DEPARTMENT OF THE ARMY

INDUSTRIAL OPERATIONS COMMAND

(IOC)

INSTALLATION ENVIRONMENTAL ASSESSMENT

IOWA ARMY AMMUNITION PLANT
MIDDLETOWN, IA

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I. Introduction:

The purpose of this Environmental Assessment is to address the potential environmental effects of on going operations as well as prospective near future operations to be performed here at the Iowa Army Ammunition Plant (IAAAP). It is necessary to assess the favorable and/or adverse impacts of these operations, and to list projects planned to reduce adverse effects on the surrounding ecosystem. Total Plant operations will be evaluated on the basis of current and full (when the affect can be calculated with reasonable accuracy) production in relation to pollutant emissions. Full production will be considered that rate of production at which the IAAAP would be under, during the conditions of baseline and mobilization as stated in the latest available mobilization plan (IAAAP Mobilization Master Plan, November 1989).

The IAAAP is located in the southeastern portion of the State of Iowa, (see Enclosure No. 1). The Plant covers over 19,000 acres. For proximity to major cities, see Table I below and distance from local communities, see Table II below.

TABLE I

Proximity to Major Cities

City	Population	Direction	Distance Miles
Des Moines, IA	193,187	WNW	157
Cedar Rapids, IA	108,751	N	105
Davenport, IA	95,333	NE	90
Iowa City, IA	59,738	N	75
Ottumwa, IA	24,488	WNW	75
Keokuk, IA	12,451	S	45

TABLE II

Distance from Local Communities

City	Population	Direction	Distance Miles
Augusta	100	S	0
Burlington	27,208	E	3
Danville	926	NW	4
Denmark	400	SW	2
Ft. Madison	11,618	S	10
Middletown	386	N	0
New London	1,922	NW	11
West Burlington	3,083	E	2

A. Enclosure No. 2 is the installation Land Usage Map.

B. The Installation has its own sewage treatment plants, cafeterias, laundry, maintenance shops, hospital (clinic), and residential neighborhood. The manufacturing facilities include many production and support buildings (change houses for employees, office buildings, mechanical equipment buildings, storage warehouses, and steam generating plants for local steam sources within the manufacturing groups). The Main Heating Plant (Building No. 500-139) is coal fired. The Building No. 1-62 Heating Plant is fueled by Natural Gas and can also be fueled by No. 2 Diesel Fuel. The Building No. 1-62 Heating Plant is used during the summer months (May - September) when the reduced need for heat/process steam does not allow efficient operation of the coal fired main heating plant at Building No. 500-139.

C. Water is supplied by the City of Burlington. Chlorination is added to the water within the Installation boundaries. Safe Drinking Water Standards are met. A 1-million gallon emergency reservoir, eight wells, and six elevated 100,000 gallon water storage tanks are situated throughout the area.

D. Two lakes and 35 ponds are located throughout the reservation.

E. Materials and personnel are transported throughout the Installation over an internal network of 149 miles of road and 102 miles of railroad track.

F. Production at the IAAAP is performed on the Installation's 9 production lines. At present, several lines are inactive and production is limited to 2 shifts, 10 hours, 4 days per week. During a period of military confrontation (mobilization), the Plant has and is capable of operating 3 shifts, 8 hours, 7 days per week.

G. Within the Plant boundaries are seven cemeteries and two one-room school houses. The two schools remain in their original location, and two of the cemeteries are still in use.

H. The IAAAP, formerly Iowa Ordnance Plant, was constructed between January 1941 and February 1942. The U.S. Atomic Energy Commission took over and operated Line 1 facilities. Numerous new facilities were added within Line 1 by the AEC. The AEC announced in 1973 that it was phasing out of the Plant. These facilities reverted back to Army control 1 July 1975. During 1969, 11 acres west of the Administration Area of the Plant were transferred to the 5th Army to be used for a U.S. Army Reserve Center. This center is used for meetings and business necessary to the U.S. Army Reserve.

II. Purpose and Need for the Proposed Action:

Iowa Army Ammunition Plant (IAAAP) is a Government-Owned, military industrial installation under the jurisdiction of Headquarters, U.S. Industrial Operations Command (IOC) operated by Mason & Hanger-Silas Mason Co., Inc. under Facilities Contract No. DAAA09-94-E-0005. The primary mission of this plant is to Load, Assemble, and Pack (LAP) ammunition items. The IAAAP produces a large variety of explosive loaded components and end items such as small boosters, mines, cratering charge, artillery rounds, missile warheads and cluster bombs. The IAAAP also has research and development capabilities and performs some depot mission work. The IAAAP performs demilitarization of ammunition items by disassembly (no open detonation) and in 1993 was named the Midwest Area Demil Facility (MADF).

Since Mason & Hanger operates the installation under a Facility Contract arrangement with the Army, areas not needed by Mason & Hanger may be made available to commercial users on a subcontract basis. Support services including fire protection, safety, security, engineering, analytical and environmental are also available on a subcontract basis to commercial users on the installation. Analytical services are also being provided to off-site commercial accounts on a contract basis. The subcontract with commercial users will benefit surrounding communities by providing additional employment and the revenue from the subcontracts will act to reduce overhead costs. Presently, Production Lines 4A, 5B, 6 and 8 are under consideration by commercial users for possible use under the subcontract arrangement. Mason & Hanger uses the IAAAP facilities to produce ammunition items under third party contracts to firms such as Olin, Alliant, Aerojet, Textron and others. Office space in Building No. 100-101 is leased to the Iowa Ordnance Plant Federal Credit Union.

Mason & Hanger determined the installation housing area can not be operated at a profit. Therefore, a divestiture action is currently in process where the Army proposes to make available to the City of Middletown, Iowa 112.58 acres of land and buildings consisting of the installation housing area (with the exception of House Nos. 1 and 2), recreational building and Drulis Park. At this time, the Army and the City of Middletown are determining the fair market value of the housing area. Upon determination of the fair market value, the transfer of ownership of the housing area from the Army to the City of Middletown, Iowa is expected to be completed.

III. Probable Impact of the Installation Activities on the Environment

AP&P No. 41 in its most current revision governs all phases of the Environmental Program at the IAAAP. A copy of this document is provided as Enclosure No. 3

A. Overall Economic effects:

1. IAAAP Gross Wages Paid in 1994: $28,300,730.65

2. Des Moines County Gross Wages Paid in 1994: $506,398,249

3. IAAAP 1994 Average Hourly (Weighted) Wage: $11.87

4. Des Moines County 1994 Average Hourly Wage Rate: $10.10

5. IAAAP 1994 Average No. of Employees: 1014

6. Des Moines County 1994 Average No. of Employees: 22,680

7. The IAAAP provides approximately *3% of Des Moines County jobs and approximately *4% of Des Moines County wages. Due to the likelihood of an increase in the proportion of workers coming from outside of Des Moines County during a sudden extreme escalation of employment at the IAAAP, it is difficult to estimate these percentages for a mobilization condition.
*These percentages are not computed directly from the IAAAP and Des Moines County rates because a large number of employees at the IAAAP live outside of Des Moines county.

8. IAAAP Employment Breakdown (as of March 1994):

(a) Salaried Employees: 279
(b) Hourly Employees: 753
(c) Department of Army Civilians: 25
(d) Military Personnel: 2
(e) Government Housing:

(1) Houses Available: 40 Houses total with 40 livable (3 are being excessed).
(2) Average Occupancy over the Past Five Years: 95+%.

(f) Role Played by Local Contractors and Suppliers: Many Projects at this Installation are subcontracted to local contractors.

(g) Concentration of Business Catering to Military: There are no business entities on or near the Installation which depend upon the installation for a noticeable portion of their revenues.

B. Plant-wide Utilities usage and the affect on the community:

1. Fossil Fuels (CY94 Adjusted):

Annual Fossil Fuel Consumption by Type and Usage Amount

* Fuel	Used	Units	Usage (Approx.)
Gasoline (Unleaded)	144,299	GALS	Mobile
Diesel Fuel No. 1	0	BBLS	Mobile
Diesel Fuel No. 1	0	BBLS	Process Steam Generation Space Heating
Diesel Fuel No. 2	397	BBLS	Process
Fuel Oil No. 6	3,557	BBLS	Steam Generation
Coal	388,278	MBTU	Steam Generation
	15,887	tons	

* Mobilization requirements would not be expected to significantly affect the availability of these fuels to local residence.

2. Electric Service:

a. CY94 consumption of electricity was approximately 20,863 Mega-watt-hours.

b. The IAAAP purchases electricity from Iowa Electrical Service (IES). Although the IAAAP is a large consumer of electricity, the amount of electricity it uses as a proportion of total IES production is small. The absence of IAAAP consumption would not seriously affect IES's profitability, nor would the increase in demand caused by a mobilization hinder IES's ability to supply the needs of its customers.

3. Water Supply:

a. All water consumed by this Installation is purchased from the City of Burlington. The Plant was billed for 204,340,000 gallons in 1994 and sold approximately 12,945,000 gallons to the City of Middletown. This indicates the total 1994 water consumption for the Installation was approximately 191,395,000 gallons. The Installation Contract with the City of Burlington stipulates a maximum monthly usage of not more than 50 million gallons and a maximum daily usage of not more than 3,000,000. Maximum daily Installation water use has never topped 1.5 million gallons.

b. The City of Burlington produced and distributed 1,841,000,000 gallons of water in 1994. Of this, the Installation consumed 12.8%. At approximately 1.85 billion gallons/year or 5 million gallons/day, the local water department is running at 40% capacity and even the present total capacity is fairly readily expandable to nearly 22.5 million gallon/day. Therefore, it is expected that under mobilization this Installation would not affect the community's water supply.

4. Wastewater Treatment and Stormwater Runoff

In accordance with Iowa NPDES Permit No. 2900900 effective 1 July 1995 - 30 June 2000, IAAAP operates facilities for the treatment of sewage, explosive contaminated wastewater, coal pile run-off water and discharges the treated water into the installation stream system in compliance with the parameter limits of the permit. The permit also requires monitoring of stormwater runoff from the Explosive Disposal Area and operations area. The parameter limits are contained in the first 18 pages of the permit which are contained in Enclosure No. 4. The stormwater runoff must be monitored for all the parameters listed in the permit plus oil and grease.

Sanitary waste treatment is currently provided by the two secondary sewage plants and eight septic tank systems. This Installation is presently using its Sewage Treatment Plants at about 38% of capacity.

Table III

IAAAP SEWAGE TREATMENT FACILITIES

Item	Present Capacity	Present Use
Main Sewage Treatment Plant	1,000,000 GPD	400,000 GPD
Line 3A Sewage Treatment Plant	50,000 GPD	-0- GPD

At both Installation Sewage Treatment Plants, water is given three levels of treatment; primary, secondary and tertiary. Industrial waste water is present as: that contaminated with explosives. Systems for the removal of explosives contamination from industrial waters by sedimentation, filtration, and adsorption of dissolved explosives through activated carbon, exist for all operating load lines. Final treatment of explosive contaminated water by activated carbon columns removes practically all traces of explosives from the effluent.

Since treatment of water and control of sources of contamination, all streams within the plant area have remained clean. According to IAAAP Master Plan, November 1989, the facility has sufficient waste water treatment facilities to meet the demands of a baseline mobilization. Therefore, effluents produced by waste water treatment at the IAAAP do not now, nor are they expected to under baseline mobilization, negatively affect the local environment (see Table IV for quantities produced).

TABLE IV

PRESENT RATE AND MOBILIZATION RATE OF EFFLUENT WATERS

Location	Present Rate	* Mobilization Rate	Type of Pollutant
Main Sewage Treatment Plant	357,000 GPD	800,000 GPD	Sewage
3A STP	4,000 GPD	60,000 GPD	Sewage
Line 1	1,322 GPD	28,800 GPD	Pink Water
Line 2	1,473 GPD	57,600 GPD	Pink Water
Line 3	1,592 GPD	57,600 GPD	Pink Water
Line 3A	0	85,800 GPD	Pink Water
Line 5A	0	28,800 GPD	Pink Water
Line 5B	0	28,800 GPD	Pink Water
Line 6	0	0	Sump Water
Line 7	0	0	Laid Away
Line 800	0	115,200 GPM	Pink Water
Line 9	0	800 GPD	Sump Water

* Baseline mobilization effluent rate as projected in the *IAAP* Mobilization Master Plan, November 1989.

C. Solid Waste Disposal:

1. Landfill Operations:

The inert disposal area ceased operations as of 30 September 1992 and a closure to be performed by U.S. Army Corps of Engineers - Omaha is expected to be initiated in 1995. The primary effort for inert disposal is now directed toward recycling. Therefore the required load on the local Des Moines County, Iowa county landfill, under current or baseline mobilization, is not expected to place a strain on local waste disposal space.

2. Recycling Operations:

A collection, segregation, and stockpile program is in place for salable or recoverable items; such as, scrap lumber, plastic, jars, tin cans, and waxed cardboard. As few items as possible are sent to the sanitary landfill. The scrap is compacted if required for shipment, and sold for reprocessing. Listed below (in Table VI) are the types of wastes, the quantities expressed in tons, and the proceeds obtained from the sale of waste materials.

Table VI

IAAP Recycled Materials

Category	Weight in Tons		Proceeds (Dollars)	
	1993	1994	1993	1994
* Paper	0	0 *	0 *	0 *
Corrugated Cardboard	169.3	133.6	85	67
Scrap Lumber	50.0	20.0	63	105
Used Wood Boxes	18.7	127.3	823	4,256
Scrap Rags	5.0	0	1,316	0
Ferrous Metal	627.2	732.5	33,816	58,597
Non ferrous Metal	2.8	35.5	850	28,407
Rubber Tires	0 *	0 *	0 *	0 *
Drums	0 *	0 *	0 *	0 *
Explosive Scrap	115.8	172.3	85,626	104,164
TOTALS	988.8	1,221.2	$122,624	$195,596

* Materials collected but not sold in 1993 or 1994.

a. In 1994, 155,226 grams of silver collected from the discharge water at the X-ray facilities during 1994 was shipped off site for recovery.

b. In an effort to further reduce solid waste, the Iowa Department of Natural Resources performed a Waste Reduction Assessment at the IAAAP in 1991 in conjunction with the Waste Reduction Assistance Program (WRAP) sponsored by the State of Iowa with funding assistance from the USEPA. The assessment was performed by retired industry professionals or representatives of the Waste Management Authority Division of the Iowa Department of Natural Resources. The purpose of the assessment was to further reduce waste through source reduction, recycling, energy recovery, treatment and disposal. Upon completion of the assessment, a final report was provided to IAAAP containing an overall assessment. The assessment concluded that the IAAAP is doing a very satisfactory job of managing and reducing solid wastes.

3. Incineration:

There are two incinerators in use being the Explosive Waste Incinerator (EWI) and the Contaminated Waste Processor (CWP) which are located in the Explosive Disposal Area. The EWI is an EPA Resource Conservation and Recovery Act (RCRA) regulated unit operated under conditions of Hazardous Waste Management Permit No. IA7213820445. The CWP is exempt from EPA RCRA regulations as the EPA determined the materials treated (paper, cardboard, wood, etc.) and flashing (by fire) of metals to remove explosive contamination are not hazardous waste as they are only lightly contaminated by explosives. The EWI or CWP were installed under construction permits issued by the Iowa Department of Natural Resources and have successfully completed Clean Air Act compliance testing. All ash from the EWI is handled as hazardous waste and is shipped off-site for disposal in an EPA approved hazardous waste landfill. The CWP ash is tested for EPA TCLP metals content. The ash exceeding the TCLP limits for metals is shipped off-site for disposal in an EPA approved landfill while ash not exceeding the TCLP limits is disposed of in the Des Moines County, Iowa sanitary landfill as non-hazardous waste. The remaining incinerator, a Deactivation Furnace, has not been in use for several years because it could not meet RCRA standards and has now completed of an EPA RCRA closure. Primer, detonators and fuzes previously treated in the Deactivation Furnace may

be treated in the closed chamber recycling mechanism at Building No. 800-61 or the closed chamber functioning mechanism at Building No. 3A-20-1. These units were installed under Iowa Department of Natural Resources Construction Permits. An additional, larger CWP unit is planned to be constructed for the IAAAP to reduce the backlog of materials awaiting treatment and to flash (by fire) larger pieces of equipment that cannot be handled in the existing CWP. The above incinerators/mechanisms are considered to be satisfactory to meet the mobilization requirements of the Mobilization Master Plan.

The incineration facilities currently in operation at the IAAAP do not, and those placed on line in the future will not have a significant impact on the local environment. The air emission from the Explosive Waste Incinerator and Contaminated Waste Processor appearing on the Iowa Operating Permit Application, Part 1 Form 4.0 Emission Unit Actual Operations and Emissions are provided as Enclosure No. 5 and 6 respectively.

4. Open Burning:

The State of Iowa has not allowed routine open burning of explosive waste or explosive contaminated waste since 1982 which coincided with the explosive waste incinerator and the Contaminated Waste Processor being placed in operation. A variance from the State of Iowa Air Rules must be obtained prior to performing open burning of the above materials. However, the variances are allowed on a very infrequent basis and have become increasingly difficult to obtain. Open burning is allowed under State of Iowa Rules for the control of vegetation. This is particularly important in the test fire area where hot pieces of metal from test fire operations have the potential to set surrounding vegetation on fire and potentially endanger nearby forested areas. Therefore, open burning is performed on a very limited basis and has a minimal negative impact on the local environment.

D. Contaminated Areas:

Reference: Installation Action Plan for 1995 (available at the installation) contains the Installation Restoration Program sites requiring investigation as contaminated areas. The sites currently identified and subject to revision are contained in Enclosure No. 7 Installation Restoration Program Site Summary Chart.

E. Air Emissions from Production Operations and Other Areas

Air emissions from production operations and other areas are contained in Enclosure No. 8 Iowa Operating Permit Application Forms for Production Lines 1, 2, 3, 4B and 9 and equipment in other areas.

F. Miscellaneous and Nuisance Problems:

1. Noise:

A major source of boundary noise pollution is the test fire area. There are no practical corrective measures to contain this noise other than an enclosed test fire chamber. The cost is prohibitive, and for the amount of firing done, uneconomical. The management approach to test fire noise is to protect the test firing mission of the installation by minimizing noise impacts on land outside of the installation. In accordance with AR 200-1 paragraph 7-5, the Installation Compatible Use Zone (ICUZ) Study for the IAAAP was revised on 1 March 1995 and reflects the noise contours for current test fire items. The normally unacceptable Zone II and unacceptable Zone III contours do not extend beyond the installation boundary. The ICUZ Study is based upon an assessment performed by United States Army Center for Health Promotion and Preventative Medicine (CHPPM) entitled: Environmental Noise Consultation, Number 52-34-2789-95 in which noise contours were developed by computer models for the current test fire items.

Occasional complaints are received from the surrounding community. Noise complaints from local residents are directed to the M&H Environmental Department. The complaints are logged and an effort is made to discover the noise source (some noise sources are found to originate beyond the IAAAP boundaries). If the noise did originate from within the IAAAP, an attempt is made to discern the reason for its severity in an effort to temper the noise from future tests (for example was the increase in noise due to weather conditions). A pamphlet has been prepared to address the effect that is felt by the testing and is made available to citizens reporting noise complaints.

2. Noxious Odors:

There are no noxious odors at this Installation.

3. Automobiles:

All government owned vehicles used at the IAAAP receive regular maintenance. Fuel for mobile usage is of high quality and whenever possible, products such as Ethanol are used in an effort to lower the amount of HAPs emitted into the air.

As a result, the current use of automobiles at the IAAAP does not negatively affect the local environment. The increase in mobility needs under baseline mobilization would not be large enough to be of consequence. The increase in employment would elevate the traffic in the community, but because of improved fuel quality, vehicle emission systems, and acceptance to car pooling; the impact on the local environment would not be significant.

G. Test Ranges/Sites:

The pistol range is used occasionally for security guard target practice and training. The test fire area is available as production support and is utilized for the test requirements of potentially all munitions produced at the IAAAP.

The static and horizontal test fire range at the test fire area is policed regularly for armor, steel and various other parts with potential for recycle. There has been no definite evidence found which would indicate any damage to wildlife or terrain due to testing.

H. Pest Control Measures:

Pest control measures are performed primarily by a sub-contract arrangement with an approved pest control company. The pest control company does not store or dispose of chemicals on the installation. Pest control chemicals are brought on the installation on an as needed basis and excess amounts are removed from the installation for off-site disposition by the pest control company. In the evnet of a spill on-site, the Spill Prevention Control and Countermeasure Plan contains a spill procedure for pesticides. The contracted company is approved for application of the following pest control chemicals (see Table VI):

Table VI

Contracted Pest Control Chemicals

Anticoagulant	0.005-0.05%	Bait - Rodenticide(Dry)	50 Lbs/yr
Baygon (Pro-Poxur)	1.0%	Bait - Emulsion/Solution	5 Gals/Yr
Diazinon	0.5%-1.0%	Emulsion/Solution Dust	10 Gals/Yr
Dursban (Chlor-pyrifos)	0.25-0.5%	Emulsion/Solution	10 Gals/Yr
Pyrethrum, Synergized	0.4%-0.6%	Aerosol	5 Gals/Yr
2-4-D	4 Lbs.	Acidic Equivalent/Gal.	30 Gals/Yr
Korvar I	80%		1800 Gals/Yr

H. Pest Control Measures: (Cont'd)

A small inventory of pest control chemicals in spray cans is maintained at Central Stores for issue to authorized personnel for use by employees to combat crawling insects, wasps and hornets encounterd in several of the work environments. These chemicals are as follows (See Table VII):

Table VII

IAAAP Maintained Pest Control Chemicals

Stock Number	Description	Average Annual Usage
1. 19-00-800-00	Spray, Wasp and Hornet, 15 Oz. can	50 cans
2. 19-00-800-10	Spray, Insect Repellant, Cutters (New Formula) 6 Oz. cans	35 cans
3. 19-00-800-60	Spray for Crawling Insects. Sparton CR-2 - 16 Oz. cans	13 cans

I. Storage Areas:

All storage sites for fuel, oil, and hazardous material storage sites and their storage containment units are monitored regularly and are handled as required under the regulations set forth by the EPA. As a result, it is not expected that the storage of fuel, oil, and hazardous materials at the IAAAP will result in a negative impact on the local environment. Although baseline mobilization will increase the storage requirements, storage practices will continue to meet or exceed the standards set forth by the EPA.

J. Land Management Program:

1. The Integrated Natural Resources Management Plan was completed in 1991 to address forest, agriculture, fish and wildlife management. A copy of this document is available in the office of Mr. Joe Haffner, ACO Staff, at Building No. 100-101. This plan will be revised in 1996 to meet the requirement for the five year revision.

   a. Forest

      Plans for the future harvests were curtailed in 1992 pending completion of a timber cruise and additional cultural resources investigations.

   b. Agriculture

      Detailed information addresses land use by discussing the Installation and facilities, including climate, soils, drainage, erosion control, land leasing and controlled burning.

2. Agricultural leases contain a crop rotation requirement where wind and water could cause severe soil erosion if the land were intensively cropped. The No-Till method is based on about 3,000 acres of cropland. All lessees must comply with a Tract Management Plan which is part of the agricultural lease and defines the farming practices that the lessee must follow. Land use and soil survey photographs of the area leased are included as part of the plan to aid the lessee in formulating and following good land management practices.

3. Thirteen Agricultural Tract Management Plans were revised in preparation for leasing in the of 1993. These tracts total 1,186 acres of crop land and 42 acres of pasture land. To date, 5,000 crop land acres have been terraced to control erosion and related soil depletion.

K. Fish and Wildlife:

1. Information is provided about plant, fish, and wildlife stocking programs and the degree of success, harvesting methods, and maps detailing areas allowing hunting and fishing. Predator control is done during the fall and early winter by means of the trapping program.

2. The objectives, and management activities are coordinated with the appropriate state Natural Resources Department, the U.S. Department of Interior, the Installation Land and Forest Management Programs, and are consistent with the assigned military mission. The Largemouth Bass and Channel Catfish species are well established in the 83 acre lake. Two small ponds which have been stocked during past years with largemouth bass, bluegill, and channel catfish have become well established.

3. Fishing is permitted only on the 83 acre lake, the 7 acre lake, and the two ponds. All State and Federal regulations must be observed. Boats may be used on the 83 and 7 acre lakes. Both of the lakes are well populated with crappie, sunfish, largemouth bass, channel catfish and Walleye. The sport is enjoyed by many throughout the summer months.

4. Hunting is permitted only in the area defined on a map prepared specifically for those applying for permission to hunt within the Installation. Hunters must check in and out of the Installation and must have a valid Iowa Hunting license and a special State permit issued with the approval of the Commanding Officer. Only shotguns and Bows and Arrows are permitted. All State and Federal hunting regulations must be observed. There is an abundance of rabbits, squirrels, turkeys, and deer in the area. During the deer season, deer are harvested within the Installation. The annual hunting season is one of the most important tools of the Wildlife Management Program.

h. Blank ammunition from 75mm to 105mm.

i. AP and AT type mines.

j. Weapons dispensers (delivery system for bomblets or mines).

k. Fuzes.

l. Manufacture of various inert components for the products listed above.

m. DEMIL operations

2. Research and Development, to include testing of the various weapons produced.

3. The following Explosives and their derivatives are included in the manufacturing process:

- Composition A-4
- Composition A-5
- Composition B
- Composition H-6
- HTA-3
- LX-14
- Octol
- PAX2A
- PBXN5
- PBXN9
- Propellant
- TNT

2. Collecting of fruit, nuts, berries and mushrooms is restricted to employees, post residents and their houseguests. The same map denoting specified hunting areas, which is made available to sportsmen, is utilized for limiting the areas of fruit and berry picking. All parties must check in and out at Guard Headquarters and receive a special permit before entering the Installation.

3. Drulis Park, located west of the Administration Building, is available to all plant personnel for picnicking. Due to the potential fire hazard, picnicking is not allowed inside the Installation except at the Boy Scout Camp located at the north end of the 83 acre lake and there only with permission of the Commanding Officer. Properly supervised youth groups are allowed to camp at the Boy Scout Camp. Other camping privileges are not allowed. The Burlington Bird Club may conduct bird counts within the area upon approval of the Commanding Officer.

4. IAAAP land usage by the Iowa National Guard. The Iowa National Guard is in the process of preparing an Environmental Assessment for training exercises to be performed on the installation.

L. Product Line or service.

1. Current product categories.

a. Conventional Warheads ranging in size from 2.75" to 14.34" in diameter.

b. Artillery and tank rounds from 105mm to 155mm.

(1) Various configurations that primarily involve assemblage.

c. Precision Initiation Couplers from 1.47" to 1.95".

d. Combustible artillery casings.

e. Explosive Billets from 2.84" to 4.54".

f. Explosive pellets from .242" to 3.5".

g. Cratering Kits.

4. Probable near future projects or change in operation.

a. Facilities contract:

Mason and Hanger operation will not likely change significantly because of the facilities contract. The environmental issue will still be prevalent when manufacturing decisions are made. The only difference is that Mason and Hanger will shoulder more of the responsibility for the outcome. In all likelihood this will be an improvement environmentally speaking because of the community effect. Rather than operating as an Army representative in the community, Mason and Hanger will be representing themselves as a National, yet, local manufacturing company, with the same needs and responsibilities as all other manufacturers within the community.

(1) An added benefit to the new contract will be an infusion of new employment opportunity brought about by the recruiting of manufacturing firms to fill vacant production facilities.

(a) The vacancies exist because of both the scaling down of the Defense Industry as well as Mason & Hanger's adoption of more efficient means of manufacturing such as: Zero Defects (Quality-In Quality-Out), Just-In-Time, Similar Product Line Sharing, and the Pull Method. Combined, they have resulted in:

(1) Less pollutants per item produced.
(2) Less need for disposal of Non-Conforming Material.
(3) Less waste of raw materials.
(4) A Company more capable of competing for National Defense Dollars for the local community.

(2) Because of their responsibility to Federal, State, and Local authorities, Mason and Hanger will recruit firms who have a record of being environmentally sound. With an already established Environmental Department, Mason and Hanger will have the means to monitor all lessees to ensure they remain within the legal requirements (an advantage not prevalent in most industrial parks).

(3) Construction will primarily be for existing building modification although some new construction may be necessary. Accepted methods will be utilized to prevent land erosion, and all changes and additions in plumbing and venting will conform to environmental regulation.

b. Conventional Weapons Demilitarization (DEMIL):

M&H has been and will be performing DEMIL operations for the military. This technique requires the disassembly of explosive weapons and the recycling or disposal of their parts. Because it is necessary to alleviate outdated weapons, the primary decision rests with how and where to perform DEMIL with the least possible affect on the environment. M&H has the Explosive Waste Incinerator and the Contaminated Waste Processor necessary to carry out this procedure. Both units are monitored to ensure conformance with environmental standards. All materials capable of being recycled are recycled. All wastes are either destroyed by environmentally acceptable means or are shipped to EPA licensed facilities for proper treatment and disposal.

1. DEMIL items:

- Projectiles
- Cartridges
- Detonators

- Propellant
- Black Powder
- Initiating Explosives
- Pyrotechniques

2. No Atomic or Chemical weapons are planned to be DEMILed here.

c. Cannon fire projectile testing:

This project is necessary in order to produce high quality munitions for the United States Defense Department.

Still in the planning stages at the time of this writing, the project will require extensive excavation in order to construct the projectile travel and monitoring channel. The cannon emplacement will be below the surface level of the ground, facilitating capabilities of absorption and deflection of the shock waves, therefore, keeping the noise level of the test firing within an acceptable range.

(1) The projectiles or shrapnel will be captured using a method that will ensure no pieces go undiscovered.

(2) Considerable effort will be made to construct the facility so as to protect the wild life in the area.

(3) Ground disturbed during construction will be compacted and sodded where necessary in order to avoid soil erosion.

(4) Construction and operation of this project would be expected to produce the same level of pollution no matter where it takes place. Therefore, the primary consideration would be the utilization of land already set aside for military purpose, which is the case at the IAAAP.

d. Land Excess to Middletown, Iowa:

An action is in progress to transfer ownership from IAAAP to the City of Middletown, Iowa 112.58 acres of land on buildings consisting of the installation housing area (with the exception of housing units 1 and 2 to be retained for the commanding officer and executive officer), recreation building and Drulis park. This action is being taken to dispose of the housing area as the cost of maintaining the housing area exceeds the income from the rental of the housing units.

IV. Alternatives considered:

Alternative No. 1 - The cease operations alternative involves moving to other sites all ammunition LAP operations and demilitarization activities. This alternative would produce positive impacts by significantly reducing air emissions, water usage and wastewater treatment. A serious negative impact involves approximately 1,100 personnel positions being eliminated and the resulting detrimental impact on the local economy. This alternative would also require the unnecessary expenditure of Department of Defense funds to move the LAP operations and demilitarization activities to other sites. The cease operations alternative is not considered to be applicable at this time as there is no basis to support this alternative.

Alternative No. 2 - The partial move alternative involves moving part of the ammunition LAP operations and/or demilitarization activities to other sites. This alternative would produce positive impacts by reducing air emissions, water usage and wastewater treatment. A negative impact involves eliminating personnel positions and the resulting detrimental impact on the local economy. This alternative would also require the unnecessary expenditure of Department of Defense funds to move the LAP operations and demilitarization activities to other sites. This alternative is also not considered to be applicable at this time as there is no basis to support this alternative.

Alternative No. 3 - The future operations alternative involves acquiring additional ammunition LAP operations and demilitarization activities, increasing the quantity of ammunition items produced under third party contracts to other firms and generating additional revenue by making unneeded facilities available to commercial users on subcontract arrangements. Negative impacts involve additional air emissions, water usage and wastewater treatment from additional activities and the Department of Defense expenditures to relocate operations and activities from other sites. Best available technologies would be implemented for pollution abatement. Positive impacts would involve additional employment and the resulting positive impact on the local economy. The completion of the action to direct the housing area/administration area either by selling it to the city of Middletown or excessing to some other Federal or State agency is considered to have no environmental impact on the area. The future operation alternative is of course somewhat speculative in nature and therefore is not applicable at this time.

Alternative No. 4 - The no action/no change in current mission alternative is based upon the following rationale: The IAAAP has installed facilities for pollution abatement which meet the best available technology. Since IAAAP is not scheduled for closure or realignment, the alternatives to cease operations or move part of the operations to another site remain, at this time, purely speculative and beyond the realm of viable alternatives. This position is directed by USAMC letter dated 12 November 1993 subject: Draft Installation Environmental Assessment (EA) for the Iowa Army Ammunition Plant. Therefore no change in current mission operations is anticipated and the no action alternative is applicable.

V. Affected environment (baseline conditions):

The installation covers 19,000+ acres within Des Moines County. Sections of four townships, Flint River, Danville, Union and Augusta, lie within the Plant boundary.

A. Soil Types

There are four types of surface soil in the Plant area. They are as follows:

1. Mahaska Group:

   Mahaska is wind blown soil developed under prairie conditions. It is dark colored, medium textured, and moderately to slowly permeable. This soil is highly productive under good rotation, but artificial drainage is needed on level areas. It requires lime, maintenance of fertility, and control of sheet erosion on slopping areas.

2. Ladoga Group:

   It is the transition between the Mahaska and Clinton Group having developed partly under timber vegetation and partly under prairie conditions. Ladoga soil needs lime, good rotation, and erosion control practices.

3. Clinton Group:

   Clinton soil is wind blown and developed under timber vegetation. It is light colored, medium textured, and moderately to slowly permeable. This type of soil is subject to sheet erosion except on flatter areas, which need drainage. It requires lime, maintenance of organic content, and erosion control practices.

4. Wabash-Judson Group:

   This type of soil is a bottom land soil on narrow drainage-ways, generally a black silty clay loam washed in from upland above, usually from prairie formed soils. It is often too wet to cultivate because it has intermittent drainage and is subjected to overflow. This group is generally in the creek beds since it has been washed into the Plant. The subsoils are clay with characteristics similar in permeability as the surface soils.

B. Natural Resources:

There are no known oil or mineral deposits within the IAAAP.

C. Climate

1. The area has a mean temperature of 50.6°F. The highest temperature ever recorded was 111°F and the coldest was -27°F.

2. Average precipitation is 35.43 inches, well distributed throughout the year. The amount and distribution of rainfall provides ample water for abundant plant growth and numerous lakes and ponds.

3. The Installation is located within a moderate tornado frequency area, as determined by the U.S. Weather Service.

4. According to the Seismic Risk Map, the Burlington area is located in Zone 1, an area relatively free of earthquakes.

D. Biotic Community:

1. Types of Vegetation and Animals:

a. Three natural vegetative types occur in the IAAAP area; white oak, hickory and mixed hardwoods. All of these are contained in an upland hardwoods timber type. The woodland habitat occurs in the northeastern, east, south, and southwestern Plant boundary areas.

b. The installation has very little brush land area. Major species found are sumac, hawthorn, some ironwood, and wild berries of various kinds.

c. The grassland area, 2,133 acres, consists of species such as bluegrass, smooth brome, orchard and bird's foot trefoil grasses. Due to the outleasing of grazing land (1 May through 1 November), wildlife habitat in these areas is poor.

d. The plants, animals, insects and reptiles in the area are typical of southeastern Iowa. In part, due to the Installation's very successful conservation and wildlife program, there is an abundance of rabbits, squirrels, turkeys, raccoons, coyotes, bobwhite quails and deer in the area.

2. Threatened or Endangered Species:

At this time, the only endangered species known to reside at the IAAAP are the state endangered Yellow Trout Lily and the Orange Throated Darter. IOC is preparing a Threatened and Endangered Spieces Study for IAAAP. This study is expected to be completed within several weeks and will be provided as an enclosure to this document.

E. Archeological, Historical, and Recreational Sites:

1. As previously mentioned, seven cemeteries, two of them still in use, are located within the Installation. A pleasing appearance is maintained at all times.

2. Two, one-room schoolhouses are also found within the area. Both schoolhouses, Hawkeye and Winnebago, are over 100 years old.

3. A Boy Scout camp is located within the area near the 83 acre Mathes Lake.

4. Drulis Park, located west of the Administration Building, is available to all Plant personnel for picnicking.

F. Air Quality.

The IAAAP is located in a rural setting and is in an air attainment region. Air quality standards are governed by the CAA administered through the IDNR.

G. Water.

The IAAAP is located on a variety of terrain with an average elevation of slightly greater than 600 feet above sea level. The terrain ranges from flat, high grade agricultural ground (60%) to hilly, rough pasture land (40%). The Installation is traversed by three small creeks: Long Creek on the west, Brush Creek in the middle and Spring Creek on the east. Long Creek and Brush Creek are within the Skunk River Watershed, and Spring Creek is within the Mississippi River Watershed. The Plant area is not subject to flooding.

VI. Environmental consequences of the proposed action:

A. Conformity or Conflict With other Land-Use Plans, Politics and Controls:

1. Federal, State and Local:

a. No known land-use plans, policies or controls are approved or proposed which would conflict with the Plant operation or proposed construction Projects.

b. Preservation of air quality is of the highest priority when setting standards for all fossil fuel purchases.

c. Waste explosives that cannot be recycled or sold to Army approved buyers and contaminated explosive wastes are disposed of by incineration in the Explosive Waste Incinerator and the Contaminated Waste Processor, respectively.

d. The Main Heating Plant is coal fired. A combination of an electrostatic precipitator, proportionally designed stack, and low sulfur high quality coal help to maintain compliance with the Clean Air Act. The other heating plants, building No. 1-62 Heating Plant, those located on Ammunition Load Line Nos. 1, 2, 3A, and the general shops (Building No. 500-144) use natural gas or No. 6 fuel oil.

(e) Using the rate of production in CY1994, the data on Table VIII (below) was prepared to determine pollutants released from the heating plant and heating units. During this period, the Installation was operating at approximately 30% of steam heating capacity. Tons of pollutants generated during 1994 are based on actual fuel consumption and computed according to AP 42 guidelines. The pollutant levels in Table VIII (below) are based upon the Criteria Pollutant Emissions from Boilers at the IAAAP in Table B-4 of the 1993 Air Emissions Inventory Report prepared by The Earth Technology Corporation. The pollutant levels in

Table IX (below) are based upon Table VIII (below), the capacity of the boilers in 3A-02 as a percentage (25%) of the Oil Fired Boilers in Table VIII of the 1977 Environmental Impact Statement for the IAAAP, and the Baseline Mobilization Factor from Table 4.8.5.2 of the IAAAP Mobilization Master Plan, Volume I, Main Report November 1989, prepared by the US Army Corps of Engineers.

Table VII

Pollutants (Tons/Yr.)

Based on the 1994 Steam Usage Level

Source	TSP	PM_{10}	SO_x	NO_x	CO	VOC
Main Heating Plant 500-139	7.13	6.42	419.6	108.8	39.7	.40
1-62 Heating Plant	.0005	.0005	.00002	.005	.0001	.001
Oil Fired Boilers * 500-144, 3A-02	0.00	0.00	0.00	0.00	0.00	0.00
Totals	7.46	6.45	428.71	110.38	39.84	.409

* Did not operate during the 1994 calendar year.

Table VIII

Pollutants (Tons/Yr.)

Based on the Baseline Mobilization Steam Usage Level

Source	TSP	PM_{10}	SO_x	NO_x	CO	VOC
Main Heating Plant 500-139	10.5	9.45	463.6	160.6	58.6	.6
1-62 Heating Plant	2.2	2.2	1.2	22.7	5.7	0.5
Oil Fired Boilers 1-02, 2-02, 3A-02, 500-144	3.47	3.16	104.05	23.2	1.35	0.3
Totals	16.17	14.81	568.85	206.50	65.65	1.40

2. All production process exhaust vents are listed in the IAAAP Facility Operations Air Emission Inventory and where required are under permit by Federal, State, and Local authorities.

3. All Construction Permits issued by the Iowa Department of Natural Resources (IDNR) to the IAAAP are on file in the M&H Environmental Department.

4. An Iowa Air Emergency Episode Plan (to be used in the event the State of Iowa declares that a hazardous air pollution condition exists) was submitted to, and approved by, the IDNR and is also on file in the M&H Environmental Department.

5. National Pollutant Discharge Elimination System (NPDES) Permit number 2900900 governs stormwater runoff and the following treatment of waste water effluents at the IAAAP.

    1. Industrial Waste Water (Explosive Contaminated Wastewater Treatment facilities and Coal Pile Runoff Water Treatment facilities.)
    2. Main Sewage Treatment Plant
    3. 3A Sewage Treatment Plant

6. Conflicts and/or Inconsistent Land-Use Plans:

a. Extent of reconciliation:

The vast majority of the Installation's outer boundary is agricultural land. In an effort to avoid eliminating the use of productive land by the local farming community, as much acreage as possible is made available for leasing by area farmers.

The acreage outleased for agricultural purposes includes 5,953 acres for cropland and 1,730 acres for pasture. Each tract has a management plan, usually for a term of 5 years. The IAAAP Agronomist in cooperation with the Soil Conservation Service (USDA), sets standards for conservation practices, fertilization requirements, wildlife plots, and erosion control practices for these tracts.

Test fire and demolition sites are as far removed as possible from populated areas, and test firing or demolition operations are restricted to the daylight (0700 to 1730) hours, and are curtailed when heavy, overcast weather conditions exist.

B. Air Quality Consequences.

Future Plant operation is not expected to be significantly different than past operations. Local air quality has not shown any cumulative effects from IAAAP operations. The IAAAP is located in an air attainment region.

C. Water Quality Consequences.

1. Plant operation as proposed.

Water sources receiving effluents from plant operations are monitored on a weekly basis and are well within the Iowa NPDES Permit requirements.

D. Consequences to Archeological, Historical, and Recreational Sites.

As noted earlier in the document, all known sites are maintained and disturbance from plant operations and construction are avoided. Any new construction in an area that has not already been surveyed for archeological or historical artifacts would be preceded by such a survey. If, at any time during construction, maintenance, or normal operations, a discovery is made of an article(s) that has meaningful probability of being an archeological or historical find; the proper authorities will be contacted and those procedures deemed necessary, appropriate, and agreed upon by the authorities contacted, the United States Government, and the United States Army will be followed.

No major sites are known to exist at this location and it is unlikely that there would be any destruction of archeological or historical artifacts that do exist on the IAAAP property. Maintenance of all known sites will remain as directed from the proper authorities. The archeological sites have been marked by the State of Iowa Historical Preservation Office on the following drawings: U.S. Geological Survey Drawing, West Burlington, Iowa Quadrangle, N4045-W9701.5/7.5 dated 1964 and U.S. Geological Survey Drawing, Danville, Iowa Quadrangle, N4045-W91155/7.5 dated 1981. Copies of these drawings are available at the installation.

E. Consequences to Wildlife.

Because the grounds in which the plant resides are limited access, allowing control of harvesting, it has produced a positive impact on the welfare of the wildlife as compared to the surrounding area. The count per square mile for most game animals is significantly higher within the plant boundaries than in the surrounding area. If the property were to be converted back to farm land as it was prior to the existence of the facility, it would likely produce a negative impact on those game animals.

F. Consequences to the land.

As stated earlier in the document, plant policy follows all Federal, State, and local requirements in regard to maintaining the 19,000+ acres. Soil erosion is kept to a minimum by following proper procedure during construction and maintenance. Trees are harvested in the proper variety and numbers to allow better overall growth and survival of the wooded areas. A considerable amount of nonmanufacturing ground is devoted to agriculture.

There are areas of contamination from past operations consisting of production lines, the former Line 1 Impoundment Area and the Line 800 Lagoon. Remedial action to remove contaminated soils and treat contaminated water from the former Line 1 Impoundment and Line 800 Lagoon is to be initiated in 1995. Contaminated soil has been removed from Line 6 to allow return to normal background levels.

G. Consequences to local residence.

Employment roles are not likely to increase or decrease significantly in the foreseeable future. The payroll will likely remain at the same ratio to the surrounding area as it is currently.

Continued operation would not produce a significant change in the welfare of the local residence.

VII. Listing of Agencies and Persons consulted:

P. A. Richardson
Mason & Hanger-Silas Mason Co., Inc.
Iowa Army Ammunition Plant
Middletown, Iowa

L. L. Nihart
Mason & Hanger-Silas Mason Co., Inc.
Iowa Army Ammunition Plant
Middletown, Iowa

T. R. Wahlig, PE
Chief Environmental Compliance Division
USAMC
Rock Island, Illinois

M. J. Beck
Natural Resources Division
AMCCOM
Rock Island, Illinois

Beth Foster or Lowell Soike
Iowa State Historic Preservation Office
Des Moines, Iowa

Wayne Fischer
Assistant Field Manager
U.S. Fish and Wildlife Services
Rock Island, Illinois

VIII. Finding:

The mitigated actions accomplished at this installation will not significantly affect the quality of the environment and are not environmentally controversial. It is not anticipated that the actions accomplished at the Installation will evoke litigation based on environmental issues. Existing and new facilities will be in compliance with all Federal, State and or local environmental regulations. Therefore, an Environmental Impact Statement is not required and a Finding of No Significant Impact will be prepared.

DEPARTMENT OF THE ARMY

(INDUSTRIAL OPERATIONS COMMAND)
(IOC)

FINDING OF NO SIGNIFICANT IMPACT
for the
Installation Environmental Assessment

19 October 1995

Prepared By:

K. R. Miller
Scientist
M&H-SM Co., Inc.

Reviewed By:

R. A. Herman
Security Officer
COR Staff

Reviewed By:

R. O. Haines
Safety Manager
COR Staff

R. E. Durbin
Environmental Engineer
M&H-SM Co., Inc.

L. D. Baxter
Chief Engineer
COR Staff

Approved By:

J. E. Shannan
Env., Safety & Health Div. Manager
M&H-SM Co., Inc.

J. R. Stefanovich
LTC, OD
Commanding

FINDING OF NO SIGNIFICANT IMPACT

for the
Installation Environmental Assessment

1. PURPOSE, NEED AND DESCRIPTION OF PROPOSED ACTION

Iowa Army Ammunition Plant (IAAAP) is a Government-Owned, military industrial installation under the jurisdiction of Headquarters, U.S. Industrial Operations Command (IOC) operated by Mason & Hanger-Silas Mason Co., Inc. under a facilities contract with the Army. The primary mission of this plant is to Load, Assemble, and Pack (LAP) ammunition items. The IAAAP produces a large variety of explosive loaded components and end items such as small boosters, mines, cratering charge, artillery rounds, missile warheads and cluster bombs. The IAAAP also has research and development capabilities and performs some depot mission work. The IAAAP performs demilitarization of ammunition items by disassembly (no open detonation).

Since Mason & Hanger operates the installation under a facility contract arrangement with the Army, areas not needed by Mason & Hanger may be made available to commercial users on a subcontract basis. Support services including fire protection, safety, security, engineering, analytical and environmental are also available on a subcontract basis to commercial users on the installation. Analytical services are also being provided to off-site commercial accounts on a contract basis. The subcontract with commercial users will benefit surrounding communities by providing additional employment and the revenue from the subcontract will act to reduce overhead costs. Presently, several unused production lines are under consideration by commercial users for possible use under a subcontract arrangement. Mason & Hanger also uses the IAAAP facilities to produce ammunition items under third party contracts to other firms. Office space in Building No. 100-101 is leased to the Iowa Ordnance Plant Federal Credit Union.

A divestiture action is currently in process where the Army proposes to make available to the City of Middletown, Iowa 112.58 acres of land and buildings consisting of the installation housing area (with the exception of House Nos. 1 and 2), recreational building and Drulis Park.

2. ALTERNATIVES TO THE PROPOSED ACTION

The alternatives considered consisted of the cease operations alternative where all ammunition production and demilitarization activities will be moved to other sites; the partial move alternative involves moving portions of the ammunition production and demilitarization activities to other sites and the future operations alternative proposes additional ammunition and demilitarization activities to be moved to the installation from other sites while increasing production under third party contracts. Since IAAAP is not scheduled for closure or realignment, the alternatives to cease operations or move part of the operations to another site remain, at this time purely speculative and beyond the realm of viable alternatives. The future operations alternative is also considered to be speculative and not a viable alternative at this time.

3. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

A. AIR EMISSIONS

State of the art equipment has been installed to control air emissions within acceptable limits. The Explosive Waste Incinerator, Contaminated Waste Processor, coal fired Main Heating Plant, the natural gas and oil fired heating plants are operated in compliance with all Federal and State Air Regulations. Paint booths and primer tracer functioning units are installed and operated in compliance with construction permits obtained from the Iowa Department of Natural Resources. Very limited open burning is performed in accordance with the Iowa Administrative Code and variances issued by the Iowa Department of Natural Resources. There will be no significant impact on the air as a result of these activities.

B. LIQUID EFFLUENT

In accordance with Iowa NPDES Permit No. 2900900, effective 1 July 1995, facilities are operated for the treatment of sewage, explosive contaminated wastewater and coal pile run-off water. Discharges of treated water into the installation stream system from the facilities is performed in compliance with the parameter limits of the permit. The permit also requires monitoring of stormwater run-off from designated areas.

C. SOLID WASTE

Explosive contaminated paper, cardboard and wood is treated by fire in the Contaminated Waste Processor. Paper, cardboard and wood not contaminated by explosives will either be returned to vendors for reuse, sold as salvage, or be disposed of as nonhazardous waste in an off-site sanitary landfill. All housing area and cafeteria garbage is disposed off-site in a sanitary landfill.

D. HAZARDOUS WASTES

Scrap explosives that cannot be reused or sold to Army approved buyers will be treated in the explosive waste incinerator. Off-specification warheads will be considered for other applications or sale to Army approved buyers prior to being split for the purpose of reclaiming the explosives. Unsalvageable explosives from split warheads will be declared hazardous waste prior to treatment in the explosive waste incinerator. Waste solvents that cannot be recovered by on-site or off-site recovery equipment are shipped to EPA approved facilities for use as a supplemental fuel or treated by high temperature incineration. Solvents contaminated wipes are also shipped off-site for high temperature incineration as hazardous waste.

F. NOISE

The test fire of ammunition items is performed at the Test Fire Area in accordance with the Installation Compatible Use Zone (ICUZ) Plan. The ICUZ Plan was prepared to evaluate and control test fire activities for the purpose of limiting noise to levels that are compatible with land use on the installation and areas surrounding the installation.

H. SOIL

Minor disturbances of soil may result from construction activities and maintenance activities. Soil erosion is kept to a minimum by following proper procedures. There are areas of contamination from past operations consisting of production lines, the former Line 1 Impoundment Area and the Line 800 Lagoon. A remedial action project will act to remove contaminated soils and to treat contaminated water from the former Line 1 Impoundment and Line 800 Lagoon. Contaminated soil has been removed from Line 6 to allow return of the soil to normal background levels.

I. CULTURAL AND HISTORICAL

Compliance with the Natural Historic Preservation Act and all other Federal, State regulations will be maintained to protect cultural and historical resources. Archeological sites have been determined by the State of Iowa Historic Preservation Office. Modifications proposed to buildings with historical significance will be reviewed with and will require approval from the State of Iowa Historical Preservation Office prior to performing modifications.

J. LAND MANAGEMENT

The Integrated Land Management Plan addresses forest, agriculture fish and wildlife management to conserve and protect these resources. The only known installation threatened species (orange throated darter and yellow trout lily) are not located in areas affected by installation activities. Sufficient wildlife habitat exists on the installation to allow current operations without an adverse impact on wildlife.

4. LISTING OF AGENCIES OR PERSONS CONTACTED:

P. A. Richardson
Mason & Hanger-Silas Mason Co., Inc.
Iowa Army Ammunition Plant
Middletown, Iowa 52638

L. L. Nihart
Mason & Hanger-Silas Mason Co., Inc.
Iowa Army Ammunition Plant
Middletown, Iowa 52638

T. R. Wahlig, PE
Chief Environmental Compliance Division
USAMC
Rock Island, Illinois

M. J. Beck
Natural Resources Division
IOC
Rock Island, Illinois

Beth Foster or Lowell Soike
Iowa State Historic Preservation Office
Des Moines, Iowa

Wayne Fischer
Assistant Field Manager
U.S. Fish and Wildlife Services
Rock Island, Illinois

5. POINT OF CONTACT FOR FURTHER INFORMATION OR RECEIPT OF PUBLIC COMMENTS

Mr. L. D. Baxter, SIOIA-PPE
Iowa Army Ammunition Plant
Telephone Number: 319-753-7101 or 7130
Middletown, Iowa 52638

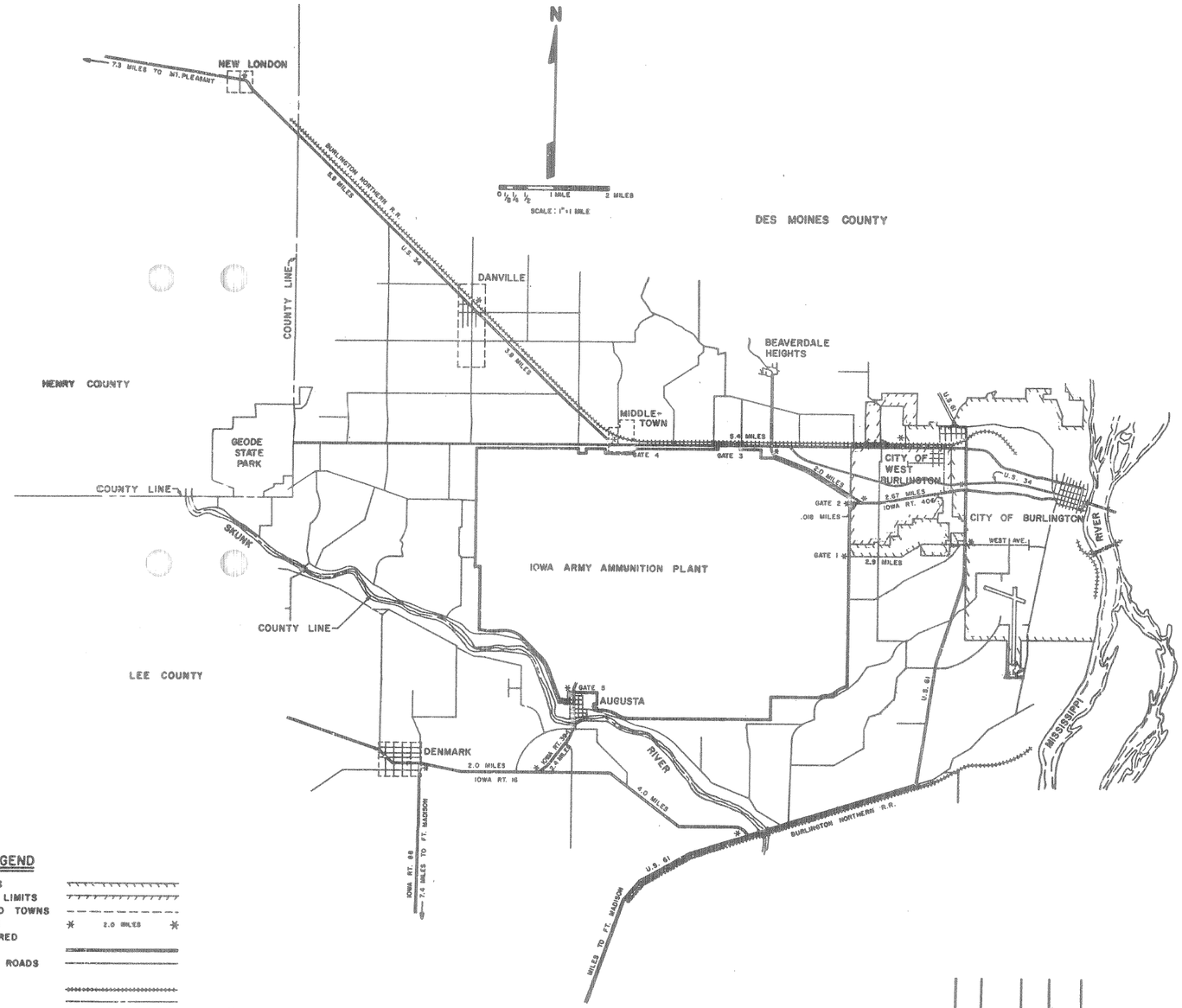
6. DEADLINE FOR FURTHER INFORMATION OR RECEIPT OF PUBLIC COMMENTS

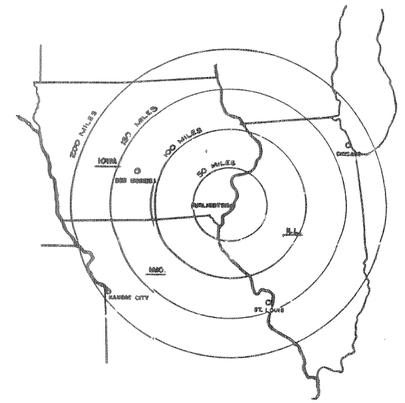
30 November 1995

7. CONCLUSION

The mitigated actions accomplished at this installation will not significantly affect the quality of the environment and are not environmentally controversial. It is not anticipated that the actions accomplished at the Installation will evoke litigation based on environmental issues. Existing and new facilities will be in compliance with all Federal, State or local environmental regulations.

BILL OF MATERIAL				
PC.	REQ.	MATL.	MATL. REF.	DESCRIPTION





N.T.S.

LEGEND

BURLINGTON CITY LIMITS	
WEST BURLINGTON CITY LIMITS	
LIMITS OF INCORPORATED TOWNS	
POINTS BETWEEN WHICH DISTANCE IS MEASURED	* 2.0 MILES *
PRIMARY ROADS	
GRAVEL & SECONDARY ROADS & STREETS	
RAILROADS	
COUNTY LINE	
BRIDGES	
I.A.A.P. BOUNDARY LINE	

REV.	DATE	BY	CHECK	DESCRIPTION	APPROVED BY	DATE
1	3-11-87	JK		RELOCATED U.S. HWY 34 & UPDATED TITLEBLOCK	R.S. Freeman	3-11-87

REVISIONS

ORIGINAL APPROVAL	Drawn C. Hunter	W.A. Hagemann	
DATE	3/6/72	4/15/72	

TOLERANCES UNLESS OTHERWISE NOTED
FRACTIONAL:
DECIMAL:
ANGULAR:
ALL DIM. IN INCHES
BREAK ALL SHARP EDGES

Mason & Hanger-Silas Mason Co., Inc.
ENGINEERS — OPERATORS OF — CONTRACTORS

IOWA ARMY AMMUNITION PLANT

MIDDLETOWN, IOWA

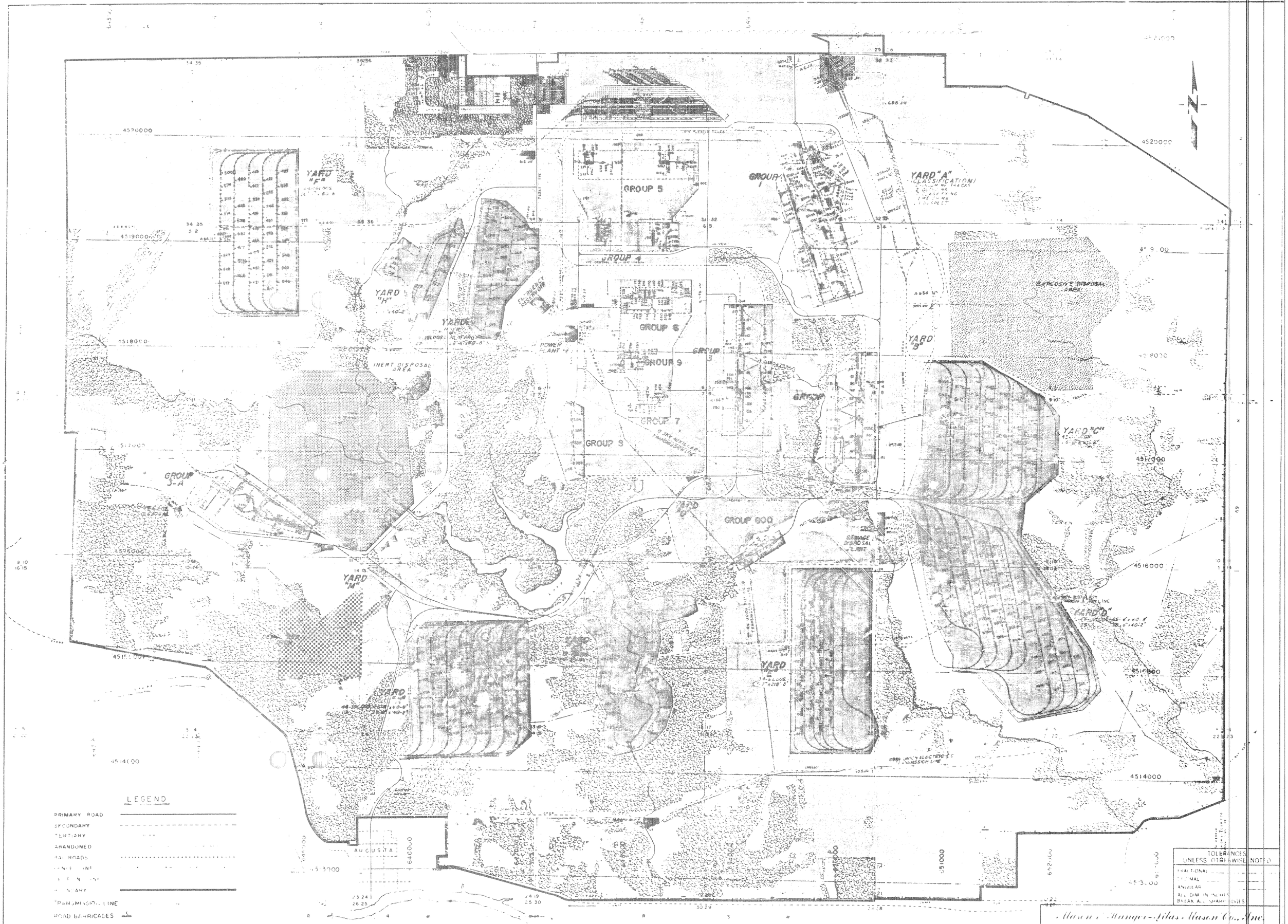
ORIENTATION MAP

E.O. 067508 ENCLOSURE #1 W.O.

DESIGN	DRAWN	CHECK	SCALE	DATE	JOB	DRAWING NO.	REV.
	L.A.B.		1"=1 MILE	2-8-72	A.E.C.	SK. 067508-463	1

SHEET OF

SK-G-294



TOLERANCES UNLESS OTHERWISE NOTED
FRACTIONAL
DECIMAL
ANGULAR
ALL DIM IN INCHES
BREAK ALL SHARP EDGES

Mason & Hanger - Silas Mason Co., Inc.
CONTRACTORS

IOWA ARMY AMMUNITION PLANT
BURLINGTON A.E.C. PLANT
IOWA

LAND USAGE MAP

PAR GRB 71000 11-18-70 85 G/W-725

EBM-3

ENCLOSURE NO. 4

IOWA DEPARTMENT OF NATURAL RESOURCES

National Pollutant Discharge Elimination System (NPDES) Permit

PERMITTEE

US DEPT OF THE ARMY-IA ARMY AMMUNITION PLANT
17575 STATE HIGHWAY 79
MIDDLETOWN, IA 52638 .

IDENTITY AND LOCATION OF FACILITY

IOWA ARMY AMMUNITION PLANT
Section 1, T 69N, R 4W
DES MOINES County, Iowa

IOWA NPDES PERMIT NUMBER: 2900900

DATE OF ISSUANCE: 07-01-1995

DATE OF EXPIRATION: 06-30-2000

RECEIVING STREAM

SKUNK RIVER

ROUTE OF FLOW

LONG CREEK TO THE SKUNK RIVER.

YOU ARE REQUIRED TO FILE FOR RENEWAL OF THIS PERMIT BY: 01-02-2000

EPA NUMBER: IA0022144

This permit is issued pursuant to the authority of section 402(b) of the Clean Water Act (33 U.S.C 1342(b)), Iowa Code section 455B.174, and rule 567--64.3, Iowa Administrative Code. You are authorized to operate the disposal system and to discharge the pollutants specified in this permit in accordance with the effluent limitations, monitoring requirements and other terms set forth in this permit.

You may appeal any conditions of this permit by filing a written notice of appeal and request for administrative hearing with the director of this department within 30 days of your receipt of this permit.

Any existing, unexpired Iowa operation permit or Iowa NPDES permit previously issued by the department for the facility identified above is revoked by the issuance of this Iowa NPDES operation permit.

FOR THE DEPARTMENT OF NATURAL RESOURCES

Larry J. Wilson, Director

By _____
Wayne Farrand, Supervisor
Wastewater Section
ENVIRONMENTAL PROTECTION DIVISION

Permit Number: 2900900

Outfall Number	Description
009	TREATED EFFLUENT FROM MAIN HEATING PLANT (BUILDING 500-139) CONSISTING OF COAL PILERUNOFF, BOILER BLOWDOWN AND FLY ASH LEACHATE WHICH ALL DISCHARGE TO A POND
011	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS LINE 1.
012	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 1 AREA AT BUILDING # 1-70-1
013	MAIN SEWAGE TREATMENT PLANT OUTFALL AT BUILDING #500-216-1.
014	3A SEWAGE TREATMENT PLANT OUTFALL AT BUILDING #500-216-2.
021	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 2 AREA AT BUILDING #2-70-1
022	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 2 AREA AT BUILDING #2-70-2
032	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3 AREA AT BUILDING #3-70-1
033	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3 AREA AT BUILDING #3-70-2
034	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3A AREA AT BUILDING #3A-70-1
035	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 3A AREA AT BUILDING #3A-70-2
051	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 5A AREA AT BUILDING # 5A-140-3
052	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 5B AREA AT BUILDING #5B-140-3
082	DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 800 AREA AT BUILDING #800-70-1.
090	STORMWATER RUNOFF FROM EXPLOSIVES DISPOSAL AREA.
091	STORMWATER RUNOFF FROM OPERATIONS AREA.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 009 TREATED EFFLUENT FROM MAIN HEATING PLANT (BUILDING 500-139) CONSISTING OF COAL PILERUNOFF, BOILER BLOWDOWN AND F

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL			50.0000	MG/L				
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 011 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS LINE 1.

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 012 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 1 AREA AT BUILDING # 1-70-1

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD		-		
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY,TOTAL (AS HG)	YEARLY	FINAL		.2130	.3180	UG/L		.83	1.20	.001LBS/D
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY
ACUTE TOXICITY, CERIODAPHNIA	YEARLY	FINAL							1.00	NON TOXIC
ACUTE TOXICITY, PIMEPHALES	YEARLY	FINAL							1.00	NON TOXIC

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 013 MAIN SEWAGE TREATMENT PLANT OUTFALL AT BUILDING #500-216-1.

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL		.4900	1.0800	MGD				
CBOD5	YEARLY	INTER	40.0000	25.0000		MG/L				LBS/DAY
CBOD5	YEARLY	FINAL	40.0000	25.0000		MG/L	164.00	103.00		LBS/DAY
CBOD5			85 PERCENT REMOVAL REQUIRED							
TOTAL SUSPENDED SOLIDS	YEARLY	INTER	45.0000	30.0000		MG/L				LBS/DAY
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL	45.0000	30.0000		MG/L	184.00	122.00		LBS/DAY
TOTAL SUSPENDED SOLIDS			85 PERCENT REMOVAL REQUIRED							
AMMONIA NITROGEN (N)	JAN	FINAL		6.7000	11.0000	MG/L		58.00	95.00	LBS/DAY
AMMONIA NITROGEN (N)	FEB	FINAL		6.7000	11.0000	MG/L		58.00	95.00	LBS/DAY
AMMONIA NITROGEN (N)	MAR	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	APR	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	MAY	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	JUN	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	JUL	FINAL		2.8000	4.6000	MG/L		24.00	40.00	LBS/DAY
AMMONIA NITROGEN (N)	AUG	FINAL		2.8000	4.6000	MG/L		24.00	40.00	LBS/DAY
AMMONIA NITROGEN (N)	SEP	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	OCT	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	NOV	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
AMMONIA NITROGEN (N)	DEC	FINAL		3.0000	5.0000	MG/L		26.00	44.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY,TOTAL (AS HG)	YEARLY	FINAL		.2660	.3990	UG/L		1.90	2.90	.001LBS/D
SILVER,TOTAL (AS AG)	YEARLY	FINAL		.0090	.0160	MG/L		66.00	110.00	.001LBS/D

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Facility Name: IOWA ARMY AMMUNITION PLANT

Permit Number: 2900900

Effluent Limitations

OUTFALL NO.: 013 MAIN SEWAGE TREATMENT PLANT OUTFALL AT BUILDING #500-216-1.

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
ACUTE TOXICITY, CERIODAPHNIA	YEARLY	FINAL						1.00		NON TOXIC
ACUTE TOXICITY, PIMEPHALES	YEARLY	FINAL						1.00		NON TOXIC

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 014 3A SEWAGE TREATMENT PLANT OUTFALL AT BUILDING #500-216-2.

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL		.0400	.0700	MGD				
CBOD5	YEARLY	INTER	40.0000	25.0000		MG/L				LBS/DAY
CBOD5	YEARLY	FINAL	40.0000	25.0000		MG/L	13.00	8.00		LBS/DAY
CBOD5			85 PERCENT REMOVAL REQUIRED							
TOTAL SUSPENDED SOLIDS	YEARLY	INTER	45.0000	30.0000		MG/L				LBS/DAY
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL	45.0000	30.0000		MG/L	15.00	10.00		LBS/DAY
TOTAL SUSPENDED SOLIDS			85 PERCENT REMOVAL REQUIRED							
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
SILVER,TOTAL (AS AG)	YEARLY	FINAL		.0360	.0550	MG/L		21.00	32.00	.001LBS/D

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 021 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 2 AREA AT BUILDING #2-70-1

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD		-		
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY,TOTAL (AS HG)	YEARLY	FINAL		.2130	.3180	UG/L		.83	1.20	.001LBS/D
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 022 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 2 AREA AT BUILDING #2-70-2

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY,TOTAL (AS HG)	YEARLY	FINAL		.2130	.3180	UG/L		.83	1.20	.001LBS/D
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 032 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3 AREA AT BUILDING #3-70-1

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY,TOTAL (AS HG)	YEARLY	FINAL		.2130	.3180	UG/L		.83	1.20	.001LBS/D
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 033 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3 AREA AT BUILDING #3-70-2

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type	EFFLUENT LIMITATIONS							
			Concentration				Mass			
			7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
MERCURY, TOTAL (AS HG)	YEARLY	FINAL		.2130	.3180	UG/L		.83	1.20	.001LBS/D
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 034 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 3A AREA AT BUILDING #3A-70-1

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type	EFFLUENT LIMITATIONS							
			Concentration				Mass			
			7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2000900

OUTFALL NO.: 035 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 3A AREA AT BUILDING #3A-70-2

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

Wastewater Parameter	Season	Type	EFFLUENT LIMITATIONS							
			Concentration				Mass			
			7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD		-		
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 051 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 5A AREA AT BUILDING # 5A-140-3

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD		-		
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.9300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 052 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN THE LINE 5B AREA AT BUILDING #5B-140-3

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD				
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.9300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7500	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 082 DISCHARGE FROM EXPLOSIVE LOADING OPERATIONS IN LINE 800 AREA AT BUILDING #800-70-1.

Interim Limits Start: 07-01-1995 Interim Limits End: 10-30-1996

You are prohibited from discharging pollutants except in compliance with the following effluent limitations:

			EFFLUENT LIMITATIONS							
			Concentration				Mass			
Wastewater Parameter	Season	Type	7 Day Average	30 Day Average	Daily Maximum	Units	7 Day Average	30 Day Average	Daily Maximum	Units
FLOW	YEARLY	FINAL			.0930	MGD		-		
TOTAL SUSPENDED SOLIDS	YEARLY	FINAL		20.0000	40.0000	MG/L		16.00	31.00	LBS/DAY
PH (MINIMUM - MAXIMUM)	YEARLY	FINAL	6.0000		9.0000	STD UNITS				
TRINITROTOLUENE	YEARLY	FINAL		.3300	1.0000	MG/L		.26	.77	LBS/DAY
RDX + HMX	YEARLY	FINAL		.7900	2.2500	MG/L		.58	1.75	LBS/DAY

NOTE: If seasonal limits apply, summer is from April 1 through October 31, and winter is from November 1 through March 31.

Non-Standard Effluent Limitations

Permit Number: 2900900

OUTFALL NO.: 009 TREATED EFFLUENT FROM MAIN HEATING PLANT (BUILDING 500-139) CONSISTING OF COAL PILERUNOFF, BOILER BLOWDOWN AND F

Wastewater Parameter	Non-Standard Limits
TOTAL SUSPENDED SOLIDS	THE EFFLUENT LIMITATIONS FOR TOTAL SUSPENDED SOLIDS SHALL NOT APPLY WHEN DISCHARGE OCCURS AS A RESULT OF A RAINFALL EVENT EXCEEDING THE 10 YEAR 24-HOUR RAINFALL EVENT. THE 24-HOUR RAINFALL EVENT IS EQUIV-ALENT TO 4.5 INCHES OF RAINFALL WITHIN A 24-HOUR TIME PERIOD

Enclosure No. 5

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0 Page 1 of 1
Iowa Army Ammunition Plant	92-3457	

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
B6-199-1/EP1	Stack for EU1	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6-199-1/EU1		Single Chamber Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
Contaminated Waste (waste explosives)	16,000	lbs

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	12 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	B6-199-1/CE1	B6-199-1/CE2	B6-199-1/CE3
(18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP	0.0035	g/scf	Stack Test		99	0.0022
SOx						
NOx						
VOC						
CO	28.16	ppm	Stack Test		99	8.8×10^{-3}
Lead	1.0	mg/L	Ash Test		99	3.12×10^{-8}
a) CAS No. Chromium	2.10×10^{-6}	g/sec	Stack Test		99	6.49×10^{-7}
b) CAS No. Cadmium	0.2	mg/L	Ash Test		99	6.24×10^{-9}
c) CAS No.						

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

Duplicate this form as needed. TYPE OR PRINT ALL INFORMATION (DNR Form 542-1482. June 14, 1994)

WA OPERATING PERMIT APPLICATION-PART 1
rm CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name v= Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. BG-199-1/EP1	4) Emission Unit No. BG-199-1/EU1	5) Emission Unit Description or (SCC) No.

6) Calculations are provided in support of information reported on Form 3, page 1

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

CO Emissions

Concentration of CO in stack sample - 28.16 ppm
Actual Volumetric Flow - 1870 ft^3 / min

Convert ppm to ug/m^3
28.16 ppm x 28.01 / 24.5 x 1 x 10^3 = 32,194.4 ug/m^3
32,194.4 ug/m^3 x 1 g / 1 x 10^6 ug x 1 lb / 453.59 g x 0.02832 m^3 / ft^3 x 1870 ft^3 / min = 0.0038 lb / min
16,000 lb burned / yr x hr / 205 lbs x 0.0038 lb / min x 60 min / hr x ton / 2000 lb = 8.89 x 10^{-3} ton / yr

PM

ic ration of particulate in sample - 0.0035 gr / dscf
Feed Rate - 205.42 lb / hr
Actual Volumetric Flow - 1870 ft^3 / min
0.0035 gr / dscf x 6.49 x 10^{-5} kg / g x lb / 0.453 kg x 1870 cf / min x 60 min / hr x 16000 lb / yr x hr / 205 lb

x ton / 2000 lb = 2.19 x 10^{-3} ton / yr

CHROMIUM

Test Waste Feed Rate - 205.42 lb / hr
Chromium Emission Rate in Stack - 2.10 x 10^{-6} g / sec
Actual Was
2.10 x 10^{-6} g / sec x 1 lb / 453.59 g x 60 sec / min x 60 min / hr = 1.667 x 10^{-5} lb / hr (test)
1.667 x 10^{-5} lb / hr x 205 lb/hr (actual) / 205.42 lb/hr (test x 16000 lb / yr x hr / 205 lb x ton / 2000 lb
= 6.49 x 10^{-7} ton / yr

ASH TEST DATA - ND = NOT DETECTED

Arsenic	ND	mg/L
Barium	ND	mg/L
Cadmium	0.2	mg/L
Chromium	ND	mg/L
Mercury	ND	mg/L
Lead	1.0	mg/L
Selenium	ND	mg/L

WA OPERATING PERMIT APPLICATION-PART 1
rm CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name w- Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. BG-199-1/EP1	4) Emission Unit No. BG-199-1/EW1	5) Emission Unit Description or (SCC) No.

6) Calculations are provided in support of information reported on Form 3, page 1

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

A volume of ash removed from the EWI was not available. The amount was reportedly negligible, consisting primarily of residue on the inside walls of the unit. The volume of ash generated from the unit was assumed to be one cubic foot.

CADMIUM

0.2 mg / L x 28.32 L / ft^3 x 1 ft^3 / yr x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 6.24×10^{-6} ton / yr

LEAD

1.0 mg / L x 28.32 L / ft^3 x 1 ft^3 / yr x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 3.12×10^{-5} ton / yr

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1 Company/Facility Name	2) EIQ No.	3) Form 4.0 Page 1 of 4
Iowa Army Ammunition Plant	92-3457	

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
BG-199-1/EP1	Stack for EWI	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG-199-1/EU1		Single Chamber - Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	750	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	12 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	BG-199-1/CE1	BG-199-1/CE2	BG-199-1/CE3
(18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10	1.08	lb/1000 gal	AP-42		0	.000405
TSP	2	lb/1000 gal	AP-42		0	7.5×10^{-4}
SOx	142 S	lb/1000 gal	AP-42	0.047	0	2.5×10^{-3}
NOx	20	lb/1000 gal	AP-42		0	0.0075
VOC	0.34	lb/1000 gal	AP-42		0	1.3×10^{-4}
CO	5	lb/1000 gal	AP-42		0	1.9×10^{-3}
Lead	8.9	$lb/10^{12}$ BTU	AP-42		0	4.6×10^{-7}
a) CAS No. Arsenic	4.2	$lb/10^{12}$ BTU	AP-42		0	2.2×10^{-7}
b) CAS No. Beryllium	2.5	$lb/10^{12}$ BTU	AP-42		0	1.3×10^{-7}
c) CAS No. Cadmium	11	$lb/10^{12}$ BTU	AP-42		0	5.7×10^{-7}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Five .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 2 of 4

4) Emissions Point No.	5) Emissions Point Description	6)
BG-199-1/EP1	Stack for EU1	EMISSION YEAR: 1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG-199-1/EU1		Single Chamber - Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	750	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	13 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	BG-199-1/CE1	BG-199-1/CE2	BG-199-1/CE3
(18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx				[redacted]		
VOC						
CO						
Lead						
a) CAS No. Chromium	57.5	lb/10^{12}BTU	AP-42		0	3×10^{-7}
b) CAS No. Formaldehyde	319	lb/10^{12}BTU	AP-42		0	1.7×10^{-5}
c) CAS No. Manganese	14	lb/10^{12} BTU	AP-42		0	7.3×10^{-7}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1. Company/Facility Name	2) EIQ No.	3) Form 4.0 Page
Iowa Army Ammunition Plant	92-3457	Page 3 of 4

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
BG-199-1/EP1	Stack for EU1	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG-199-1/EU1		Single Chamber - Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	750	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	13 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	BG-199-1/CE1	BG-199-1/CE2	BG-199-1/CE3
(18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx						
VOC						
CO						
Lead						
a) CAS No. ?cury	3	lb/10^{12}BTU	AP-42		0	1.6×10^{-7}
b) CAS No. Nickel	18	lb/10^{12}BTU	AP-42		0	9.4×10^{-7}
c) CAS No. Selenium	23.42	lb/10^{12}BTU	AP-42		0	1.2×10^{-6}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1. Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 4 of 4

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
B6-199-1/EP1	Stack for EU1	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6-199-1/EU1		Single Chamber - Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	750	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	13 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	B6-199-1/CE1	B6-199-1/CE2	B6-199-1/CE3
(18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx				[redacted]		
VOC						
CO						
Lead						
a) CAS No. 1	22	lb/10^{12} BTU	AP-42		0	1.1×10^{-6}
b) CAS No.						
c) CAS No.						

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 1 of 1

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
B6-199-1/EP1	Stack for EU1	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6-199-1/EU1		Single Chamber Rotary Kiln

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
Propane -	374	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	25 %	25 %	25 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	2 Days	2 Days	2 Days	2 Days
16) Weeks/13 Week Quarter	13 Weeks	13 Weeks	13 Weeks	13 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

17) Control Equipment (CE) No.	B6-199-1/CE1	B6-199-1/CE2	B6-199-1/CE3
18) Monitoring Equip. (ME) No.			

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10	0.4	lb/1000 gal	AP-42		0	7.5×10^{-5}
TSP	0.4	lb/1000 gal	AP-42		0	7.5×10^{-5}
SOx	0.1	lb/1000 gal	AP-42	0	0	0
NOx	14	lb/1000 gal	AP-42		0	0.0026
VOC	0.5	lb/1000 gal	AP-42		0	9.4×10^{-5}
CO	1.9	lb/1000 gal	AP-42		0	3.6×10^{-4}
Lead						
a) CAS No. maldehyde	0.018	$lb/10^{12}$ BTU	AP-42		0	3.1×10^{-10}
b) CAS No.						
c) CAS No.						

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

Enclosure No. 6

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

Company/Facility Name	2) EIQ No.	3) Form 4.0 Page 2 of 2
Iowa Army Ammunition Plant	92-3457	

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
BG-199-2/EP5	CWP Stack	

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG-199-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
Contaminated Trash	484.05	tons

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment) 1770

(17) Control Equipment (CE) No.	BG-199-2/CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx						
VOC						
CO						
Lead						
a) CAS No. Chromium	14.8	mg/L	AP-42		95	.000018
b) CAS No. Mercury	0.01	mg/L	AP-42		95	1.2×10^{-8}
c) CAS No. Selenium	0.05	mg/L	AP-42		95	6.1×10^{-8}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0 Page 1 of 2
Iowa Army Ammunition Plant	92-3457	

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR: 1993
B6-99-2/EP5	CWP Stack	

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6-99-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
Contaminated Trash	484.05	tons

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	B6-99-2/CE1	B6-99-2/CE2	B6-99-2/CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10	15	lb/ton	AP-42		0	3.63
TSP	15	lb/ton	AP-42		0	3.63
SOx	2.5	lb/ton	AP-42		0	0.605
NOx	2	lb/ton	AP-42	[redacted]	0	0.484
VOC						
CO	20	lb/ton	AP-42		0	4.84
Lead	25.25	mg/L	AP-42		0	3×10^{-5}
a) CAS No. Arsenic	0.25	mg/L	AP-42		95	3×10^{-7}
CAS No. Barium	5.0	mg/L	AP-42		95	6.1×10^{-6}
c) CAS No. Cadmium	28	mg/L	AP-42		95	3.4×10^{-5}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION-PART 1

Form CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name ...s Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. BG-199-2 / EP 5	4) Emission Unit No. BG-199-2 / EU 1	5) Emission Unit Description or (SCC) No.

6) Calculations are provided in support of information reported on Form____,page____

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

Ash Test Result Emission Calculations
Volume of ash collected from CWP - 742.35 cf
Air pollution control devices efficiency - 95%

742.35 cf x (1/.95) = 781.42 cf ash produced

Volume of Ash Emitted - 781.42 cf - 742.35 cf = 39.07 cf

Ash Analysis - The following are taken from an average of two samples. (ND = Not Detected)

	mg/L	Samples
As	L 0.25	(<.5 ND)
Ba	L 5.0	(<10, ND)
Cd	28	(10, 46)
Cr	14.8	(29, 0.6)
Hg	<0.01	(<0.02, ND)
Pb	25.25	(<0.5, 50)
Sel	<0.05	(<0.1, ND)
Sil	<0.25	(<.5, ND)

Arsenic Emissions

Concentration of Arsenic in Ash - 0.25 mg/L
0.25 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 3.0×10^{-7} ton / yr

TSP
15 lb waste / ton/burned x 968100 lb / yr x ton / 2000 lb = 7260.75 lb / yr x ton / 2000 = 3.63 ton / yr

PM_{10}
The PM_{10} fraction in the TSP is unknown so it was asumed that all the TSP was PM_{10}

SOx
2.5 lb waste / ton burned x 968100 lb / yr x ton / 2000 lb x ton / 2000 lb = 0.605 ton / yr

NOx
2 lb waste / ton burned x 968100 lb / yr x ton / 2000 lb x ton / 2000 lb = 0.484 ton / yr

CO
20 lb waste / ton x 968100 lb / yr x ton / 2000 lb x ton / 2000 lb = 4.84 ton / yr

IOWA OPERATING PERMIT APPLICATION-PART 1
Form CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. BG-199-2 / EP 5	4) Emission Unit No. BG-199-2/ EU 1	5) Emission Unit Description or (SCC) No.

6) Calculations are provided in support of information reported on Form____,page____

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

LEAD

25.25 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 3×10^{-5} ton / yr

BARIUM

5.0 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 6.1×10^{-6} ton / yr

CADMIUM

28 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 3.4×10^{-5} ton / yr

CHROMIUM

14.8 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 0.000018 ton / yr

MERCURY

0.01 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 1.2×10^{-6} ton / yr

SELENIUM

0.05 mg / L x 39.07 ft^3 / yr x 28.32 L / ft^3 x g / 1000 mg x lb / 453.59 g x ton / 2000 lb = 6.1×10^{-6} ton / yr

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0 Page 1 of 4
Iowa Army Ammunition Plant	92-3457	

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR: 1993
BG199-2/EP5	CWP Stack	

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG199-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	9200	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

17) Control Equipment (CE) No.	CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10	1.08	lb/1000 gal	AP-42		0	0.0049
TSP	2	lb/1000 gal	AP-42		0	0.0092
SOx	1425	lb/1000 gal	AP-42	0.047	0	0.031
NOx	20	lb/1000 gal	AP-42		0	0.092
VOC	0.34	lb/1000 gal	AP-42		0	0.0015
CO	5	lb/1000 gal	AP-42		0	0.023
Lead	8.9	$lb/10^{12}$ BTU	AP-42		0	5.7×10^{-6}
a) CAS No. Arsenic	5	$lb/10^{12}$ BTU	AP-42		0	2.7×10^{-6}
b) CAS No. Beryllium	2.5	$lb/10^{12}$ BTU	AP-42		0	1.6×10^{-6}
c) CAS No. Cadmium	11	$lb/10^{12}$ BTU	AP-42		0	7×10^{-6}

* Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. EPA-Fire .. EPA-XATEF .. EPA-L&E .. Worksheet .. Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 2 of 4

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
B6799-2/EP5	CWP Stack	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6799-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	9200	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

Control Equipment (CE) No.	CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx						
VOC						
CO						
Lead						
a) CAS No. Chromium	57.5	lb/10^{12}BTU	AP-42			3.7×10^{-5}
b) CAS No. Formaldehyde	319	lb/10^{12}BTU	AP-42		0	2×10^{-4}
c) CAS No. Manganese	14	lb/10^{12}BTU	AP-42		0	8.9×10^{-6}

* Sources of Emission Factors: CEM _ Stack Test _ Mass Balance _ AP-42 _ EPA-Fire _ EPA-XATEF _ EPA-L&E _ Worksheet _ Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 3 of 4

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
B6-99-2/EP5	CWP Stack	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
B6-99-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	9200	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

Control Equipment (CE) No.	CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10						
TSP						
SOx						
NOx						
VOC						
CO						
Lead						
a) CAS No. Mercury	3	lb/10^{12}BTU	AP-42		0	1.9×10^{-6}
b) CAS No. Nickel	18	lb/10^{12}BTU	AP-42		0	1.1×10^{-5}
c) CAS No. Selenium	23.42	lb/10^{12}BTU	AP-42		0	1.5×10^{-5}

* Sources of Emission Factors: CEM - Stack Test - Mass Balance - AP-42 - EPA-Fire - EPA-XATEF - EPA-L&E - Worksheet - Other - specify

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	2) EIQ No.	3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 4 of 4

4) Emissions Point No.	5) Emissions Point Description	6) EMISSION YEAR:
BG-199-2/EP5	CWP Stack	1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

7) EMISSION UNIT NO.	8) SCC NO.	9) DESCRIPTION OF PROCESS
BG-199-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

10) Raw Material	11) Actual Throughput - Yearly Total	12) Units Raw Material
No. 2 Fuel Oil	9200	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
15) Days/Week	4 Days	4 Days	4 Days	4 Days
16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

Control Equipment (CE) No.	CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/YY)
PM-10						
TSP						
SOx						
NOx						
VOC						
CO						
Lead						
a) CAS No. POM	22	$lb/10^{12}$ BTU	AP-42		0	1.4×10^{-5}
b) CAS No.						
c) CAS No.						

* Sources of Emission Factors: CEM _ Stack Test _ Mass Balance _ AP-42 _ EPA-Fire _ EPA-XATEF _ EPA-L&E _ Worksheet _ Other - specify

Duplicate this form as needed. TYPE OR PRINT ALL INFORMATION (DNR Form 542-1482. June 14, 1994)

IOWA OPERATING PERMIT APPLICATION-PART 1
Form CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. B6799-2/EP5	4) Emission Unit No. B6799-2/EU1	5) Emission Unit Description or (SCC) No. Incinerator

6) Calculations are provided in support of information reported on Form 4, page 1 of 2

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

#2 Fuel Oil Used in 1993 - 9200 gal / yr 138690 BTU / gal heat content

PM10
1.08 lb / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.0049 ton yr

TSP
2 lb / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.0092 ton yr

SOx
142 lb x .047 / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.030 ton yr

NOx
20 lb / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.092 ton yr

Lx
0.34 lb / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.0015 ton yr

CO
5 lb / 1000 gal x 9200 gal / yr x ton / 2000 lb = 0.023 ton yr

ARSENIC
4.2 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 2.7×10^{-6} ton / yr

BERYLLIUM
2.5 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 1.6×10^{-6} ton / yr

CADMIUM
11 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 7.0×10^{-6} ton / yr

CHROMIUM
57.5 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 0.000037 ton / yr

FORMALDEHYDE
319 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 0.0002 ton / yr

MANGANESE
14 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 8.9×10^{-6} ton / yr

MERCURY
10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 1.9×10^{-6} ton / yr

IOWA OPERATING PERMIT APPLICATION-PART 1
Form CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No. B6-199-2/EP5	4) Emission Unit No. B6-199-2/EU1	5) Emission Unit Description or (SCC) No.

6) Calculations are provided in support of information reported on Form 4, page 3 & 4

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

NICKEL

18 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 0.000011 ton / yr

SELENIUM

23.42 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 0.000015 ton / yr

LEAD

8.9 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 5.7×10^{-6} ton / yr

POM

22 lb / 10^{12} BTU x 138690 BTU / gal x 9200 gal / yr x ton / 2000 lb = 0.000014 ton / yr

IOWA OPERATING PERMIT APPLICATION - PART 1

Form 4.0 EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

Duplicate this form for EACH Emission Unit

(1) Company/Facility Name	(2) EIQ No.	(3) Form 4.0
Iowa Army Ammunition Plant	92-3457	Page 1 of 1

(4) Emissions Point No.	(5) Emissions Point Description	(6)
BG799-2/EP5	CWP Stack	EMISSION YEAR: 1993

EMISSION UNIT - ACTUAL OPERATIONS AND EMISSIONS

(7) EMISSION UNIT NO.	(8) SCC NO.	(9) DESCRIPTION OF PROCESS
BG799-2/EU1		Single Chamber Carbottom Unit

ACTUAL THROUGHPUT

(10) Raw Material	(11) Actual Throughput - Yearly Total	(12) Units Raw Material
Propane	4416	gal

Actual Operating Rate/Schedule

	JAN.-MAR.	APRIL-JUNE	JULY-SEPT.	OCT.-DEC.
(13) Percent of Total Operating Time	28 %	23 %	24 %	25 %
(14) Hours/Day	10 Hours	10 Hours	10 Hours	10 Hours
(15) Days/Week	4 Days	4 Days	4 Days	4 Days
(16) Weeks/13 Week Quarter	12.5 Weeks	10 Weeks	10.75 Weeks	11 Weeks

ASSOCIATED EQUIPMENT (CE and ME documents should be filed for each piece of Equipment)

(17) Control Equipment (CE) No.	CE1	CE2	CE3
(18) Monitoring Equip. (ME) No.	NA		

ACTUAL EMISSIONS

(19) Air Pollutant	(20) Emission Factor	(21) Emission Factor Units	(22) * Source of Emission Factor	(23) Ash or Sulfur %	(24) Combined Control Efficiency %	(25) ACTUAL Emissions (Tons/Yr)
PM-10	0.4	lb/1000 gal	AP-42		0	0.0008
TSP	0.4	lb/1000 gal	AP-42		0	0.0008
SOx	0.1	lb/1000 gal	AP-42	0	0	0
NOx	14	lb/1000 gal	AP-42			0.031
VOC	0.5	lb/1000 gal	AP-42		0	0.0011
CO	1.9	lb/1000 gal	AP-42		0	0.0042
Lead						
a) CAS No. Formaldehyde	0.018	lb/10^{12} BTU	AP-42		0	3.6×10^{-9}
CAS No.						
c) CAS No.						

* Sources of Emission Factors: CEM _ Stack Test _ Mass Balance _ AP-42 _ EPA-Fire _ EPA-XATEF _ EPA-L&E _ Worksheet _ Other - specify

IOWA OPERATING PERMIT APPLICATION-PART 1
Form CA-01 CALCULATIONS

Duplicate this form for each form it will accompany in the application.

1) Facility Name: Army Ammunition Plant		2) EIQ No. 92-3457
3) Emission Point No.: B6-199-2/EP5	4) Emission Unit No.: B6-199-2/EU1	5) Emission Unit Description or (SCC) No.: Incinerator

6) Calculations are provided in support of information reported on Form 4, page 1

7) Emissions Calculations

Use in this form (or other paper with substantially the same information listed in questions 1-6 above) to document information provided on Part 1, forms 1.3 through 5.0. Include a description of any assumptions used in making the calculations. Include the calculations with the form it applies to in the application.

ACTUAL EMISSIONS

PM_{10}
0.4 lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0.0008 ton / yr

TSP
0.4 lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0.0008 ton / yr

SOx
0.1 lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0 ton / yr

5
lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0.031 ton / yr

VOC
0.5 lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0.0011 ton / yr

CO
1.9 lb / 1000 gal x 4416 gal / yr x ton / 2000 lb = 0.0042 ton / yr

FORMALDEHYDE
0.018 lb / 10^{12} BTU x 91600 BTU / gal x 4416 gal / yr x ton / 2000 lb = 3.6×10^{-6} ton / yr

Enclosure No. 7

IOWA ARMY AMMUNITION PLANT
INSTALLATION RESTORATION PROGRAM
SITE SUMMARY CHART

1. Line 1 (IAAP-001)
2. Line 2 (IAAP-002)
3. Line 3 (IAAP-003)
4. Line 3A (IAAP-004)
5. Lines 4A & 4B (IAAP-005)
6. Lines 5A & 5B (IAAP-006)
7. Line 6 (IAAP-007)
8. Line 7 (IAAP-008)
9. Line 8 (IAAP-009)
10. Line 9 (IAAP-010)
11. Line 800 (IAAP-011)
12. Explosive Disposal Area (IAAP-012)
13. Former Line 1 Impoundment (IAAP-016)
14. Pesticide Pit (IAAP-017)
15. Inert Disposal Area (IAAP-020)
16. Demolition Area/Deactivation Furnace (IAAP-021)
17. Contaminated Waste Processor (IAAP-024)
18. Explosive Waste Incinerator (IAAP-025)
19. Main Sewage Treatment Plant/Drying Beds (IAAP-026)
20. Fly Ash Landfill (IAAP-027)
21. Construction Debris Landfill (IAAP-028)
22. Line 3A Sewage Treatment Plant/Sludge Drying (IAAP-029)
23. Firing Site (IAAP-030)
24. Yard B Ammunition Box Chipper Disposal Pit (IAAP-031)
25. Burn Cages/Burn Cage Landfills (IAAP-032)
26. North Burn Pads (IAAP-036)
27. North Burn Pads Landfill (IAAP-037)
28. Building No. 600-86 Septic System (IAAP-038)
29. Fire Training Pit (IAAP-039)
30. Roundhouse Transformer Storage Area (IAAP-040)
31. Line 3A Pond (IAAP-041)
32. Fly Ash Disposal Area (IAAP-043)
33. Line 800 Pink Water Lagoon (IAAP-044)

ENCLOSURE No. 8

Line 1

1993

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
	89-A-022	1-01/EP1	1989	Ribbon Blender	Dry Filter	30	7	70	1145	PM-10	0.001314	PM-10	0.000053
										TSP	0.001314	TSP	0.000053
2	88-A-127	1-01/EP3	1988	High Shear Mixer	Solvent recovery	100	4	70	13	VOC	24.48		0
										MEK	24.48		0
3	88-A-126	1-01/EP5	1988	Double Cone Blender	Dry Filter	7.5	A.G. 14	70	1145	PM-10	0.001095	PM-10	0.000053
										TSP	0.001095	TSP	0.000053
4	88-A-126	1-01/EP6	1988	Screener dust removal	Dry Filter	100	A.G. 14	70	1363	PM-10	0.000136	PM-10	0.000053
										TSP	0.000136	TSP	0.000053
5	88-A-129	1-01/EP7	1988	Hammer Mill	Dry Filter	100	A.G. 14	70	2580	PM-10	0.000186	PM-10	0.000053
										TSP	0.000186	TSP	0.000053
6	Grandfathered	1-02/EP1	1953	Boiler #6 Fuel Oil	None	0	A.G. 60	500	17578	PM-10	0.04	Not in operation since	
										TSP	12.88	CY 1979	
										SOx	340.6		
										NOx	59.06		
										VOC	0.3		
										CO	5.37		
										Lead	0.017		
										Arsenic	0.01069		
										Beryllium	0.000675		
										Cadmium	0.0182		
										Chromium	0.011976		
										Formaldeh	0.0455		
										Manganese	0.007796		
										Mercury	0.002684		
										Nickel	0.254541		
										Selenium	0.006108		
										POM	0.00127		
7	Grandfathered	1-02/EP2	1953	Boiler #6 Fuel Oil	None	0	A.G. 60	500	17578	PM-10	0.04	Not in operation since	
										TSP	12.88	CY 1979	
										SOx	340.6		
										NOx	59.06		
										VOC	0.3		
										CO	5.37		
										Lead	0.017		
										Arsenic	0.01069		
										Beryllium	0.000675		
										Cadmium	0.0182		
										Chromium	0.011976		
										Formaldeh	0.0455		
										Manganese	0.007796		
										Mercury	0.002684		
										Nickel	0.254541		
										Selenium	0.006108		
										POM	0.00127		
8	Grandfathered	1-052/EP1	1987	Cleaning Vent	None	200	4	70	800	VOC	0.068	VOC	0.068
9	Grandfathered	1-052/EP18	1980	Cleaning Vent	None	200	7	70	1800	VOC	0.051	VOC	0.051

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
10	Needed	1-052/EP29	1988	Cleaning Vent	None	200	4	70	800	VOC	0.068	VOC	0.068
11	Needed	1-052/EP45	1975	Venturri system	None	800	6	70	285	PM-10	0.07731	PM-10	0.00022
										TSP	0.07731	TSP	0.00022
12	Not required	1-052/EP46	1960	Microdyne system	Wet type scrubbe	800	4	70	8400	PM-10	0.1992	PM-10	0.00108
										TSP	0.1992	TSP	0.00108
13	Not required	1-052/EP47	1960	Dust collection system	Wet type scrubbe	800	A.G. 15	70	1500	PM-10	0.0132	PM-10	0.000041
										TSP	0.0132	TSP	0.000041
14	Grandfathered	1-10/EP6	1982	Cleaning Vent	None	200	3	70	1575	VOC	0.34	VOC	0.34
15	Grandfathered	1-10/EP21	1982	Cleaning Vent	None	200	4	70	1600	VOC	0.237	VOC	0.237
16	80-A-122	1-10/EP22	1980	Inspection Table	Wet type scrubbe	2000	2	70	1300	PM-10	0.00876	PM-10	0.000432
										TSP	0.00876	TSP	0.000432
										VOC	0.239	VOC	0.239
17	Not required	1-10/EP23		Fugitive surface coating	None	2040	4	70	NA	VOC	12.89	VOC	0.023
										MEK	12.89	MEK	0.023
18	pending	1-10/EP24	1980	Estane booth	Dry Filter	2040	4	70	2100	PM-10	4.25	PM-10	0.0075
										TSP	4.25	TSP	0.0075
										VOC	206.4	VOC	0.364
										MEK	206.4	MEK	0.364
19	Grandfathered	1-10/EP26	1980	Estane drying oven	None	2040	4	160	170	VOC	38.68	VOC	0.0682
										MEK	38.68	MEK	0.0682
20	Grandfathered	1-10/EP27	1982	Cleaning Vent	None	200	4	70	1575	VOC	0.342	VOC	0.342
21	Grandfathered	1-10/EP28	1981	Cleaning Vent	None	200	2	70	1920	VOC	0.342	VOC	0.171
22	Grandfathered	1-10/EP29	1984	Cleaning Vent	None	200	2	70	720	VOC	0.342	VOC	0.171
23	Grandfathered	1-10/EP30	1982	Cleaning Vent	None	200	6.5	70	1575	VOC	0.274	VOC	0.274
24	Not required	1-11/EP3		Fugitive surface coating	None	0	4	70	NA	VOC	43.54		
										Toluene	0.677		
										Xylene	10.58		
25	Not required	1-11/EP23		Paint Booth	Wet filter	0	3	70	NA	PM-10	45.67		
										TSP	97.8		
										VOC	827.3		
										Toluene	12.87		
										Xylene	201		
26	Not required	1-12/EP1	1986	Fugitive adhesive & clean	None	300	4	70	NA	VOC	0.0341	VOC	0.0321
27	Grandfathered	1-12/EP3	1986	Adhesive booth	None	300	4	70	815	VOC	0.075	VOC	0.075
28	Grandfathered	1-12/EP4	1986	Cleaning Vent	None	300	4	70	815	VOC	0.034	VOC	0.034
29	90-A-232	1-12/EP14	1990	Paint Booth	Dry Filter	800	6	70	5250	PM-10	0.0089	PM-10	0.00006
										TSP	0.0089	TSP	0.00006
										VOC	0.319	VOC	0.00212
										Ethy glycol	0.0454	Ethy glycol	0.00037
30	90-A-233	1-12/EP15	1990	Paint Booth	Dry Filter	800	9	70	6310	PM-10	0.0289	PM-10	0.00077
										TSP	0.0289	TSP	0.00077
										VOC	24.67	VOC	0.503
										Chromium	0.0144	Chromium	0.00077
										MEK	4.9032	MEK	0.118
										Toluene	4.321	Toluene	0.124
										MIBK	1.4016	MIBK	0.003

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
31	Needed	1-12/EP16	1990	Paint drying oven	None	800	6	160	645	VOC	4.613	VOC	0.0943
										MEK	0.9196	MEK	0.0221
										Toluene	0.8111	Toluene	0.02338
										MIBK	0.2628	MIBK	0.0005
32	Not required	1-12/EP17		Fugitive paint & explosive	None	800	4	70	NA	VOC	1.5542	VOC	0.04431
										Ethy glycol	0.0024	Ethy glycol	0.000018
										MEK	0.306	MEK	0.00735
										Toluene	0.2699	Toluene	0.00781
										MIBK	0.0876	MIBK	0.00017
										PM-10	0.984	PM-10	0.228
										TSP	0.984	TSP	0.228
33	Grandfathered	1-12/EP18	1986	Cleaning Vent	None	250	A.G. 18	70	2350	VOC	0.034	VOC	0.034
34	Needed	1-13/EP2	1991	Cleaning Vent	None	250	4	70	1000	VOC	0.204	VOC	0.204
35	Needed	1-13/EP3	1990	Cleaning Vent	None	250	4	70	1600	VOC	0.033	VOC	0.033
36	Needed	1-13/EP5	1991	Cleaning Vent	None	250	4	70	1200	VOC	0.033	VOC	0.033
37	Not required	1-13/EP6		Fugitive paint emissions	None	1000	4	70	NA	VOC	3.3059	VOC	0.01098
										Toluene	0.366	Toluene	0.0054
										MIBK	0.228	MIBK	0.0034
										Xylene	1.8599	Xylene	0.02447
38	Needed	1-13/EP7	1991	Cleaning Vent	None	250	4	70	5600	VOC	0.033	VOC	0.033
39	Needed	1-13/EP9	1986	Paint drying oven	None	1000	A.G. 25	70	1000	VOC	9.92	VOC	0.2135
										Xylene	5.58	Xylene	0.0731
										MIBK	0.685	MIBK	0.01
										Toluene	1.09	Toluene	0.0163
40	88-A-049	1-13/EP10	1988	Paint booth	Dry filter	1000	A.G. 23	70	8000	PM-10	0.5068	PM-10	0.0107
										TSP	0.5068	TSP	0.0107
										VOC	52.87	VOC	0.177
										Xylene	29.76	Xylene	0.391
										Toluene	5.86	Toluene	0.0868
										MIBK	3.65	MIBK	0.054
41	Needed	1-13/EP11	1980	Explosive processing	None	2000	2	70	1800	PM-10	10.02	PM-10	0.2102
										TSP	10.02	TSP	0.2102
42	Needed	1-13/EP13	1986	Cleaning Vent	None	500	6	70	600	MEK	0.889	MEK	0.889
43	Needed	1-13/EP14	1986	Adhesive Application	None	1000	6	70	2000	VOC	0.167	VOC	0.167
44	Not required	1-18/EP1		Fugitive paint emissions	None	1000	3	70	NA	VOC	3.5797	VOC	0.01759
										Xylene	1.7642	Xylene	0.02142
										Vinyl aceta	0.288	MEK	0.00587
										Ethy glycol	0.051	Ethy glycol	0
										Toluene	0.297	Toluene	0
										Tol 2,4 Dis	0.0195	Tol 24 diiso	0.00034
										Ethy benze	0.0784	Ethy benze	0.00136
45	Grandfathered	1-18/EP8	1985	Adhesive Application	None	1000	5	70	3200	VOC	0.009	VOC	0.009
46	94-A-172	1-18/EP10	1994	Paint Booth	Dry Filter	1000	7	70	2000	PM-10	1.544	PM-10	0.01769
										TSP	1.544	TSP	0.01769
										VOC	64.185	VOC	0.28
										Xylene	35.16	Xylene	0.341

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Vinyl Aceta	4.61	Vinyl Aceta	0
										Ethy glycol	0.817	Ethy glycol	0
										Toluene	4.75	Toluene	0
										Tol 24 diisc	0.31	Tol 24 diisc	0.005
										Ethy benze	1.25	Ethy benze	0.022
												MEK	0.094
47	*	1-18/EP11		Paint drying oven	None	1000	A.G. 15	160	NA	VOC	10.726	VOC	0.7149
										Xylene	5.28	Xylene	0.0641
										Vinyl aceta	0.865	Vinyl aceta	0
										Ethy glycol	0.153	Ethy glycol	0
										Toluene	0.891	Toluene	0
										Tol 24 diisc	0.058	Tol 24 diisc	0.001
										Ethy benze	0.235	Ethy Benze	0.0041
												MEK	0.0176
48	Not required	1-40/EP1		fugitive paint emissions	None	1500	3	70	NA	VOC	45.0725	VOC	0.00474
										Toluene	0.7861	Toluene	0.000252
										Xylene	1497.252	Xylene	0.003693
										MIBK	0.027	MIBK	0.000027
49	Grandfathered	1-40/EP5	1950	Paint Booth	Wet Filter	0	A.G. 6	70	NA	PM-10	45.67	PM-10	0
										TSP	97.8	TSP	0
										VOC	827.3	VOC	0
										Toluene	213.87	Toluene	0
50	90-A-142	1-40/EP6	1990	Paint Booth	Dry Filter	800	A.G. 8	70	6850	PM-10	0.4959	PM-10	0.002534
										TSP	0.4959	TSP	0.002534
										VOC	29.07	VOC	0.0523
										Chromate	0.02	Chromate	0.000116
										Lead	0.0008	Lead	4.0E-06
										Xylene	15.61	Xylene	0.10693
										MIBK	0.52	MIBK	0.00051
										Toluene	2.08	Toluene	0.00535
										Chromium	0.041	Chromium	0.00004
51	90-A-231	1-53/EP1	1990	Paint Booth	Dry Filter	0	5	70	2000	PM-10	0.0061	PM-10	0
										TSP	0.0061	TSP	0
										VOC	1.017	VOC	0
										Toluene	0.416	Toluene	0
52	Not required	1-61/EP2		Fugitive paint emissions	None	100	4	70	NA	VOC	22.51	VOC	0.08075
										MEK	2.26	MEK	0.01677
										Toluene	3.5857	Toluene	0.019998
53	Needed	1-61/EP3	1990	Cleaning Vent	None	400	4	70	559	VOC	0.082	VOC	0.082
54	78-A-306	1-61/EP4	1978	Paint Booth	Dry Filter	50	10	70	6370	PM-10	1.117	PM-10	0.000078
										TSP	1.117	TSP	0.000078
										VOC	322.63	VOC	0.0147
										Chromium	0.2058	Chromium	3.9E-06
										MEK	30.27	MEK	0.00057
										Toluene	51.11	Toluene	0.00259
55	Not required	1-61/EP5	1978	Flash off Oven	None	50	10	70	585	VOC	30.26	VOC	0.001356

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Toluene	4.786	Toluene	0.000246
										MEK	2.84	MEK	0.000054
56	Not required	1-61/EP6	1978	Oven	None	50	10	160	350	VOC	30.26	VOC	0.001356
										Toluene	4.786	Toluene	0.000246
										MEK	2.84	MEK	0.000054
57	80-A-076	1-61/EP7	1980	Paint Booth	Dry Filter	700	8	70	5990	PM-10	0.0811	PM-10	0.0103
										TSP	0.0811	TSP	0.0103
										VOC	37.66	VOC	1.112
										Chromium	0.0406	Chromium	0.0103
										MEK	5.91	MEK	0.299
										Toluene	6.2	Toluene	0.2697
59	Not required	1-61/EP8	1980	Flash off Oven for paint	None	700	5	160	2500	VOC	5.53	VOC	0.121
										Toluene	1.0061	Toluene	0.0296
										MEK	0.555	MEK	0.0281
60	Not required	1-61/EP9	1980	Paint drying oven	None	700	5	160	105	VOC	5.53	VOC	0.121
										Toluene	1.0061	Toluene	0.0296
										MEK	0.555	MEK	0.0281
61	Needed	1-61/EP10	1990	Cleaning vent	None	700	A.G. 15	70	559	VOC	0.066	VOC	0.066
62	Not required	1-61/EP11		Fugitive adhesive & clean	None	700	4	70	NA	VOC	0.271	VOC	0.271
63	Grandfathered	1-62/EP1	1951	Boiler #2 & N. G.	None	147	A.G. 44	500	17578	PM-10	3.625	PM-10	0.000551
										TSP	4.9	TSP	0.000551
										SOx	8.613	SOx	0.000024
										NOx	49.51	NOx	0.005626
										VOC	6.255	VOC	0.001406
										CO	6.855	CO	0.000113
										Lead	0.0016	Lead	0
										Arsenic	0.00074	Arsenic	0
										Beryllium	0.00044	Beryllium	0
										Cadmium	0.0019	Cadmium	0
										Chromium	0.01	Chromium	
										Formaldeh	0.0716	Formaldeh	3.7E-06
										Manganese	0.002	Manganese	0
										Mercury	0.00053	Mercury	0
										Nickel	0.0032	Nickel	0
										Selenium	0.004	Selenium	0
										POM	0.0039	POM	0
										Benzene	0.039	Benzene	9.2E-06
64	Grandfathered	1-62/EP2	1951	Boiler #2 & N.G.	None	120	A.G. 44	500	17578	PM-10	3.625	PM-10	0.000021
										TSP	4.9	TSP	0.000021
										SOx	8.613	SOx	9.2E-07
										NOx	49.51	NOx	0.000214
										VOC	6.255	VOC	0.000053
										CO	6.855	CO	4.3E-06
										Lead	0.0016	Lead	0
										Arsenic	0.00074	Arsenic	0
										Beryllium	0.00044	Beryllium	0

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Cadmium	0.0019	Cadmium	0
										Chromium	0.01	Chromium	0
										Formaldeh	0.0716	Formaldeh	1.4E-07
										Manganese	0.002	Manganese	0
										Mercury	0.00053	Mercury	0
										Nickel	0.0032	Nickel	0
										Selenium	0.004	Selenium	0
										POM	0.0039	POM	0
										Benzene	0.039	Benzene	3.5E-07
65	Grandfathered	1-62/EP3	1951	Boiler #2 & N.G.	None	360	A.G. 44	500	17578	PM-10	3.625	PM-10	0.000056
										TSP	4.9	TSP	0.000056
										SOx	8.613	SOx	2.5E-06
										NOx	49.51	NOx	0.000575
										VOC	6.255	VOC	0.000144
										CO	6.855	CO	0.000012
										Lead	0.0016	Lead	0
										Arsenic	0.00074	Arsenic	0
										Beryllium	0.00044	Beryllium	0
										Cadmium	0.0019	Cadmium	0
										Chromium	0.01	Chromium	0
										Formaldeh	0.0716	Formaldeh	3.7E-07
										Manganese	0.002	Manganese	0
										Mercury	0.00053	Mercury	0
										Nickel	0.0032	Nickel	0
										Selenium	0.004	Selenium	0
										POM	0.0039	POM	0
										Benzene	0.039	Benzene	9.4E-07
66	Grandfathered	1-62/EP4	1951	Boiler #2 & N.G.	None	624	A.G. 44	500	17578	PM-10	3.625	PM-10	0.000085
										TSP	4.9	TSP	0.000085
										SOx	8.613	SOx	3.7E-06
										NOx	49.51	NOx	0.000868
										VOC	6.255	VOC	0.000217
										CO	6.855	CO	0.000017
										Lead	0.0016	Lead	0
										Arsenic	0.00074	Arsenic	0
										Beryllium	0.00044	Beryllium	0
										Cadmium	0.0019	Cadmium	0
										Chromium	0.01	Chromium	0
										Formaldeh	0.0716	Formaldeh	5.6E-07
										Manganese	0.002	Manganese	0
										Mercury	0.00053	Mercury	0
										Nickel	0.0032	Nickel	0
										Selenium	0.004	Selenium	0
										POM	0.0039	POM	0
										Benzene	0.039	Benzene	1.4E-06
67	91-A-061	1-653/EP1	1991	Check weighers	Dry bag filter	2000	A.G. 30	70	3400	PM-10	0.01314	PM-10	0.00105

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										TSP	0.01314	TSP	0.00105
68	90-A-351	1-655/EP1	1990	Powder Blender A	Cartridge filter	2000	10	70	2000	PM-10	0.00876	PM-10	0.0018
										TSP	0.00876	TSP	0.0018
69	90-A-350	1-655/EP2	1990	Powder Blender B	Cartridge filter	2000	10	70	2000	PM-10	0.00876	PM-10	0.0018
										TSP	0.00876	TSP	0.0018
70	Not required	1-77/EP1		Fugitive paint emissions	None	200	4	70	NA	VOC	3.0709	VOC	0.101687
										Toluene	0.7858	Toluene	0.000416
										Xylene	0.109	Xylene	0
										MIBK	0.219	MIBK	0
71	87-A-072	1-77/EP3	1987	Paint Booth	Dry filter	0	A.G. 18	70	7500	PM-10	0.673	PM-10	0
										TSP	0.673	TSP	0
										VOC	22.88	VOC	0
										Toluene	8.322	Toluene	0
										Xylene	2.08	Xylene	0
										MIBK	4.16	MIBK	0
72	85-A-115	1-77/EP4	1985	Paint Booth	Dry Filter	400	A.G. 18	70	136000	PM-10	1.23	PM-10	0.0015
										TSP	1.23	TSP	0.0015
										VOC	16.937	VOC	0.013
										Toluene	6.6166	Toluene	0.00798
73	Grandfathered	1-851/EP1	1972	Cleaning Vent	None	1000	A.G. 20	70	3000	VOC	0.342	VOC	0.342
74	78-A-310	1-852/EP2	1978	Paint Booth	Dry Filter	50	4	70	750	PM-10	0.0727	PM-10	0.00098
										TSP	0.07227	TSP	0.00098
										VOC	8.221	VOC	0.2887
										Chromium	0.0361	Chromium	0.000098
										MEK	1.25	MEK	0.0034
										Toluene	1.317	Toluene	0.00355
75	Not required	1-852/EP3		Fugitive paint emissions	None	50	3	70	NA	VOC	0.6563	VOC	0.00777
										MEK	0.0657	MEK	0.00017
										Toluene	0.0694	Toluene	0.000184
76	Grandfathered	1-211/EP1	1960	Generator	None	15				PM-10	4.528704	PM-10	0.00775
										TSP	4.528704	TSP	0.007755
										SOx	4.216223	SOx	0.00722
										NOx	63.40185	NOx	0.108565
										VOC	5.162722	VOC	0.00884
										Co	13.72197	CO	0.023497
										Benzene	0.015733	Benzene	0.000027
										Toluene	0.006897	Toluene	0.000012
										Xylene	0.004806	Xylene	8.2E-06
										Butadiene	0.000659	Butadiene	1.1E-06
										formaldehy	0.019898	Formaldeh	0.000034
										Acetaldehy	0.012934	Acetaldehy	0.000022
										Chrolein	0.00156	Acrolein	2.7E-06
										PAH	0.002833	PAH	4.9E-06
77	Grandfathered	1-211/EP2	1960	Generator	None	19				PM-10	4.528704	PM-10	0.009823
										TSP	4.528704	TSP	0.009823
										SOx	4.216223	SOx	0.009145

Line 1

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										NOx	63.40185	NOx	0.137515
										VOC	5.162722	VOC	0.011198
										Co	13.72197	CO	0.029762
										Benzene	0.015733	Benzene	0.000034
										Toluene	0.006897	Toluene	0.000015
										Xylene	0.004606	Xylene	0.00001
										Butadiene	0.000659	Butadiene	1.1E-06
										formaldehy	0.019898	Formaldeh	0.000043
										Acetaldehy	0.012934	Acetaldehy	0.000028
										Chrolein	0.00156	Acrolein	3.4E-06
										PAH	0.002833	PAH	6.1E-06

Line 2

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Grandfathered	2-01/EP4	1960	Inert pouring	None	2000	3	70	900	PM-10	1.752	PM-10	0.00692
										TSP	1.752	TSP	0.00692
2	Needed	2-01/EP6	1988	Adhesive Application	None	2000	A.G. 20	70	2400	VOC	0.07	VOC	0.071
3	88-A-027	2-01/EP7	1988	Paint Booth	Dry Filter	1500	5	70	13000	PM-10	0.0358	PM-10	0.0004
										TSP	0.0358	TSP	0.0004
										VOC	0.27	VOC	0.0035
										Ethyl glyco	0.018	Ethyl glyco	0.0027
										Vinyl Aceta	0.000922	Vinyl Aceta	0.000136
4	88-A-028	2-01/EP8	1988	Paint Booth	Dry Filter	250	5	70	1300	PM-10	0.026	PM-10	0.000021
										TSP	0.026	TSP	0.000021
										VOC	3.33	VOC	0.001
										Toluene	0.832	Toluene	0.0069
										Xylene	1.25	Xylene	0.001
5	Needed	2-01/EP10	1988	Paint drying oven	None	250	A.G. 15	160	260	VOC	0.057	VOC	0.00012
										Ethy glycol	0.0394	Ethy glycol	0.000513
										Vinyl aceta	0.0019	Vinyl Aceta	0.000026
6	Not required	2-01/EP20		Fugitive paint emissions	None	250	4	70	NA	VOC	0.1919	VOC	0.00009
										Toluene	0.0438	Toluene	0.000036
										Xylene	0.0657	Xylene	0.000054
										Ethy glycol	0.0131	Ethy glycol	0.000171
										Vinyl Aceta	0.00066	Vinyl Aceta	8.6E-06
7	Grandfathered	2-02/EP1	1953	Boiler #6 fuel oil	None	0	A.G. 60	500	17578	PM-10	1.26	PM-10	0
										TSP	12.8861	TSP	0
										SOx	340.6282	SOx	0
										NOx	59.06	NOx	0
										VOC	0.3	VOC	0
										CO	5.369	CO	0
										Lead	0.0178	Lead	0
										Arsenic	0.0107	Arsenic	0
										Beryllium	0.000675	Beryllium	0
										Cadmium	0.018245	Cadmium	0
										Chromium	0.011978	Chromium	0
										Formaldeh	0.0455	Formaldeh	0
										Manganese	0.007796	Manganese	0
										Mercury	0.002684	Mercury	0
										nickel	0.2545	nickel	0
										Selenium	0.006108	Selenium	0
										POM	0.00127	POM	0
8	Grandfathered	2-02/EP2	1953	Boiler #6 Fuel oil	None	0	A.G. 60	500	17578	PM-10	1.26	PM-10	0
										TSP	12.8861	TSP	0
										SOx	340.6282	SOx	0
										NOx	59.06	NOx	0
										VOC	0.3	VOC	0
										CO	5.369	CO	0
										Lead	0.0178	Lead	0
										Arsenic	0.0107	Arsenic	0

Line 2

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Beryllium	0.000675	Beryllium	0
										Cadmium	0.018245	Cadmium	0
										Chromium	0.011976	Chromium	0
										Formaldeh	0.0455	Formaldeh	0
										Manganese	0.007796	Manganese	0
										Mercury	0.002684	Mercury	0
										nickel	0.2545	nickel	0
										Selenium	0.006108	Selenium	0
										POM	0.00127	POM	0
9	Needed	2-04/EP3	1989	Adhesive Application	None	450	3	70	450	VOC	0.168	VOC	0.113
										Trichloroeth	0.055	Trichloroeth	0.055
10	Needed	2-04/EP4	1990	Cleaning Vent	None	450	4	70	10500	VOC	0.442	VOC	0.442
11	Needed	2-04/EP19	1991	Adhesive Application	None	1600	A.G. 20	70	2142	VOC	1.854	VOC	1.016
										MEK	0.838	MEK	0.838
12	80-A-046	2-051/EP1	1980	TNT Sweat Out Tanks	Wet type scrubbe	0	A.G. 20	70	1000	PM-10	0.006351	PM-10	0
										TSP	0.006351	TSP	0
13	80-A-047	2-051/EP2	1980	TNT Washdown Area	Wet type scrubbe	0	A.G. 20	70	4200	PM-10	0.000054	PM-10	0
										TSP	0.000054	TSP	0
14	80-A-048	2-051/EP3	1980	TNT Work Area	Wet type scrubbe	0	A.G. 20	70	1000	PM-10	0.5989	PM-10	0
										TSP	0.5989	TSP	0
15	80-A-030	2-052/EP1	1980	Paint Booth	Dry Filter	500	A.G. 25	70	6400	PM-10	0.478	PM-10	0.0019
										TSP	0.478	TSP	0.0019
										VOC	6.22	VOC	0.0225
										Toluene	0.106	Toluene	0.0004
										Xylene	0.694	Xylene	0.0032
16	Not required	2-052/EP3		Fugitive paint emissions	None	500	4	70	NA	VOC	0.327	VOC	0.001167
										Toluene	0.0057	Toluene	0.000023
										Xylene	0.0365	Xylene	0.000167
17	Not required	2-052/EP9		Fugitive adhesive emissio	None	500	4	70	NA	VOC	0.072	VOC	0.072
18	Grandfathered	2-052/EP18	1954	Melt Operation	Wet type scrubbe	500	3	70	2600	PM-10	0.035478	PM-10	0.000282
										TSP	0.035478	TSP	0.000282
19	90-A-141	2-10/EP17	1990	Paint Booth	Dry Filter	0	A.G. 21	70	1110	PM-10	0.005	PM-10	0
										TSP	0.005	TSP	0
										VOC	2.5708	VOC	0
										Chromium	0.0025	Chromium	0
										Toluene	0.3987	Toluene	0
										MEK	0.4368	MEK	0
20	*	2-10/EP21	*	Explosive weighing	None	1400	4	70	1800	PM-10	5.46	PM-10	0.016125
										TSP	5.46	TSP	0.016125
21	Needed	2-10/EP22	1989	Adhesive Application	None	1400	4	70	1000	VOC	0.193	VOC	0.193
22	84-A-080	2-10/EP23	1984	Paint Booth	Dry Filter	0	6	70	5610	VOC	6.45	VOC	0
										Xylene	1.66	Xylene	0
										Toluene	5.2	Toluene	0
23	84-A-081	2-10/EP24	1984	Paint Booth	Dry Filter	1600	A.G. 21	70	450	PM-10	0.0328	PM-10	0.0001
										TSP	0.0328	TSP	0.0001
										VOC	3.04	VOC	0.00405

Line 2

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions Particulate	Potential Emissions T/Yr	Actual Emissions Particulate	Actual Emissions T/Yr
										MEK	1.25	MEK	0.004
										Toluene	0.5411	Toluene	0.00175
24	Grandfathered	2-10/EP25	1987	Explosive weighing	2 Bay Type Filters	1000	14	70	*	PM-10	0.00033	PM-10	7.2E-06
										Particulate	0.00033	Particulate	7.2E-06
25	Not required	2-10/EP26		Fugitive paint emissions	None	2000	4	70	NA	VOC	2.1599	VOC	0.00021
										Toluene	0.5291	Toluene	0.000092
										MEK	0.0886	MEK	0.00021
										Xylene	0.0676	Xylene	0
26	Needed	2-12/EP1	1969	Cleaning vent	None	2000	4	70	1800	VOC	0.171	VOC	0.171
27	Grandfathered	2-12/EP2	1984	Cleaning vent	None	2000	4	70	1500	VOC	0.168	VOC	0
										MEK	0.168	MEK	0.168
28	84-A-082	2-12/EP5	1984	Paint Booth	Water Wash Filter	1500	A.G. 21	70	7200	PM-10	0.057	PM-10	0.0022
										TSP	0.123	TSP	0.0048
										VOC	16.4	VOC	0.3234
										Ethyl Benz	1.05	Ethy Benze	0.0416
										Tol 24Diiso	0.263	Tol 24Diiso	0.01
										Xylene	6.94	Xylene	0.273
29	84-A-083	2-12/EP6	1984	Paint Booth	Water Wash Filter	1500	A.G. 21	70	7200	PM-10	0.101	PM-10	0.002
										TSP	0.217	TSP	0.005
										VOC	37.67	VOC	0.294
										Xylene	25.05	Xylene	0.585
30	Grandfathered	2-12/EP7	1984	Oven for surface coating	None	1500	A.G. 21	160	388	VOC	10.138	VOC	0.1154
										Eth Benzen	0.197	Eth benzen	0.0078
										Xylene	5.988	Xylene	0.161
										Tol 24Diiso	0.049	Tol 24 Diis	0.0019
31	Not required	2-12/EP8		Fugitive paint emissions	None	1500	3	70	NA	VOC	3.5177	VOC	0.039972
										Eth Benzen	0.0657	Eth benzen	0.0026
										Tol 24Diiso	0.0164	Tol 24Diiso	0.00065
										Xylene	2.03207	Xylene	0.054147
										Eth glycol	0.0033	Eth glycol	0.000025
										Vinyl aceta	0.00016	Vinyl aceta	1.3E-06
										MEK	0.0219	MEK	0.000075
										Toluene	0.0219	Toluene	0.000827
32	84-A-085	2-12/EP10	1984	Paint Booth	Dry Filter	50	8	70	1000	PM-10	0.0628	PM-10	0.00037
										TSP	0.0628	TSP	0.00037
										VOC	1.3814	VOC	0.0016
										MEK	0.416	MEK	0.0014
										Xylene	0.4692	Xylene	0.0035
										Chromium	0.0123	Chromium	0.000043
										Eth glycol	0.062	Eth glycol	0.00048
										Vinyl aceta	0.00311	Vinyl aceta	0.000024
33	84-A-084	2-12/EP11	1984	Paint Booth	Dry Filter	50	8	70	1000	PM-10	0.0304	PM-10	0.001
										TSP	0.0304	TSP	0.001
										VOC	1.322	VOC	0.0341
										Toluene	0.4164	Toluene	0.0156
										Xylene	0.159	Xylene	0.0057

Line 2

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
34	Needed	2-13/EP1	1986	Expl processing stations	None	1400	4	70	3000	PM-10	2.3956	PM-10	0.09785
										TSP	2.3956	TSP	0.09785
35	Needed	2-13/EP2	1986	PCA Station	None	1400	4	70	3000	PM-10	0.5989	PM-10	0.04895
										TSP	0.5989	TSP	0.04895
36	Grandfathered	2-13/EP5	1971	Exp weighing stations	None	600	13	70	6200	PM-10	15.768	PM-10	0.54
										TSP	15.768	TSP	0.54
37	Grandfathered	2-13/EP6	1971	Propellant loading	None	600	13	70	3000	PM-10	39.42	PM-10	0.54
										TSP	39.42	TSP	0.54
38	Grandfathered	2-13/EP7	1985	Basecoat drying oven	None	2000	A.G. 15	160	1575	VOC	4.47	VOC	0.1607
										Xylene	2.97	Xylene	0.3835
39	85-A-056	2-13/EP8	1985	Paint Booth basecoat	Dry filter	2000	A.G. 15	70	5250	PM-10	0.824	PM-10	0.0707
										TSP	0.824	TSP	0.0707
										VOC	23.85	VOC	0.685
										Xylene	15.86	Xylene	1.361
40	85-A-057	2-13/EP9	1985	Paint Booth topcoat	Dry filter	2000	A.G. 15	70	5250	PM-10	0.503	PM-10	0.068
										TSP	0.503	TSP	0.068
										VOC	11.159	VOC	0.752
										Eth benzen	0.715	Eth benzen	0.097
										Tol 24Diiso	0.1767	Tol 24Diiso	0.024
										Xylene	4.719	Xylene	0.6408
41	Grandfathered	2-13/EP10	1985	Topcoat drying oven	None	2000	A.G. 15	70	1785	VOC	2.088	VOC	0.1413
										Eth benzen	0.134	Eth benzen	0.0182
										Tol 24Diiso	0.0335	Tol 24Diiso	0.0045
										Xylene	0.885	Xylene	0.12
42	Needed	2-13/EP11	1992	Adhesive application area	None	2040	3	70	2500	VOC	0.281	VOC	0.281
43	Grandfathered	2-13/EP12	1983	Adhesive application area	None	2040	5	70	1200	VOC	0.422	VOC	0.422
44	Not required	2-13/EP13		Fugitive paint emissions	None	2000	4	70	NA	VOC	2.1654	VOC	0.0898
										Xylene	1.2664	Xylene	0.4086
										Eth benzen	0.0446	Eth benzen	0.006
										Tol 24diiso	0.0111	Tol 24Diiso	0.0015
45	86-A-081	2-13/EP15	1986	Propellant dumping	Dry filter	600	A.G. 27	70	2200	PM-10	0.1971	PM-10	0.027
										TSP	0.1971	TSP	0.027

Line 3

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions Particulate	Potential Emissions T/Yr	Actual Emissions Particulate	Actual Emissions T/Yr
1	78-A-311	3-01/EP6	1976	Grit Blaster	Bag Filter	0	A.G. 20	70	1664	PM-10	1.257	PM-10	0
										TSP	1.795	TSP	0
2	Not required	3-01/EP15		Fugitive paint emissions	None	1000	4	70	NA	VOC	74.07	VOC	0.1876
										Toluene	0.677	Toluene	0.0004
										Xylene	10.58	Xylene	0.0119
3	Grandfathered	3-01/EP20	1960	Paint Booth	Water wash filter	1200	8	70	4200	PM-10	98.91	PM-10	0.091
										TSP	211.6	TSP	0.0849
										VOC	1407.3	VOC	0.671
										Toluene	12.87	Toluene	0.336
										Xylene	201	Xylene	0.266
4	*	3-01/EP7	*	Adhesive application	None	1200	3	70	2500	VOC	0.0184	VOC	0.0184
5	79-A-199	3-051/EP1	1979	TNT sweat out tanks	Wet type scrubbe	400	A.G. 20	70	1000	PM-10	0.006351	PM-10	0.000014
										TSP	0.006351	TSP	0.000014
6	79-A-200	3-051/EP2	1979	Washdown facility	Wet type scrubbe	400	A.G. 20	70	4200	PM-10	0.000438	PM-10	9.8E-07
										TSP	0.000438	TSP	9.8E-07
7	79-A-201	3-051/EP3	1979	Work Area	Wet type scrubbe	400	A.G. 15	70	1000	PM-10	0.006351	PM-10	0.000014
										TSP	0.006351	TSP	0.000014
8	*	3-051/EP13	*	Cleaning vent	None	2040	6	70	2500	VOC	0.131	VOC	0.131
9	Not required	3-051/EP21		Fugitive cleaning fumes	None	204	4	70	NA	VOC	0.4229	VOC	0.4229
10	Needed	3-051/EP26	1979	Explosive processing kettl	None	1600	6	70	200	PM-10	0.16082	PM-10	0.064
										TSP	0.16082	TSP	0.064
11	*	3-051/EP28	*	Explosive processing	Wet type scrubbe	2000	5	70	1075	PM-10	0.00627	PM-10	0.00228
										TSP	0.00627	TSP	0.00228
12	*	3-051/EP29	*	Explosive processing	Wet type scrubbe	1600	5	70	1075	PM-10	0.031536	PM-10	0.00356
										TSP	0.031536	TSP	0.00356
13	Not required	3-10/EP1		Fugitive paint emissions	None	550	4	70	NA	VOC	1.5039	VOC	0.0055
										Xylene	0.3521	Xylene	0.0017
										Toluene	0.0407	Toluene	0.0033
14	87-A-071	3-10/EP2	1987	Paint Booth	Dry filter	200	A.G. 21	70	2800	PM-10	0.607	PM-10	0
										TSP	0.607	TSP	0
										VOC	26.757	VOC	0.017
										Toluene	0.416	Toluene	0
										Xylene	6.5	Xylene	0
15	Not required	3-10/EP3		Fugitive cleaning & adhes	None	2040	4	70	NA	VOC	0.1879	VOC	0.1879
16	83-A-134	3-10/EP9	1983	Paint Booth	Dry filter	1100	5	70	5600	PM-10	0.0603	PM-10	0.0066
										TSP	0.0603	TSP	0.0066
										VOC	1.893	VOC	0.137
										Toluene	0.3615	Toluene	0.064
										Xylene	0.1965	Xylene	0.032
17	Not required	3-10/EP5		Fugitive clean & adhesive	None	2040	4	70	NA	VOC	0.082	VOC	0.082
18	93-A-375	3-50/EP1	1971	TNT Screening operation	Wet type scrubbe	80	A.G. 25	70	2200	PM-10	0.05475	PM-10	0.000022
										TSP	0.05475	TSP	0.000022
19	NPDES	3A/EP1	1940	Waste treatment fugitive	None	2040	NA	NA	NA	VOC	0.07	VOC	0.04
										Chloroform	0.0015	Chloroform	0.00085
20	Pending	3A-02/EP2	1940	Boiler #6 fuel	None	500	A.G. 160	500	17578	PM-10	1.106	PM-10	0.031
										TSP	12.2894	TSP	0.33528

Line 3

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions Particulate	Potential Emissions T/Yr	Actual Emissions Particulate	Actual Emissions T/Yr
										SOx	324.8498	SOx	9.106812
										NOx	56.32641	NOx	1.57905
										VOC	0.286753	VOC	0.008039
										CO	5.120583	CO	0.14355
										Lead	0.017016	Lead	0.000477
										Arsenic	0.010194	Arsenic	286
										Beryllium	0.000644	Beryllium	0.000018
										Cadmium	0.0174	Cadmium	0.000488
										Chromium	0.011421	Chromium	0.00032
										Formaldeh	0.043384	Formaldeh	0.001216
										Manganese	0.007435	Manganese	0.000208
										Mercury	0.00256	Mercury	0.000072
										nickel	0.242751	nickel	0.006805
										Selenium	0.005825	Selenium	0.000163
										POM	0.001211	POM	0.000034
21	Pending	3A-02/EP3	1940	Boiler #6 fuel	None	0	A.G. 160	500	17578	PM-10	1.106	PM-10	0
										TSP	12.2894	TSP	0
										SOx	324.8498	SOx	0
										NOx	56.32641	NOx	0
										VOC	0.286753	VOC	0
										CO	5.120583	CO	0
										Lead	0.017016	Lead	0
										Arsenic	0.010194	Arsenic	0
										Beryllium	0.000644	Beryllium	0
										Cadmium	0.0174	Cadmium	0
										Chromium	0.011421	Chromium	0
										Formaldeh	0.043384	Formaldeh	0
										Manganese	0.007435	Manganese	0
										Mercury	0.00256	Mercury	0
										nickel	0.242751	nickel	0
										Selenium	0.005825	Selenium	0
										POM	0.001211	POM	0
22	Grandfathered	3A-02/EP13	1944	Generator	None	4	*	*	*	PM-10	1.035132	PM-10	0.000473
										TSP	1.035132	TSP	0.000473
										SOx	0.963708	SOx	0.00044
										NOx	14.49185	NOx	0.006617
										VOC	1.18	VOC	0.000539
										CO	3.136451	CO	0.001432
										Benzene	0.003596	Benzene	1.6E-06
										Toluene	0.001576	Toluene	7.2E-07
										Xylene	0.001099	Xylene	5.0E-07
										Butadiene	0.000151	Butadiene	6.9E-08
										Formaldeh	0.004548	Formaldeh	2.1E-06
										Acetaldehy	0.002956	Acetaldehy	1.3E-06
										Acrolein	0.000357	Acrolein	1.6E-07
										PAH	0.000648	PAH	3.0E-07

Line 3

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
23	88-A-083	3A-051/EP12	1988	TNT grid melt	Wet type scrubbe	0	A.G. 44	70	800	PM-10	0.0328	PM-10	0
										TSP	0.0328	TSP	0
24	88-A-008	3A-051/EP13	1988	TNT grid melt	Wet type scrubbe	0	A.G. 44	70	800	PM-10	0.0328	PM-10	0
										TSP	0.0328	TSP	0
25	88-A-007	3A-051/EP15	1988	TNT grid melt	Wet type scrubbe	0	A.G. 44	70	800	PM-10	0.03285	PM-10	0
										TSP	0.03285	TSP	0
26	93-A-319	3A-201/EP1	1993	Demil operation	Wet type scrubbe	0	A.G. 36	70	1200	TSP	0.06097	TSP	0
										SOx	1.522	SOx	0
										CO	9.6742	CO	0
										Lead	0.000421	Lead	0
										Antimony	0.000046	Antimony	0

Line 4B

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Not required	4B-22/EP3		Fugitive paint emissions	None	2000	4	70	NA	VOC	9.73	VOC	0.03713
2	Not required	4B-22/EP4		Fugitive adhesive emissio	None	1800	4	70	NA	VOC	0.0221	VOC	0.0051
3	Grandfathered	4B-22/EP9	1982	Estane drying oven	None	2000	5	160	117	VOC	29.19	VOC	0.0254
4	Pending	4B-22/EP10	1982	Estane application booth	Dry filter	2000	A.G. 17	70	2100	PM-10	2.45	PM-10	0.0093
										TSP	2.45	TSP	0.0093
										VOC	156	VOC	0.594
5	Grandfathered	4B-22/EP11	1983	Clean & Adhesive booth	None	1400	A.G. 15	70	3750	VOC	0.516	VOC	0.075
6	Grandfathered	4B-22/EP12	1983	Clean & Adhesive booth	None	1400	A.G. 15	70	900	VOC	0.516	VOC	0.061
										MDI	0.258	MDI	0.014

Line 800

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Not required	800-04/EP4		Fugitive paint emissions	None	0	3	70	NA	VOC	38.34	VOC	0
										Toluene	0.786	Toluene	0
2	78-A-331	800-04/EP7	1978	Paint booth	Water wash filter	0	A.G. 25	70	8400	PM-10	53	PM-10	0
										TSP	114	TSP	0
										VOC	613	VOC	0
										Toluene	12.61	Toluene	0
3	Grandfathered	800-04/EP8	1963	Grit Blaster	None	0	A.G. 25	70	1664	PM-10	22.62	PM-10	0
										TSP	32.32	TSP	0
4	Grandfathered	800-61/EP1	1985	Cleaning vent	None	450	A.G. 15	70	2956	VOC	0.188	VOC	0.188
5	Grandfathered	800-61/EP2	1985	Cleaning vent	None	450	A.G. 15	70	4503	VOC	0.188	VOC	0.188
6	92-A-557	800-61/EP3	1992	M605 Ammo Barricade	cartridge & hoppe	100	A.G. 24	80	975.7	PM-10	0.0018	PM-10	5.2E-07
										TSP	0.00328	TSP	5.2E-07
										SOx	1.332	SOx	0.0119
										CO	1.0216	CO	0.009
										Lead	0.000038	Lead	1.0E-06
										Antimony	7.0E-06	Antimony	1.9E-07
										Chromium	0.000434	Chromium	0.000024
										Nickel	0.00036	Nickel	0.00001
7	91-A-249	800-192/EP9	1991	Black powder screening	Wet type scrubbe	1500	A.G. 16	70	1050	PM-10	0.03942	PM-10	0.000021
										TSP	0.03942	TSP	0.000021

Line 9

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Grandfathered	9-59/EP2	1986	Cleaning vent	None	2040	A.G. 20	70	600	VOC	0.149	VOC	0.034
2	Grandfathered	9-59/EP3	1986	Clean & Adhesive vent	None	2000	A.G. 20	70	600	VOC	0.1244	VOC	0.11602
										MEK	0.0023	MEK	0.0023
										Xylene	0.0003	Xylene	0.00039
										Toluene	0.00469	Toluene	0.0046
3	Not required	9-59/EP4		Fugitive cleaning emission	None	2040	4	70	NA	VOC	0.313	VOC	0.313
4	Grandfathered	9-591/EP1	1984	Cleaning vent	None	0	10	70	2700	VOC	0.171	VOC	0
5	Not required	9-591/EP2		Fugitive cleaning emission	None	2040	4	70	NA	VOC	0.107	VOC	0.107
6	Needed	9-60/EP1	1989	Cleaning vent	None	0	7	70	1200	VOC	0.171	VOC	0
7	Not required	9-60/EP3		Fugitive cleaning emission	None	2040	4	70	NA	VOC	0.151	VOC	0.151
8	Grandfathered	9-60/EP5	1968	Adhesive application	None	2040	5	70	2700	VOC	0.0332	VOC	0.0038
										Hydroquinc	0.00019	Hydroquinc	0.000023
9	Grandfathered	9-60/EP7	1968	Adhesive application	None	2040	11	70	3500	VOC	0.0332	VOC	0.0038
										Hydroquinc	0.00019	Hydroquinc	0.000023
10	Not required	9-60/EP10		Fugitive paint emissions	None	2040	4	70	NA	VOC	11.13	VOC	0.02727
										MEK	1.89	MEK	0.0068
										Toluene	1.73	Toluene	0.00622
11	Grandfathered	9-60/EP13	1980	Paint drying oven	None	2040	A.G. 22	160	200	VOC	16.71	VOC	0.0948
										MEK	2.635	MEK	0.03075
										Toluene	2.595	Toluene	0.0267
12	80-A-134	9-60/EP15	1980	Paint booth	Dry filter	2040	A.G. 20	70	6200	PM-10	0.416	PM-10	0.00075
										TSP	0.416	TSP	0.00075
										VOC	177.82	VOC	0.4357
										MEK	30.27	MEK	0.1097
										Toluene	27.72	Toluene	0.1002
										Chromium	0.911	Chromium	0.00075
13	Grandfathered	9-60/EP16	1980	Paint drying oven	None	2040	A.G. 16	70	585	VOC	16.71	VOC	0.0316
										MEK	2.635	MEK	0.01025
										Toluene	2.595	Toluene	0.0069

Fugitive

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Not required	IAAP/EP1		Fugitive herbic & pesticid	None	25	NA	NA	NA	VOC	0.1257	VOC	0.00021
										Meth chlori	0.000177	Meth chlori	0.000059
										Perchl ethy	0.000504	perchlethy	0.000168
										24dinit tol	0.1244	24dinit tol	0.0415
2	Not required	IAAP/EP2		Fugitive dust coal pile	None	2040	NA	NA	NA	PM-10	1.905	PM-10	0.00714
										TSP	1.905	TSP	0.00714
3	Not required	IAAP/EP3		Fugitive dust roads	None	2040	NA	NA	NA	PM-10	629.3	PM-10	112
										TSP	899	TSP	160
4	Not required	IAAP/EP4		Fugitive control burn	None	600	NA	NA	NA	PM-10	1615	PM-10	4.505
										TSP	1615	TSP	4.505
										NOx	380	NOx	1.06
										VOC	2280	VOC	6.36
										CO	13300	CO	37.1
5	Not required	IAAP/EP5		Fugitive dust sand & salt	None	1000	NA	NA	NA	PM-10	0.05326	PM-10	0.00239
										TSP	0.05326	TSP	0.00239

BG, Areas: 11, 23, 100, 200, 300, 400, 500, 900

Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
1	Grandfathered	BG-1/EP2	1957	Fugitive emissions	None	0	4	NA	70	PM-10	0.0199	PM-10	0
										TSP	0.0398	TSP	0
										SOx	0.133	SOx	0
										NOx	0.398	NOx	0
										VOC	0.0039	VOC	0
										CO	0.099	CO	0
										Lead	0.000025	Lead	0
										Arsenic	0.000012	Arsenic	0
										Beryllium	6.9E-06	Beryllium	0
										Cadmium	0.00003	Cadmium	0
										Chromium	0.00016	Chromium	0
										Formaldeh	0.00088	Formaldeh	0
										Manganese	0.000039	Manganese	0
										Mercury	8.3E-06	Mercury	0
										Nickel	0.00005	Nickel	0
										Selenium	0.000065	Selenium	0
										POM	0.000061	POM	0
2	80-A-021	BG1991/EP1	1980	Explosive waste incinerato	Afterburner	2000	A.G. 30	250	3600	TSP	0.338	TSP	0.003025
					Gas cooler					CO	1.2479	CO	0.01106
					Cyclone					Lead	0.000055	Lead	4.9E-07
					Baghouse					Chromium	0.000413	Chromium	9.5E-07
										Cadmium	0.000065	Cadmium	5.8E-07
										PM-10	0.048	PM-10	0.00048
										SOx	0.281	SOx	0.0025
										NOx	0.842	NOx	0.0101
										VOC	0.318	VOC	0.000224
										Arsenic	0.000025	Arsenic	2.2E-07
										Beryllium	0.000015	Beryllium	1.3E-07
										Formaldeh	0.0019	Formaldeh	0.000017
										Manganese	0.000082	Manganese	7.3E-07
										Mercury	0.000018	Mercury	1.6E-07
										Nickel	0.000105	Nickel	9.4E-07
										Selenium	0.00014	Selenium	1.2E-06
										POM	0.00013	POM	1.1E-06
3	Not required	BG1992/EP4	1980	CWP bypass stack	None	0	A.G. 31	NA	NA	PM-10	16.206	PM-10	0
										TSP	16.2249	TSP	0
										SOx	2.826	SOx	0
										NOx	2.706	NOx	0
										CO	21.7	CO	0
										Arsenic	0.000039	Arsenic	0
										Barium	0.00054	Barium	0
										Cadmium	0.003031	Cadmium	0
										Chromium	0.00176	Chromium	0
										Lead	0.002725	Lead	0
										Mercury	9.5E-06	Mercury	0
										Selenium	0.000071	Selenium	0

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Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										VOC	0.004	VOC	0
										Formaldeh	0.0009	Formaldeh	0
										Beryllium	7.1E-06	Beryllium	0
										Manganese	0.00004	Manganese	0
										Nickel	0.000051	Nickel	0
										POM	0.000062	POM	0
4	80-A-157	BG1992/EP5	1980	Contam Waste Processor	Gas cooler	1770	A.G. 31	250	12762	PM-10	16.206	PM-10	3.6357
					Cyclone					TSP	16.2249	TSP	3.64
					Baghouse					SOx	2.626	SOx	0.636
										NOx	2.706	NOx	0.607
										CO	21.7	CO	4.8672
										Arsenic	0.000013	Arsenic	3.0E-06
										Barium	0.000027	Barium	6.1E-06
										Cadmium	0.000181	Cadmium	0.000041
										Chromium	0.000241	Chromium	0.000055
										Lead	0.000165	Lead	0.000036
										Mercury	8.6E-06	Mercury	1.9E-06
										Selenium	0.000066	Selenium	0.000015
										VOC	0.011	VOC	0.0026
										Formaldeh	0.0009	Formaldeh	0.0002
										Beryllium	7.1E-06	Beryllium	1.6E-06
										Manganese	0.00004	Manganese	8.9E-06
										Nickel	0.000051	Nickel	0.000011
										POM	0.000062	POM	0.000014
5	Grandfathered	11-211/EP4	1958	Generator	None	7	*	*	*	PM-10	4.075833	PM-10	0.003257
										TSP	4.075833	TSP	0.003257
										SOx	3.794	SOx	0.003032
										NOx	57.06	NOx	0.045597
										VOC	4.646	VOC	0.003731
										CO	12.35	CO	0.009869
										Benzene	0.01416	Benzene	0.000011
										Toluene	0.0062	Toluene	5.0E-06
										Xylene	0.0043	Xylene	3.5E-06
										Butadiene	0.000593	Butadiene	4.7E-07
										Formaldeh	0.0179	Formaldeh	0.000014
										Acetaldehy	0.0116	Acetaldehy	9.3E-06
										Acrolein	0.001404	Acrolein	1.1E-06
										PAH	0.00255	PAH	2.0E-06
6	Grandfathered	23-211/EP3	1971	Generator	None	3	*	*	*	PM-10	8.41045	PM-10	0.00288
										TSP	8.41045	TSP	0.00288
										SOx	7.830129	SOx	0.002682
										NOx	117.71	NOx	0.04032
										VOC	9.586	VOC	0.003284
										CO	25.48	CO	0.008727
										Benzene	0.02922	Benzene	0.00001
										Toluene	0.0128	Toluene	4.4E-06

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Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Xylene	0.008925	Xylene	3.1E-06
										Butadiene	0.001224	Butadiene	4.2E-07
										Formaldeh	0.036954	Formaldeh	0.000013
										Acetaldehy	0.02402	Acetaldehy	8.2E-06
										Acrolein	0.002897	Acrolein	9.9E-07
										PAH	0.005261	PAH	1.8E-06
7	Not required	100-101/EP3	*	Fugitive printing emission	None	2040	4	70	NA	VOC	0.09567	VOC	0.0485
										Tetrachethy	0.02838	Tetrachethy	0.01618
										Methychlor	0.0921	Methychlor	0.0048
8	*	100-211/EP1	1989	Generator	None	2	*	*	*	PM-10	0.3234	PM-10	0.000775
										TSP	0.3234	TSP	0.000775
										SOx	0.30116	SOx	0.000722
										NOx	4.5267	NOx	0.010856
										VOC	0.3687	VOC	0.000884
										CO	0.980141	CO	0.00235
										Benzene	0.001124	Benzene	2.6E-07
										Toluene	0.000493	Toluene	1.1E-07
										Xylene	0.000343	Xylene	7.8E-08
										Butadiene	0.000047	Butadiene	1.1E-08
										Formaldeh	0.001421	Formaldeh	3.2E-07
										Acetaldehy	0.000924	Acetaldehy	2.1E-07
										Acrolein	0.000111	Acrolein	2.5E-08
										PAH	0.000202	PAH	4.6E-08
9	*	200-211/EP2	1987	Generator	None	23	*	*	*	PM-10	1.035132	PM-10	0.002718
										TSP	1.035132	TSP	0.002718
										SOx	0.963708	SOx	0.00253
										NOx	14.49	NOx	0.038409
										VOC	1.18	VOC	0.003098
										CO	3.136	CO	0.008235
										Benzene	0.003596	Benzene	9.4E-06
										Toluene	0.001576	Toluene	4.1E-06
										Xylene	0.001099	Xylene	2.9E-06
										Butadiene	0.000151	Butadiene	4.0E-07
										Formaldeh	0.004548	Formaldeh	0.000012
										Acetaldehy	0.002956	Acetaldehy	7.8E-06
										Acrolein	0.000357	Acrolein	9.4E-07
										PAH	0.000648	PAH	1.7E-06
10	Grandfathered	300-144/EP1	1968	Boiler #2 Fuel Oil	None	0	A.G. 60	500	17578	PM-10	0.0044	PM-10	0
										TSP	0.0088	TSP	0
										SOx	0.029	SOx	0
										NOx	0.088	NOx	0
										VOC	0.00088	VOC	0
										CO	0.022	CO	0
										Lead	2.5E-06	Lead	0
										Arsenic	2.5E-06	Arsenic	0
										Beryllium	1.5E-06	Beryllium	0

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Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Cadmium	6.7E-06	Cadmium	0
										Chromium	3.5E-06	Chromium	0
										Formaldeh	0.00019	Formaldeh	0
										Manganese	8.6E-06	Manganese	0
										Mercury	1.8E-06	Mercury	0
										Nickel	0.000011	Nickel	0
										Selenium	0.000014	Selenium	0
										POM	0.000013	POM	0
11	Grandfathered	300-148/EP1	1972	Welding operations	None	1020	A.G. 11	70	1200	PM-10	0.0099	PM-10	0.0055
										TSP	0.0099	TSP	0.0055
12	Grandfathered	300-148/EP2	1972	Welding operations	None	1275	A.G. 11	70	1200	PM-10	0.12889	PM-10	0.072
										TSP	0.12889	TSP	0.072
13	Grandfathered	300-148/EP3	1972	Welding operations	None	1020	A.G. 11	70	1200	PM-10	0.0099	PM-10	0.0055
										TSP	0.0099	TSP	0.0055
14	Grandfathered	300-148/EP4	1972	Welding operations	None	765	A.G. 11	70	1200	PM-10	0.000226	PM-10	0.000126
										TSP	0.000226	TSP	0.000126
15	Not required	300-148/E18		Fugitive welding operation	None	1275	4	70	NA	PM-10	0.0029	PM-10	0.0015
										TSP	0.0029	TSP	0.0015
16	Not required	300-148/E19	1968	Fugitive woodworking em	Settling chamber	2040	4	70	NA	PM-10	2.799	PM-10	1.5993
										TSP	5.3064	TSP	3.024
17	Not required	400-121/EP1	1968	Fugitive woodworking em	Cyclone collector	2040	4	70	NA	PM-10	1.3624	PM-10	0.7768
										TSP	2.576	TSP	1.4688
18	80-A-139	500-376/EP1	1980	Grit blaster	Dry centrifugal	2040	A.G. 2	70	NA	PM-10	3.771	PM-10	0.01722
										TSP	5.387	TSP	0.0246
19	93-A-060	500-376/EP2	1993	Paint Booth	Dry filter	2000	*	70	1414	PM-10	3.494	PM-10	0.006825
										TSP	3.494	TSP	0.002075
										VOC	462.93	VOC	0.5385
										Toluene	7.38	Toluene	0.001
										Xylene	122.32	Xylene	0.362
										MEK	14.76	MEK	0.002
										Methychlor	29.52	Methychlor	0.004
										Ethylenegly	1.177	Ethylenegly	0.004
20	Grandfathered	500-125/EP1	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
21	Grandfathered	500-125/EP2	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
22	Grandfathered	500-125/EP3	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
23	Grandfathered	500-125/EP4	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
24	Grandfathered	500-125/EP5	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
25	Grandfathered	500-125/EP6	1970	Laundry dryer	Lint filter	2040	3	230	2160	PM-10	0.00091	PM-10	0.0054
										TSP	0.01825	TSP	0.00027
26	Not required	500-1372/E1	1942	Fugitive landfill emissions	None	2040	NA	NA	NA	VOC	6.43	VOC	6.38
										Benzene	0.00145	Benezene	0.00145

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Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										Chloroform	0.00005	Chloroform	0.00005
										Ethylendicl	0.00325	Ethylendicl	0.00325
										Methichlo	0.0222	Methichlo	0.0222
										Perchloeth	0.01145	Perchloeth	0.01145
										Trichlethy	0.00375	Trichlethy	0.00375
										Vinyl chlo	0.0062	Vinyl chlo	0.0062
										1,1dichleht	0.00035	1,1dichleht	0.00035
27	61-A-150	500-139/EP1	1981	Boiler Main Coal fired	Electrostatic preci	2668	A.G. 150	350	99120	PM-10	14.44	PM-10	3.53
										TSP	16.05	TSP	3.92
										SOx	944.3	SOx	230.46
										NOx	244.9	NOx	59.77
										VOC	0.89	VOC	0.218
										CO	89.39	CO	21.82
										Lead	0.011	Lead	0.003
										Arsenic	0.008	Arsenic	0.002
										Beryllium	0.002	Beryllium	0.0006
										Cadmium	0.0007	Cadmium	0.0002
										Chromium	0.026	Chromium	0.006
										Formaldeh	0.097	Formaldeh	0.024
										Manganese	0.111	Manganese	0.027
										Mercury	0.005	Mercury	0.001
										Nickel	0.006	Nickel	0.001
										Selenium	0.002	Selenium	0.0004
										POM	0.000063	POM	0.000015
28	61-A-150	500-139/EP1	1981	Boiler #2 Main Coal fired	Electrostatic preci	2352	A.G. 150	350	99120	PM-10	14.44	PM-10	3.069
										TSP	16.05	TSP	3.41
										SOx	944.3	SOx	200.8
										NOx	244.9	NOx	52.1
										VOC	0.89	VOC	0.19
										CO	89.39	CO	19.02
										Lead	0.011	Lead	0.002
										Arsenic	0.008	Arsenic	0.002
										Beryllium	0.002	Beryllium	0.0005
										Cadmium	0.0007	Cadmium	0.0001
										Chromium	0.026	Chromium	0.006
										Formaldeh	0.097	Formaldeh	0.02
										Manganese	0.111	Manganese	0.024
										Mercury	0.005	Mercury	0.001
										Nickel	0.006	Nickel	0.001
										Selenium	0.002	Selenium	0.0004
										POM	0.000063	POM	0.000013
29	Not required	500-139/EP2	1981	Bypass stack main boiler	None	0	A.G. 150	NA	NA	PM-10	601.82	PM-10	0
										TSP	666.4	TSP	0
										SOx	1868.6	SOx	0
										NOx	489.8	NOx	0
										VOC	1.76	VOC	0

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Item No.	Permit No.	Source No.	Year Installed	Source Description	Control Device	Run Time Hrs/yr	Stack Height Feet	Temp Deg. F	Air Flow Rate SCFM	Potential Emissions		Actual Emissions	
										Particulate	T/Yr	Particulate	T/Yr
										CO	178.78	CO	0
										Lead	0.446	Lead	0
										Arsenic	0.35	Arsenic	0
										Beryllium	0.0052	Beryllium	0
										Cadmium	0.0262	Cadmium	0
										Chromium	1.096	Chromium	0
										Formaldeh	0.192	Formaldeh	0
										Manganese	0.219	Manganese	0
										Mercury	0.0088	Mercury	0
										Nickel	0.244	Nickel	0
										Selenium	0.07	Selenium	0
										POM	0.0026	POM	0
30	Grandfathere	500-139/EP4	1972	Generator	None	4	*	*	*	PM-10	12.939	PM-10	0.005908
										TSP	12.939	TSP	0.005908
										SOx	12.046	SOx	0.005501
										NOx	161.14	NOx	0.062716
										VOC	14.75	VOC	0.006735
										CO	39.2	CO	0.017902
										Benzene	0.01207	Benzene	0.000021
										Toluene	0.005292	Toluene	9.0E-06
										Xylene	0.003688	Xylene	6.3E-06
										Propylene	0.036877	Propylene	0.000063
										Butadiene	0.000506	Butadiene	8.6E-07
										Formaldeh	0.015268	Formaldeh	0.000026
										Acetaldehy	0.009924	Acetaldehy	0.000017
										Acrolein	0.001197	Acrolein	2.0E-06
										PAH	0.002174	PAH	3.7E-06
31	Grandfathere	500-144/EP1	1953	Boiler #6 fuel oil	None	0	A.G. 60	500	17578	PM-10	0.04	PM-10	0
										TSP	12.88	TSP	0
										SOx	340.6	SOx	0
										NOx	59.06	NOx	0
										VOC	0.3	VOC	0
										CO	5.369	CO	0
										Lead	0.0178	Lead	0
										Arsenic	0.01069	Arsenic	0
										Beryllium	0.000675	Beryllium	0
										Cadmium	0.018245	Cadmium	0
										Chromium	0.011976	Chromium	0
										Formaldeh	0.045491	Formaldeh	0
										Manganese	0.007796	Manganese	0
										Mercury	0.002684	Mercury	0
										Nickel	0.2545	Nickel	0
										Selenium	0.006108	Selenium	0
										POM	0.00127	POM	0
32	Grandfathere	500-144/EP2	1942	Generator	None	5	*	*	*	PM-10	0.2587	PM-10	0.000148
										TSP	0.2587	TSP	0.000148