.CRA .NTERIM STATUS INSPEC1_.ON R. ORT

INSPECTION OF: Kerr-McGee Chemical Corporation
Lake Mead Drive
Henderson, Nevada 89015

FACILITY TYPE: Generator and Disposal

DATE: July 23, 1982

PARTICIPANTS: Alene Coulson, Environmental Specialist
Division of Environmental Protection

Frank Steinberg, Environmental Specialist
Division of Environmental Protection

FACILITY REPRESENTATIVES: Terry Bentley, Senior Staff
Environmental Engineer

Steve Pia, Hazardous Waste Manager

Bert J. Smith, Senior Hydrologist

John C. Stauter, Senior Environmental
Scientist

Richard Wohletz, Supervisor of Plant
Technical Services

EPA IDENTIFICATION NUMBER: NVD008290330

OVERVIEW: The Kerr-McGee Chemical Company, Henderson, Nevada, is a producer of industrial chemicals including Boron chemicals, Sodium Chlorate, Ammonium Perchlorate, and Potassium Perchlorate.

By-products from this production include Sulfuric Acid, which is neutralized; Hexavelant Chromium (900 tons per year); and a Chlorinated Solvent waste (one 55-gallon drum per year).

GENERAL INSPECTION REQUIREMENTS: The facility has a current Waste Analysis Plan and a Pond Leakage Monitoring Plan. Inspection schedules and frequencies are included, as required. The facility has a properly maintained Facility Inspection Log Book.

Security at the facility is adequate. The entire plant is enclosed by a 6' high cyclone fence with the required warning signs posted.

The facility has a Contingency Plan, as required. However, the Plan does not list the emergency equipment available or the capabilities of the equipment.

PREPAREDNESS AND PREVENTION: The facility is equipped with the necessary equipment such as alarm system, fire extinguisher, spill control and decontamination equipment. All equipment is properly maintained.

Emergency response arrangements have been made with local authorities. This facility has an in-plant emergency response team, and access to the BMI Fire Response Team.

PERSONNEL TRAINING: The facility has an active and documented on-the-job training program for all employees. All employees receive proper training before their six (6) month anniversary and prior to starting a new position (if required). Training files are adequately maintained.

RECOMMENDATIONS: The facility Contingency Plan should be amended to include a list of all available emergency equipment and the location and capabilities of thie equipment, as required by 40 CFR, 265.22.

EPA REGION IX

FACILITY INVESTIGATION REPORT

Company Name: KERR-M^{C}GEE CHEMICAL CORPORATION

Street Address: LAKE MEAD DRIVE

City/State/Zip: HENDERSON, NV 89015

Phone Number: (702) 565-8901 ( )

Mailing Address (if different from above):

KERR-M^{C}GEE CENTER (405) 270-2648

OKLAHOMA CITY, OK 73125

Facility Representative(s) & Titles:

1. JOHN C. STAUTER SENIOR ENVIRONMENTAL SCIENTIST
2. BERT J. SMITH SENIOR HYDROLOGIST
3. TERRY BENTLEY SENIOR STAFF ENV. ENGINEER

STEVE PIA HAZARDOUS WASTE MANAGER
RICHARD WOHLETZ SUPERVISOR PLANT TECHNICAL SERVICES

EPA Investigator(s):

1. ALENE COULSON ENVIRONMENTAL SPECIALIST NV DEP
2. FRANK STEINBERG ENVIRONMENTAL SPECIALIST NV DEP

Other Participants/Agencies:

1.
2.
3.

Date(s) of Investigation: JULY 23, 1982

Purpose of Investigation: ISS RCRA COMPLIANCE INSPECTION

NPDES # NV 0000078

Company Name KER McGEE **Page** 2

Person(s) Interviewed/Date: See Facility Reps page 1

Type of Business: PRODUCTION OF INDUSTRIAL CHEMICALS, BORON CHEMICAL, SODIUM CHLORATE, AMMONIUM PERCHLORATE, POTTASIUM PERCHL.

Process Description:

Process By-Products: 1) SULFURIC ACID STREAM (NEUTRALIZED - SEND TO PONDS) 2) HEXAVALENT OR TIVALENT CHROME 3) WASTE CHLORINATED SOLVENT

Comments: 1) 2,000,000 pds/year total solution
2) 900 tons/year
3) One 55 gal drum/year

NPDES COMPLIANCE MONITORING REPORT (USEPA) INCLUDES A TABLE KM's WASTE WATER PONDS.
8 ponds

SUBPART B - GENERAL FACILITY STANDARDS CHECKLIST

(265.11) EPA Identification Number: NVDO08290330

(265.13) Waste Analysis Plan

Is Waste Analysis Plan on site? (YES) NO

Comment: _____

Date of Plan: JUNE 5, 1981 (REVIEWED June 20,82)

Does the Plan contain:

- Parameters of analysis of each waste handled? (YES) NO
- Rationale for the selection of each parameter? (YES) NO
- Test methods for each parameter? (YES) NO
- Sampling methods for each waste? (YES) NO
- Frequency which each analysis will be reviewed or repeated? (YES) NO

Comments on Waste Analysis Plan:

POND LEAKAGE MONITORING PLAN INCLUDED

(265.15) GENERAL INSPECTION REQUIREMENTS

What types of problems are expected from deterioration or malfunction of safety, security, and operating equipment?

Comment: POSSIBLE LEAKAGE OF HW

Is there an inspection schedule at the facility? (YES) NO

Comment: PONDS- DAILY & WEEKLY TANK - DAILY & WEEKLY PIPELINES TO PONDS - WEEKLY LANDFILL - BIWEEKLY & QUARTERLY

Does the schedule indicate each piece of equipment discussed above? (YES) NO

Comment:

Does the schedule indicate the frequency of inspection for each piece of equipment? (YES) NO

Comment:

Does the schedule include daily inspections of loading and unloading areas? (YES) NO

Comment:

Does the facility maintain an inspection log? (YES) NO

Comment: _____

Does the inspection log include:

- date and time of inspection (YES) NO
- name of inspector (YES) NO
- observations recorded (YES) NO
- date and nature of repairs (YES) NO

Comment: _____

(265.17) General Requirements for ignitable, reactive, or incompatible wastes. N/A

What precautions are taken to prevent ignition or reaction of ignitable or reactive waste?

Comment: _____

Are "No Smoking" signs posted in these areas? YES NO

FOR OFF-SITE FACILITIES, COMPLETE THIS PAGE: N/A

What analyses have generators supplied?

Comment: _____

Does the Waste Analysis Plan contain:

The above generator analyses? YES NO

Comment: _____

The procedures to determine the identity of each waste movement at the facility? YES NO

Comment: _____

If the above procedures include sampling, is the sampling method described? YES NO

Comment: _____

(265.14) SECURITY

Describe the active portions of the facility:

THE ENTIRE PLANT ENCLOSED BY 6' HIGN FENCE

Could persons or animals entering these areas be injured by contact with waste, structures, or equipment? YES (NO)
Comment: ENCLOSED BY 6' FENCE

Could disturbance of the waste or equipment by persons or animals entering these areas cause a violation of any TSD facility requirements? YES (NO)
Comment: AREA ENCLOSED

*** If "no" to both of the above questions, do no complete the following security compliance items:

Is there a 24 hour surveillance system to monitor and control entry to the active portion of the facility? YES NO

OR

Is there a barrier completely surrounding the active portions of the facility and a means to control entry to this area? YES NO
Comment:

Is there a sign with the legend, "Danger - Unauthorized Personnel Keep Out" posted at each entrance to the active portions of the facility? (YES) NO

OR

Is there a sign which indicates authorized entry only and that entry can be dangerous? YES NO

Comment: _____

SUBPART C - PREPAREDNESS AND PREVENTION CHECKLIST

(265.32) Is the facility equipped with the following equipment?

- Internal alarm system?	(YES)	NO	N/A
- Portable fire extinguishers?	(YES)	NO	N/A
- Spill control equipment?	(YES)	NO	N/A
- Decontamination equipment?	(YES)	NO	N/A
- Water at volume to supply hoses, sprinklers, or water spray system?	(YES)	NO	N/A

Comment: BMI PLANT FIRE DEPT.

(265.33) Is the above equipment tested and maintained for proper operation? (YES) NO N/A

Comment:

(265.34) Do employees handling hazardous waste have direct access to internal alarm or communication system? (YES) NO N/A

Is there ever just one employee on premises during operations? YES (NO) N/A

If "yes" does employee have access to external communication? YES NO N/A

Comment:

(265.35) Is there adequate aisle space for the movement of all equipment? (YES) NO N/A

Comment: _____

(265.37) Have arrangements been made with the local authorities? (YES) NO

With Police? (YES) NO
Police Dep't: _____

With Fire Department? (YES) NO
Fire Dep't: CLARK COUNTY & BMI

Emergency Response Teams? (YES) NO
Response Team: IN PLANT-FOR FIRE

Local Hospitals? (YES) NO
Hospital: ROSE DE LIMA HOSPITAL

Other authorities? YES NO
List: _____

Have local authorities refused to make arrangements? YES (NO)

If "yes", is the refusal documented in operating record? YES NO

Comment: _____

SUBPART D - CONTINGENCY PLANNING CHECKLIST

(265.51) Is there a contingency plan; SPCC, or other emergency plan amended to include hazardous materials management provisions at the facility? (YES) NO

Date of plan: _____

Comment: _____

(265.52) Does the plan describe actions to respond to:

Fires? (YES) NO
Explosions? (YES) NO
Release of Hazardous Waste? (YES) NO

Does the plan describe all the arrangements made under Subpart C (265.37)? (YES) NO

Comment: _____

Does the plan list names, addresses, and phone numbers of emergency coordinators? (YES) NO

Comment: PAGE 32

Does the plan list all the equipment under Subpart C (265.32)? YES (NO)

Comment: HOSES & FRONT LOADER AVAILABLE

Does the plan describe the location and capabilities of all the equipment? (YES) NO

Comment: NOT LISTED AT THIS TIME

Are evacuation procedures described in plan? (YES) NO

Comment:

Has the plan been submitted to each of the authorities listed under Subpart C (265.37)? (YES) NO

Comment:

Personnel Training (§265.16; pg. 33235)
(Current personnel must successfully complete a program by May 19, 1981 new employees, 6 months after employment date.)

Yes	No	
X		Do you have a program of classroom instructions or on-the-job training?
X		Is it directed by a person trained in hazardous waste management? TERRY BENTLEY
		Does the program include training in
X		1. Emergency Response
X		a. Emergency equipment location
X		b. Emergency procedures
X		c. Emergency shutdown
X		Will your staff be trained within six months after the date of their employment?
		Are the following documents maintained at the facility?
X		Job title for each hazardous waste position.
X		Name of person working in this position.
X		Written job description for each position.
X		Written description of training for each position.
X		Records that document completed training.

TRAINING FOLDER WAS AVAILABLE FOR INSPECTION

NPDES
COMPLIANCE
MONT. Report
June 13, 1980

FINDINGS

Introduction

The Kerr-McGee Chemical Corporation operates an inorganic chemical production plant at the Basic Management, Inc. (BMI) industrial complex in Henderson, Nevada. The Kerr-McGee facility is subject to NPDES Permit No. NV0000078 which became effective on February 24, 1977 and expires on September 30, 1981. Under the permit, Kerr-McGee is authorized to discharge a daily maximum of 4.0 mgd of non-contact cooling water during the period of June 1 through September 30. The non-contact cooling water is discharged through an open ditch to Las Vegas Wash. Other process streams are either recycled or discharged to lined evaporation ponds located at the plant site. Pond parameters are summarized in Table-1 and their locations are shown in Figure 1.

The BMI industrial complex was originally owned by the U.S. Government which produced magnesium metal at the facility. In 1945, the portion of the industrial complex which is currently owned by Kerr-McGee was taken over by the Western Electrochemical Company. Western Electrochemical merged into American Potash and Chemical Corp. which took over operations at the facility in 1955. Finally, American Potash and Chemical Corp. merged into Kerr-McGee which gained control of the plant operations in 1967. Except for expansion to the production of boron compounds in the early 70's, the list of inorganic products at the facility (see details below) is basically unchanged since 1945.

Prior to 1976, liquid waste streams and slurried solid wastes from the facility were discharged to the unlined BMI ponds located across Boulder Highway to the northeast of the production area. In the mid-70's lined ponds were constructed on the Kerr-McGee plant property to accomodate liquid waste and recycle streams. Solid wastes have been and continue to be disposed on the Kerr-McGee plant property. Solid wastes were also disposed at the BMI dump, located northwest of the facility, until the dump closed in early 1980.

Production Processes and Wastewater Streams

Production at the Kerr-McGee facility is divided into four major processes: 1) Sodium chlorate, 2) perchlorates, 3) manganese dioxide, and 4) boron chemicals.

In the first process, sodium chlorate ($NaClO_3$) is produced in an electrolytic process from raw materials of sodium chloride and water. Sodium chlorate is sold for use in paper pulp bleaches and is also used as an intermediate in the production of perchlorates at the Henderson facility. Waste from the production of sodium chlorate consists of a filter cake containing impurities from the raw materials and filter aid.

In the past, the filter cake (containing calcium sulfate, calcium carbonate, graphite, and diatomaceous earth) has been slurried to the BMI ponds or disposed at the BMI dump. The filter cake, which contains 50% moisture, is currently dumped on the ground surface in the northwest corner of the plant property (see Figure 1).

Spills, cooling tower leaks, and excess storm runoff from the sodium chlorate process are discharged to the lined ponds, P-2, and P-3. Water from these ponds is recycled back to the process.

During the summer, non-contact cooling water, used in the sodium chlorate process is discharged to Las Vegas Wash via the BMI storm ditch and the Alpha ditch. Additional details on this discharge are provided in the subsection below on plant effluent.

The second major process at Kerr-McGee involves the production of ammonium perchlorate (NH_4ClO_4) and potassium perchlorate ($KClO_4$) which are used in the manufacture of rocket fuels. In this process, a solution of sodium chlorate is first electrolytically converted to sodium perchlorate ($NaClO_4$). The sodium perchlorate is then combined with salts of either ammonia or potassium to form the respective perchlorates.

Wastes from the ammonium perchlorate process include a filter cake and chromic hydroxide which is derived from the use of chromium as a filter aid. In the past, the filter cake, containing calcium sulfate and calcium carbonate, was slurried to the BMI ponds. Now the filter cake and chromic hydroxide are discharged in slurry form to the lined ponds AP-1 or AP-2. At the time of the inspection pond AP-2 was not in use and was empty. Liquid from these ponds is recycled back to the process through the pump basin AP-3. Emergency overflows from the ammonium perchlorate cooling tower are discharged to the lined pond AP-4. A minor stream from a caustic scrubber in the ammonium perchlorate process is discharged to pond P-2 along with wastes from the sodium chlorate process (described above). A waste stream from the potassium perchlorate process containing NaCl, KCl, and $KClO_4$ is discharged to the lined pond S-1.

The third major process at Kerr-McGee is the production of manganese dioxide which is sold for use in high performance dry cells. Low grade manganese ore is crushed, roasted, and then combined with sulfuric acid. The resulting manganous sulfate is then converted to manganese dioxide (MnO_2) by electrolysis. Wastes from this process include a solid waste containing silica, alumina, iron, and heavy metals which is filtered from the roasted ore after it has been combined with sulfuric acid. This waste, which amounts to 50% by weight of the raw ore, is currently disposed in piles at the Kerr-McGee plant site (see Figure 1).

A minor waste stream of sodium phosphate solution is discharged to pond C-1. The solution, which is used for cleaning the electrolytic cell electrodes, is discharged in batches of approximately 5,000 gallons once or twice per week. All other water used in the production of manganese dioxide is recycled.

The fourth major process at Kerr-McGee is the production of elemental boron (B), boron trichloride (BCl_3), and boron tribromide (BBr_3). Boron trichloride is used in the manufacture of boron filament for aircraft structures. Boron tribromide is used in semiconductor doping. Elemental boron is used in pyrotechnics. Waste streams from the production of boron chemicals include a leachate stream containing magnesium sulfate (500 gal./day) and a wet scrubber stream (7000 gal./day). These wastes were being discharged to pond S-1 at the time of the inspection.

Pond C-1 receives a waste stream from the plant's main boiler and cooling tower blowdown. The company reported that the discharge to pond C-1 contains 22,450 ppm total dissolved solids. Liquid in pond C-1 is not recycled back to the plant.

Ponds and Pond Leakage Monitoring

The Kerr-McGee discharge permit requires that:

"1. If any waste waters... are placed in ponds, such ponds shall be located and constructed so as to:

   a. contain with no discharge the once-in-one-hundred years storm at said location;

   b. Withstand with no discharge the once-in-one-hundred years flood of said location; and

   c. prevent escape of waste water by leakage.

2. The permittee shall submit to the Director and the Regional Administrator a summary of the results obtained from monitoring for seepage and leakage at the frequency specified in Part 1.C.2."

Plant personnel conduct a program of monitoring for pond leakage which involves 1) checking the level of liquid in each pond once or twice per week and 2) analyzing the concentration of certain salts in each pond every two or three weeks. With this data, large leaks can be detected by looking for unusual changes in the level of a pond or the load of dissolved salts