INTRODUCTION

This report is based on an investigation made pursuant to Section 103(a) of the Federal Mine Safety and Health Act of 1977, Public Law 91-173 (83 STAT. 742) as amended by Public Law 95-164 (91 STAT. 1290).

Billy Joe Vaughn, Andrew L. Morrisse, and Cecil C. Collins, Jr., were fatally injured when the rotary type ore screen (Bradford breaker) they had entered was restarted. The accident occurred at approximately 8:20 p.m. on August 30, 1978.

Billy Joe Vaughn, SSN 8278, maintenance supervisor, age 44, married with 2 dependent children, had a total of 20 years and 11 months of mineral processing experience, all with the Kaiser Aluminum and Chemical Corporation. He had been employed as a supervisor since March 2, 1978.

Andrew L. Morrisse, SSN 1620, maintenance supervisor, age 53, married, with 3 dependent children, had a total of 8 years and 8 months of mineral processing experience, all with the Corporation. He had been employed in this classification for a period of 6 years and 2 months.

Cecil C. Collins, Jr., SSN 6648, maintenance planner, age 53, married, with 2 dependent children, had a total of 19 years and 5 months of mineral processing experience, all with the Corporation. He had been employed in this classification for 1 year and 5 months.

The Mine Safety and Health Administration's Baton Rouge, Louisiana field office supervisor was notified of the accident by a telephone call from George Shanahan, assistant safety supervisor, Gramercy Works, Kaiser Aluminum and Chemical Corporation, at 3:20 a.m. on August 31, 1978. This investigation was initiated at 8 a.m. the same date.

Information for this report was obtained by visiting the accident site and by interviewing company employees and officials.

The operating official of the Gramercy Works was:

Robert Sears, Works Manager

Participants in the investigation were:

Kaiser Aluminum and Chemical Corporation

Edward Grund, Corporate Safety Director (Oakland, CA)
Gene Hein, Division Manager,
Safety and Protection Services (Oakland, CA)
Joseph Hookfin, Senior Industrial Relations Representative
(Gramercy Works)
Brian W. Sturgell, Gramercy Works Employee Relations Supervisor
Herman Woessner, Gramercy Works Safety Supervisor
George Shanahan, Gramercy Works Assistant Safety Supervisor
Dennis Howard, Baton Rouge Works Safety Supervisor

Michael Weigand, Baton Rouge Works Assistant Safety Supervisor
J. L. Smith, Operations Shift Supervisor (Extra)
Phillip Fife, Electrical and Instrument Maintenance Supervisor
Kenneth Breaud, Scaler
Francis Anderman, Scaler
Herman Vickneir, Scaler
H. Bedle, Scaler
Joe Rizzuto, Conveyor Operator
Edward Miller, Conveyor Operator

United Steelworkers of America, Local 5702

J. P. Roussel, President
Stanley Folse, Vice President and Safety Committee Chairman

Mine Safety and Health Administration

Jerry A. Millard, Metal and Nonmetal Mine Inspector
Paul W. Kleinstiver, Metal and Nonmetal Mine Inspector

GENERAL INFORMATION

The Kaiser Aluminum and Chemical Corporation's Gramercy Works was a bauxite beneficiating plant and an adjacent chemical producing plant at Gramercy, St. James Parish, Louisiana. Non-domestic bauxite ore was offloaded from oceangoing vessels by clam-equipped gantry cranes at a docking facility on the adjacent Mississippi River. The ore was transported to and stored in a large covered building by belt conveyors. Stockpiled ore was entered into the beneficiating circuitry by a reclaiming conveyor system.

Included tramp limestone rock was removed from the ore by means of a rotary screen (Bradford breaker) and conveyed to a truck loadout bin. The screened ore was conveyed to a pair of surge silos from which the digestion section - the first stage of beneficiation - was supplied (reference: Exhibit A).

The soft bauxite ore was partially dried at the foreign mine site preparatory to being loaded into ships for transport to the United States. Periodically the ore's "as-received" moisture content would become excessive and the wet and sticky material would build up and partially blind the inner surfaces of the rotary screen - effectively reducing its' screening efficiency and productivity. It was then necessary to stop the reclamation of ore and clean the blinding material or "scale" from the inner surfaces of the screen. A bypass arrangement was provided at the breaker (screen) building (reference Exhibit A) to permit removal of the screen from operation while continuing the flow of raw ore into the digestion section. This bypass feature had not been routinely used in the past when removing screen buildup, but operational needs dictated its usage at the time of this accident.

The basic procedure involved was:

1. Bypass the screen and maintain ore levels in the surge silos.

    a. Deenergize, remove overload heater, and lockout the screen's electric controls.
    b. Remove buildup from the lower screen interior surfaces.
    c. Remove equipment and personnel.
    d. Unlock, replace heaters, and reenergize screen electric controls.
    e. Rotate screen for 10 minutes to purge loosened material from the interior.
    - Repeat the above procedure as required to remove remaining buildup.
    f. Remove overload heaters and the lockout screen.
    g. Replace feed and screening media ring.
    h. Return unit to operating department.

2. Return to routine operating mode.

DESCRIPTION OF ACCIDENT

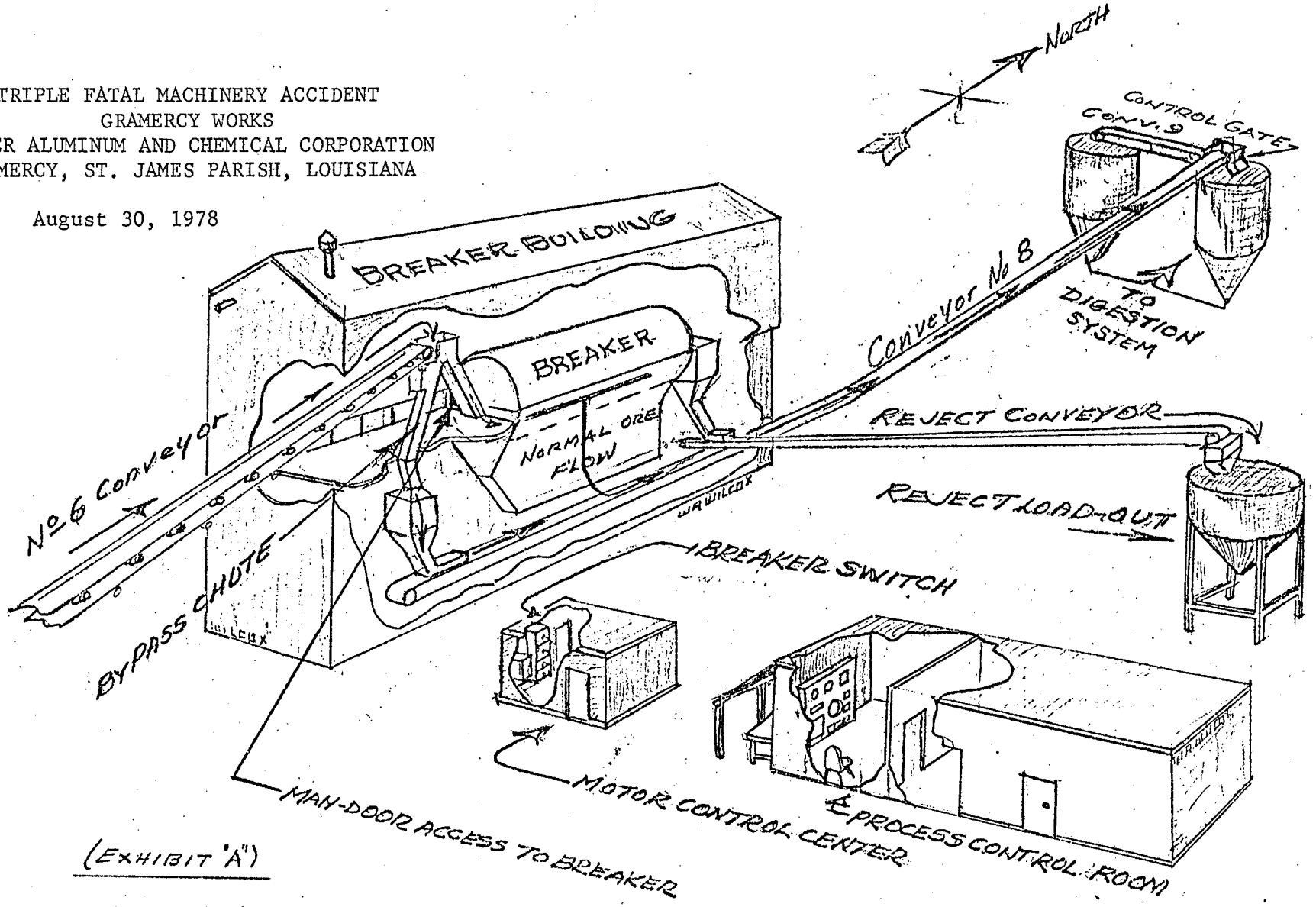
On the day of the accident the breaker was scheduled out of operation for descaling and minor modification purposes. Operators electrically deenergized the breaker drive at 7 a.m. and an electrician removed the overload heaters from the circuit breaker. Assigned scaling crew members hung their personal locks and tags on the switchgear and began scale removal. An electrical and instrumentation supervisor inspecting the motor control center's electric controls observed the improper positioning of control operating handles and had the situation, including improper padlocking, corrected by 11 a.m.

The massive nature of the scale buildup and attendant removal problems resulted in the job continuing into the afternoon shift. The four-man scaling crew, working in 2-man relays, neared the completion of their task at 8 p.m. Vaughn (victim), maintenance supervisor in charge of the scaling operation, was seen only twice for brief periods of time prior to the accident. The first was early in the shift when he visited the breaker building area, and later, immediately prior to 8:20 p.m., he spoke to Anderman, scaler, through the open breakerman door. At that time Anderman had advised him that the last of the scale had been loosened and that he and his teammate Bedle were finishing up and were taking their pnuematic tools and lighting equipment out of the breaker before removing their personal safety locks and tags. Anderman and Vaughn descended from the building together and briefly discussed a knee injury Bedle had experienced earlier in the day. Anderman then entered the motor control center to remove his lock and tag after advising Vaughn that the crew would be at the scaler's shower facility if needed.

Meanwhile, Dave Rousseau, operations shift supervisor, Plant Section 4, found that the plant's south main gate had been locked and he could not enter the main plant area to obtain an item required on another job. He hailed a passing pickup truck containing Collins (victim) and Morrisse (victim) and advised them of his problem. Smith, fill-in operations shift supervisor, had been contacted regarding Rousseau's problem and drove to the north main gate

TRIPLE FATAL MACHINERY ACCIDENT
GRAMERCY WORKS
KAISER ALUMINUM AND CHEMICAL CORPORATION
GRAMERCY, ST. JAMES PARISH, LOUISIANA

August 30, 1978



(EXHIBIT "A")

and obtained a key at 8:15 p.m. to let Rousseau through the south gate. Having been advised that the scaling crew locks were being removed, Smith stopped enroute through the area, and instructed electrician Cancienne to replace the breaker's overload heaters in order that the operator could run the breaker and discharge the last of the buildup. Cancienne went to the control (monitoring) room and told Vaughn that he was going to replace the overload heaters, and then went to the motor control center and replaced the heaters. He returned to the control room and advised conveyor operator Rizzuto that the breaker heaters had been replaced and the breaker was operational, electrically. Rizzuto stated that Vaughn and Morrisse entered the control room, spoke briefly between themselves, and then departed. Rizzuto then went to the motor control center, removed the white operations safety tag, energized the breaker controls, then started the breaker from the exterior start-stop control switch. Miller, conveyor operator, stated that at approximately 8:35 p.m. he stopped the breaker's operation - it had ran an estimated 10 minutes - and advised Rizzuto. He then voluntarily, in light of Rizzuto's working on an extra shift, ascended the breaker buildings' access stair to determine whether all of the loosened buildup had been purged from the machine. At this time, he discovered that someone was inside the breaker. (See sketch.) Cancienne went to the motor control center and removed the heaters and tagged the breaker out and advised Rizzuto to do likewise.

Tom Caves, departmental superintendent, was notified. He and Smith went to the breaker and found the additional bodies.

The victims were pronounced dead at the accident site by the Coroner, Dr. Poche, and their bodies removed to the mill area medical office by Belang Ambulance Service personnel for purposes of identification.

No valid reasons could be proffered as to the reasons why the victims would have entered the breaker, other than for obtaining information needed for the next step in the maintenance plan, nor was there any reason given as to why they did not attach personal locks and tags preparatory to their entry into the machine. This was especially confusing in light of the fact that Vaughn was aware that all locks had been removed.

Specific detail, including availability of the actual tags used in the tagout procedure throughout the job, were lost during the emotion charged period following the discovery of the accident.

CAUSE OF THE ACCIDENT

The direct cause of the accident was the failure of each of the three victims to individually lockout the rotary screen electric controls prior to entering the machine.

Other factors which may have contributed included:

1. The rotary screen was not visually checked to insure free of persons and materials prior to restarting.
2. The complex tagout procedure was not fully understood by all employees.
3. No audible warning alarm was sounded immediately prior to restarting the breaker.

ORDERS AND CITATIONS

The following citations and orders were issued during this investigation:

Order No. 156496 (date - 08/31/78; time - 0815; type - 103k)

The Gramercy Works has experienced a triple fatal accident at the Bradford breaker, raw materials section. This order is issued to assure the safety of any person doing maintenance work on equipment that is electrically powered in the plant until an examination or investigation is made to determine that the Bradford breaker is safe. All personnel are permitted to remain at their place of assigned duties except in the Bradford breaker area, and employees doing maintenance work on electrically powered equipment. Company officials, representatives of the miners, state representatives, MSHA representatives, and persons deemed to have information relevant to the investigation are the only people permitted to enter the Bradford breaker building.

Order No. 156496 - MODIFIED - (date - 08/31/78; time - 1845; type - 103k)

This order is modified such that scheduled maintenance and operations can be conducted as is normal, excepting that visual inspection guaranteeing that all persons are clear before the Bradford breaker is restarted, must be included until this inspection is complete.

Order No. 156496 - TERMINATED - (date - 09/01/78; time - 1440; type - 103k)

The conditions of this order has been complied with and at this time the accident investigation is complete.

Citation No. 156411 (date - 08/31/78; time - 0805; type - 104a)

A triple fatality accident occurred at the Bradford breaker at 2040 hours on 8/30/78. The operator did not report the accident until 0320, 08/31/78.

Citation No. 156411 - TERMINATED - (date - 08/31/78; time - 1000; type - 104a)

Plans for reporting to MSHA were established.

Citation No. 156497 (date - 08/31/78; time - 1500; type - 104a)

On August 30, 1978, on or about 2030 hours, three (3) supervisors without locking or taking other preventive measures and tagging the electrical power switch for the Bradford breaker went into the piece of equipment to examine it. Mr. George Cancienne, electrician, stated that at 2025 hours he met Mr. Billy Vaughn, (victim), maintenance supervisor, outside the Bradford breaker motor control center and stated that he was going to install the heaters for the main electrical disconnect for the Bradford breaker. After the heaters were installed Mr. Cancienne stated that he removed his Green tag (ELECTRICAL DEPARTMENT EQUIPMENT DEENERGIZING TAG) and informed the operators that the heaters had been installed and that his tag had been removed. Mr. Joe Rizzuto, belt operator, stated that he entered the control room to energize the Bradford breaker. When he arrived, all locks and tags, with the exception of his own (WHITE TAG, DO NOT ENERGIZE OR ACTIVATE THIS EQUIPMENT) tag had been removed. He then energized the Bradford breaker, which is normal procedures during the removal of scales. This procedure was verified by the supervisor, scalers, and operators for this area. The Bradford breaker was allowed to operate for about 10 minutes then deenergized and check to see if the scales had passed into the system. Mr. Edward Miller, operator, went to the access door of the breaker at this time to examine the interior for scales, at this, about 2030 hours, the three (3) supervisors were discovered, in the breaker, fatally injured.

Citation No. 156497 - TERMINATED - (date - 08/31/78; time - 1910; type - 104a)

During this inspection, 0800 thru 1910 hours, the electrical main disconnect for the Bradford breaker was tagged and locked. The Bradford breaker building was also barricaded against entry.

ACKNOWLEDGEMENT

The courtesy and cooperation of all persons who participated in this investigation are gratefully acknowledged.

/s/ Jerry A. Millard

Jerry A. Millard
Metal and Nonmetal Mine Inspector

/s/ Paul W. Kleinstiver

Paul W. Kleinstiver
Metal and Nonmetal Mine Inspector

Approved by:

Hugh D. Graham
Subdistrict Manager

I concur:

Wayne D. Kanack
District Manager

U.S. DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Room 4C50, 1100 Commerce Street
Dallas, Texas 75242

September 22, 1978

Mr. Robert Sears
Works Manager, Kaiser Aluminum and Chemical Corporation
P.O. Box 337
Gramercy, Louisiana 70052

Subject: Report of a Triple Fatal Machinery Accident
Gramercy Works
Kaiser Aluminum and Chemical Corporation
Gramercy, St. James Parish, Louisiana
August 30, 1978
By Jerry A. Millard
Paul W. Kleinstiver

Dear Mr. Sears:

The enclosed report covers a Federal investigation of the above-named accident made pursuant to Section 103(a) of the Federal Mine Safety and Health Act of 1977.

Sincerely yours,

Hugh D. Graham
Subdistrict Manager

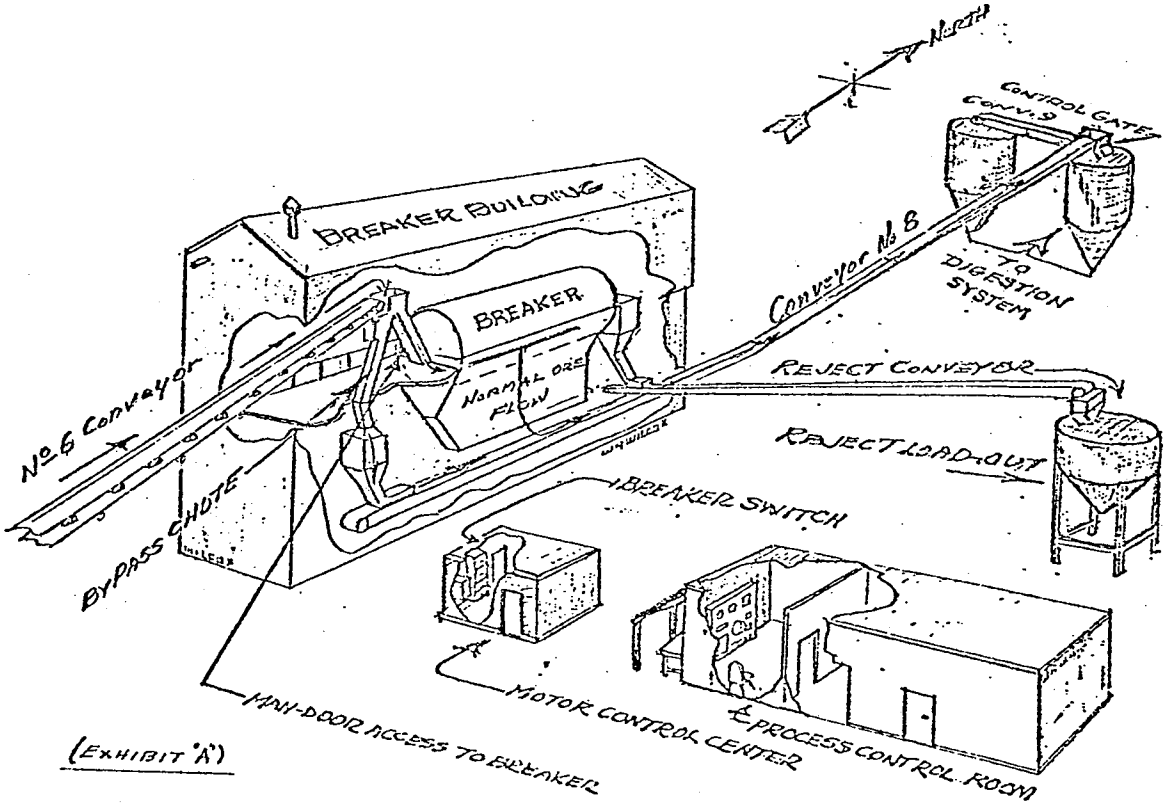
Enclosure

cc: American Mining Congress (report only)
National Safety Council (report only)
Louisiana Department of Labor

MINE SAFETY AND HEALTH ADMINISTRATION
OFFICE OF THE ASSISTANT ADMINISTRATOR
METAL AND NONMETAL MINE SAFETY AND HEALTH

ABSTRACT OF ACCIDENT

Three maintenance supervisors were fatally injured when the rotary type ore screen (Bradford breaker) they had entered was restarted. The victims had not physically locked out the electric circuit breaker or taken other positive action to prevent the machine from operating prior to their entry into the unit. A maintenance crew, having completed the removal of ore buildup from the inner surfaces of the screen, had removed their protective locks and tags and departed the area. Operations personnel then restarted the screen (for the purpose of emptying the machine of ore chunks) without visually inspecting to determine that all persons and materials were safely clear of the rotary screen.



(EXHIBIT 'A')