33.0 V	17.0 V	15.0 V	16.0 V	15.0 V	18.0 V
J09 COPPER	MG/KG	22.0 UV	14.0 UV	13.0 UV	11.0 UV	11.0 UV	14.0 UV
J10 IRON	MG/KG	17000.0 V	18000.0 V	17000.0 V	18000.0 V	17000.0 V	20000.0 V
J11 MANGANESE	MG/KG	500.0 V	430.0 V	590.0 V	670.0 V	730.0 V	720.0 V
J12 NICKEL	MG/KG	43.0 V	23.0 V	22.0 V	23.0 V	23.0 V	25.0 V
J13 LEAD	MG/KG	15.0 UV	11.0 UV	17.0 JV	15.0 UV	18.0 JV	12.0 UV
J14 ANTIMONY	MG/KG	I I	I I	I I	I I	I I	I
J15 SELENIUM	MG/KG	1.3 UV	1.2 UV	1.2 UV	1.2 UV	1.2 UV	1.2 UV
J16 THALLIUM	MG/KG	2.5 UV	2.5 UV	2.5 UV	2.4 UV	2.4 UV	2.5 UV
J17 VANADIUM	MG/KG	28.0 V	28.0 V	22.0 V	25.0 V	23.0 V	28.0 V
J18 ZINC	MG/KG	83.0 V	64.0 V	60.0 V	64.0 V	66.0 V	72.0 V
J19 CALCIUM	MG/KG	5900.0 V	3800.0 V	3400.0 V	4200.0 V	5000.0 V	7400.0 V
J20 MAGNESIUM	MG/KG	2500.0 V	2500.0 V	2400.0 V	2700.0 V	2500.0 V	3000.0 V
J21 SODIUM	MG/KG	1230.0 UV	1230.0 UV	1230.0 UV	1220.0 UV	1200.0 UV	1230.0 UV
J22 POTASSIUM	MG/KG	1700.0 V	2009.0 V	1700.0 V	2000.0 V	1800.0 V	2200.0 V
J23 TIN	MG/KG	N/A	N/A	N/A	N/A	N/A	N/A
J24 MERCURY	MG/KG	.13 UV	.12 V	.12 V	0.30 V	0.12 UV	1.0 V
J25 CYANIDE	MG/KG	6.3 UV	6.2 UV	6.2 UV	0.34 MV	6.1 UV	6.2 UV
K01 PHENOL	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV

ANALYSIS REQUEST DETAIL REPO   ACTIVITY: 7-AOJ11

COMPOUND	UNITS	031	032	033	034	034D	035	
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK04 2-CHLOROPHENOL	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK05 1,3-DICHLOROBENZENE	UG/KG	860	UV:850	UV:860	UV:860	UV:860	UV:860	UV:
SK06 1,4-DICHLOROBENZENE	UG/KG	860	UV:260	UV:860	UV:860	UV:860	UV:860	UV:
SK07 BENZYL ALCOHOL	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK08 1,2-DICHLOROBENZENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	860	UV:860	UV:860	UV:260	UV:860	UV:860	UV:
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	860	UV:860	UV:260	UV:860	UV:860	UV:860	UV:
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	860	UV:860	UV:360	UV:360	UV:860	UV:860	UV:
SK13 HEXACHLOROETHANE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK14 NITROBENZENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK15 ISOPHORONE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK16 2-NITROPHENOL	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK17 2,4-DIMETHYLPHENOL	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK18 BENZOIC ACID	UG/KG	4200	UV:4200	UV:4200	UV:4200	UV:4200	UV:4200	UV:
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK20 2,4-DICHLOROPHENOL	UG/KG	860	UV:860	UV:260	UV:860	UV:860	UV:860	UV:
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	860	UV:860	UV:860	UV:360	UV:860	UV:860	UV:
SK22 NAPHTHALENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK23 4-CHLOROANILINE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK24 HEXACHLOROBUTADIENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	260	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK26 2-METHYLNAPHTHALENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:

ANALYSIS REQUEST DETAIL REPO ACTIVITY: 7-ADJ11

COMPOUND	UNITS	031	032	033	034	034D	035
SK29 2,4,5-TRICHLOROPHENOL	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK30 2-CHLORONAPHTHALENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK31 2-NITROANILINE	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK32 DIMETHYLPHTHALATE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK33 ACENAPHTHYLENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK34 3-NITROANILINE	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK35 ACENAPHTHENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK36 2,4-DINITROPHENOL	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK37 4-NITROPHENOL	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK38 DIBENZOFURAN	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK39 2,4-DINITROTOLUENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK40 2,6-DINITROTOULENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK41 DIETHYLPHTHALATE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK43 FLOURENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK44 4-NITROANILINE	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK46 N-NITROSODIPHENYLAMINE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK48 HEXACHLOROBENZENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK49 PENTACHLOROPHENOL	UG/KG	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV	4200 UV
SK50 PHENANTHRENE	UG/KG	860 UV	200 MV	860 UV	860 UV	150 MV	860 UV
SK51 ANTHRACENE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK52 DI-N-BUTYL PHTHALATE	UG/KG	860 UV	860 UV	860 UV	860 UV	860 UV	860 UV
SK53 FLUORANTHENE	UG/KG	860 UV	260 MV	860 UV	860 UV	140 MV	860 UV
SK54 PYRENE	UG/KG	860 UV	200 MV	860 UV	860 UV	130 MV	860 UV

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: ?-ADJ11

COMPOUND	UNITS	031	032	033	034	034D	035	
(55 BUTYL BENZYL PHTHALATE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
(56 3,3'-DICHLOROBENZIDINE	UG/KG	1700	UV:1700	UV:1700	UV:1700	UV:1700	UV:1700	UV:
(57 BENZO(A)ANTHRACENE	UG/KG	860	UV:220	MV:860	UV:860	UV:860	UV:860	UV:
(58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	790	MV:320	MV:340	MV:280	MV:880	V:550	MV:
(59 CHRYSENE	UG/KG	860	UV:300	MV:860	UV:860	UV:860	UV:860	UV:
K60 DI-N-OCTYL PHTHALATE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
K61 BENZO(B)FLUORANTHENE	UG/KG	860	UV:350	MV:860	UV:860	UV:860	UV:860	UV:
K62 BENZO(K)FLUORANTHENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
K63 BENZO(A)PYRENE	UG/KG	860	UV:190	MV:860	UV:860	UV:860	UV:860	UV:
K64 INDENO(1,2,3-CD)PYRENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
K65 DIBENZO(A,H)ANTHRACENE	UG/KG	860	UV:860	UV:860	UV:860	UV:860	UV:860	UV:
K66 BENZO(G,H,I)PERYLENE	UG/KG	860	UV:140	MV:860	UV:860	UV:860	UV:860	UV:
001 CHLOROMETHANE	UG/KG	13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
002 BROMOMETHANE	UG/KG	13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
5003 VINYL CHLORIDE	UG/KG	13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
5004 CHLOROETHANE	UG/KG	13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
5005 METHYLENE CHLORIDE	UG/KG	4.0	MV:3.0	MV:6.5	UV:6.5	UV:2.0	MV:6.5	UV:
5006 1,1-DICHLOROETHYLENE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
5007 1,1-DICHLOROETHANE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S008 TRANS-1,2-DICHLOROETHYLENE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S009 CHLOROFORM	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S010 1,2-DICHLOROETHANE	UG/KG	6.5	UV:6.5	UV:6.5	UV:4.5	UV:6.5	UV:6.5	UV:
S011 1,1,1-TRICHLOROETHANE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S012 CARBON TETRACHLORIDE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S013 BROMODICHLOROMETHANE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S014 1,2-DICHLOROPROPANE	UG/KG	6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:

ANALYSIS REQUEST CETAIL REPOR ACTIVITY: ?-ADJ11

COMPOUND	UNITS	031	032	033	034	034D	035	
S015 BENZENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S016 TRANS-1,3-CICHLOROPROPENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S017 TRICHLOROETHYLENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S018 CIS-1,3-DICHLOROPROPENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S019 DIBROMOCHLOROMETHANE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S020 1,1,2-TRICHLOROETHANE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S021 2-CHLOROETHYLVINYL ETHER	:UG/KG	:13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
S022 BROMOFORM	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S023 1,1,2,2-TETRACHLOROETHENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S024 TOLUENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S025 1,1,2,2-TETRACHLOROETHANE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S026 CHLOROBENZENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S027 ETHYL BENZENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S028 ACETONE	:UG/KG	:13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
S029 CARBON DISULFIDE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S030 2-BUTANONE	:UG/KG	:I	I :I	I :I	I :I	I :I	I :I	I :
S031 VINYL ACETATE	:UG/KG	:13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
S032 2-HEXANONE	:UG/KG	:13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
S033 4-METHYL-2-PENTANONE	:UG/KG	:13	UV:13	UV:13	UV:13	UV:13	UV:13	UV:
S034 STYRENE	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S035 XYLENES, TOTAL	:UG/KG	:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:6.5	UV:
S003 CARBON, TOTAL ORGANIC	:G/KG	:5.9	V:9.2	V:7.3	V:7.3	V:7.3	V:5.8	V:
Z201 SAMPLE NUMBER	:NA	:031	V:032	V:033	V:034	V:034	V:035	V:
Z202 ACTIVITY CODE	:NA	:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:ADJ11	V:

ANALYSIS REQUEST DETAIL REPL   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	036	037	038	039	040	041
SJ01 SILVER	MG/KG	2.5 UV	1.8 MV	2.3 UV	2.3 UV	2.4 UV	2.5 UV
SJ02 ALUMINUM	MG/KG	17000.0 V	15000.0 V	14000.0 V	13000.0 V	18000.0 V	18000.0 V
SJ03 ARSENIC	MG/KG	5.3 JV	3.6 JV	4.9 JV	2.7 JV	4.7 JV	3.7 JV
SJ04 BARIUM	MG/KG	180.0 V	140.0 V	150.0 V	140.0 V	190.0 V	200.0 V
SJ05 BERYLLIUM	MG/KG	1.3 UV	1.3 UV	1.2 UV	1.1 UV	1.2 UV	1.2 UV
SJ06 CADMIUM	MG/KG	2.8 V	2.4 V	2.1 V	1.7 V	3.2 V	2.4 V
SJ07 COBALT	MG/KG	10.0 MV	8.5 MV	9.3 MV	8.6 MV	11.0 MV	8.3 MV
SJ08 CHROMIUM	MG/KG	52.0 V	17.0 V	16.0 V	16.0 V	22.0 V	21.0 V
SJ09 COPPER	MG/KG	46.0 V	13.0 UV	12.0 UV	13.0 UV	15.0 UV	17.0 UV
SJ10 IRON	MG/KG	20000.0 V	18000.0 V	17000.0 V	15000.0 V	21000.0 V	21000.0 V
SJ11 MANGANESE	MG/KG	610.0 V	530.0 V	540.0 V	490.0 V	760.0 V	560.0 V
SJ12 NICKEL	MG/KG	25.0 V	20.0 V	21.0 V	18.0 V	28.0 V	27.0 V
SJ13 LEAD	MG/KG	28.0 JV	48.0 JV	12.0 UV	14.0 UV	13.0 UV	9.7 UV
SJ14 ANTIMONY	MG/KG	I I	I I	I I	I I	I I	I
SJ15 SELENIUM	MG/KG	1.3 UV	1.3 UV	1.2 UV	1.1 UV	1.2 UV	1.2 UV
SJ16 THALLIUM	MG/KG	2.5 UV	2.5 UV	2.3 UV	2.3 UV	2.4 UV	2.5 UV
SJ17 VANADIUM	MG/KG	30.0 V	28.0 V	25.0 V	26.0 V	30.0 V	28.0 V
SJ18 ZINC	MG/KG	92.0 V	96.0 V	64.0 V	64.0 V	68.0 V	69.0 V
SJ19 CALCIUM	MG/KG	5300.0 V	4400.0 V	3400.0 UV	14000.0 V	4900.0 V	5600.0 V
SJ20 MAGNESIUM	MG/KG	2900.0 V	2500.0 V	2500.0 V	2200.0 V	3000.0 V	2800.0 V
SJ21 SODIUM	MG/KG	1270.0 UV	1250.0 UV	1250.0 UV	1140.0 UV	1180.0 UV	1240.0 UV
SJ22 POTASSIUM	MG/KG	2300.0 V	2100.0 V	2100.0 V	1900.0 V	2300.0 V	2300.0 V
SJ23 TIN	MG/KG	N/A	N/A	N/A	N/A	N/A	N/A
SJ24 MERCURY	MG/KG	0.13 UV	0.12 V	0.12 V	0.11 V	0.12 V	0.21 V
SJ25 CYANIDE	MG/KG	6.4 UV	6.3 UV	5.8 UV	5.7 UV	5.9 UV	6.2 UV
SK01 PHENOL	UG/KG	890 UV	830 UV	830 UV	790 UV	830 UV	860 UV

COMPOUND	UNITS	036	037	038	039	040	041	
SK03 BIS(2-CHLOROETHYL) ETHER	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK04 2-CHLOROPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK05 1,3-DICHLOROBENZENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK06 1,4-DICHLOROBENZENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK07 BENZYL ALCOHOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK08 1,2-DICHLOROBENZENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK09 2-METHYLPHENOL (O-CRESOL)	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK11 4-METHYLPHENOL (M-CRESOL)	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK12 N-NITROSO-DIPROPYLAMINE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK13 HEXACHLOROETHANE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK14 NITROBENZENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK15 ISOPHORONE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK16 2-NITROPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK17 2,4-DIMETHYLPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK18 BENZOIC ACID	UG/KG	4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK20 2,4-DICHLOROPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK21 1,2,4-TRICHLOROBENZENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK22 NAPHTHALENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK23 4-CHLOROANILINE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK24 HEXACHLOROBUTADIENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK26 2-METHYLNAPHTHALENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK28 2,4,6-TRICHLOROPHENOL	UG/KG	890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	036	037	038	039	040	041
29 2,4,5-TRICHLOROPHENOL	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
30 2-CHLORONAPHTHALENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
31 2-NITROANILINE	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
32 DIMETHYLPHTHALATE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
33 ACENAPHTHYLENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
34 3-NITROANILINE	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
35 ACENAPHTHENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
36 2,4-DINITROPHENOL	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
37 4-NITROPHENOL	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
38 DIBENZOFURAN	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
39 2,4-DINITROTOLUENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
40 2,6-DINITROTOULENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
41 DIETHYLPHTHALATE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
42 4-CHLOROPHENYL PHENYL ETHER	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
43 FLOURENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
44 4-NITROANILINE	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
45 4,6-DINITRO-2-METHYLPHENOL	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
46 N-NITROSODIPHENYLAMINE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
47 4-BROMOPHENYL PHENYL ETHER	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
48 HEXACHLOROBENZENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
49 PENTACHLOROPHENOL	UG/KG:4300	UV:4000	UV:4000	UV:3800	UV:4000	UV:4200	UV:
50 PHENANTHRENE	UG/KG:890	UV:380	MV:230	MV:790	UV:830	UV:860	UV:
51 ANTHRACENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
52 DI-N-BUTYL PHTHALATE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
53 FLUORANTHENE	UG/KG:89	MV:660	MV:390	MV:480	MV:830	UV:860	UV:
54 PYRENE	UG/KG:890	UV:550	MV:320	MV:430	MV:830	UV:860	UV:

ANALYSIS REQUEST DETAIL REPOR.   ACTIVITY: 7-ADJ11

COMPOUND	UNITS 036	037	038	039	040	041	
SK55 BUTYL BENZYL PHTHALATE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK56 3,3'-DICHLOROBENZIDINE	UG/KG:1800	UV:1700	UV:1700	UV:1600	UV:1700	UV:1700	UV:
SK57 BENZO(A)ANTHRACENE	UG/KG:890	UV:280	MV:150	MV:300	MV:830	UV:860	UV:
SK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG:890	UV:830	UV:130	MV:270	MV:830	UV:860	UV:
SK59 CHRYSENE	UG/KG:890	UV:380	MV:210	MV:370	MV:830	UV:860	UV:
SK60 DI-N-OCTYL PHTHALATE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK61 BENZO(B)FLUORANTHENE	UG/KG:890	UV:470	MV:240	MV:320	MV:830	UV:860	UV:
SK62 BENZO(K)FLUORANTHENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK63 BENZO(A)PYRENE	UG/KG:890	UV:270	MV:120	MV:150	MV:830	UV:860	UV:
SK64 INDENO(1,2,3-CD)PYRENE	UG/KG:890	UV:190	MV:830	UV:790	UV:830	UV:860	UV:
SK65 DIBENZO(A,H)ANTHRACENE	UG/KG:890	UV:830	UV:830	UV:790	UV:830	UV:860	UV:
SK66 BENZO(G,H,I)PERYLENE	UG/KG:890	UV:230	MV:830	UV:790	UV:830	UV:860	UV:
S001 CHLOROMETHANE	UG/KG:13	UV:13	UV:13	UV:12	UV:12	UV:13	UV:
S002 BROMOMETHANE	UG/KG:13	UV:13	UV:13	UV:12	UV:12	UV:13	UV:
S003 VINYL CHLORIDE	UG/KG:13	UV:13	UV:13	UV:12	UV:12	UV:13	UV:
S004 CHLOROETHANE	UG/KG:13	UV:13	UV:13	UV:12	UV:12	UV:13	UV:
S005 METHYLENE CHLORIDE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:4.0	MV:
S006 1,1-DICHLOROETHYLENE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S007 1,1-DICHLOROETHANE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S008 TRANS-1,2-DICHLOROETHYLENE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S009 CHLOROFORM	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S010 1,2-DICHLOROETHANE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S011 1,1,1-TRICHLOROETHANE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S012 CARBON TETRACHLORIDE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S013 BROMODICHLOROMETHANE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:
S014 1,2-DICHLOROPROPANE	UG/KG:6.5	UV:6.5	UV:6.5	UV:6.0	UV:6.0	UV:6.5	UV:

ANALYSIS REQUEST DETAIL REPO   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	036	037	038	039	040	041
S015 BENZENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S016 TRANS-1,3-DICHLOROPROPENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S017 TRICHLOROETHYLENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S018 CIS-1,3-DICHLOROPROPENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S019 DIBROMOCHLOROMETHANE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S020 1,1,2-TRICHLOROETHANE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S021 2-CHLOROETHYLVINYL ETHER	UG/KG	13 UV	13 UV	13 UV	12 UV	12 UV	13 UV
S022 BROPOFORM	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S023 1,1,2,2-TETRACHLOROETHENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S024 TOLUENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	3.0 KV	2.0 MV	2.0 MV
S025 1,1,2,2-TETRACHLOROETHANE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S026 CHLOROBENZENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S027 ETHYL BENZENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S028 ACETONE	UG/KG	140 JV	13 UV	13 UV	12 UV	12 UV	13 UV
S029 CARBON DISULFIDE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S030 2-BUTANONE	UG/KG	I I	I I	I I	I I	I I	I I
S031 VINYL ACETATE	UG/KG	13 UV	13 UV	13 UV	12 UV	12 UV	13 UV
S032 2-HEXANONE	UG/KG	13 UV	13 UV	13 UV	12 UV	12 UV	13 UV
S033 4-METHYL-2-PENTANONE	UG/KG	13 UV	13 UV	13 UV	12 UV	12 UV	13 UV
S034 STYRENE	UG/KG	6.5 UV	6.5 UV	6.5 UV	6.0 UV	6.0 UV	6.5 UV
S035 XYLENES, TOTAL	UG/KG	6.5 UV	6.5 V	6.5 UV	6.0 UV	6.0 UV	6.5 UV
SQ03 CARBON, TOTAL ORGANIC	G/KG	7.5 V	7.3 V	5.3 V	8.3 V	16.0 V	10.7 V
ZZ01 SAMPLE NUMBER	NA	036 V	037 V	038 V	039 V	040 V	041 V
ZZ02 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V

ANALYSIS REQUEST DETAIL REP ACTIVITY: 7-ADJ11

COMPOUND	UNITS	.042F	043F	044F	060	061	061D
WF01 WATER TEMP	°C				17.5 V	22 V	
WF05 PH, FIELD	SU				6.3 V	6.6 V	
WG16 CONDUCTIVITY	UMHOS				490 V	355 V	
WJ01 SILVER, TOTAL	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WJ02 ALUMINUM, TOTAL	UG/L		200 UV	200 UV	4300 V	1600 UV	1300 UV
WJ03 ARSENIC, TOTAL	UG/L		10 UV	10 UV	19 UV	16 UV	48 UV
WJ04 BARIUM, TOTAL	UG/L		200 UV	200 UV	590 UV	200 UV	200 UV
WJ05 BERYLLIUM, TOTAL	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
WJ06 CADMIUM, TOTAL	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
WJ07 COBALT, TOTAL	UG/L		50 UV	50 UV	50 UV	50 UV	50 UV
WJ08 CHROMUIM, TOTAL	UG/L		10 UV	10 UV	9.5 MV	10 UV	10 UV
WJ09 COPPER, TOTAL	UG/L		25 UV	25 UV	25 UV	25 UV	25 UV
WJ10 IRON, TOTAL	UG/L		100 UV	100 UV	5400 V	4300 V	4200 V
WJ11 MANGANESE, TOTAL	UG/L		15 UV	15 UV	5700 V	2900 V	3000 V
WJ12 NICKEL, TOTAL	UG/L		40 UV	40 UV	40 V	40 V	40 V
WJ13 LEAD, TOTAL	UG/L		5 UV	5 UV	5 UV	18 UV	16 UV
WJ14 ANTIMONY, TOTAL	UG/L		60 UV	60 UV	60 UV	60 UV	60 UV
WJ15 SELENIUM, TOTAL	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
WJ16 THALLIUM, TOTAL	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WJ17 VANADIUM, TOTAL	UG/L		50 UV	50 UV	14 MV	50 UV	50 UV
WJ18 ZINC, TOTAL	UG/L		20 UV	20 UV	43 UV	490 V	470 V
WJ19 CALCIUM, TOTAL	UG/L		5000 UV	5000 UV	100000 V	39000 V	39000 V
WJ20 MAGNESIUM, TOTAL	UG/L		5000 UV	5000 UV	9700 V	5400 UV	5500 UV
WJ21 SODIUM, TOTAL	UG/L		5000 UV	5000 UV	21000 UV	10000 UV	11000 UV
WJ22 POTASSIUM, TOTAL	UG/L		5000 UV	5000 UV	5000 UV	5000 UV	5000 UV
WJ23 TIN, TOTAL	UG/L		N/A	N/A	N/A	N/A	N/A

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	042F	043F	044F	060	061	061D
5 MERCURY, TOTAL	UG/L		0.2 UV	0.2 UV	0.2 UV	0.2 UV	0.34 UV
5 CYANIDE, TOTAL	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
5 SILVER, DISSOLVED	UG/L				10 UV	10 UV	10 UV
7 ALUMINUM, DISSOLVED	UG/L				200 UV	200 UV	500 UV
8 ARSENIC, DISSOLVED	UG/L				17 V	16 V	16 V
9 BARIUM, DISSOLVED	UG/L				470 V	94 MV	493 V
0 BERYLLIUM, DISSOLVED	UG/L				5 UV	5 UV	5 UV
1 CADMIUM, DISSOLVED	UG/L				5 UV	5 UV	5 UV
2 COBALT, DISSOLVED	UG/L				50 UV	50 UV	50 UV
3 CHROMIUM, DSSOLVED	UG/L				10 UV	10 UV	11 V
4 COPPER, DISSOLVED	UG/L				44 UV	41 UV	52 UV
5 IRON, DISSOLVED	UG/L				370 UV	1390 UV	1820 V
6 MANGANESE, DISSOLVED	UG/L				3580 V	2750 V	4980 V
7 NICKEL, DISSOLVED	UG/L				40 UV	40 UV	40 UV
8 LEAD, DISSOLVED	UG/L				5 UV	5 UV	5 UV
9 ANTIMONY, DISSOLVED	UG/L				60 UV	60 UV	60 UV
0 SELENIUM, DISSOLVED	UG/L				5 UV	5 UV	5 UV
1 THALLIUM, DISSOLVED	UG/L				10 UV	10 UV	100 UV
2 VANADIUM, DISSOLVED	UG/L				50 UV	50 UV	50 UV
3 ZINC, DISSOLVED	UG/L				20 UV	150 V	67 V
44 CALCIUM, DISSOLVED	UG/L				100000 V	38000 V	87900 V
45 MAGNESIUM, DISSOLVED	UG/L				9460 V	5370 UV	8500 V
46 SODIUM, DISSOLVED	UG/L				23700 UV	9590 UV	19300 UV
47 POTASSIUM, DISSOLVED	UG/L				5000 UV	5000 UV	5000 UV
48 TIN, DISSOLVED	UG/L				N/A	N/A	N/A
49 MERCURY, DISSOLVED	UG/L				0.2 UV	0.2 V	0.2 UV

ANALYSIS REQUEST DETAIL REPOR   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	042F	043F	044F	060	061	061D
WK01 PHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK03 BIS(2-CHLOROETHYL) ETHER	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK04 2-CHLOROPHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK05 1,3-DICHLOROBENZENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK06 1,4-DICHLOROBENZENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK07 BENZYL ALCOHOL	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK08 1,2-DICHLOROBENZENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK09 2-METHYLPHENOL (O-CRESOL)	UG/L		10 UV	10 UV	I I	10 UV	I I
WK10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK11 4-METHYLPHENOL (M-CRESOL)	UG/L		10 UV	10 UV	I I	10 UV	I I
WK12 N-NITROSO-DIPROPYLAMINE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK13 HEXACHLOROETHANE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK14 NITROBENZENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK15 ISOPHORONE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK16 2-NITROPHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK17 2,4-DIMETHYLPHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK18 BENZOIC ACID	UG/L		50 UV	50 UV	I I	50 UV	I I
WK19 BIS(2-CHLOROETHYOXY) METHANE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK20 2,4-DICHLOROPHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK21 1,2,4-TRICHLOROBENZENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK22 NAPHTHALENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK23 4-CHLOROANILINE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK24 HEXACHLOROBUTADIENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK25 4-CHLORO-3-METHYLPHENOL	UG/L		10 UV	10 UV	I I	10 UV	I I
WK26 2-METHYLNAPHTHALENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
WK27 HEXACHLOROCYCLOPENTADIENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	042F	043F	044F	060	061	061D	
28 2,4,6-TRICHLOROPHENOL	UG/L		:10	UV:10	UV:I	I :10	UV:I	I :
29 2,4,5-TRICHLOROPHENOL	UG/L		:50	UV:50	UV:I	I :50	UV:I	I :
30 2-CHLORONAPHTHALENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
31 2-NITROANILINE (ORTHO NITROANILINE)	UG/L		:50	UV:50	UV:50	UV:50	UV:50	UV:
32 DIMETHYLPHTHALATE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
33 ACENAPHTHYLENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
34 3-NITROANILINE	UG/L		:50	UV:50	UV:50	UV:50	UV:50	UV:
35 ACENAPHTHENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
36 2,4-DINITROPHENOL	UG/L		:50	UV:50	UV:I	I :50	UV:I	I :
37 4-NITROPHENOL	UG/L		:50	UV:50	UV:I	I :50	UV:I	I :
38 DIBENZOFURAN	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
39 2,4-DINITROTOLUENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
40 2,6-DINITROTOULENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
41 DIETHYLPHTHALATE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
42 4-CHLOROPHENYL PHENYL ETHER	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
43 FLOURENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
44 4-NITROANILINE	UG/L		:50	UV:50	UV:50	UV:50	UV:50	UV:
45 4,6-DINITRO-2-METHYLPHENOL	UG/L		:50	UV:50	UV:I	I :50	UV:I	I :
46 N-NITROSODIPHENYLAMINE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
47 4-BROMOPHENYL PHENYL ETHER	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
48 HEXACHLOROBENZENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
49 PENTACHLOROPHENOL	UG/L		:50	UV:50	UV:I	I :50	UV:I	I :
50 PHENANTHRENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
51 ANTHRACENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
52 DI-N-BUTYL PHTHALATE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:
53 FLUORANTHENE	UG/L		:10	UV:10	UV:10	UV:10	UV:10	UV:

ANALYSIS REQUEST DETAIL REPOR ACTIVITY: 7-ADJ11

COMPOUND	UNITS	042F	043F	044F	060	061	061D
K54 PYRENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K55 BUTYL BENZYL PHTHALATE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K56 3,3'-DICHLOROBENZIDINE	UG/L		20 UV	20 UV	20 UV	20 UV	20 UV
K57 BENZO(A)ANTHRACENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L		13 JV	250 JV	40 UV	78 UV	10 UV
K59 CHRYSENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K60 DI-N-OCTYL PHTHALATE	UG/L		10 UV	10 UV	4 MV	7 MV	10 UV
K61 BENZO(B)FLUORANTHENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K62 BENZO(K)FLUORANTHENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K63 BENZO(A)PYRENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K64 INDENO(1,2,3-CD)PYRENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K65 DIBENZO(A,H)ANTHRACENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
K66 BENZO(G,H,I)PERYLENE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W001 CHLOROMETHANE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W002 BROMOMETHANE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W003 VINYL CHLORIDE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W004 CHLOROETHANE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W005 METHYLENE CHLORIDE	UG/L		2 MV	9 JV	5 UV	5 UV	5 UV
W006 1,1-DICHLOROETHYLENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W007 1,1-DICHLOROETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W008 1,2-DICHLOROETHENE (TOTAL)	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W009 CHLOROFORM	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W010 1,2-DICHLOROETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W011 1,1,1-TRICHLOROETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W012 CARBON TETRACHLORIDE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W013 BROMODICHLOROMETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV

ANALYSIS REQUEST DETAIL REPO   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	042F	043F	044F	060	061	061D
W014 1,2-DICHLOROPROPANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W015 BENZENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W016 1,3-DICHLOROPROPENE TOTAL	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W017 TRICHLOROETHYLENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W018 CIS-1,3-DICHLOROPROPENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W019 DIBROMOCHLOROMETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W020 1,1,2-TRICHLOROETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W021 2-CHLOROETHYLVINYL ETHER	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W022 BROMOFORM	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W023 1,1,2,2-TETRACHLOROETHENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W024 TOLUENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W025 1,1,2,2-TETRACHLOROETHANE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W026 CHLOROBENZENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W027 ETHYL BENZENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W028 ACETONE	UG/L		9 MV	24 JV	10 UV	10 UV	10 UV
W029 CARBON DISULFIDE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W030 2-BUTANONE	UG/L		I I	I I	I I	I I	I I
W031 VINYL ACETATE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W032 2-HEXANONE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W033 4-METHYL-2-PENTANONE	UG/L		10 UV	10 UV	10 UV	10 UV	10 UV
W034 STYRENE	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
W035 XYLENES, TOTAL	UG/L		5 UV	5 UV	5 UV	5 UV	5 UV
WQ03 CARBON, TOTAL ORGANIC	MG/L		2 UV	2 UV	70 V	3.4 V	4.4 V
WQ08 HALOGEN, TOTAL ORGANIC	UG/L	5 UV	5 UV	5 UV	5 UV	8 V	5 UV
ZZ01 SAMPLE NUMBER	NA	042 V	043 V	044 V	060 V	061 V	061 V
ZZ02 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	062	070F	071	072		
SJ01 SILVER	MG/KG				2.3 UV		
SJ02 ALUMINUM	MG/KG				9400 V		
SJ03 ARSENIC	MG/KG				2.5 JV		
SJ04 BARIUM	MG/KG				88 V		
SJ05 BERYLLIUM	MG/KG				1.2 UV		
SJ06 CADMIUM	MG/KG				1.2 UV		
SJ07 COBALT	MG/KG				5.6 NV		
SJ08 CHROMIUM	MG/KG				730 V		
SJ09 COPPER	MG/KG				610 V		
SJ10 IRON	MG/KG				12000 V		
SJ11 MANGANESE	MG/KG				270 V		
SJ12 NICKEL	MG/KG				690 V		
SJ13 LEAD	MG/KG				12 UV		
SJ14 ANTIMONY	MG/KG				I I		
SJ15 SELENIUM	MG/KG				1.2 UV		
SJ16 THALLIUM	MG/KG				2.3 UV		
SJ17 VANADIUM	MG/KG				18 V		
SJ18 ZINC	MG/KG				430 V		
SJ19 CALCIUM	MG/KG				7500 V		
SJ20 MAGNESIUM	MG/KG				1800 V		
SJ21 SODIUM	MG/KG				1160 UV		
SJ22 POTASSIUM	MG/KG				1500 V		
SJ23 TIN	MG/KG				N/A		
SJ24 MERCURY	MG/KG				0.12 V		
SJ25 CYANIDE	MG/KG				0.44 NV		
SK01 PHENOL	UG/KG				47000 UV		

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	062	070F	071	072		
K03 BIS(2-CHLOROETHYL) ETHER	UG/KG				47000 UV		
K04 2-CHLOROPHENOL	UG/KG				47000 UV		
K05 1,3-DICHLOROBENZENE	UG/KG				47000 UV		
K06 1,4-DICHLOROBENZENE	UG/KG				47000 UV		
K07 BENZYL ALCOHOL	UG/KG				47000 UV		
K08 1,2-DICHLOROBENZENE	UG/KG				47000 UV		
K09 2-METHYLPHENOL (O-CRESOL)	UG/KG				47000 UV		
K10 BIS(2-CHLOROISOPROPYL) ETHER	UG/KG				47000 UV		
K11 4-METHYLPHENOL (M-CRESOL)	UG/KG				47000 UV		
K12 N-NITROSO-DIPROPYLAMINE	UG/KG				47000 UV		
K13 HEXACHLOROETHANE	UG/KG				47000 UV		
K14 NITROBENZENE	UG/KG				47000 UV		
K15 ISOPHORONE	UG/KG				47000 UV		
K16 2-NITROPHENOL	UG/KG				47000 UV		
SK17 2,4-DIMETHYLPHENOL	UG/KG				47000 UV		
SK18 BENZOIC ACID	UG/KG				230000 UV		
SK19 BIS(2-CHLOROETHYOXY) METHANE	UG/KG				47000 UV		
SK20 2,4-DICHLOROPHENOL	UG/KG				47000 UV		
SK21 1,2,4-TRICHLOROBENZENE	UG/KG				47000 UV		
SK22 NAPHTHALENE	UG/KG				47000 UV		
SK23 4-CHLOROANILINE	UG/KG				47000 UV		
SK24 HEXACHLOROBUTADIENE	UG/KG				47000 UV		
SK25 4-CHLORO-3-METHYLPHENOL	UG/KG				47000 UV		
SK26 2-METHYLNAPHTHALENE	UG/KG				47000 UV		
SK27 HEXACHLOROCYCLOPENTADIENE	UG/KG				47000 UV		
SK28 2,4,6-TRICHLOROPHENOL	UG/KG				47000 UV		

ANALYSIS REQUEST DETAIL REPOR ACTIVITY: 7-ADJ11

COMPOUND	UNITS	062	070F	071	072		
SK29 2,4,5-TRICHLOROPHENOL	UG/KG				230000 UV		
SK30 2-CHLORONAPHTHALENE	UG/KG				47000 UV		
SK31 2-NITROANILINE	UG/KG				230000 UV		
SK32 DIMETHYLPHTHALATE	UG/KG				47000 UV		
SK33 ACENAPHTHYLENE	UG/KG				47000 UV		
SK34 3-NITROANILINE	UG/KG				230000 UV		
SK35 ACENAPHTHENE	UG/KG				47000 UV		
SK36 2,4-DINITROPHENOL	UG/KG				230000 UV		
SK37 4-NITROPHENOL	UG/KG				230000 UV		
SK38 DIBENZOFURAN	UG/KG				47000 UV		
SK39 2,4-DINITROTOLUENE	UG/KG				47000 UV		
SK40 2,6-DINITROTOULENE	UG/KG				47000 UV		
SK41 DIETHYLPHTHALATE	UG/KG				47000 UV		
SK42 4-CHLOROPHENYL PHENYL ETHER	UG/KG				47000 UV		
SK43 FLOURENE	UG/KG				47000 UV		
SK44 4-NITROANILINE	UG/KG				230000 UV		
SK45 4,6-DINITRO-2-METHYLPHENOL	UG/KG				230000 UV		
SK46 N-NITROSODIPHENYLAMINE	UG/KG				47000 UV		
SK47 4-BROMOPHENYL PHENYL ETHER	UG/KG				47000 UV		
SK48 HEXACHLOROBENZENE	UG/KG				47000 UV		
SK49 PENTACHLOROPHENOL	UG/KG				230000 UV		
SK50 PHENANTHRENE	UG/KG				47000 UV		
SK51 ANTHRACENE	UG/KG				47000 UV		
SK52 DI-N-BUTYL PHTHALATE	UG/KG				47000 UV		
SK53 FLUORANTHENE	UG/KG				47000 UV		
SK54 PYRENE	UG/KG				47000 UV		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 7-ADJ11

COMPOUND	UNITS	062	070F	C71	072		
55 BUTYL BENZYL PHTHALATE	UG/KG				47000 UV		
56 3,3'-DICHLOROBENZIDINE	UG/KG				95000 UV		
57 BENZO(A)ANTHRACENE	UG/KG				47000 UV		
58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG				21000 RV		
59 CHRYSENE	UG/KG				47000 UV		
60 DI-N-OCTYL PHTHALATE	UG/KG				47000 UV		
61 BENZO(B)FLUORANTHENE	UG/KG				47000 UV		
62 BENZO(K)FLUORANTHENE	UG/KG				47000 UV		
63 BENZO(A)PYRENE	UG/KG				47000 UV		
64 INDENO(1,2,3-CD)PYRENE	UG/KG				47000 UV		
65 DIBENZO(A,H)ANTHRACENE	UG/KG				47000 UV		
66 BENZO(G,H,I)PERYLENE	UG/KG				47000 UV		
01 CHLOROMETHANE	UG/KG				24 UV		
02 BROMOMETHANE	UG/KG				24 UV		
03 VINYL CHLORIDE	UG/KG				24 UV		
04 CHLOROETHANE	UG/KG				24 UV		
05 METHYLENE CHLORIDE	UG/KG				95 V		
06 1,1-DICHLOROETHYLENE	UG/KG				12 UV		
07 1,1-DICHLOROETHANE	UG/KG				12 UV		
08 TRANS-1,2-DICHLOROETHYLENE	UG/KG				12 UV		
09 CHLOROFORM	UG/KG				37 V		
010 1,2-DICHLOROETHANE	UG/KG				12 UV		
011 1,1,1-TRICHLOROETHANE	UG/KG				12 UV		
012 CARBON TETRACHLORIDE	UG/KG				12 UV		
013 BROMODICHLOROMETHANE	UG/KG				12 UV		
014 1,2-DICHLOROPROPANE	UG/KG				12 UV		

ANALYSIS REQUEST DETAIL REPOR ACTIVITY: 7-ADJ11

COMPOUND	UNITS	062	070F	071	072		
S015 BENZENE	UG/KG				12 UV		
S016 TRANS-1,3-DICHLOROPROPENE	UG/KG				12 UV		
S017 TRICHLOROETHYLENE	UG/KG				12 UV		
S018 CIS-1,3-DICHLOROPROPENE	UG/KG				12 UV		
S019 DIBROMOCHLOROMETHANE	UG/KG				12 UV		
S020 1,1,2-TRICHLOROETHANE	UG/KG				12 UV		
S021 2-CHLOROETHYLVINYL ETHER	UG/KG				24 UV		
S022 BROMOFORM	UG/KG				12 UV		
S023 1,1,2,2-TETRACHLOROETHENE	UG/KG				12 UV		
S024 TOLUENE	UG/KG				46 V		
S025 1,1,2,2-TETRACHLOROETHANE	UG/KG				12 UV		
S026 CHLOROBENZENE	UG/KG				12 UV		
S027 ETHYL BENZENE	UG/KG				12 UV		
S028 ACETONE	UG/KG				330 JV		
S029 CARBON DISULFIDE	UG/KG				11 MV		
S030 2-BUTANONE	UG/KG				I I		
S031 VINYL ACETATE	UG/KG				24 UV		
S032 2-HEXANONE	UG/KG				24 UV		
S033 4-METHYL-2-PENTANONE	UG/KG				24 UV		
S034 STYRENE	UG/KG				12 UV		
S035 XYLENES, TOTAL	UG/KG				12 UV		
S003 CARBON, TOTAL ORGANIC	G/KG				32.0 V		
WF01 WATER TEMP	°C	18 V	24.5 V	25.0 V			
WF05 PH, FIELD	SU	6.5 V	7.0 V	8.0 V			
WG16 CONDUCTIVITY	UMHOS	500 V	9.5 V	1700 V			
WJ01 SILVER, TOTAL	UG/L	10 UV	10 UV	10 UV			

COMPOUND	UNITS	062	070F	071	072		
WJ02 ALUMINUM, TOTAL	UG/L	200 UV	200 UV	480 UV			
WJ03 ARSENIC, TOTAL	UG/L	39 UV	10 UV	10 UV			
WJ04 BARIUM, TOTAL	UG/L	200 UV	200 UV	200 UV			
WJ05 BERYLLIUM, TOTAL	UG/L	5 UV	5 UV	5 UV			
WJ06 CADMIUM, TOTAL	UG/L	5 UV	5 UV	5 UV			
WJ07 COBALT, TOTAL	UG/L	50 UV	50 UV	50 UV			
WJ08 CHROMUIM, TOTAL	UG/L	10 UV	10 UV	580 V			
WJ09 COPPER, TOTAL	UG/L	25 UV	25 UV	1400 V			
WJ10 IRON, TOTAL	UG/L	480 UV	100 UV	400 UV			
WJ11 MANGANESE, TOTAL	UG/L	2400 V	15 UV	19 UV			
WJ12 NICKEL, TOTAL	UG/L	40 UV	40 UV	200 V			
WJ13 LEAD, TOTAL	UG/L	5 UV	5 UV	5 UV			
WJ14 ANTIMONY, TOTAL	UG/L	60 UV	60 UV	60 UV			
WJ15 SELENIUM, TOTAL	UG/L	5 UV	5 UV	5 UV			
WJ16 THALLIUM, TOTAL	UG/L	10 UV	10 UV	10 UV			
WJ17 VANADIUM, TOTAL	UG/L	50 UV	50 UV	50 UV			
WJ18 ZINC, TOTAL	UG/L	36 UV	20 UV	900 V			
WJ19 CALCIUM, TOTAL	UG/L	60000 V	5000 UV	34000 V			
WJ20 MAGNESIUM, TOTAL	UG/L	6500 UV	5000 UV	10000 V			
WJ21 SODIUM, TOTAL	UG/L	18000 UV	5000 UV	380000 V			
WJ22 POTASSIUM, TOTAL	UG/L	5000 UV	5000 UV	13000 V			
WJ23 TIN, TOTAL	UG/L	N/A	N/A	N/A			
WJ24 MERCURY, TOTAL	UG/L	0.34 UV	0.2 V	0.2 UV			
WJ25 CYANIDE, TOTAL	UG/L	10 UV	10 UV	35 V			
WJ26 SILVER, DISSOLVED	UG/L	10 UV		10 UV			
WJ27 ALUMINUM, DISSOLVED	UG/L	200 UV		200 UV			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: ?-ADJ11

COMPOUND	UNITS	062	070F	071	072		
WJ28 ARSENIC, DISSOLVED	UG/L	10 UV		10 UV			
WJ29 BARIUM, DISSOLVED	UG/L	107 MV		200 UV			
WJ30 BERYLLIUM, DISSOLVED	UG/L	5 UV		5 UV			
WJ31 CADMIUM, DISSOLVED	UG/L	5 UV		5 UV			
WJ32 COBALT, DISSOLVED	UG/L	50 UV		50 UV			
WJ33 CHROMIUM, DISSOLVED	UG/L	10 UV		490 V			
WJ34 COPPER, DISSOLVED	UG/L	27 UV		749 V			
WJ35 IRON, DISSOLVED	UG/L	276 UV		100 UV			
WJ36 MANGANESE, DISSOLVED	UG/L	2330 V		15 UV			
WJ37 NICKEL, DISSOLVED	UG/L	40 UV		140 V			
WJ38 LEAD, DISSOLVED	UG/L	5 UV		50 UV			
WJ39 ANTIMONY, DISSOLVED	UG/L	60 UV		60 UV			
WJ40 SELENIUM, DISSOLVED	UG/L	5 UV		10 UV			
WJ41 THALLIUM, DISSOLVED	UG/L	100 UV		10 UV			
WJ42 VANADIUM, DISSOLVED	UG/L	50 UV		50 UV			
WJ43 ZINC, DISSOLVED	UG/L	32 V		160 V			
WJ44 CALCIUM, DISSOLVED	UG/L	61000 V		34400 V			
WJ45 MAGNESIUM, DISSOLVED	UG/L	6690 V		10000 V			
WJ46 SODIUM, DISSOLVED	UG/L	20200 UV		453000 V			
WJ47 POTASSIUM, DISSOLVED	UG/L	5000 UV		5000 UV			
WJ48 TIN, DISSOLVED	UG/L	N/A		N/A			
WJ49 MERCURY, DISSOLVED	UG/L	0.2 UV		0.2 UV			
WK01 PHENOL	UG/L	I I	10 UV	10 UV			
WK03 BIS(2-CHLOROETHYL) ETHER	UG/L	10 UV	10 UV	10 UV			
WK04 2-CHLOROPHENOL	UG/L	I I	10 UV	10 UV			
WK05 1,3-DICHLOROBENZENE	UG/L	10 UV	10 UV	10 UV			

ANALYSIS REQUEST DETAIL REPORT   ACTIVITY: 7-ADJ11

COMPOUND	UNITS	062	070F	071	072		
06 1,4-DICHLOROBENZENE	UG/L	10	UV:10	UV:10	UV:		
07 BENZYL ALCCHOL	UG/L	10	UV:10	UV:10	UV:		
08 1,2-DICHLOROBENZENE	UG/L	10	UV:10	UV:10	UV:		
09 2-METHYLPHENOL (O-CRESOL)	UG/L	I	I :10	UV:10	UV:		
10 BIS(2-CHLOROISOPROPYL) ETHER	UG/L	10	UV:10	UV:10	UV:		
11 4-METHYLPHENOL (M-CRESOL)	UG/L	I	I :10	UV:10	UV:		
12 N-NITROSO-DIPROPYLAMINE	UG/L	10	UV:10	UV:10	UV:		
13 HEXACHLOROETHANE	UG/L	10	UV:10	UV:10	UV:		
14 NITROBENZENE	UG/L	10	UV:10	UV:10	UV:		
15 ISOPHORONE	UG/L	10	UV:10	UV:10	UV:		
16 2-NITROPHENOL	UG/L	I	I :10	UV:10	UV:		
17 2,4-DIMETHYLPHENOL	UG/L	I	I :10	UV:10	UV:		
18 BENZOIC ACID	UG/L	I	I :30	UV:50	UV:		
19 BIS(2-CHLOROETHYOXY) METHANE	UG/L	10	UV:10	UV:10	UV:		
20 2,4-DICHLORCPHENOL	UG/L	I	I :10	UV:10	UV:		
21 1,2,4-TRICHLOROBENZENE	UG/L	10	UV:10	UV:10	UV:		
22 NAPHTHALENE	UG/L	10	UV:10	UV:10	UV:		
23 4-CHLOROANILINE	UG/L	10	UV:10	UV:10	UV:		
24 HEXACHLOROBUTADIENE	UG/L	10	UV:10	UV:10	UV:		
25 4-CHLORO-3-METHYLPHENOL	UG/L	I	I :10	UV:10	UV:		
26 2-METHYLNAPHTHALENE	UG/L	10	UV:10	UV:3	MV:		
27 HEXACHLOROCYCLOPENTADIENE	UG/L	10	UV:10	UV:10	UV:		
28 2,4,6-TRICHLOROPHENOL	UG/L	I	I :10	UV:10	UV:		
29 2,4,5-TRICHLOROPHENOL	UG/L	I	I :50	UV:50	UV:		
30 2-CHLORONAPHTHALENE	UG/L	10	UV:10	UV:10	UV:		
31 2-NITROANILINE (ORTHO NITROANILINE)	UG/L	50	UV:50	UV:50	UV:		

ANALYSIS REQUEST DETAIL REPORT .TIVITY: ?-ADJ11

COMPOUND	UNITS	062	070F	071	072		
32 DIMETHYLPHTHALATE	UG/L	10	UV:10	UV:10	UV:		
33 ACENAPHTHYLENE	UG/L	10	UV:10	UV:10	UV:		
34 3-NITROANILINE	UG/L	50	UV:50	UV:50	UV:		
35 ACENAPHTHENE	UG/L	10	UV:10	UV:10	UV:		
36 2,4-DINITROPHENOL	UG/L	I	I :50	UV:50	UV:		
37 4-NITROPHENOL	UG/L	I	I :50	UV:50	UV:		
38 DIBENZOFURAN	UG/L	10	UV:10	UV:10	UV:		
39 2,4-DINITROTOLUENE	UG/L	10	UV:10	UV:10	UV:		
40 2,6-DINITROTOULENE	UG/L	10	UV:10	UV:10	UV:		
41 ~~DIETHYLPHTHALATE~~	UG/L	10	UV:10	UV:10	UV:		
42 4-CHLOROPHENYL PHENYL ETHER	UG/L	10	UV:10	UV:10	UV:		
43 FLOURENE	UG/L	10	UV:10	UV:10	UV:		
44 4-NITROANILINE	UG/L	50	UV:50	UV:50	UV:		
45 4,6-DINITRO-2-METHYLPHENOL	UG/L	I	I :50	UV:50	UV:		
46 N-NITROSODIPHENYLAMINE	UG/L	10	UV:10	UV:10	UV:		
47 4-BROMOPHENYL PHENYL ETHER	UG/L	10	UV:10	UV:10	UV:		
48 HEXACHLOROBENZENE	UG/L	10	UV:10	UV:10	UV:		
49 PENTACHLOROPHENOL	UG/L	I	I :50	UV:50	UV:		
50 PHENANTHRENE	UG/L	10	UV:10	UV:10	UV:		
51 ANTHRACENE	UG/L	10	UV:10	UV:10	UV:		
52 DI-N-BUTYL PHTHALATE	UG/L	10	UV:10	UV:10	UV:		
53 FLUORANTHENE	UG/L	10	UV:10	UV:10	UV:		
54 PYRENE	UG/L	10	UV:10	UV:10	UV:		
55 BUTYL BENZYL PHTHALATE	UG/L	10	UV:10	UV:10	UV:		
56 3,3'-DICHLOROBENZIDINE	UG/L	20	UV:20	UV:20	UV:		
57 BENZO(A)ANTHRACENE	UG/L	10	UV:10	UV:10	UV:		

COMPOUND	UNITS	062	070F	C71	072		
WK58 BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	10 UV	10 UV	10 UV			
WK59 CHRYSENE	UG/L	10 UV	10 UV	10 UV			
WK60 DI-N-OCTYL PHTHALATE	UG/L	10 UV	10 UV	10 UV			
WK61 BENZO(B)FLUORANTHENE	UG/L	10 UV	10 UV	10 UV			
WK62 BENZO(K)FLUORANTHENE	UG/L	10 UV	10 UV	10 UV			
WK63 BENZO(A)PYRENE	UG/L	10 UV	10 UV	10 UV			
WK64 INDENO(1,2,3-CD)PYRENE	UG/L	1C UV	10 UV	10 UV			
WK65 DIBENZO(A,H)ANTHRACENE	UG/L	10 UV	1C UV	10 UV			
WK66 BENZO(G,H,I)PERYLENE	UG/L	10 UV	10 UV	10 UV			
W001 CHLOROMETHANE	UG/L	10 UV	10 UV	10 UV			
W002 BROMOMETHANE	UG/L	10 UV	10 UV	10 UV			
W003 VINYL CHLORIDE	UG/L	10 UV	10 UV	10 UV			
W004 CHLOROETHANE	UG/L	10 UV	10 UV	10 UV			
W005 METHYLENE CHLORIDE	UG/L	5 UV	6 JV	5 UV			
W006 1,1-DICHLOROETHYLENE	UG/L	5 UV	5 UV	5 UV			
W007 1,1-DICHLOROETHANE	UG/L	5 UV	5 UV	5 UV			
W008 1,2-DICHLOROETHENE (TOTAL)	UG/L	5 UV	5 UV	5 UV			
W009 CHLOROFORM	UG/L	5 UV	5 UV	90 JV			
W010 1,2-DICHLOROETHANE	UG/L	5 UV	5 UV	5 UV			
W011 1,1,1-TRICHLOROETHANE	UG/L	5 UV	5 UV	5 UV			
W012 CARBON TETRACHLORIDE	UG/L	5 UV	5 UV	5 UV			
W013 BROMODICHLOROMETHANE	UG/L	5 UV	5 UV	3 MV			
W014 1,2-DICHLOROPROPANE	UG/L	5 UV	5 UV	5 UV			
W015 BENZENE	UG/L	5 UV	5 UV	5 UV			
W016 1,3-DICHLOROPROPENE TOTAL	UG/L	5 UV	5 UV	5 UV			
W017 TRICHLOROETHYLENE	UG/L	5 UV	5 UV	5 UV			

ANALYSIS REQUEST DETAIL REPO   ACTIVITY: ?-ADJ11

COMPOUND	UNITS	062	070F	071	072		
W018 CIS-1,3-DICHLOROPROPENE	UG/L	5 UV	5 UV	5 UV			
W019 DIBROMOCHLOROMETHANE	UG/L	5 UV	5 UV	5 UV			
W020 1,1,2-TRICHLOROETHANE	UG/L	5 UV	5 UV	5 UV			
W021 2-CHLOROETHYLVINYL ETHER	UG/L	10 UV	10 UV	10 UV			
W022 BROMOFORM	UG/L	5 UV	5 UV	5 UV			
W023 1,1,2,2-TETRACHLOROETHENE	UG/L	5 UV	5 UV	5 UV			
W024 TOLUENE	UG/L	5 UV	0.5 MV	5 UV			
W025 1,1,2,2-TETRACHLOROETHANE	UG/L	5 UV	5 UV	5 UV			
W026 CHLOROBENZENE	UG/L	5 UV	5 UV	5 UV			
W027 ETHYL BENZENE	UG/L	5 UV	5 UV	5 UV			
W028 ACETONE	UG/L	10 UV	7 MV	43 UV			
W029 CARBON DISULFIDE	UG/L	5 UV	5 UV	5 UV			
W030 2-BUTANONE	UG/L	I I	I I	I I			
W031 VINYL ACETATE	UG/L	10 UV	10 UV	10 UV			
W032 2-HEXANONE	UG/L	10 UV	10 UV	10 UV			
W033 4-METHYL-2-PENTANONE	UG/L	10 UV	10 UV	10 UV			
W034 STYRENE	UG/L	5 UV	5 UV	5 UV			
W035 XYLENES, TOTAL	UG/L	5 UV	5 UV	5 UV			
W003 CARBON, TOTAL ORGANIC	MG/L	2 UV	2 UV	24 V			
W008 HALOGEN, TOTAL ORGANIC	UG/L	29 V	5 UV	512 V			
ZZ01 SAMPLE NUMBER	NA	062 V	070 V	C71 V	072 V		
ZZ02 ACTIVITY CODE	NA	ADJ11 V	ADJ11 V	ADJ11 V	ADJ11 V		

GROUP ANALYSIS SUMMARY

SAMPLE:	A	B	PES	D	E	FLD	G	HER	I	MC	BMC	L	MET	N	VC	PES	C	R	BN	T	U	VDA	HC	X	Y	TRK	COMMENTS
001 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
003 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
004 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
004 D:	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
005 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
006 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
007 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
009 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
010 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
011 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
012 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
013 :	0	0	0	0	0	1	0	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
014 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
015 :	0	0	0	0	0	0	0	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
015 D:	0	0	0	0	0	2	1	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
016 :	0	0	0	0	0	2	1	0	0	27	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
017 F:	0	0	0	0	0	0	0	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
018 F:	0	0	0	0	0	2	1	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
019 F:	0	0	0	0	0	2	1	0	0	49	65	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
021 F:	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
022 F:	0	0	0	0	0	0	0	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
023 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
024 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
025 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
026 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
026 D:	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
027 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
028 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
029 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
030 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
031 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
032 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
033 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
034 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
034 D:	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
035 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
036 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
037 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
038 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
039 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
040 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
041 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
042 F:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	
043 F:	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
044 F:	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
060 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
061 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
061 D:	0	0	0	0	0	0	0	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
062 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
070 F:	0	0	0	0	0	2	1	0	0	25	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	

GROUP ANALYSIS SUMMARY

SAMPLE:	A	B	PES	D	E	FLD	G	HER	I	MC	BNC	L	MET	N	VC	PES	Q	R	BN	T	U	VOA	HC	X	Y	TRK	COMMENTS
071 :	0	0	0	0	0	2	1	0	0	49	65	0	0	0	35	0	2	0	0	0	0	0	0	0	0	2	
072 :	0	0	0	0	0	0	0	0	0	25	65	0	0	0	35	0	1	0	0	0	0	0	0	0	0	2	
DETERMI-: NATIONS	0	0	0	0	0	43	21	0	018533315			0	0	01470		0	80	0	0	0	0	0	0	0	0	104	
ANALYSES:	0	0	0	0	0	22	21	0	0	51	51	0	0	0	42	0	52	0	0	0	0	0	0	0	0	52	

ACTIVITY ADJ11 KUHLMAN DIECASTING

HE PROJECT LEADER SHOULD CIRCLE ONE - STORET, SAROAD, OR ARCHIVE.

CIRCLE ONE: STORET SAROAD ARCHIVE

FINAL DATA REPORT APPROVED BY PROJECT LEADER ON 06/15/85 10:49:10 BY Robert B Dona.