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PART B PERMIT APPLICATION

FEBRUARY, 1991
REVISION NO. 1

VOLUME III
APPENDICES B–I

PREPARED FOR

GNB Incorporated
Vernon, California

BY
LAKE ENGINEERING, INCORPORATED
6000 LAKE FORREST DRIVE, SUITE 350
ATLANTA, GA. 30328

PART B PERMIT APPLICATION

FEBRUARY 1991
REVISION NO. 1

VOLUME III
APPENDICES B THROUGH I

Prepared for

GNB Incorporated
VERNON, CALIFORNIA

Prepared By

LAKE ENGINEERING, INC.
6000 Lake Forrest Drive
Suite 350
Atlanta, Georgia 30328

490.4

APPENDIX B

RE: SECTION 6

ENGINEERING REPORT

Gary L. Haynes, P.E.

392 Hawaii Way
Placentia, CA 92670

G.N.B., INC.
VERNON, CA
D.O.H. ANALYSIS

JOB 1064
SHT. 1 of 14
DES. GH
DATE 10/88

THE FOLLOWING ANALYSIS IS TO CERTIFY THE THE DESIGN DRAWINGS, SPECIFICATIONS, CERTAIN TECHNICAL DATA, AND ENGINEERING STUDIES OF THE AREAS DEFINED BELOW PERTAINING TO THE GNB, INC FACILITY IN VERNON, CA, CONFORM TO ENGINEERING PRINCIPLES THAT COMPLY WITH APPLICABLE CODES AND STATUTES OF THE STATE OF CALIFORNIA AND RULES OF THE DEPT. OF HEALTH SERVICES.

THE ANALYSIS COVERS THE FOLLOWING AREAS:

- THE 14'ϕ x 11'3 FILTRATE TANK ANCHORAGE AND FOUNDATION.
- THE 18'ϕ x 22' ACID MUD TANKS (2-INTERIOR, ONE EXTERIOR) ANCHORAGE AND FOUNDATION
- THE DESIGN OF THE TWO LEAD SLURRY SUMPS, THE ACID SURGE SUMP, AND THE RMP'S FLOOR SUMP.

ALSO, INCLUDED IS AN ANALYSIS OF THE EXIST'G CONTAINMENT DESIGN AND RETENTION POND CAPACITY.

REGISTERED PROFESSIONAL ENGINEER
GARY L. HAYNES
EXP. 3/1991
No. C 04[illegible]
JAN [illegible] 1991
CIVIL
STATE OF CALIFORNIA

Gary L. Haynes, P.E. 392 Hawaii Way Placentia, CA 92670	G.N.B., INC	JOB 1064
		SHT. 2
		DES. GH
	DESIGN BASIS.	DATE 10/88

DESIGN BASIS:

PER DWG. DC-021

CONCRETE - $f'_c = 4000$ psi.
REBAR - $f_y = 60000$ psi.
ANCHOR BOLTS - $F_y = 36$ ksi., ASTM-A-36
FIELD DRILLED ANCHORS - "HILTI" - KWIK BOLTS OR EQUAL.

ACID MUD TANKS; SPEC. GRAVITY = 1.35
ACID FILTRATE TANK; SPEC. GRAVITY = 1.00

LATERAL ANALYSIS - PER U.B.C., 1988 ED.
SEISMIC GOVERNS BY INSPECTION:

$V = Z \cdot I \cdot C_p \cdot W$
$= (0.4)(1.0)(0.75)W$
$= (0.30)W$

WHERE:
$Z = 0.4$ (ZONE 4, TABS. 23-I)
$I = 1.0$ (TABS. 23-L)
$C_p = 0.75$ (TABS. 23-P, II-4)

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G.N.B., INC.

FILTRATE TANK

JOB 1064
SHT. 3
DES. GH
DATE 10/88

FILTRATE TANK

FOOTING ANALYSIS

DETERMINE OVERFLOW LEVEL

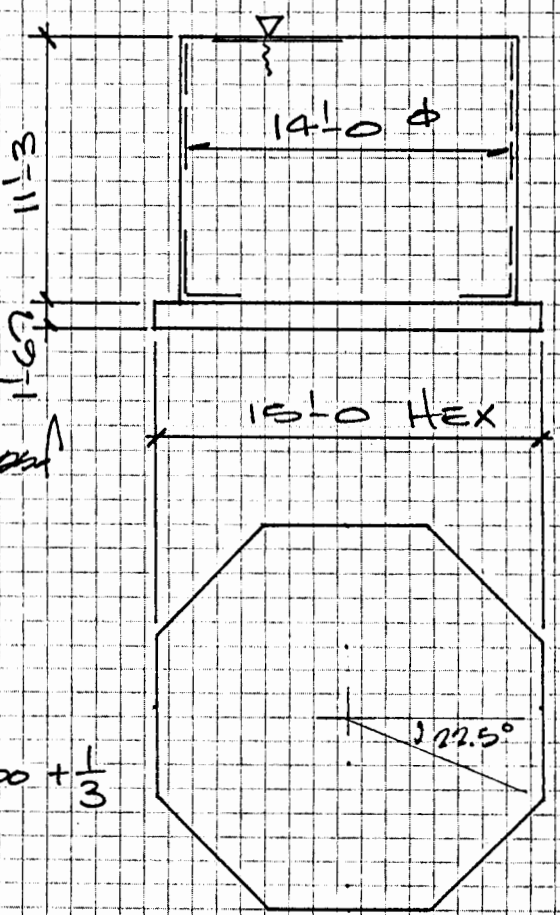
FLUID $= (\frac{14}{2})^2 \pi (11.25)(62.4) = 108^k$

TANK = EST'D $= 3^k$

SLAB $= (8)(\frac{15}{2})^2 \tan(22.5°)(1.5)(0.15)$
$= 42^k$

LATERAL LOAD $= (0.3)(108+3) = 33^k$

OVERTURNING MOM. $= 33(\frac{11.25}{2}+1.5)$
$= 235^{1\cdot k}$



SOIL PRESSURE

STATIC $= \frac{P}{A} = \frac{(108+3+42)}{(8)(\frac{15}{2})^2 \tan(22.5)} = 821$ psf

OVERTURNING $= \frac{P}{A} \pm \frac{Mc}{I}$

$= 821 \pm \frac{235 \times 7.5}{2771}$

$= 821 \pm 636 = 1457 < 2000 + \frac{1}{3}$

TEMP. STL $= 0.002(18)12 = 0.43$

2 LAYERS OF #6 @ 12 : $A_s = 2 \times .44 = .88 > 0.43$

SLAB:

$A = (8)(\frac{15}{2})^2 \tan(22.5) = 186.4$

$a = (\frac{15}{2})(\tan 22.5)(2) = 6.2'$

$I = \frac{186.4(12(\frac{15}{2})^2 + 6.2^2)}{48} = 2771^{1.4}$

EXISTG FILTRATE SLAB
15'-0 HEX × 1'-6 DP.
W/ #6 @ 12" EWEF OK

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G.N.B., INC.

FILTRATE TANK

JOB 1064
SHT. 4
DES. GH
DATE 10/88

FILTRATE TANK (CONT'D)

ANCHORAGE

CHECK UPLIFT FORCES.

OVT. MOM (TANK ONLY) $= 33\left(\frac{11.25}{2}\right) = 186^{1-K}$

FOR 14' ϕ TANK ; $I = \frac{\pi R^4}{4} = \frac{\pi\left(\frac{14}{2}\right)^4}{4} = 1886^{1}$

$A = \pi R^2 = \pi\left(\frac{14}{2}\right)^2 = 154^{1^2}$

$\therefore \frac{P}{A} \pm \frac{Mc}{I} = \frac{(108+3)}{154} \pm \frac{(186)\left(\frac{14}{2}\right)}{1886}$

$= 721 \text{ psf} \pm 690 \text{ psf}$ ∴ NO UPLIFT.

CHECK 12 - 3/4" ϕ A. BOLT ($V_{ALL} = 3.0^{K}/\text{BOLT}$)
FOR SHEAR ONLY.

$\therefore 12 \times 3.0 = 36^{K}$
$\times \frac{4}{3} = 48^{K} > 33^{K}$ TANK SHEAR

OK

12 - 3/4" ϕ A. BOLTS OK.

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STATE OF CALIFORNIA

Gary L. Haynes, P.E. 392 Hawaii Way Placentia, CA 92670	G.N.B., INC. ACID. MUD TANKS	JOB 1064 SHT. 5 DES. GH DATE 10/88

ACID - MUD TANK (EXTERIOR)

FOOTING ANALYSIS

SPEC. GRAVITY = 1.35

DETERMINE LOADING @ OVERFLOW LEVEL.

FLUID = $(\frac{18}{2})^2 \pi (20.25)(1.35 \times 62.4) = 434^K$

TANK = EST'D = 6^K

SLAB = $24 \times 24 \times 1.17 \times 0.15 = 101^K$

LATERAL LOAD = $(0.3)(434+6) = 132^K$

OVT. MOM. = $132(\frac{20.25}{2} + 1.17) = 1491^{1-K}$

STATIC PRESS = $\frac{P}{A} = \frac{(434+6)+101}{576}$

$= 939$ psf

OVT. PRESS. = $\frac{Mc}{I} = \frac{(1491)(\frac{24}{2})}{27648}$

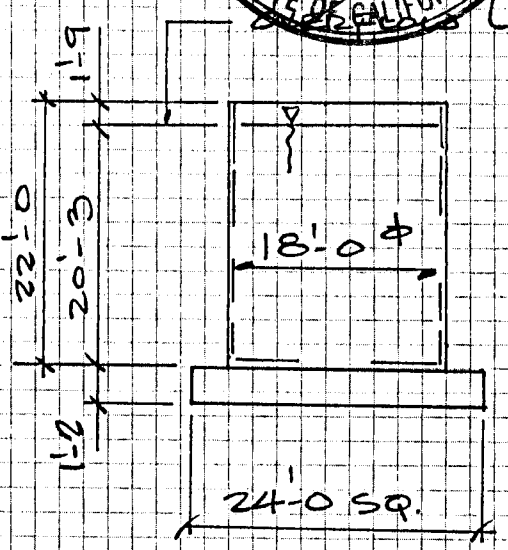
$= 647$ psf

∴ COMB. = $939 \pm 647 = 1586$ psf $< 2000 + \frac{1}{3}$ OK.

CHECK TEMPERATURE STEEL

$A_{s(TEMP)} = 0.002(14)(12) = 0.34''^2$

SLAB STL = #4 @ 12 TOP & BOTT. = $(2)(0.20) = 0.40''^2 > 0.34''^2$ OK



$A = 24 \times 24 = 576$

$I = \frac{1}{12}(24)(24)^3 = 27648$

∴ EXISTG 24' × 24' × 1'-2 FTG W/ #4 @ 12" TOP & BOTT OK AS DESIGNED

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G.N.B., INC.

ACID - MUD TANKS

JOB 1064
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DATE 10/88

ACID - MUD TANK (EXTERIOR) (CONT'D)

ANCHORAGE

VERIFY ADEQUACY OF 12 - $1\frac{1}{2}$"ϕ A. BOLTS.

OVT MOM. (TANK ONLY) $= 132\left(\frac{20.25}{2}\right) = 1337'^{-K}$

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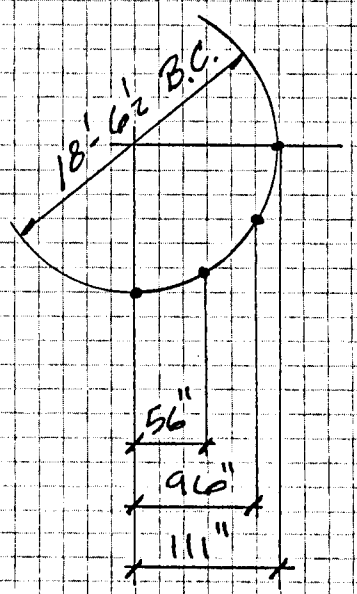
RAD $= 9'\text{-}3 \pm = 111"$

$I_{B.C.} = \Sigma y^2 = 2(111^2 + 0^2) + 4(56^2 + 96^2)$

$= 2(12321) + 4(12352) = 74{,}050''^4$

$\therefore \frac{P}{A} \pm \frac{Mc}{I} = \frac{(434+6)}{12} \pm \frac{(1337 \times 12)(111)}{74050}$

$= 36667 \pm 24050$ $\therefore$ No uplift.



CHECK SHEAR ONLY @ 12 - $1\frac{1}{2}$"ϕ A.BOLTS

$V_{ALL} = 6.0^K/\text{BOLT}$.

$\therefore 12 \times 6.0^K = 72^K$

$\times \frac{4}{3} = 96^K < 132^K$

EXIST'G BOLTS INADEQUATE

ADDITIONAL SHEAR REQ'D $= 132 - 96 = 36^K$

FOR THE ADDITION OF 12 - $\frac{3}{4}$"ϕ S.S. KWIK BOLTS

$V_{ALL} = 2880\#/\text{BOLT}$.

$\therefore$ SHEAR$_{ALL}$ $= 12 \times 2880 = 34.56^K$

$\times \frac{4}{3} = 46^K > 36^K$ OK.

ADD 12 - $\frac{3}{4}$"ϕ S.S. KWIK BOLTS TO THE EXISTING 12 - $1\frac{1}{2}$"ϕ A.BOLTS

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ACID - MUD TANKS (INTERIOR)

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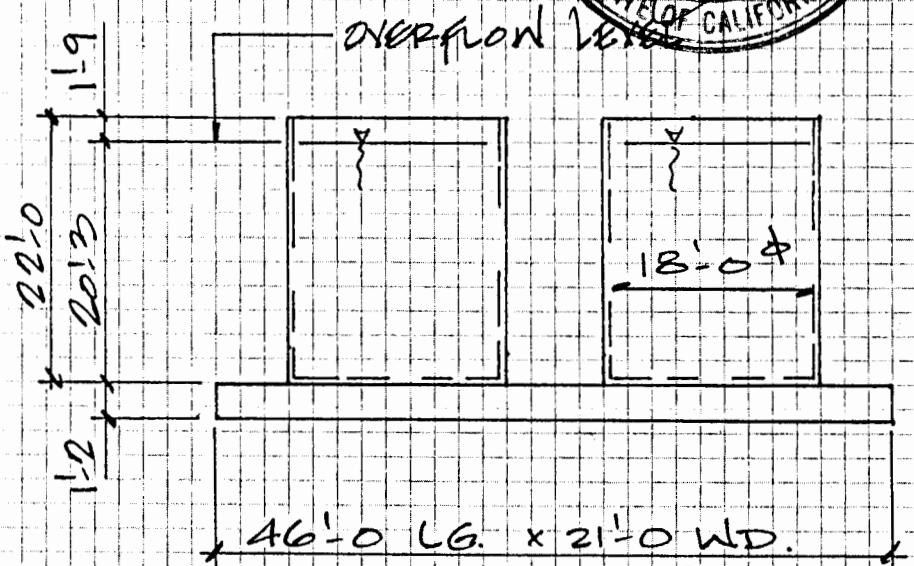
FOOTING ANALYSIS

SPEC. GRAVITY = 1.35



$A = 46 \times 21 = 966\ ^{1^2}$

$I = \frac{1}{12} bh^3 = \frac{1}{12}(46)(21)^3 = 35500\ ^{1^4}$

DETERMINE LOADING @ OVERFLOW LEVEL

FLUID = $(\frac{18}{2})^2 \pi (20.25)(1.35 \times 62.4) = 434^k$

TANK = EST'D = 6^k

SLAB = $46' \times 21' \times 1.17' \times 0.15 = 170^k$

LATERAL LOAD = $(0.3)(434+6) = 132^k$

OVT. MOMENT = $132(\frac{20.25}{2} + 1.17) = 1491'^k$

STATIC PRESS = $\frac{P}{A} = \frac{2(434+6)+170}{966} = 1087$ psf

OVT. PRESS = $\frac{Mc}{I} = \frac{2(1491) \times \frac{21}{2}}{35500} = 882$ psf

COMBINED = $1087 \pm 882 = 1969$ psf $< 2000 + \frac{1}{3}$ OK

EXIST'G 46' x 21' x 1'-2 SLAB - O.K.

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ACID-MUD TANKS

JOB	1064
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DATE	10/88

ACID-MUD TANKS (INTERIOR) (CONT'D)

REGISTERED PROFESSIONAL ENGINEER GARY L. HAYNES EXP. 3/1991 No. C 040758 CIVIL STATE OF CALIFORNIA

ANCHORAGE

VERIFY ADEQUACY OF 36 - 5/8"Φ S.S. KWIK BOLTS

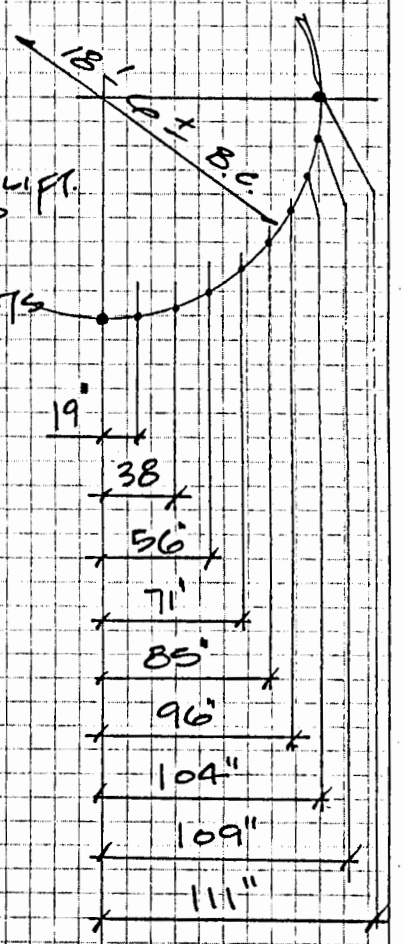
RAD = 9'-3" = 111" ±

$I = \Sigma y^2 = 2(111^2 + 0^2) + 4(19^2 + 38^2 + 56^2 + 71^2 + 85^2 + 96^2 + 104^2 + 109^2)$

$= 2(12321) + 4(49120) = 221{,}122$

$\therefore \frac{P}{A} + \frac{Mc}{I} = \frac{(434 + 6)}{36} \pm \frac{(1337 \times 12)(111)}{221122}$

$= 12{,}222 \pm 8{,}054$ ∴ No Uplift.



CHECK SHEAR @ 36 - 5/8"Φ S.S. KWIK-BOLTS

$V_{ALL} = 2800\#/\text{BOLT}$

$\therefore 36 \times 2.8^k = 100.8^k$

$\times \frac{4}{3} = 134.4^k > 132^k$ OK.

EXIST'G 36 - 5/8"Φ S.S. KWIK BOLTS - OK.

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G.N.B., INC.

FLOOR SUMPS

JOB 1064
SHT. 9
DES. GH
DATE 10/88

REGISTERED PROFESSIONAL ENGINEER GARY L. HAYNES EXP. 3/1991 No. C 040758 CIVIL STATE OF CALIFORNIA

FLOOR SUMP ANALYSIS

REVIEW IS FOR THE FOLLOWING:

DUST SLURRY PUMPS (SECT. 'C' - DC. 251) 12" E.W.E.F.

R.M.P.S. SUMP (SECT. 'B' - DC. 237) 8" WALL - #4 @ 12 E.W.

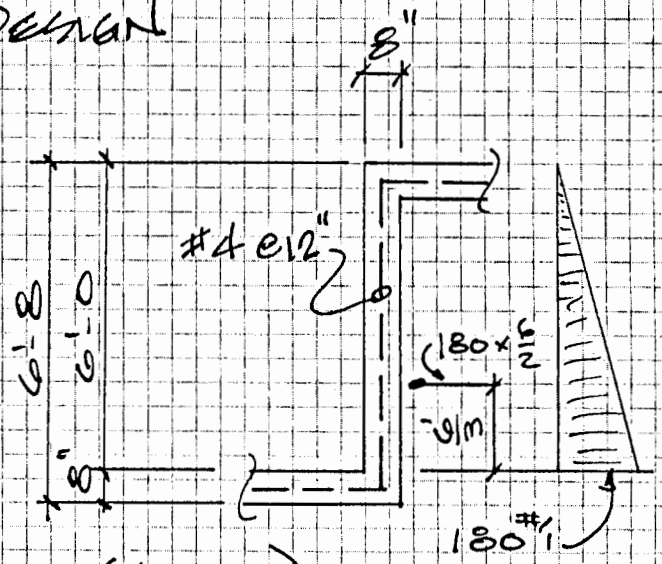
ACID SURGE SUMP (SECT 'B' - DC. 231) 10" WALL - #5 @ 12" E.W.E.F.

MAXIMUM DEPTH = 6'-8 FROM TOP OF SUMP TO B.O. CONC.

∴ USE RMPS SUMP FOR DESIGN

$W = 30^{\#}/\square' \times 6' = 180^{\#}/'$

ASSUME A CANTILEVER RETAINING WALL.



∴ MOM @ WALL

$= \left(180 \times \frac{6}{2}\right)\left(\frac{6}{3}\right) = 1080'^{-\#}$

$A_{s\,REQ'D} = \dfrac{1080 \times 12}{20 \times .88 \times 4} = 0.18''^2$

< 0.20 (#4 @ 12")

BY INSPECTION, ALL OTHER SUMPS OK.

ALSO, CONCRETE REINF. IS CAL'D W/ 40 GRADE STEEL, BUT SPEC'S INDICATE THAT 60 GRADE WAS USED!!

EXIST'G SUMP DESIGNS OK AS INDICATED

Gary L. Haynes, P.E. 392 Hawaii Way Placentia, CA 92670	G.N.B., INC. CONTAINMENT DESIGN	JOB 1064 SHT. 10 DES. GH DATE 10/88

VERIFY CONTAINMENT DESIGN

DUE TO THE EXISTING DESIGN THE CONTAINMENT AREA MUST BE DESIGNED TO HOLD THE RUN-ON FROM THE ENTIRE PROPERTY.

THEREFORE, PER SECT. 22-67245 (b)(4) CONTAINMENT SYSTEM MUST HOLD RUN-ON FROM A 24 HR. 25 YR. FLOOD.

INITIAL DESIGN USED 6" OF RUN-ON.

PROPERTY AREA IS AS FOLLOWS:

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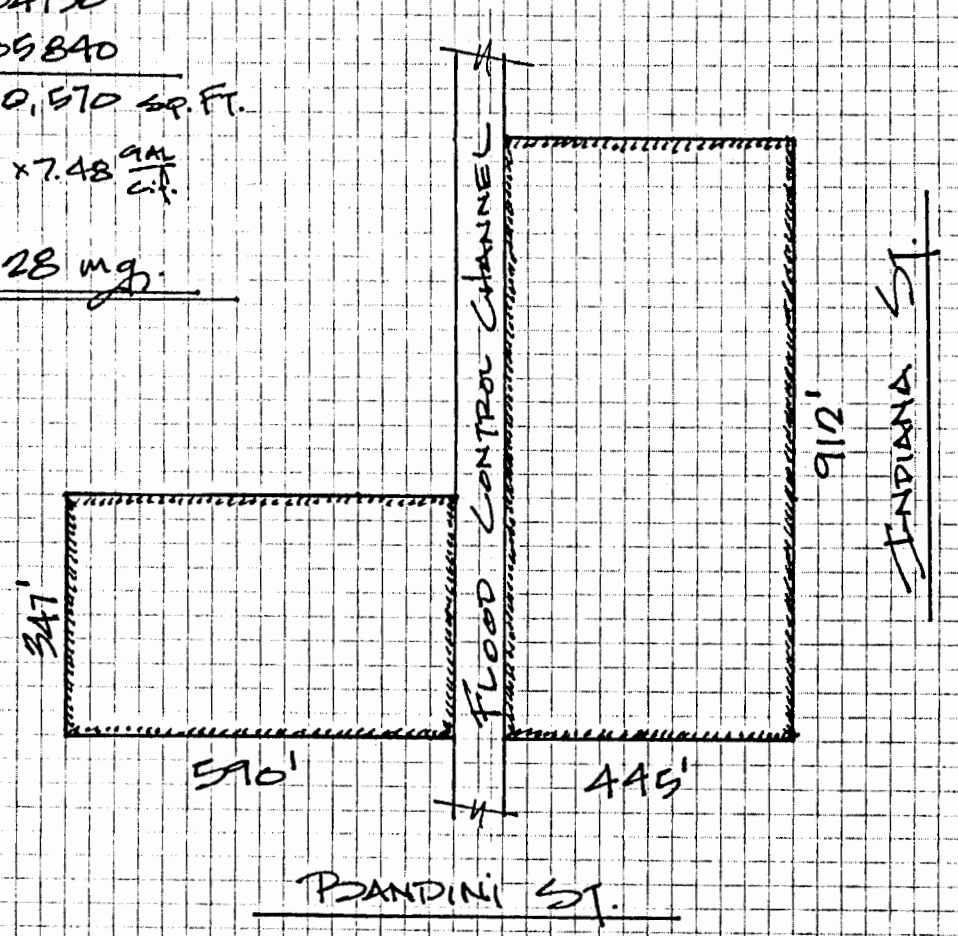
$347' \times 590' = 204730$
$912' \times 445' = 405840$

610,570 SQ. FT.

$\times \frac{6.0''}{12} \times 7.48 \frac{gal}{cf.}$

$= 2.28$ mg.



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G.N.B., INC.

CONTAINMENT DESIGN

JOB 1064
SHT. 11
DES. GH
DATE 10/88

CONTAINMENT DESIGN (CONT'D)

PER CODE, THE CONTAINMENT SYSTEM MUST HOLD THE 24HR. - 25YR. FLOOD RUN-ON PLUS 10% OF THE VOLUME OF THE TANKS.

THEREFORE, CAPACITY REQ'D (USE ACID MUD TANKS)

= 2,283,500 GAL + 10% (3)(41880)

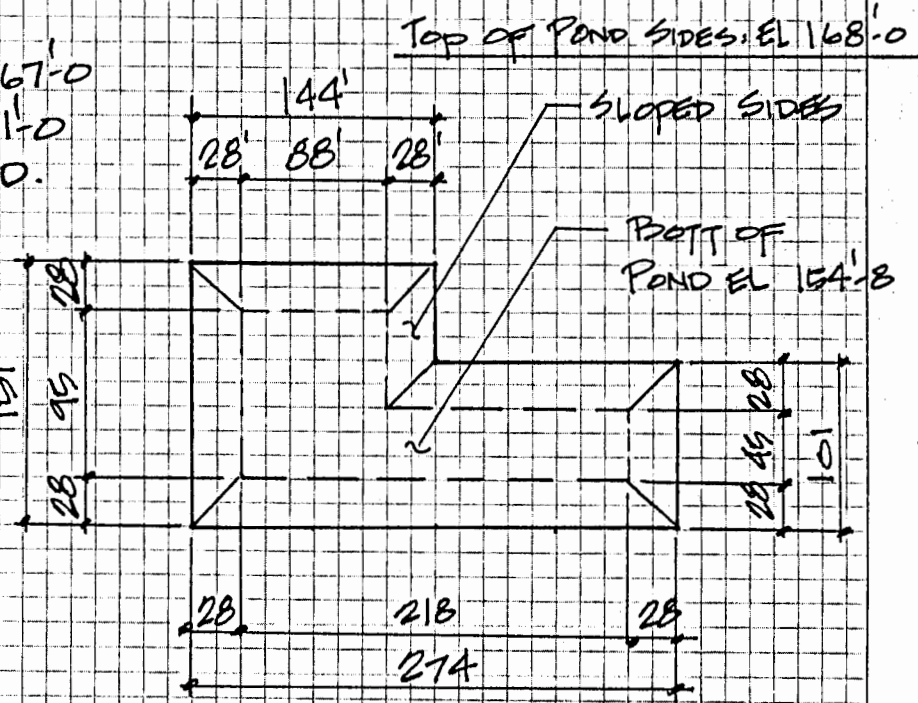
= 2,296,000 GALLONS.

REGISTERED PROFESSIONAL ENGINEER GARY L. HAYNES EXP. 3/1991 No. C 040756 CIVIL STATE OF CALIFORNIA

RETENTION POND CAPACITY:

DWGS SHOW TOP OF WATER LEVEL TO BE 167'-0 WHICH WOULD ALLOW 1'-0 OF FREEBOARD @ POND.

BUT, DURING THE ABOVE CONDITION (24HR - 25 YR. FLOOD) THE LEVEL CAN BE AS HIGH AS 168'-0 (TOP OF POND) THIS CONDITION WOULD BACKFILL THE EXIST'G DRAIN PIPES, BUT DUE TO THE HIGH POINTS ABOUT THE PROPERTY THE RAIN WOULD STILL BE CONTAINED WITHIN THE PROPERTY LINES UNTIL THE EXCESS COULD BE PROCESSED THROUGH THE ON-SITE TREATMENT PLANT.



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G.N.B., INC.

CONTAINMENT DESIGN

JOB 1064
SHT. 12
DES. GH
DATE 10/88

CONTAINMENT DESIGN (CONT'D)

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POND CAPACITY CALC.

ASSUME TOP OF WATER EL. = 168'-0. (∴ D = 168 - 154.67 = 13.33')

MID. (218 - 88) × 45 = 5850 s.f.
88 × 95 = 8360
14210 s.f. × 13.33' = 189,420

SIDES 130 + 88 = 218 ft.
88 = 88
95 = 95
45 = 45
130 - 28 = 102
50 - 28 = 22
570 ft × 28 ft × 13.33' × ½ = 106370

CORNERS:
⅓ × 28' × 28' × 13.33' × 5 PLC = 17420
⅔ × 28' × 28' × 13.33' × 1 PLC = 6970

TOTAL = 320,180 c.f.

LIQUID VOL = 320,180 c.f. × 7.48 GAL/c.f.
= 2,395,000 GAL. > 2,296,000 GAL
OK.

FURTHER INVESTIGATION SHOWS POND TO HAVE APPR. 4" ± FREEBOARD WITH THIS RUN-ON LOAD.

CONTAINMENT SYSTEM O.K. FOR LOADING

Gary L. Haynes, P.E.

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G.N.B, INC.

JOB 1064
SHT. 13
DES. GH
DATE 10/88

ANALYSIS RECAP

In conclusion, several systems are used in the Raw Material Preparation System (RMPS) Area treatment of waste acid.

These systems are as follows:

- An Acid Tank and Battery Dump Bin Sump
- A Muds Tank System

The acid tank is 14 feet in diameter and 11 feet high (see sheet 3 on the calculations). The tank is constructed of wound fiberglass reinforced polyester (FRP) with no joints. The tank rests directly on a reinforced concrete foundation. From the acid tank, waste acid is pumped into the muds holding tank system for treatment. The tank is located outside of the RMPS building near the furnace emission control baghouses. The containment system for this tanks consists of a sloped concrete pavement that directs any spillage to a collection sump. Any leakage or spillage would then flow from the collection sump to the on-site waste acid collection pond and then be pumped into the treatment system for treatment.

Waste acid is collected in the battery dump bin sump from the oscillating pan feeder system where spent lead-acid batteries are received. The collected acid is pumped to a clarifier, then to an acid tank. The sump is constructed of reinforced concrete (see sheet 9 of the calculations) and is also equipped with a stainless steel liner.

The muds holding tank system consists of three tanks 18 feet in diameter and 22 feet high (one tank is located just outside of the RMPS building, see sheet 5 of the calculations; and two tanks are located within the RMPS building, see sheet 7 of the calculations) All of the muds holding tanks are used primarily to treat waste acid. The tanks are constructed of wound fiberglass reinforced polyester (FRP) with no joints. The area around the holding tanks is equipped with a stainless steel lined floor trench which collects leakage or spillage. Any flow in this trench is routed to the RMPS floor sump and then pumped back into the muds holding tank. The floor sump is constructed of reinforced concrete (see sheet 9 of the calculations) and is also equipped with a stainless steel liner.

The baghouse dust slurry sumps are located to the east of the waste acid containment tank. The slurry from the sumps is pumped periodically to the mud tanks. The sumps are constructed of reinforced concrete (see sheet 9 of the calculations) with appropriate waterstops at the joints.

This is to certify that the engineering features of the tank systems, as described above (and with minor modifications as described within the calculations), have been examined by me and found to conform to engineering principles applicable to such

REGISTERED PROFESSIONAL ENGINEER
GARY L. HAYNES
EXP. 3/1991
No. C 040753
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STATE OF CALIFORNIA

facilities. In my professional judgement, these systems, when properly constructed, maintained and operated, or closed, will comply with applicable statutes of the State of California and rules of the Department of Health Services.

Date: January 7, 1991

Signature: _____

Name : Gary L. Haynes
CA Reg No.: C 040758

Mailing Address: 392 Hawaii Way
Placentia, CA 92670
(714) 993-9619

REGISTERED PROFESSIONAL ENGINEER
GARY L. HAYNES
EXP. 3/1991
No. C 040758
CIVIL
STATE OF CALIFORNIA

The battery receiving area at GNB, Inc., in Vernon, California, is located at the south end of the reverb furnace material building. This area is 60 feet by 91 feet and is used to hold approximately 560 tons of batteries on pallets. This battery receiving area is equipped with a drainage/containment systems which consists of a sloped concrete floor which directs any spillage of waste constituents to one or more collection sumps. From the collection sumps any spilled liquids flow to the on-site waste acid collection pond and then are pumped into the treatment system for treatment. The acid holding tank and/or muds holding tanks described above would receive any spillage from the battery receiving areas.

This is to certify that the containment features of the hazardous waste container receiving areas, as described above, have been examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgement, these facilities, when properly constructed, maintained and operated, or closed, will comply with applicable statutes of the State of California and rules of the Department of Health Services.

Date: January 7, 1991

Signature: _____

Name : Gary L. Haynes
CA Reg No.: C 040758

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(714) 993-9619

REGISTERED PROFESSIONAL ENGINEER
GARY L. HAYNES
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CIVIL
STATE OF CALIFORNIA

APPENDIX C

RE: SECTION 7

MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheet

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

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

IDENTITY *(As Used on Label and List)*
Battery Electric Storage, Wet, Spent

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name GNB Incorporated	Emergency Telephone Number 612-681-5000
Address *(Number, Street, City, State, and ZIP Code)* 1110 Highway 110	Telephone Number for Information 612-681-5000
Mendota Heights, MN 55118	Date Prepared April 15, 1986
	Signature of Preparer *(optional)*

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Lead Pb	.05 mg/M^3			
Electrolyte: H_2SO_4 (Sulfuric Acid and Water)	1.00 mg/M^3			

Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water
N/A

Appearance and Odor
Acid has sharp, penetrating, pungent order

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N/A			

Extinguishing Media
Dry Chemical

Special Fire Fighting Procedures
Ordinary

Unusual Fire and Explosion Hazards
N/A

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (*Materials to Avoid*)

Hazardous Decomposition or Byproducts

N/A

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
H_2SO_4 and Pb	Pb dust	Pb and H_2SO_4	Pb and H_2SO_4

Health Hazards (*Acute and Chronic*)

Eye and skin irritation, by acid. Pb over-exposure can bring on abdominal colic, constipation, nausea, anemia, and muscle fatigue.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
None			yes (Pb)

Signs and Symptoms of Exposure

Stinging and burning sensation to skin and eyes.

Medical Conditions Generally Aggravated by Exposure

Exposure to acid mist can aggravate pulmonary conditions.

Emergency and First Aid Procedures

Skin=Flush thoroughly with water Eyes=Flush immediately with water and get prompt medical attention. Continue flushing eyes for at least 15 minutes or until medical attention.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled

Apply an equal amount of baking soda, soda ash, caustic soda or equivalent over spilled electrolyte to neutralize it and add water if necessary to form a ~~slurry. Scoop up slurry.~~

Pb- vacuum dust, contain other forms

Waste Disposal Method

Do not dispose, material should be recycled by a licensed battery recycler

Precautions to Be Taken in Handling and Storing

Store with vent side up. Neutralize electrolyte spills

Other Precautions

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)

Ventilation	Local Exhaust	Special
	Mechanical (*General*)	Other

Protective Gloves	Eye Protection
Rubber gloves	Safety goggles or face shield

Other Protective Clothing or Equipment

Work/Hygienic Practices

★ U.S.G.P.O.: 1986-491-529/45775

MATERIAL SAFETY DATA SHEET

VENDEE AND THIRD PERSONS ASSUME THE RISK OF INJURY PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT FOLLOWED AS PROVIDED FOR IN THE DATA SHEET, AND VENDOR SHALL NOT BE LIABLE FOR SUCH INJURY. FURTHERMORE, VENDOR SHALL NOT BE LIABLE FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED.

ALL PERSONS USING THIS PRODUCT, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCT IS USED, AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENTS OF THIS DATA SHEET. POSTING THIS DOCUMENT FOR EMPLOYEE NOTIFICATION IS RECOMMENDED BY THE VENDOR.

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME GNB BATTERIES INC.	TELEPHONE NO. (612) 681-5000
ADDRESS 1110 Highway 110, Mendota Heights, MN 55118	
TRADE NAMES Pure Lead	
SYNONYMS Soft Lead, Plumbum	
INTENDED USE Industrial	

II HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	Weight %	TLV*
Lead (CAS #7439-92-1)	99.9	50 $\mu g/M^3$

Trace amounts of the following elements may be present: Antimony, Arsenic, Bismuth, Cadmium, Calcium, Copper, Nickel, Selenium, Silver, Sulfur, Tellurium, Tin and/or Zinc.

III PHYSICAL DATA

BOILING POINT @ 760 MM Hg	3171°F (approx.)	MELTING POINT	621°F (approx.)
SPECIFIC GRAVITY (H_2O = 1)	11.3 (approx.)	VAPOR PRESSURE	at 1112°F 3.1×10^{-5}
VAPOR DENSITY (AIR = 1)	Not applicable	SOLUBILITY IN H_2O (% BY WT)	Negligible
% VOLATILES BY VOL	Not applicable	EVAPORATION RATE (BUTYL ACETATE = 1)	Not applicable
APPEARANCE AND ODOR	Silver-gray metal; no apparent odor		

*Ref: Occupational Safety and Health Standards, General Industry Standards 1910.

IV HEALTH HAZARD INFORMATION

Routes of Exposure When Processing or Handling

Inhalation: Dust, vapor and/or fume may be irritating to the respiratory system and can result in both acute and chronic overexposure.

Skin Contact: Dust, vapor and/or fume may cause irritation.

Skin Absorption: Dust, vapor and/or fume are not readily absorbed through the skin.

Eye Contact: Dust, vapor and/or fume may cause irritation.

Ingestion: Dust, vapor and/or fume may be absorbed by the digestive system, and can result in both acute and chronic overexposure.

Effects of Overexposure

Acute Overexposure -- If left untreated: weakness, vomiting, loss of appetite, uncoordinated body movements, convulsions, stupor, and possibly coma.

Chronic Overexposure -- If left untreated: weakness, insomnia, hypertension, slight irritation to skin and eyes, metallic taste in mouth, anemia, constipation, headache, muscle and joint pains, neuromuscular dysfunction, possible paralysis and encephalopathy.

Emergency and First Aid Procedures

Eyes: Flush with copious quantities of water. Get immediate medical attention.

Skin: Wash thoroughly with soap and water.

Inhalation: Remove from exposure. Get medical attention if experiencing effects of overexposure.

Ingestion: Get immediate medical attention.

Notes to Physician

Lead and its inorganic compounds are neurotoxins which may produce neuropathy. For an overview of the effects of lead exposure, consult Occupational Safety and Health Administration Appendix A of Occupational Exposure to Lead (29CFR1910.1025).

V FIRE AND EXPLOSION DATA

Flash Point (Test Method)	Not Applicable	Autoignition Temperature	Not Applicable

Flammable Limits in Air (% By Vol)	LOWER	Not Applicable	UPPER	Not Applicable

Extinguishing Media	Dry chemical or carbon dioxide should be used on surrounding fire. Do not use water on fires where molten metal is present.
Special Fire Fighting Procedures	Use full body protective clothing and full-face piece, self-contained breathing apparatus operated in a positive-pressure mode.
Unusual Fire and Explosion Hazard	Molten metals produce fume, vapor and/or dust that may be toxic and/or respiratory irritants. This product, or its dust, can react vigorously with strong oxidizing agents.

VI REACTIVITY DATA

Conditions Contributing To Instability	Not Applicable
Incompatibility	Strong Oxidizers and this product may liberate hydrogen gas.
Hazardous Decomposition Products	High temperatures may produce heavy metal fume, vapor and/or dust.
Conditions Contributing to Hazardous Polymerization	Not Applicable

VII SPILL OR LEAK PROCEDURES

Steps To Be Taken If Material Is Released or Spilled

Dust material should be vacuumed, or wet swept where vacuuming is not feasible. Particulate matter should be stored in dry containers for later disposal. Do not use compressed air or dry sweeping as a means of cleaning.

Neutralizing Chemicals	Not Applicable

Waste Disposal Method

Dispose of toxic substances and hazardous wastes in accordance with local, state and federal regulations.

VIII SPECIAL PROTECTION INFORMATION

Ventilation Requirements

Ventilation, as described in the Industrial Ventilation Manual produced by the American Conference of Governmental Industrial Hygienists, shall be provided in areas where exposures are above the permissible exposure limits or threshold limit values specified by OSHA or other local, state and federal regulations.

SPECIFIC PERSONAL PROTECTION EQUIPMENT

Respiratory	As specified by 29CFR1910.1025(f) of the Federal Occupational Safety and Health Administration Standards for Occupational Exposure to lead. Other local and state regulations may also apply.
Eye	Face shield or vented goggles should be used around molten metal.
Glove	Gloves should be worn when handling the product is necessary.

Other Clothing and Equipment

Overalls or other full body clothing shall be worn during product use and properly laundered after use, with the wash water disposed of in accordance with local, state and federal regulations. Hard hat, safety boots and other safety equipment should be worn as appropriate for the industrial environment. Personal clothing and shoes should be protected from contamination with this product.

IX SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS

There are two major means of heavy metal absorption; namely, inhalation and ingestion. Most inhalation problems can be prevented with adequate use of aforementioned ventilation and respirator information. Always exercise normal, good personal hygiene prior to smoking or eating. Smoking and eating should be confined to non-contaminated areas.

Work clothes and equipment should remain in designated lead contaminated areas, and never taken home or laundered with personal clothing. Launder contaminated clothing before re-use.

Wash hands, face, neck and arms thoroughly before eating or smoking.

The product is intended for industrial use only, and should be isolated from children and their environment.

OTHER HANDLING AND STORAGE REQUIREMENTS

Store in dry area where accidental contact with acids is not possible.

Avoid skin contact.

Adhere to all personal protection equipment procedures when handling, and ventilation requirements when heavy metal exposures are above permissible exposure limits or threshold limit values.

BEFORE USING THIS PRODUCT, BE FAMILIAR WITH THE INFORMATION CONTAINED IN:

The Federal Standard for Occupational Exposure to Lead (29CFR1910.1025) published in the Federal Register on Tuesday, November 14, 1978, by the Occupational Safety and Health Administration.

PREPARED BY Industrial Hygiene Department

ADDRESS 1110 Highway 110, Mendota Heights, MN 55118

DATE July, 1984

Abbreviations:

Sb = Antimony
As = Arsenic
Cd = Cadmium
Ca = Calcium
Sn = Tin

MATERIAL SAFETY DATA SHEET

VENDEE AND THIRD PERSONS ASSUME THE RISK OF INJURY PROXIMATELY CAUSED BY THE MATERIAL IF REASONABLE SAFETY PROCEDURES ARE NOT FOLLOWED AS PROVIDED FOR IN THE DATA SHEET, AND VENDOR SHALL NOT BE LIABLE FOR SUCH INJURY. FURTHERMORE, VENDOR SHALL NOT BE LIABLE FOR INJURY TO VENDEE OR THIRD PERSONS PROXIMATELY CAUSED BY ABNORMAL USE OF THE MATERIAL EVEN IF REASONABLE SAFETY PROCEDURES ARE FOLLOWED.

ALL PERSONS USING THIS PRODUCT, ALL PERSONS WORKING IN AN AREA WHERE THIS PRODUCT IS USED, AND ALL PERSONS HANDLING THIS PRODUCT SHOULD BE FAMILIAR WITH THE CONTENTS OF THIS DATA SHEET. POSTING THIS DOCUMENT FOR EMPLOYEE NOTIFICATION IS RECOMMENDED BY THE VENDOR

I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	GNB BATTERIES INC.	TELEPHONE NO.	(612) 681-5000
ADDRESS	1110 Highway 110, Mendota Heights, MN 55118		
TRADE NAMES	Hard Lead		
SYNONYMS	Antimonial or Arsenical or Cadmium or Calcium-Tin Lead Alloy		
INTENDED USE	Industrial		

II HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	Weight % Sb/As Lead Alloy	Weight % Cd/Sb/As Lead Alloy	Weight % Ca/Sn Lead Alloy	TLV*
Lead (CAS #7439-92-1)	78-99%	90-99%	98-99%	0.05 mg/M^3
Arsenic (CAS #7440-38-2)	0-2%	0-0.5%	<0.1%	0.01 mg/M^3
Calcium	<0.1%	<0.1%	0.05-0.2%	NA
Cadmium	<0.1%	0.05-2%	<0.1%	0.1 mg/M^3
Copper	0-0.2%	0.01-0.2%	<0.1%	0.1 mg/M^3
Antimony (CAS #7440-36-0)	0-20%	1-6%	<0.1%	0.5 mg/M^3
Selenium	<0.1%	<0.1%	<0.1%	0.2 mg/M^3
Tin (CAS #7440-31-5)	0-2%	0-1%	0-1%	2 mg/M^3

Trace amounts of the following elements may be present: Aluminum, Bismuth, Nickel, Silver, Sulfur, and Tellurium.

III PHYSICAL DATA

BOILING POINT @ 760 MM Hg	Greater than 2516°F	MELTING POINT	486 - 680°F
SPECIFIC GRAVITY (H_2O = 1)	9.6 - 11.3	VAPOR PRESSURE	Not applicable
VAPOR DENSITY (AIR = 1)	Not applicable	SOLUBILITY IN H_2O (% BY WT)	Negligible
% VOLATILES BY VOL	Not applicable	EVAPORATION RATE (BUTYL ACETATE = 1)	Not applicable
APPEARANCE AND ODOR	Bluish-gray metal; no apparent odor		

IV HEALTH HAZARD INFORMATION

Routes of Exposure When Processing or Handling

Inhalation: Dust, vapor and/or fume may be irritating to the respiratory system, and can result in both acute and chronic overexposure.

Skin Contact: Dust, vapor and/or fume may cause irritation.

Skin Absorption: Dust, vapor and/or fume are not readily absorbed through the skin.

Eye Contact: Dust, vapor and/or fume may cause irritation.

Ingestion: Dust, vapor and/or fume may be absorbed by the digestive system, and can result in both acute and chronic overexposure.

Effects of Overexposure

Acute Overexposure -- If left untreated: weakness, vomiting, loss of appetite, uncoordinated body movements, convulsions, stupor, and possibly coma.

Chronic Overexposure -- If left untreated: weakness, insomnia, hypertension, slight irritation to skin and eyes, metallic taste in mouth, anemia, constipation, headache, muscle and joint pains, neuromuscular dysfunction, possible paralysis and encephalopathy.

Emergency and First Aid Procedures

Eyes: Flush with copious quantities of water. Get immediate medical attention.

Skin: Wash thoroughly with soap and water.

Inhalation: Remove from exposure. Get medical attention if experiencing effects of overexposure.

Ingestion: Get immediate medical attention.

Notes to Physician

Lead and its inorganic compounds are neurotoxins which may produce neuropathy. For an overview of the effects of lead exposure, consult Occupational Safety and Health Administration Appendix A of Occupational Exposure to Lead (29CFR1910.1025). Arsenic may be a pulmonary carcinogen. For overview of the effects of arsenic exposure, consult Occupational Safety and Health Administration Appendices of Occupational Exposure to Inorganic Arsenic (29CFR1910.1018). Arsenic, antimony, tin and inorganic tin compounds are primary chemical irritants of the skin. The chronic effects of antimony ingestion resemble those of arsenic. Antimony is a severe pulmonary irritant, and stannic oxide has been shown to cause benign pneumoconiosis. Copper is not normally toxic when ingested orally in amounts expected from occupational exposure. Exposure to copper dust, vapor or fumes may cause metal fume fever. Cadmium overexposure may result in irreversible lung injury accompanied by abnormal lung function, and renal tubular damage. It may also cause ulceration of nasal septum, damage of olfactory nerve and anosmia. Exposure to selenium may cause anemia, bronchitis, as well as liver and kidney damage. Selenium has also been known to antagonize the toxic effects of some other metals such as cadmium and arsenic. Calcium compounds should be considered toxic only when they contain toxic substances. Calcium oxide can be irritating to the skin, eyes and mucous membranes.

V FIRE AND EXPLOSION DATA

Flash Point (Test Method)	Not Applicable	Autoignition Temperature	Not Applicable

Flammable Limits in Air (% By Vol)	LOWER	Not Applicable	UPPER	Not Applicable

Extinguishing Media Dry chemical or carbon dioxide should be used on surrounding fire. Do not use water on fires where molten metal is present.

Special Fire Fighting Procedures Use full body protective clothing and full-face piece, self-contained breathing apparatus operated in a positive-pressure mode.

Unusual Fire and Explosion Hazard Molten metals produce fume, vapor and/or dust that may be toxic and/or respiratory irritants. This product, or its dust, can react vigorously with strong oxidizing agents.

VI REACTIVITY DATA

Conditions Contributing To Instability Not Applicable

Incompatibility Strong Oxidizers and this product may liberate hydrogen gas.

Hazardous Decomposition Products High temperatures may produce heavy metal fume, vapor and/or dust.

Conditions Contributing to Hazardous Polymerization Not Applicable

VII SPILL OR LEAK PROCEDURES

Steps To Be Taken If Material Is Released or Spilled

Dust material should be vacuumed, or wet swept where vacuuming is not feasible. Particulate matter should be stored in dry containers for later disposal. Do not use compressed air or dry sweeping as a means of cleaning.

Neutralizing Chemicals Not Applicable

Waste Disposal Method

Dispose of toxic substances and hazardous wastes in accordance with local, state and federal regulations.

VIII SPECIAL PROTECTION INFORMATION

Ventilation Requirements

Ventilation, as described in the Industrial Ventilation Manual produced by the American Conference of Governmental Industrial Hygienists, shall be provided in areas where exposures are above the permissible exposure limits or threshold limit values specified by OSHA or other local, state and federal regulations.

SPECIFIC PERSONAL PROTECTION EQUIPMENT

Respiratory As specified by 29CFR1910.1025(f), and 29CFR1910.1018 Subpart (h) of the Federal Occupational Safety and Health Administration Standards for Occupational Exposure to lead and Inorganic Arsenic, respectively. Other local and state regulations may also apply.

Eye Face shield or vented goggles should be used around molten metal.

Glove Gloves should be worn when handling the product is necessary.

Other Clothing and Equipment

Overalls or other full body clothing shall be worn during product use and properly laundered after use, with the wash water disposed of in accordance with local, state and federal regulations. Hard hat, safety boots and other safety equipment should be worn as appropriate for the industrial environment. Personal clothing and shoes should be protected from contamination with this product.

IX SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS

There are two major means of heavy metal absorption; namely, inhalation and ingestion. Most inhalation problems can be prevented with adequate use of aforementioned ventilation and respirator information. Always exercise normal, good personal hygiene prior to smoking or eating. Smoking and eating should be confined to non-contaminated areas.

Work clothes and equipment should remain in designated lead contaminated areas, and never taken home or laundered with personal clothing. Launder contaminated clothing before re-use.

Wash hands, face, neck and arms thoroughly before eating or smoking.

The product is intended for industrial use only, and should be isolated from children and their environment.

OTHER HANDLING AND STORAGE REQUIREMENTS

Store in dry area where accidental contact with acids is not possible.

Avoid skin contact.

Adhere to all personal protection equipment procedures when handling, and ventilation requirements when heavy metal exposures are above permissible exposure limits or threshold limit values.

BEFORE USING THIS PRODUCT, BE FAMILIAR WITH THE INFORMATION CONTAINED IN:

The Federal Standard for Occupational Exposure to Lead (29CFR1910.1025) published in the Federal Register on Tuesday, November 14, 1978, by the Occupational Safety and Health Administration, and the Federal Standard for Occupational Exposure to Arsenic (29CFR1910.1018) published in the Federal Register on Friday, May 5, 1978, by the Occupational Safety and Health Administration.

PREPARED BY Industrial Hygiene Department

ADDRESS 1110 Highway 110, Mendota Heights, MN 55118

DATE July, 1984

MATERIAL SAFETY DATA SHEET

NNWALT CORPORATION
REE PARKWAY
HILADELPHIA, PA 19102

EMERGENCY PHONE NUMBERS
BUSINESS EAST: 215-587-7695
BUSINESS WEST: 503-238-7230
OTHER #1: 206-627-9101

****

PRODUCT IDENTIFICATION

PRODUCT NAME: CAUSTIC SODA, FLAKE
CAS NO.: 1310-73-2
CHEMICAL NAME: SODIUM HYDROXIDE
MOLECULAR FORMULA: NAOH
SYNONYMS: CAUSTIC SODA, CAUSTIC, LYE
CHEMICAL FAMILY: ALKALI

****

INGREDIENTS----HAZARD CLASSIFICATIONS

COMPONENTS:	CAS NO.:	%	OSHA:	NFPA:
SODIUM HYDROXIDE	1310-73-2	96	CORROSIVE	3-0-1

****

SHIPPING INFORMATION

50# BAGS & DRUMS: CAUSTIC SODA, DRY; CORROSIVE MATERIAL; UN 1823.
BULK BAGS: RQ CAUSTIC SODA, DRY; CORROSIVE MATERIAL; UN 1823; DOT 3871.
EPORTABLE QUANTITY (RQ) IS 1,000 LBS.

****

PHYSICAL PROPERTIES

BOILING POINT/RANGE:	MELTING POINT:	FREEZING POINT:
1388 C 2532 F	318 C 604 F	318 C 604 F
MOLECULAR WEIGHT:	SPECIFIC GRAVITY(H2O=1):	VAPOR PRESSURE(MM HG):
40.01	2.130 @ / 20 C	42 @1000 C/ 1832 F
VAPOR DENSITY(AIR=1):	SOLUBILITY IN H2O:	% VOLATILES BY VOLUME:
NA	109GM / 100GM @ 20 C	NON-VOLATILE

APPEARANCE AND ODOR:
GRAYISH-WHITE CRYSTAL, FLAKE, OR SOLID. ESSENTIALLY ODORLESS.

****

FIRE AND EXPLOSION DATA

FLASH POINT:	FLAMMABLE LIMITS:	AUTOIGNITION TEMP.:
NONE	LOWER: NONE UPPER: NONE	NONE

- NOT APPLICABLE NE - NOT ESTABLISHED
) - INDICATES REGISTERED TRADEMARK OF PENNWALT CORPORATION

FIRE AND EXPLOSION DATA - CONTINUED

EXTINGUISHING MEDIA: NA

SPECIAL FIRE FIGHTING PROCEDURES:

KEEP PRODUCT OUT OF WATER SOURCES AND SEWERS.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NA

****

REACTIVITY DATA

STABILITY: STABLE

CONDITIONS CONTRIBUTING TO INSTABILITY: NA

INCOMPATIBILITY-AVOID CONTACT WITH:
STRONG ACIDS

CAN REACT VIOLENTLY OR EXPLOSIVELY WITH WATER AND SOME CHEMICALS SUCH AS CHLORINATED HYDROCARBONS AND ORGANIC ACIDS. HAZARDOUS CARBON MONOXIDE GAS CAN FORM UPON CONTACT WITH FOOD AND BEVERAGE PRODUCTS IN ENCLOSED SPACES AND CAN CAUSE DEATH. FOLLOW APPROPRIATE TANK ENTRY PROCEDURES (SEE ANSI Z117.1-1977).

HAZARDOUS DECOMPOSITION THERMAL AND OTHER:

WILL REACT WITH SOME METALS, E.G. ALUMINUM, TIN, ZINC, TO FORM FLAMMABLE HYDROGEN GAS.

CONDITIONS TO AVOID:

WHEN MAKING SOLUTIONS, AVOID RAPID TEMPERATURE RISE, VIOLENT SPATTERING OR EXPLOSIVE ERUPTIONS BY ALWAYS ADDING CAUSTIC SODA TO WATER. NEVER ADD WATER TO CAUSTIC SODA. HEAT WATER TO 80-100 F BEFORE ADDING CAUSTIC SODA. ADD SMALL AMOUNTS OF PRODUCT SLOWLY AND EVENLY OVER SURFACE OF WATER WITH CONSTANT STIRRING. NEVER INCREASE CONCENTRATION OF PRODUCT IN SOLUTION BY MORE THAN 5% WITH ANY SINGLE ADDITION. WATER SHOULD NOT EXCEED 160 F DURING ADDITION.

****

TOXICITY

ROUTE:	ANIMAL:	DATA:
ORAL	RABBIT	LD 50 500 MG/KG SEE COMMENTS.
DERMAL		NE, SEE TOXICITY COMMENTS.
INHALATION		NE, SEE TOXICITY COMMENTS.

TOXIC EFFECTS

EYE EFFECTS: CORROSIVE

NA - NOT APPLICABLE NE - NOT ESTABLISHED
(R) - INDICATES REGISTERED TRADEMARK OF PENNWALT CORPORATION

TOXICITY - CONTINUED

CAUSES VERY RAPID SEVERE DAMAGE, AS SOLID OR IN SOLUTION.
MAY CAUSE BLINDNESS.

SKIN EFFECTS: CORROSIVE

DERMAL: CORROSIVE BURNS TO ALL BODY TISSUE CONTACTED.

OTHER TOXIC EFFECTS:

NE
TARGET ORGAN TOXIN: NE

TOXICITY COMMENTS:
CAUSES SEVERE BURNS OF THE MUCOUS MEMBRANES OF THE MOUTH, THROAT, ESOPHAGUS AND STOMACH.
CHRONIC (CONTACT WITH PRODUCT DUST OR DILUTE SOLUTIONS): MAY CONSIST OF MULTIPLE AREAS OF SUPERFICIAL DESTRUCTION OF THE SKIN OR PRIMARY IRRITANT DERMATITIS. SIMILARILY, INHALATION OF THE DUST MAY RESULT IN VARYING DEGREES OF IRRITATION OF THE RESPIRATORY TRACT TISSUE. MAY VARY FROM MILD IRRITATION OF NASAL MUCOUS MEMBRANES TO SEVERE PNEUMONITIS. LUNG EFFECTS: INHALATION OF DUST OR MIST MAY CAUSE DAMAGE TO UPPER RESPIRATORY TRACT AND EVEN TO LUNG TISSUE PROPER.

****

HEALTH HAZARD INFORMATION

PERMISSIBLE EXPOSURE LIMITS:

ACGIH 1984 (AIR) 2MG/M3 (C) / OSHA 1981 (AIR) CL 2 MG/M3 / NONE

****

EMERGENCY FIRST AID

INGESTION:

DO NOT INDUCE VOMITING	GIVE PLENTY OF WATER	GET MEDICAL ATTENTION

DRINK LARGE QUANTITIES OF MILK, FOLLOW WITH DILUTE VINEGAR OR FRUIT JUICE. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

DERMAL:

GET MEDICAL ATTENTION	CONTAMINATED CLOTHING REMOVE AND LAUNDER	

FLUSH WITH PLENTY OF WATER FOR AT LEAST 30 MINUTES, OR UNTIL MEDICAL ATTENTION IS OBTAINED. DESTROY CONTAMINATED LEATHER OR CANVAS SHOES.

EYE CONTACT:
GET MEDICAL ATTENTION

- NOT APPLICABLE NE - NOT ESTABLISHED
) - INDICATES REGISTERED TRADEMARK OF PENNWALT CORPORATION

HEALTH HAZARD INFORMATION - CONTINUED

FLUSH WITH PLENTY OF WATER FOR AT LEAST 30 MINUTES, OR UNTIL MEDICAL ATTENTION IS OBTAINED.

INHALATION:

REMOVE TO FRESH AIR	IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION	GIVE OXYGEN	GET MEDICAL ATTENTION

****

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS:

USE WITH ADEQUATE VENTILATION

FOR PROPER TANK ENTRY PROCEDURES, SEE ANSI Z117.1-1977. MONITOR CARBON MONOXIDE AND OXYGEN LEVELS IN TANKS AND ENCLOSED SPACES.

EYE: FACE SHIELD GOGGLES

HAND(GLOVE TYPE): SYNTHETIC RUBBER ANY NON-PERMEABLE GLOVE

RESPIRATOR TYPE:

FILTERS: DUST MIST

USE ONLY NIOSH APPROVED EQUIPMENT.

OTHER PROTECTIVE EQUIPMENT: RUBBER BOOTS

RUBBER BOOTS, COTTON WORK CLOTHES, RUBBER SUIT OR APRON, IF NECESSARY.

****

SPECIAL HANDLING AND STORAGE CONDITIONS

WASH THOROUGHLY AFTER HANDLING	DO NOT GET IN EYES, ON SKIN OR CLOTHING	DO NOT BREATHE DUST,VAPOR,MIST,GAS
KEEP CONTAINER CLOSED	STORE IN TIGHTLY CLOSED CONTAINERS	EMPTY CONTAINER MAY CONTAIN HAZARDOUS RESIDUES

SAFETY SHOWERS AND EYE WASH FOUNTAINS SHOULD BE INSTALLED IN ANY AREA WHERE NAOH IS HANDLED.

****

NA - NOT APPLICABLE NE - NOT ESTABLISHED
(R) - INDICATES REGISTERED TRADEMARK OF PENNWALT CORPORATION

SPILL MANAGEMENT

FLUSH WITH WATER	NEUTRALIZE	SWEEP OR SCOOP UP AND REMOVE	PREVENT SPREAD OF SPILL

KEEP PRODUCT OUT OF WATER SOURCES AND SEWERS.

****

DISPOSAL PROCEDURES

DILUTE WITH WATER THEN NEUTRALIZE WITH DILUTE ACID.

CONSULT FEDERAL, STATE, OR LOCAL AUTHORITIES FOR PROPER DISPOSAL PROCEDURES.

****

MSDS PREPARED BY JAMES E. FIKE

****

THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS, AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE AND THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, PENNWALT MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

NA - NOT APPLICABLE NE - NOT ESTABLISHED
(R) - INDICATES REGISTERED TRADEMARK OF PENNWALT CORPORATION

FOR CUSTOMER USE

MATERIAL SAFETY DATA SHEET

CHEMICAL NAME & SYNONYMS	TRADE NAMES
Red Amorphous Phosphorus	RAP

MANUFACTURER	EMERGENCY TELEPHONE No.
ERCO Industries Limited	(819) 986-3366

ADDRESS

2 Gibbs Road, Islington, Ontario, M9B 1R1, CANADA

CHEMICAL FORMULA	MOL. WT.	USES
P_4	124	Match manufacture Pyrotechnics Flares

PHYSICAL PROPERTIES

BOILING POINT °C	-	PERCENT VOLATILE (VOLUME)	-
FREEZING POINT °C	-	VAPOUR PRESSURE mm Hg	-
SPECIFIC GRAVITY (H_2O = 1)	-	EVAPORATION RATE	-
SOLUBILITY IN WATER g 100 ml	-	pH 1% sol'n. 25°C	-

APPEARANCE & ODOUR Purplish red powder

FIRE AND EXPLOSION HAZARDS Flammable solid

FLASH POINT °C METHOD	FLAMMABLE LIMITS UPPER	FLAMMABLE LIMITS LOWER	AUTOIGNITION TEMP. °C
-	-	-	-

EXTINGUISHING MEDIA Water

SPECIAL FIRE FIGHTING PROCEDURES

Use fog nozzles to avoid spreading burning material. Cover with wet sand.

UNUSUAL FIRE & EXPLOSION HAZARDS

Ignites easily with friction or sparks.

REACTIVITY

INCOMPATIBILITY

Reacts violently with strong oxidizing substances.
Reacts with strong alkali to form phosphine.

HAZARDOUS DECOMPOSITION PRODUCTS

Burning RAP releases dense fumes of P_2O_5 which are irritating.

CONDITIONS TO AVOID

Storage from oxidizing substances and inflammable materials

HEALTH RELATED DATA	Non toxic
RESHOLD LIMIT VALUE N.A.	NA

ECTS OF OVEREXPOSURE (SKIN, EYE, INHALATION, ETC.)

May ignite on skin, causing burns.

SPECIAL MEDICAL PROCEDURES

Wash thoroughly. Flush eyes with water. Obtain medical attention. Treat burns as for white phosphorus.

SPECIAL PROTECTION INFORMATION

VENTILATION

Use in well ventilated areas.

RESPIRATOR	
GLOVES	Rubber or plastic
	Chemical safety glasses - full face shields recommended
OTHER	Rubber boots and apron

SPILL OR LEAK PROCEDURES

SPILL OR LEAK CLEAN-UP

Clean up dry material carefully. Store in metal container. Wet contaminated area. Wash with water.

WASTE DISPOSAL

Bury in suitable land fill site.

SPECIAL PRECAUTIONS

SPECIAL HANDLING & STORAGE

Store away from inflammables and oxidizing materials. Use plastic or non-sparking tools. Ground metal containers.

OTHER PRECAUTIONS

ARKS/REFERENCES

MATERIAL SAFETY DATA SHEET

Company Name: Resources Alloys and Metals Inc.
Company Address: 24277 Indoplex Circle
Farmington Hills, MI. 48018

Emergency Telephone No.: 313-478-7790

Product Name: Antimony

Synonyms:

HAZARDOUS INGREDIENTS

Definite Ingredient	Suspect Ingredient	Ingredient	Nominal %
		Aluminum	
X		Antimony	>88 %
		Cadmium	
		Chromium	
		Cobalt	
X		Copper	<1 %
		Gold	
X		Iron	<1
X		Lead	<12 %
		Magnesium	
		Molybdenum	
		Nickel	
		Platinum	
		Silver	
X		Tin	<1
		Titanium	
		Tungsten	
		Zinc	
X		ARSENIC	<1
X		BISMUTH	<1

If there are checks next to the ingredients, those ingredients are believed to be definitely included or are suspected to be included in the scrap metal. See the attached information for each element.

If there is no check next to an ingredient, that ingredient is not believed to be included in the scrap metal.

(Over)

SPECIAL PROTECTION INFORMATION

VENTILATION: Local exhaust ventilation should be used to keep worker exposures within allowable limits during welding or grinding operations.

RESPIRATORY PROTECTION: When engineering or administrative controls are not feasible to control overexposure or while they are being instituted, appropriate NIOSH-approved respirators should be used and selected according to 29 CFR 1910.134.

EYE PROTECTION: Appropriate personal protective equipment for the eyes should be worn when there is a reasonable probability of injury due to welding or grinding.

PROTECTIVE GLOVES: As needed to protect against physical hazards.

PHYSIOLOGICAL EFFECTS

Primary Route of Exposure: Inhalation of fumes from welding or burning; dusts from grinding or cutting.

Acute Effects: Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever." Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures. Long-term effects of metal fume fever have not been noted.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: If acute overexposure to fumes occurs, remove victim from the adverse environment and seek medical attention.

SKIN CONTACT: If dust or mist gets on the skin, wash the contaminated skin with soap and water. Remove contaminated clothing and launder before using again.

EYE CONTACT: Flush with large amounts of water.

INGESTION: If particles are ingested, give 1-2 glasses of water or milk. Induce vomiting only if victim is fully conscious and has not convulsed. All ingestion cases should have immediate medical aid.

(Continued)

SPILL OR LEAK PROCEDURES

Minimal problems with spills of this product would occur because of its solid form. However, if there is a spill of dust, clean up using methods which avoid dust generation and the use of water, such as vacuum. If airborne dust is generated during the clean-up, use an appropriate NIOSH-approved respirator.

Waste Disposal Method: Dispose of in accordance with appropriate federal, state and local regulations.

CARCINOGENIC ASSESSMENT

See appropriate attachment.

FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A Flammable Limits: N/A

Metal products are not a fire hazard. However, dust generated in grinding operations may present a fire or explosion hazard.

Extinguishing Media: Special mixtures of dry chemical suitable for metal fires.

REACTIVITY DATA

See appropriate attachment.

ADDITIONAL COMMENTS

The scrap metal itself presents no health hazard unless it is welded, burned, ground or cut. During these procedures, it is possible that excessive amounts of fume or dusts may be generated. It is advised that your particular operation be evaluated by a competent health professional to determine whether or not a hazard exists.

In case of questions, please call: Richard Roles

Company: Resources Alloys and Metals Telephone No.: 313-478-7790

Issue Date: 11-24-85 Supersedes: _____

This information is taken from sources believed to be reliable; however, Resources Alloys and Metals makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.

ANTIMONY (Sb)

OSHA PEL: $0.5 mg/M^3$ ACGIH TLV: $0.5 mg/M^3$

PHYSICAL DATA

Appearance: Silvery or gray lustrous metal

Melting Point: $630^{o}C$

PHYSIOLOGICAL EFFECTS

Excessive exposure to antimony has caused dermatitis, rhinitis, eye irritation, pain and tightness in the chest, gastrointestinal disorders and neurological disturbances such as irritability, sleeplessness, dizziness and neuralgia.

REACTIVITY DATA

Antimony is incompatible with ammonium nitrate, halogens, BrN_3, BrF_3, $HClO_3$, ClO, ClF_3, nitric acid, potassium nitrate, potassium permanganate, K_2O_2, sodium nitrate, oxidants, acids and halogenated acids.

ADDITIONAL COMMENTS

When heated or on contact with acids, antimony emits toxic fumes of SbH_3.

ASARCO

ARSENIC

MATERIAL SAFETY DATA SHEET

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)	ASARCO PRODUCT CODE #
Arsenic, Arsenic Metal	60-10-000, 60-10-070, 60-10-08 60-10-090, 50-10-400, 50-10-50 50-10-502,

CHEMICAL NAME

Arsenic

FORMULA	MOLECULAR WEIGHT
As	74.91

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)

ASARCO
120 Broadway
New York, New York 10271 Phone: 212-669-1000

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
General Information - Department of Environmental Sciences	DAY 801-262-2459 NIGHT 801-943-1754	3/17/83	3/17/83
First Aid Information - (Dr. C. H. Hine)	DAY 415-777-2213 NIGHT 415-777-2214		
Transportation Emergencies - CHEMTREC	800-424-9300		

B. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	C.A.S. #	WT. %	PERMISSIBLE AIR CONCENTRATION
Arsenic	7440-38-2	99.9+	0.01 mg/cu.m. ☒ OSHA ☐ ACGIH ☐ OTHER

C. FIRST AID MEASURES

Inhalation: Administer palliative treatment such as gargling; wash nose and lips. Contact a physician.

Ingestion: Induce vomiting in a conscious individual, give a demulcent and contact a physician.

Skin: Flush with plenty of water; contact a physician.

Eyes: Flush with water for at least 15 minutes; contact a physician.

D. HAZARDS INFORMATION

HEALTH

INHALATION
Dust or fume inhalation may cause severe irritation of the lungs, upper respiratory tract or a perforated nasal septum. Systemic arsenic poisoning may occur with symptoms of weight loss, nausea, diarrhea, weakness, loss of appetite and skin lesions.

INGESTION
Severe irritation of lining of stomach and intestines may occur.
May cause arsenic poisoning.

SKIN
Dust or fume may cause severe irritation, dermatitis or contact dermatitis.

EYES
Severe irritation of the eyes or conjunctivitis may occur.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED
Diseases of the liver, kidneys or nervous system.

UNUSUAL CHRONIC TOXICITY
Possible increase in cancers of the skin, respiratory tract, lymphocytic system and liver. Damage to liver, kidney and nervous system.

FIRE AND EXPLOSION

FLASH POINT °C	AUTO IGNITION TEMPERATURE °C	FLAMMABLE LIMITS IN AIR (% BY VOL.)
NOT APPLICABLE ☐ OPEN CUP ☐ CLOSED CUP	NOT APPLICABLE	NOT APPLICABLE

UNUSUAL FIRE AND EXPLOSION HAZARDS
NOT APPLICABLE

E. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED
No specific agents recommended.

FIRE EXTINGUISHING AGENTS TO AVOID
No specific agents.

SPECIAL FIRE FIGHTING PRECAUTIONS
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire.

ENGINEERING CONTROLS
Local exhaust ventilation is required for screening, heating, dumping, shoveling, or other operations where excessive airborne exposures may occur.

NORMAL HANDLING
Activities which generate dust or fume should be avoided.
Use of approved respirators is required for applications where adequate ventilation cannot be provided. When melted, the temperature should be kept as low as possible.

STORAGE
AVOID storage near acids, bases, nascent hydrogen or reducing agents.

SPILL OR LEAK
A clean-up procedure which minimizes exposure is required. Vacuuming is preferred. Place all material in closed containers. Do not use compressed air for cleaning. Use approved respiratory protection if possibility of dust/fume exposure exists.

SPECIAL PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS
Signs for work areas and labels for shipping and storage containers and products may be required under OSHA regulations. Medical examinations, monitoring, recordkeeping and hygiene facilities and practices specified by OSHA may have to be met. Employee training program may also be required.

Label signal word: DANGER

PERSONAL HYGIENE
Practice good housekeeping and personal hygiene procedures. No tobacco or food in work area. Wash thoroughly before eating or smoking. Avoid ingestion or inhalation. Take a shower and change clothes at end of shift. Do not wear contaminated clothing home. Do not use compressed air for blowing dust off of clothes.

F. PERSONAL PROTECTIVE EQUIPMENT

ARSENIC CONT'D

RESPIRATORY PROTECTION

NIOSH/MSHA approved respirator for toxic dust and/or fume.

EYES AND FACE

Chemical goggles, safety glasses or face shield required for operations where eye contact may result.

HANDS, ARMS, AND BODY

Coveralls or similar full-body work clothing, gloves, shoes or coverlets is required. This protective clothing should not be worn home. Laundering should be provided.

OTHER CLOTHING AND EQUIPMENT

G. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS): ☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	APPEARANCE AND ODOR Gray-black metal, odorless Chunks 4" or smaller	
BOILING POINT Sublimes at 613 C MELTING POINT	SPECIFIC GRAVITY (H_2O = 1) 5.72	VAPOR DENSITY (AIR = 1) NOT APPLICABLE
SOLUBILITY IN WATER (% by Weight) INSOLUBLE	pH NOT APPLICABLE	VAPOR PRESSURE (mm Hg at 20° C) ☐ (PSIG) ☐ NOT APPLICABLE
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☐ NOT APPLICABLE	% VOLATILES BY VOLUME (At 20° C) NOT APPLICABLE	

H. REACTIVITY DATA

STABILITY ☐ UNSTABLE ☒ STABLE	CONDITIONS TO AVOID NOT APPLICABLE

INCOMPATIBILITY (MATERIALS TO AVOID)

Halogen gases, halides, halogenates, potassium nitrate or permanganate or peroxides may cause a violent reaction or explode.

HAZARDOUS DECOMPOSITION PRODUCTS

Under reducing conditions (i.e., any strong acid or base plus an active metal) or in the presence of nascent hydrogen, highly toxic arsine gas (TLV=0.05 ppm) may be evolved. Arsenic oxidizes slowly in air and quickly when heated to form arsenic trioxide.

HAZARDOUS POLYMERIZATION ☐ MAY OCCUR ☒ WILL NOT OCCUR	CONDITIONS TO AVOID NOT APPLICABLE

I. ENVIRONMENTAL

EPA HAZARDOUS SUBSTANCE? ☐ YES ☒ NO IF SO, REPORTABLE QUANTITY: _____ # | 40 CFR 116-117

DOT classifies arsenic as a Poison B. Each package must bear the marking "Arsenic, solid Poison B UN1558" and the regular DOT Poison label. Transport vehichles must also be placarded with the DOT Poison placard.

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)

If hazardous under 40 CFR 261, Subparts B and C, material must be treated or disposed in a facility meeting the requirements of 40 CFR 264 or 265. If non-hazardous, material should be disposed in a facility meeting the requirements of 40 CFR 257.

RCRA STATUS OF UNUSED MATERIAL: | 40 CFR 261.11

If discarded in unaltered form, material should be considered a hazardous waste due to listing in 40 CFR 261.11(3), Appendix VIII.
Under specific circumstances, application can be made to the EPA Aministrator to have a particular waste designated non-hazardous.

J. REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES

OSHA Regulation 29 CFR 1910.1018 Inorganic Arsenic

HAZARD INFORMATION REFERENCES

"Documentation of the Threshold Limit Values," 4th Ed., ACGIH
Patty's Industrial Hygiene and Toxicology, Vol. 2A, 3rd Rev. Ed., 1981
NFPA "Fire Protection Guide on Hazardous Materials," 6th Ed., 1975
"Handbook of Toxic and Hazardous Chemicals"; Sittig, Marshall; Noyes Publications, 1981.

GENERAL

"Handbook of Chemistry and Physics, 57th Ed.," 1976-77, Weast, R.C., Editor, CRC Inc.
OSHA Regulation 29 CFR 1910.134 Respiratory Protection
ASARCO Product Information Brochure

K. ADDITIONAL INFORMATION

Information (hazards, precautions, first aid, etc.) is abbreviated. More detailed information is contained in references found in Section J.

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION.

ASARCO INCORPORATED PROVIDES NO WARRANTIES EITHER EXPRESS OR IMPLIED AND ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREIN.

ARSENIC (As)

OSHA PEL: 0.5mg/M3 (organic compounds) ACGIH TLV: 0.2mg/M3

PHYSICAL DATA

Appearance: Silvery to black, brittle, crystalline and amorphous metalloid

Melting Point: 814°C @ 36 atm

PHYSIOLOGICAL EFFECTS

Arsenic compounds can be absorbed into the body from industrial exposures, especially by inhalation and ingestion. Signs of toxicity in workers exposed to arsenic are dermal lesions, conjunctivitis, upper respiratory tract irritation, nausea, vomiting, peripheral neuritis and occasionally anemia. Arsenic in combination with promoters such as sulfur dioxide, metal oxide fumes and smoking has caused respiratory cancer.

**Arsenic has been recognized as a definite carcinogen by NTP and IARC.

REACTIVITY DATA

Arsenic is incompatible with bromine azide, dirubidium acetylide, halogens, palladium, zinc, platinum, NCl_3, silver nitrate, CrO_3 and Na_2O_2. When heated or on contact with acids or acid fumes, highly toxic fumes are emitted. Arsenic can react vigorously on contact with oxidizing materials.

ASARCO

COPPER

MATERIAL SAFETY DATA SHEET

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)	ASARCO PRODUCT CODE #
Copper	30-00-000 to 30-30-009, 30-40-000 to 30-60-145, 30-70-000 to 30-90-900, 50-25-000 to 50-25-506

CHEMICAL NAME

Copper

FORMULA	MOLECULAR WEIGHT
Cu	63.55

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)

ASARCO
180 Maiden Lane
New York, New York 10038 Phone: 212-510-2000

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
General Information - Department of Environmental Sciences	DAY 801-262-2459 NIGHT 801-943-1754	8/ 4/83	8/ 4/83
First Aid Information - (Dr. C. H. Hine)	DAY 415-777-2213 NIGHT 415-777-2214		
Transportation Emergencies - CHEMTREC	800-424-9300		

B. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	C.A.S. #	WT. %	PERMISSIBLE AIR CONCENTRATION
Copper	7440-50-8	99.9+	0.1 mg/cu.m.-fume 1.0 mg/cu.m.-dust ☒ OSHA ☐ ACGIH ☐ OTHER

C. FIRST AID MEASURES

Inhalation: Remove from exposure; place individual under care of physician. Symptomatic treatment such as bed rest and aspirin may afford some relief from chills and fever. Recovery is usually complete in 24 hours. If symptoms persist, consult a physician.

Ingestion: Induce vomiting in conscious individual and call a physician.

D. HAZARDS INFORMATION

HEALTH

INHALATION
Acute copper exposure may cause irritation of the respiratory tract or metal fume fever with symptoms of fever, chills, nausea, chest tightness or metallic taste.

INGESTION
Copper is moderately irritating to the lining of the stomach and intestines.

SKIN
Possible mechanical irritation of skin.

EYES
Mechanical irritation

MEDICAL CONDITIONS POSSIBLY AGGRAVATED
Wilson's disease may be affected by copper exposure.

UNUSUAL CHRONIC TOXICITY
None reported

FIRE AND EXPLOSION

FLASH POINT °C	AUTO IGNITION TEMPERATURE °C	FLAMMABLE LIMITS IN AIR (% BY VOL.)
NOT APPLICABLE ☐ OPEN CUP ☐ CLOSED CUP	NOT APPLICABLE	NOT APPLICABLE

UNUSUAL FIRE AND EXPLOSION HAZARDS

E. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED
No specific agents recommended.

FIRE EXTINGUISHING AGENTS TO AVOID
No specific agents.

SPECIAL FIRE FIGHTING PRECAUTIONS
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire.

ENGINEERING CONTROLS
Local exhaust ventilation recommended if concentration of dust or fume is expected to exceed permissible exposure limits.

NORMAL HANDLING

STORAGE
AVOID storage near acetylene, chlorine or hydrogen peroxide.
Do not store near halogenates of barium, calcium, magnesium, potassium, sodium or zinc.

SPILL OR LEAK
Any method which keeps dust to a minimum is acceptable. Vacuuming is preferred.

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

Label signal word:

PERSONAL HYGIENE
Avoid inhalation or ingestion. Practice good housekeeping and personal hygiene procedures.

F. PERSONAL PROTECTIVE EQUIPMENT

COPPER CONT'D

RESPIRATORY PROTECTION

NIOSH/MSHA approved respirator for toxic dust and/or fume.

EYES AND FACE

Safety glasses recommended where the possibility of getting dust particles in eyes exists.

HANDS, ARMS, AND BODY

None recommended

OTHER CLOTHING AND EQUIPMENT

None recommended

G. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	Yellow-red metal Various shapes and sizes	
BOILING POINT 2595 C MELTING POINT 1083 C	SPECIFIC GRAVITY (H_2O = 1) 8.96	VAPOR DENSITY (AIR = 1) NOT APPLICABLE
SOLUBILITY IN WATER (% by Weight) INSOLUBLE	pH NOT APPLICABLE	VAPOR PRESSURE (mm Hg at 20° C) ☐ (PSIG) ☐ NOT APPLICABLE
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☐ NOT APPLICABLE	% VOLATILES BY VOLUME (At 20° C) NOT APPLICABLE	

H. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☒ STABLE	NOT APPLICABLE

INCOMPATIBILITY (MATERIALS TO AVOID)

Contact with hydrogen peroxide may cause a violent reaction.
Contact with acetylene may form unstable acetylides.
Burns spontaneously in gaseous chlorine.
Finely divided copper with finely divided halogenates may explode with heat,percussion or light friction.

HAZARDOUS DECOMPOSITION PRODUCTS

At temperatures above the melting point, copper oxide fumes may be evolved.

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	NOT APPLICABLE

I. ENVIRONMENTAL

EPA HAZARDOUS SUBSTANCE? ☐ YES ☒ NO IF SO, REPORTABLE QUANTITY: _____ #

40 CFR 116-117

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)

If hazardous under 40 CFR 261, Subparts B and C, material must be treated or disposed in a facility meeting the requirements of 40 CFR 264 or 265. If non-hazardous, material should be disposed in a facility meeting the requirements of 40 CFR 257.

RCRA STATUS OF UNUSED MATERIAL:

40 CFR 261

If discarded in unaltered form, material should be tested to determine if it must be classified as a hazardous waste for disposal purposes. Under specific circumstances, application can be made to the EPA Administrator to have a particular waste designated non-hazardous.

J. REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES

OSHA regulations for airborne contaminants 29 CFR 1910.1000
ACGIH "Threshold Limit Values for Chemical Substances..." (1981)

HAZARD INFORMATION REFERENCES

"Documentation of the Threshold Limit Values," 4th Ed., ACGIH
Patty's Industrial Hygiene and Toxicology, Vol. 2A, 3rd Rev. Ed., 1981
NFPA "Fire Protection Guide on Hazardous Materials," 6th Ed., 1975
Dangerous Properties of Industrial Materials", 4th ed., Sax, N.I., 1975

GENERAL

ASARCO Products Book
"Handbook of Chemistry and Physics, 57th Ed.," 1976-77, Weast, R.C., Editor, CRC Inc.

K. ADDITIONAL INFORMATION

Information (hazards, precautions, first aid, etc.) is abbreviated. More detailed information is contained in references found in Section J.

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION

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ASARCO

SELENIUM

MATERIAL SAFETY DATA SHEET

A. GENERAL INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)	ASARCO PRODUCT CODE #
Selenium	50-60-400, 50-60-500, 60-60-100, 60-60-200

CHEMICAL NAME

Selenium

FORMULA	MOLECULAR WEIGHT
Se	78.96

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)

ASARCO
120 Broadway
New York, New York 10271 Phone: 212-669-1000

CONTACT	PHONE NUMBER	ISSUED DATE	REVISED DATE
General Information - Department of Environmental Sciences	DAY 801-262-2459 NIGHT 801-943-1754	1/ 4/83	1/ 4/83
First Aid Information - (Dr. C. H. Hine)	DAY 415-777-2213 NIGHT 415-777-2214		
Transportation Emergencies - CHEMTREC	800-424-9300		

B. HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	C.A.S. #	WT. %	PERMISSIBLE AIR CONCENTRATION
Selenium	7782-49-2	99.7+	0.2 mg/cu.m. ☒ OSHA ☐ ACGIH ☐ OTHER

C. FIRST AID MEASURES

Inhalation: Remove immediately from exposure; place individual under care of physician.

Ingestion: Induce vomiting in a conscious individual; immediately call a physician.

Skin: Wash thoroughly with soap and water.

Eyes: Immediately flush eyes with large amounts of water.

D. HAZARDS INFORMATION

HEALTH

INHALATION
Bronchial irritation (pneumonitis), gastrointestinal distress, and irritation of the upper respiratory tract may occur. Other symptoms include metallic taste, pallor, irritability, fatigue, and garlic odor of breath.

INGESTION
Ingestion may cause gastrointestinal distress and other symptoms as above.

SKIN
Selenium fumes (SeO2) reacts with water or perspiration to form selenious acid which is corrosive to skin. Dermatitis may result. Some Se compounds may be absorbed through the skin.

EYES
Selenium dioxide (SeO2) entering the eye causes the development of a pink allergic-type reaction of the eyelids which may become puffy. Conjunctivitis may occur.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED

Diseases of the liver and kidneys.

UNUSUAL CHRONIC TOXICITY

Chronic exposure to selenium may result in increased dental caries.

FIRE AND EXPLOSION

FLASH POINT °C	AUTO IGNITION TEMPERATURE °C	FLAMMABLE LIMITS IN AIR (% BY VOL.)
NOT APPLICABLE ☐ OPEN CUP ☐ CLOSED CUP	NOT APPLICABLE	NOT APPLICABLE

UNUSUAL FIRE AND EXPLOSION HAZARDS

Finely divided dust may burn, if ignited, with evolution of corrosive selenium dioxide.

E. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED

Class D extinguisher; dry powder type

FIRE EXTINGUISHING AGENTS TO AVOID

None

SPECIAL FIRE FIGHTING PRECAUTIONS

Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire.

ENGINEERING CONTROLS

Local exhaust ventilation is required for screening, heating, dumping, shoveling, or other operations where excessive airborne exposures may occur.

NORMAL HANDLING

STORAGE

AVOID storage near strong acids or bases.

SPILL OR LEAK

A clean-up procedure which minimizes exposure is required. Vacuuming is preferred. Place all material in closed containers. Do not use compressed air for cleaning. Use approved respiratory protection if possibility of dust/fume exposure exists.

SPECIAL PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

Label signal word:

PERSONAL HYGIENE

Practice good housekeeping and personal hygiene procedures. No tobacco or food in work area. Wash thoroughly before eating or smoking. Avoid ingestion or inhalation.

F. PERSONAL PROTECTIVE EQUIPMENT

SELENIUM CONT'D

RESPIRATORY PROTECTION

NIOSH/MSHA approved respirator for toxic dust and/or fume.

EYES AND FACE

Chemical goggles, safety glasses or face shield required for operations where eye contact may result.

HANDS, ARMS, AND BODY

Gloves and protective clothing are required if skin contact is appreciable or material is heated. Work clothing should not be worn home.

OTHER CLOTHING AND EQUIPMENT

G. PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS):	APPEARANCE AND ODOR	
☐ LIQUID ☒ SOLID ☐ GAS ☐ _____	Dark red to blue gray, odorless	
BOILING POINT 684.9 C MELTING POINT 40-50 C (amorph); 217 C (cryst)	SPECIFIC GRAVITY (H_2O = 1) 4.79	VAPOR DENSITY (AIR = 1) NOT APPLICABLE
SOLUBILITY IN WATER (% by Weight) INSOLUBLE	pH NOT APPLICABLE	VAPOR PRESSURE (mm Hg at 20° C) ☐ (PSIG) ☐ NOT APPLICABLE
EVAPORATION RATE (Butyl Acetate = 1) ☐ (Ether = 1) ☐ NOT APPLICABLE	% VOLATILES BY VOLUME (At 20° C) NOT APPLICABLE	

H. REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
☐ UNSTABLE ☒ STABLE	NOT APPLICABLE

INCOMPATIBILITY (MATERIALS TO AVOID)

Strong acids and bases, halogen gases, strong oxidizers, sodium, potassium, or nascent hydrogen may cause violent reactions or explosions.

HAZARDOUS DECOMPOSITION PRODUCTS

Under reducing conditions (i.e., any strong acid or base plus an active metal) or in the presence of nascent hydrogen, highly toxic hydrogen selenide gas (H_2Se, TLV=0.05ppm) may be evolved. At temperatures above the melting point corrosive SeO_2 may be generated.

HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
☐ MAY OCCUR ☒ WILL NOT OCCUR	NOT APPLICABLE

I. ENVIRONMENTAL

EPA HAZARDOUS SUBSTANCE? ☐ YES ☒ NO IF SO, REPORTABLE QUANTITY: _____ #

40 CFR 116-117

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)

If hazardous under 40 CFR 261, Subparts B and C, material must be treated or disposed in a facility meeting the requirements of 40 CFR 264 or 265. If non-hazardous, material should be disposed in a facility meeting the requirements of 40 CFR 257.

RCRA STATUS OF UNUSED MATERIAL:

40 CFR 261.11

If discarded in unaltered form, material should be considered a hazardous waste due to listing in 40 CFR 261.11(3), Appendix VIII.
Under specific circumstances, application can be made to the EPA Aministrator to have a particular waste designated non-hazardous.

J. REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES

OSHA regulations for airborne contaminants 29 CFR 1910.1000

HAZARD INFORMATION REFERENCES

"Documentation of the Threshold Limit Values," 4th Ed., ACGIH
Patty's Industrial Hygiene and Toxicology, Vol. 2A, 3rd Rev. Ed., 1981
NFPA "Fire Protection Guide on Hazardous Materials," 6th Ed., 1975
"Registry of Toxic Effects of Chemical Substances," NIOSH, 1980.
Hamilton, A. and Hardy, H., "Industrial Toxicology" 3rd ed., 1974

GENERAL

K. ADDITIONAL INFORMATION

Information (hazards, precautions, first aid, etc.) is abbreviated. More detailed information is contained in references found in Section J.

THIS MATERIAL SAFETY DATA SHEET IS OFFERED SOLELY FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION.

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MATERIAL SAFETY DATA SHEET

CORPORATE RESEARCH & DEVELOPMENT

SCHENECTADY, N. Y. 12305

Phone: (518) 385-4085 DIAL COM: 8*235-4085

MATERIALS INFORMATION SERVICES

NO. 74

TIN METAL/POWDER

Date September 1980

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: TIN METAL/POWDER
DESCRIPTION: Two allotropic forms: White tin (β) and gray tin (α)
OTHER DESIGNATIONS: Stannum, Sn, GE Material B10E9, CAS #007 440 315
MANUFACTURER: Available from several suppliers.

SECTION II. INGREDIENTS AND HAZARDS

	%	HAZARD DATA
Tin	>99	8-hr TWA 2 mg/m^3*
*Current OSHA standard , and ACGIH (1980) Intended Changes List for tin, tin oxide, and inorganic compounds (except SnH_4), as Sn. STEL is for 4 mg/m^3.		Rat, Implant TDLo 7600 mg/kg Carcinogenic Effects Mouse, Implant TDLo 18 gm/kg Neoplastic Effects

SECTION III. PHYSICAL DATA

Boiling point, deg C ---------- 2260-70
Vapor pressure, 1610 deg C, mm Hg - 1
Brinell hardness ---------- 2.9
Solubility in water, g/100 cc --- Insoluble
Melting point, deg C ---------- 231.9

Specific gravity,
α-form (gray tin) ---------- 5.77
β-form (white tin) ---------- 7.29
Atomic weight ---------- 118.69

Appearance and Odor: Silver-white, ductile metal, also in powdered form.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
	630 C* (cloud) 430 C* (dust layer)	dust cloud explosion	0.19 oz/ft^3	—

Extinguishing Media: (Obtain detailed fire-fighting information from supplier.)
When powdered tin is exposed to heat or ignition sources it is a moderate fire and explosion hazard. Particle size and dispersion in air determine reactivity.
Firefighters should wear self-contained breathing apparatus.

*98% of dust goes thru a 74 micron sieve. Sn dust cloud can be ignited by a 0.080 J spark. Ignition temperature in nitrogen, 900 C. Reaction temperature in CO_2, 720 C.

SECTION V. REACTIVITY DATA

Stable in air, but powder will oxidize (especially in presence of moisture).
Transformation to brittle gray (alpha) at temperatures below 18 C, transition is very slow and at -40 C crumbles to gray amorphous powder.
Incompatible with halogens, cupric nitrate, sodium and potassium peroxide. Can produce incandescence with sulfur.
Reacts slowly with cold dilute HCl, dilute HNO_3, hot dilute H_2SO_4; readily with concentrated HCl, aqua regia. Reacts very slowly with acetic acid.
Oxidizing salt solutions that dissolve tin are potassium peroxysulfate, ferric chloride and sulfate, and aluminum and stannic chlorides.
Metal normally has a protective thin film of stannic oxide which thickens as the temperature is raised.

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SECTION VI. HEALTH HAZARD INFORMATION

TLV (See Sect. II) 2 mg/m^3

Tin is poorly absorbed from the alimentary canal. Completely harmless to rats in oral dosages. Exposure to dust/fumes may cause a mild benign pneumoconiosis. Early diagnosis is possible with a chest x-ray since tin is readily radio-opaque. Tin deposits in lungs may not alter function; and reports show no massive fibrosis, disability, or special complicating factors from dust exposures.

FIRST AID:

Eye Contact: Flush with running water for 15 minutes, including under eyelids.
Skin Contact: Wash area with soap and water.
Inhalation: Remove to fresh air. Restore or support breathing as required.
Ingestion: Induce vomiting, seek medical attention.

Seek medical help for further observation, support and trestment.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of powdered spills. Remove sources of heat or ignition. Keep airborne dust at a minimum.

Valuable as scrap metal.

DISPOSAL: Recovered particulates from an electrostatic precipitator can be recycled. Waste slag (inert and insoluble) may be buried in an approved landfill. Maximum concentration of tin discharge to waterways is 2.0 ppm.
Follow Federal, State, and Local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide general and local exhaust ventilation to meet TLV requirements in the workplace where tin powder is used or fume is generated from heated tin.
Avoid eye contact by use of chemical safety goggles where dusty conditions occur.
Eye washing stations and washing facilities should be readily accessible.
Provide employee training in the correct use of personal protective equipment, especially dust masks, and in the case of fumes, proper canister or air-supplied respirators. Respirators should be available for nonroutine or emergency use above the TLV.
Provide preplacement and periodic medical examinations for those regularly exposed to tin, and tin compounds, with emphasis directed toward chest x-ray. See Sect. II.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in a dry, well-ventilated, low fire risk area. Avoid heat and ignition sources.
Use good housekeeping practices to prevent accumulation of dust and follow sound cleaning techniques that will keep airborne particulate at a minimum.
Avoid breathing dust or fume. Minimize skin contact.
Storetin powder in a closed container.

DATA SOURCE(S) CODE: 2,4-7,9-12,40-42

Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, General Electric Company extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.

APPROVALS: MIS CRD J.M. Nilsen
Industrial Hygiene and Safety 10-9-80
MEDICAL REVIEW: 10/22/80

TIN (Sn)

OSHA PEL: 2mg/M^3 (inorganic)

ACGIH TLV: 2mg/M^3 (metal, oxide, inorganic)

PHYSICAL DATA

Appearance: Crystalline metallic element

Melting Point: 232°C

PHYSIOLOGICAL EFFECTS

Chronic inhalation of tin oxide dust or fume leads to a benign pneumoconiosis without symptoms of interference with pulmonary function.

REACTIVITY DATA

Tin is incompatible with chlorine and turpentine.

MATERIAL SAFETY DATA SHEET

Sheet H

I. MATERIAL IDENTIFICATION

Manufacturer's Name: Alpert & Alpert Iron & Metal Inc. Telephone Number: 213-265-4040
Address: 1820 South Soto Street, Los Angeles CA 90023

Material Name: Lead Scrap

II. HAZARDOUS INGREDIENTS

	CAS Number	%		OSHA 8-hr TWA	ACGIH 8-hr TWA (1984-85)	ACGIH STEL (1984-85)
Lead	(7439-92-1)	≥ 59		0.05 mg/m^3	0.15 mg/m^3	0.45 mg/m^3
Tin	(7440-31-5)	≤ 25		2 mg/m^3	2 mg/m^3	4 mg/m^3
Antimony	(7440-36-0)	≤ 24		0.5 mg/m^3	0.5 mg/m^3	--
Arsenic	(7440-38-2)	< 4		0.01 mg/m^3	0.2 mg/m^3	--
Copper	(7440-50-8)	≤ 3	(Dust)	1 mg/m^3	1 mg/m^3	2 mg/m^3
			(Fume)	0.1 mg/m^3	0.2 mg/m^3	--
Silver	(7440-22-4)	≤ 2		0.01 mg/m^3	0.1 mg/m^3	--
Cadmium	(7440-43-9)	< 1	(Dust)	0.2 mg/m^3	0.05 mg/m^3	0.2 mg/m^3
			(Fume)	0.1 mg/m^3	0.05 mg/m^3 *	--

* Ceiling Limit

Note: antimony trioxide, arsenic, and cadmium have been identified as potential human carcinogens. See Section VI, Health Hazard Data.

III. PHYSICAL DATA

Melting Point (of lead): 327° C
Specific Gravity: 9.73 - 11.36
Boiling Point (of lead): 1740° C

Vapor Pressure: 1 mm Hg @ 973° C (of lead)
Solubility in water: insoluble

Appearance: dependent on composition of scrap metal, processing method used, and existing protective coatings.

IV. FIRE AND EXPLOSION DATA

Flash Point: information not available
Flammability Limits: information not available
Autoignition Temperature: information not available

Solid, massive form of material is not combustible under ordinary fire conditions. Fire and explosion hazards are moderate when material is in the form of dust and exposed to heat or flames, chemical reaction, or contact with powerful oxidizers.

Fire Extinguishing Methods: Use special mixtures of dry chemicals. Do not use water or moist sand. Fire fighters should wear self-contained breathing apparatus and protective clothing.

V. REACTIVITY DATA

Massive material is stable at ordinary temperatures, but dust presents moderate fire and explosion hazards. Material may be incompatible with acids, bases, and oxidizers. Molten scrap metal may react violently with water. For additional information, users should consult data sheets on individual component elements.

VI. HEALTH HAZARD DATA

TLV: see Section II.
Primary Routes of Entry: ingestion of dust, inhalation of dust or fume.

Exposure to the massive form of lead scrap presents few health hazards in itself. However, normal handling of scrap may result in generation of dusts containing the component elements, and inhalation or ingestion of these dusts may present potentially significant health hazards. Thermal cutting and melting of lead scrap may produce fumes containing the component elements, and breathing these fumes may also present potentially significant health hazards. Special precautions should be taken if scrap is contaminated; see Section IX.

Prolonged inhalation of lead fumes or dusts, or ingestion of lead compounds, can result in lead poisoning. Symptoms include abdominal pain or colic, constipation, nausea, joint and muscle pains, and muscular weakness. Severe cases of overexposure may lead to central nervous system disorders, characterized by somnolence, stupor, and ultimately death.

Overexposure to tin dusts may cause irritation of the skin and mucous membranes, and may result in a benign pneumoconiosis (stannosis).

Overexposure to arsenic fumes or dusts can lead to arsenic poisoning, characterized by nausea, vomiting, and diarrhea. Prolonged overexposure can lead to liver and kidney damage, central nervous system disorders, and ultimately death. Arsenic can cause skin irritation and allergic reactions.

Overexposure to cadmium fumes or dusts may cause chest pains, shortness of breath, lung changes, and pulmonary edema, ultimately leading to death. Cadmium may also cause damage to the liver and kidneys.

Fumes of copper may cause metal fume fever with flu-like symptoms. Copper may cause skin and hair discoloration; silver may cause a greyish pigmentation of the skin, and can cause irritation of the skin and mucous membranes.

Overexposure to antimony may cause gastrointestinal upset and various nervous complaints, such as sleeplessness, irritability, and muscular pains.

Antimony trioxide, arsenic, and cadmium have been identified as potential cancer-causing agents.

FIRST AID:

Eye Contact:	Flush well with running water to remove particulate. Get medical attention.
Skin Contact:	Brush off excess dust. Wash area well with soap and water.
Inhalation:	Remove to fresh air. Get medical attention.
Ingestion:	Seek medical help if large quantities of material have been ingested. (Ingestion of significant amounts of scrap metal is unlikely.)

VII. SPILL PROCEDURES

No special precautions are necessary for spills of bulk material. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust. Clean-up personnel should wear respirators and protective clothing.

Scrap metal can be reclaimed for reuse. Follow Federal, State, and Local regulations regarding disposal.

VIII. SPECIAL PROTECTION INFORMATION

Use general and local exhaust ventilation to keep airborne concentrations of dust or fume below the TLV. Employees should wear MSHA or NIOSH approved respirators for protection against airborne dust or fumes. Full protective clothing should be worn by workers exposed to heavy concentrations of dust, and showering should be required before changing into street clothes. Gloves and barrier creams may be necessary to prevent skin sensitization and dermatitis.

Approved safety glasses or goggles should be worn when working with dusty material. Safety eyewash stations should be provided in close proximity to work areas.

Pre-employment and periodic medical evaluations should be provided. Attention should be directed toward skin, eyes, respiratory tract, blood, kidneys, pulmonary function, and neurologic health. Chest X-rays should be included if symptoms are present.

Food should not be consumed in the work area.

Special attention is drawn to the requirements of the Occupational Safety and Health Administration standards for lead (29 CFR 1910.1025) and arsenic (29 CFR 1910.1018). State OSHA programs will also have similar requirements.

Special precautions should be taken if scrap is contaminated; see Section IX.

IX. SPECIAL PRECAUTIONS

Use good housekeeping practices to prevent accumulations of dust and to keep airborne dust concentrations at a minimum. Avoid breathing dust or fumes.

Store material away from incompatible materials, and keep dust away from sources of ignition.

This material is potentially contaminated with coatings, paints, and other contaminants. If the material is contaminated, special precautions (such as process control and personal protective equipment, appropriate to the nature of the suspected contaminants) should be taken to avoid resulting exposures when handling, cutting (mechanical or thermal), and/or melting.

Prepared by: Institute of Scrap Iron and Steel (ISIS)
in consultation with JRB Associates

Date Prepared: September 1985

APPENDIX D

RE: SECTION 8

INSPECTION LOG SHEETS

GNB, INC.
HAZARDOUS WASTE MANAGEMENT
INSPECTION LOG

Date _____ Time _____ Inspector _____

Observations/Repairs/Remedial Action (give dates)

MONITORING EQUIPMENT

Sampling Equipment

_____(Q)
_____(Q)
_____(Q)

Monitoring Wells

MW1 _____(M)
MW2 _____(M)
MW3 _____(M)
MW4 _____(M)
MW5 _____(M)
MW6 _____(M)
MW7 _____(M)
MW8 _____(M)
MW9 _____(M)
MW10 _____(M)
MW11 _____(M)
MW12 _____(M)
PW1 _____(M)
PW2 _____(M)
MW13 _____(M)
MW14 _____(M)
MW15 _____(M)

SAFETY AND EMERGENCY EQUIPMENT

Communications ___(Q) _____
(Telephones, Walkie Talkies) _____
Fire ___(M) _____
Extinguishers _____
Fire Hose Reels ___(M) _____
Medical Kits ___(M) _____
Emergency Showers ___(M) _____
Eyewash Stations ___(M) _____
Facility Alarm ___(M) _____
___( ) _____

SECURITY DEVICES/SYSTEMS

Signs _____(SA) _____
Lighting _____(Q) _____
(Fixed and Portable) _____
Fence Barriers _____(Q) _____

STRUCTURES

Floors, walls, _____
roofs _____(W) _____

Drains _____(W) _____

YARD AREA

Stormwater
trenches _____(W) _____

BATTERY UNLOADING AREA

Sump, associated
piping _____(D) _____

GNB, INC.
HAZARDOUS WASTE MANAGEMENT
INSPECTION LOG

Date _____ Time _____ Inspector _____

		Observations/Repairs/Remedial Action (give dates)
RMPS		
Flue dust slurry tanks	_____(D)	_____
Mud tanks	_____(D)	_____
Acid transfer pumps and piping	_____(D)	_____
Acid collection sumps and trenches	_____(W)	_____
All sump pumps	_____(W)	_____
Overflow alarms	_____(W)	_____

D=Daily W=Weekly M=Monthly Q=Quarterly SA=Semi-annually

Note: See Table 8.1 for explanation of items for which to inspect.

GNB Indianapolis
Weekly Container Inspection Log
Inspector By: Charles Smith 12/4/90

Ken
Tony
Harry
Raphael

Insert Box: Damaged Containers
Leaking Containers
Corrosion of Containers
Waste Compatibility with Contents
Proper Closure on Containers

Bin Loc	Material	Time of Inspection	Drums	Boxes	Skids	Observations	Remedial	Action	Follow	Up
101	Batteries	1445	9	8	717					
101	Absolyte Batts	Start			2					
101	Gel Cell Batts			4						
101	Plastic Cases				9					
103	Batteries		3		104					
103	Absolyte Batts				27					
103	Plant Scrap		21							
103	Plant Scrap		50			Cut for emptying - No Lids	Take to Blast Feed Bin		To Blast Bin	12/4/90
103	Plant Scrap		1			Plastic Covered	✓	✓	✓	12/4/90
103	General Area					Drums spill from Drums	Clean up	Area	Cleaned up	12/4/90
104	Batteries		3		168					
104	Ind. Batteries				16	Extends into Roadway	S.H.P.			
105	Batteries		10		150					
105	Plant Scrap			1		Not Covered	Take to Blast Feed Bin		To Blast Bin	12/4/90
106	Batteries				617					
106	Ind. Batts				12	Extends into Roadway	S.H.P.			
106	Misc. Batts			1	4					
107	Batteries				654					
107	Plant Scrap		1							
108	Batteries				400					
108	Gel Cell Batts			2						
108	Ind. Batt.				1					
108	Plastic Cases				12					
Sample Room Area										
	Batteries				407					
	Plant Scrap		4							
Carpenter Shop Area										
	Batteries				121					
	Tels. Batts				20					
South Fence Area										
	Batteries				226					
	Plant Scrap		3			No Lids	Take to Blast Feed Bin			
	Plant Scrap		50			Skids broken & Tagged Remove from Closure for Inspection	Move Drums		Same moved	12/5/90
Blast Charge Area										
	Plant Scrap		53			No Lids	Take to Blast Feed Bin		To Blast Bin	12/4/90
	Plant Scrap		20			Plastic Covered	✓	✓	✓	✓
	Plant Scrap	1545	136	4		1 Drum damaged + Cut	✓	✓	✓	✓
		End								

Plant Scrap Container Inventory 776 Versus 731 Previous Week

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APPENDIX E

RE: SECTION 9

RESPIRATORY PROTECTION PROGRAM

HAZARD COMMUNICATION PROGRAM

RESPIRATORY PROTECTION PROGRAM

GNB INCORPORATED

RESOURCE RECYCLING DIVISION

LOS ANGELES, CA

OBJECTIVES

To set forth guidelines outlining acceptable respirator use practices in accordance with 29 CFR 1910.134.

To supplement engineering controls and further insure the employee is exposed to the minimum possible levels of lead dust and fume, cadmium, arsenic and other airborne contaminents.

To establish appropriate training programs for all employees in respirator usage.

PROGRAM ADMINISTRATOR

Management has designated the Training Director to be responsible for the overall respiratory protection program at this facility. This person has been delegated authority by management to make decisions and implement changes in the respirator program. The environmental technician and employee services personnel are responsible for the day-to-day respirator program.

This includes issuing respirators, maintaining program records, conducting fit tests, ordering respirator supplies, conducting respirator usage assurance surveys, and solving day-to-day problems in this program.

Training employees in proper respirator use.

In addition, the environmental technician is responsible for monitoring containment levels in the workplace.

EMPLOYER RESPONSIBILITY

The Company shall provide approved respirators to protect the health of the employee when such equipment is found to be necessary.

The Company shall supervise the proper use and wearing of respirators and shall perform workplace surveillance daily to insure the program is functioning properly.

The Company shall provide each respirator user the opportunity to check the fit of his/her respirator using a quantitative method from which the protection factor is calculated for the individual or the OSHA approved qualitative fit test for negative pressure half-masks.

EMPLOYEE RESPONSIBILITY

The employee shall use the respirator,in accordance with the instructions received, for the assigned usage time.

EMPLOYEE RESPONSIBILITY CONT'D.

The employee shall keep his/her respirator free of unnecessary lead dust contamination by placing it in a plastic bag during lunch and breaks. Wipes are provided to clean the face piece as needed.

The employees shall guard against damage to the respirator and report any malfunction to their supervisor immediately.

The employees shall be responsible for the replacement cost in the case that their respirator is lost.

EQUIPMENT SELECTION

On the basis of exposure to Pb dust and/or fume, the following respiratory protection shall be used.

1. Not in excess of 0.5 mg/M^3 (10 X P.E.L.)...

   Half mask, air purifying respirator equipped with high efficiency filters.

2. Not in excess of 2.5 mg/M^3 (50 X P.E.L.)...

   Full face piece, air-purifying respirator with high efficiency filters.

3. Not in excess of 50 mg/M^3 (1000 X P.E.L.)...

   Any powered air purifying respirator with high efficiency filters. A P.A.P.R. will be provided to an employee who chooses one and will provide adequate protection.

All respirators provided will be those approved for lead dust, fume, and mist and cadmium, arsenic or other airborne hazards by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) under provisions of 30 CFR Part 11.

The following respiratory equipment is available:

1. MSA combination cartridges
   NIOSH and MSHA approved. Meets OSHA requirements. Approval No. TC-23C-153.

2. Filter cartridge - MSA
   Type "H" - NIOSH and MSHA approved. Approval No. TC-21C-135.

3. Willson permissible respirator
   Filter R-12 - MSHA-NIOSH approval No. TC-21-C-142

EQUIPMENT SELECTION CONT'D.

4. North respirator
   Model 75075, 7507M, 7507L, 77075, 7707M and 7707L.
   MSHA-NIOSH approval No. TC-21C-203.

5. 3M respirator
   Dual cartridge, half mask respirator
   Face piece, NIOSH-MSHA approved. No. TC-23C-447

6. Willson basic face piece
   NIOSH-MSHA - Approval No. TC-23C-710

7. 3M High efficiency filter
   NIOSH-MSHA approved. No. TC-21C-215

8. 3M Acid gas cartridge
   NIOSH-MSHA approved. No. TC-23C-443

A record will be made when the respirator has been issued and the reason for the issuance.

RESPIRATOR USERS

1. Any employee when tested for airborne lead, cadmium and/or arsenic showing an exposure over the permissible exposure limit (P.E.L.) must wear mandatory respiratory protection.

2. Any employee on Medical Removal Protection.

WORK AREA SURVEILLANCE

The Pb exposed work areas of the plant are routinely sampled for airborne lead concentration following the guidelines set forth in the OSHA Lead Standard. Where it is determined that exposure conditions have changed, the affected (exposed) individuals are re-evaluated to insure their respiratory protection is still adequate. As specified in 1910.1025 f 4 (iii) employees who wear respirators shall be permitted to leave work areas to wash their face and respirator face piece when necessary to prevent skin irritation.

USER TRAINING AND MEDICAL EVALUATION

The technician or supervisor shall instruct the employee in proper use of respirators and shall train the employee concerning the proper fit and adjustment of the respirator.

USER TRAINING AND MEDICAL EVALUATION CONT'D.

Respirator users shall be trained on the proper fit and adjustment of the respirator at least annually.

The prospective respirator user is screened for his/her ability to use a negative pressure respirator through physical examination by the Company physician. Tests such as pulmonary function may be used by the physician in evaluation.

If the employee's or the prospective employee's physical characteristics preclude the use of either the negative or powered air-purifying respirators, the Company shall not allow them to work on jobs on which respirator use is required.

Respirators shall not be worn when uncorrectable physical conditions prevent a good face seal. Such conditions may be the absence of teeth or of dentures (one or both). Facial hair affecting the seal of the mask to the face must be removed.

QUALITATIVE (PRESSURE TEST) TRAINING

After determining the employee's ability to wear a negative pressure respirator in a work situation, the employee is assisted in selecting from three sizes the most comfortable fitting respirator. From here, the employees are trained to conduct a proper fit test on themselves. The proper fit shall be determined by pressure tests:

1. Positive pressure test: Close the exhalation valve and exhale gently into facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air in the seal. For most respirators, this method of testing requires that the wearer first remove the exhalation valve cover and then carefully replace it after the test.

2. Negative pressure test: Close off the inlet openings of the cartridges by covering with the palm of the hands, inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is probably satisfactory.

After these test methods are demonstrated the employee is asked to practice them several times. The technician observes the employee, correcting him/her should need be. To assure proper protection, the respirator will be tested for fit using the banana oil, irritant smoke method, or saccharin solution.

The attached employee respirator use and fit test record will be used with each employee at the time of testing. All qualitative testing for half mask air purifying masks will be done every six months in conformance with 29 CFR 1910.1025 Appendix D- "Qualitative Fit Test Protocols".

QUANTITATIVE FIT TESTING

Quantitative Fit Testing will be performed every six months for those employees required to wear a negative pressure full facepiece mask.

The employee is briefed on the fact that they are being assigned a lettered respirator for their exclusive use. Their responsibility for maintaining the respirator in a plastic bag during lunch and rest periods is explained as well. Each employee is briefed on the cleaning procedure and informed that they shall receive a clean, disinfected respirator each work day.

A statement covering all the above topics is then read and signed by the employee. (Attached) By affixing their signature to this statement, the employee indicates that he/she understands that he/she is required to, and agrees that he/she will check for a good facepiece fit daily, prior to entering the lead exposed work areas of the plant.

RESPIRATOR USE SURVEILLANCE

The respirator program is evaluated for its effectiveness by two processes. A weekly respirator use surveillance is performed by the technician. Employees who are not in compliance are reported to their supervisors for counseling. The other form of evaluation involves the supervisor who is responsible to insure that all of his employees are in compliance with the respirator protection program.

CLEANING AND STORAGE

Employee services is responsible for washing and maintaining the respirators and respiratory protective devices in the program.

The respirator cleaning/repair is performed in Plant Services.

The basic procedures are as follows:

1. All respirator components are dismantled and placed in the respirator washing machine - the filters being set aside.

2. The respirators are allowed to air dry on the top rack of the washer.

3. All valves, headstraps, etc., are inspected and replaced if found to be defective.

4. The lettered facepieces are assembled with their matching lettered filter cartridges - the cartridges are replaced whenever necessary and any time an employee indicates experiencing increased breathing resistance - as required in the OSHA Lead Standard.

CLEANING AND STORAGE CONT'D.

5. The respirators are placed in a plastic bag and sealed. The plastic bag is marked with the employee's name and respirator number.

BAGHOUSE PROCEDURES

When the baghouse needs inspection or repair, two people are needed. One person is stationed at the door while another person inspects, repairs, etc. At all times they are to wear supplied air respirators. Air lines are continuously monitored to insure acceptable quality air.

USE AND LIMITATIONS OF RESPIRATORY PROTECTION

Half facepiece respirators can only be used in areas where there is sufficient oxygen content to sustain life and must not be used in areas such as chemical tanks or any other confined spaces. Half facepiece respirators do not supply oxygen and are only as good as the fit and efficiency of the facepiece and filters which are used.

When situations arise which require entry into a confined space (baghouse or chemical tank) supplied air full facepiece respirators must be used or a SCBA (Self Contained Breathing Apparatus). Additional personnel should be present on the outside of the confined space equipped with a SCBA and means of communication with the personnel conducting the operation at all times.

When using a half facepiece respirator, the filters and approvals should be reviewed by the user and only approved respirators for the chemical or substance to be encountered should be used. If there is any leakage or problems arise with the use of any of the aforementioned respirator systems, steps should be taken to evacuate to a safe area immediately.

FACIAL HAIR AND RESPIRATORS

The Federal Occupational Safety and Health Act is very specific on employee facial hair when it comes to respirators. Section 1910-134 specifically prohibits the growth of facial hair if it affects the fitting of a respirator. In order for the respirator to be effective there must be a good seal between the face and the mask. The growth of hair in that seal will affect the fit. Therefore, it is GNB's policy that facial hair affecting the seal of the respirator be removed.

THE EMPLOYEE RESPIRATOR USE AND FIT-TEST RECORD

The Employee Respirator Use and Fit-Test Record shall be used every six months in fit testing and shall be reviewed with employees so they understand their responsibilities in respiratory protection. Employees will sign this statement and agree to follow the proper procedures.

4. Approved Respirator(s).

A. Negative Pressure, Air-Purifying:

1.) Half Face:

MSA Comfo II: Size - small, medium and large.
MSA Belt Mount Comfo II: Size - small, medium and large.
Norton 7500: Size - medium and large.
Willson 1200: Size - medium and large.

2.) Full Face:

MSA Ultra-Twin: Size - standard
Norton 7600: Size - standard

B. Positive Pressure - Air Purifying:

1.) MSA P.A.P.R. with half-face (Comfo II)
Facepiece: Size - small, medium and large.

2.) MSA P.A.P.R. with ultraview face piece - standard size.

3.) 3-M Whitecap W260; vehicle mounted P.A.P.R.

C. Positive Pressure - Air Supplied:

1.) MSA Leadfoe Airline Repsirator.

2.) 3-M Whitecap W-260 and W-880.

3.) Scott "Zephyrair" Mask.

4.) Norton 85200 Fullface.

5.) MSA Ultraview Airline Respirator.

D. Self-Contained Respirators: Any pressure-demand system with 30 minute or longer air supply.

E. Cartridges for Air Purifying Respirators:

1.) MSA: Type H (Dust, fume, mist, radionuclide).
Type GMB-H (Dust, fume, mist, radionuclide, and acid gas).
Type GMA (Organic vapor).

2.) Norton: 7500-8 (Highly toxic particulates).
7500-82 (Acid gas and highly toxic particulates).
7500-1 (Organic vapor).

E. Cartridges for Air Purifying Respirators Cont'd.:

3.) Willson: R35 - (Acid gas)
R-12 - (Highly toxic particulate)
R-25 - (Organic vapor)

5. Respirator and Cartridge Selection.

A. Selection is based upon the average normal exposure the user would be faced with in combination with the protection factor of the respirator. Exposure does not take into account the ability of the respirator to remove contaminants. Upset conditions are not used to calculate the normal exposure.

1.) The protection factor is the ratio of contaminants outside to the contaminants inside the respirator. The higher the ratio, the more effective the respirator. For example:

For a ½ face: $\frac{\text{Conc. outside} = 500\ mg/M^3}{\text{Conc. inside} = 50\ mg/M^3} = \text{P.F. of } 10$

2.) Protection factors take into account face to facepiece leakage. Their value lies in predicting personal exposure from a known concentration of contaminant <u>outside</u> the respirator.

3.) By using known average normal concentrations of lead in air and minimum portection factor values, a realistic exposure guide can be developed. This will prevent over exposure to lead. By using the 50 mg/M^3 permissible exposure level for lead as the standard, the protection factors can predict the maximum safe concentration for the given respirator.

For example: ½ face with P.F. of 10 X PEL of 50 =

500 mg/M^3 maximum exposure for ½ face respirator.

B. Protection Factors:

Respirator Type	Minimum Protection Factor
Half-Face Air Purifying	10
Full-Face Air Purifying	50
Powered Air Purifying	1000
Positive Pressure Air Supplied	1000
Self Contained Breathing	1000

5. Respirator and Cartridge Selection Cont'd.

C. Maximum Concentration (mg Pb/M^3) Versus Respirator.

JOB CLASSIFICATIONS WITH EXPOSURE IN RANGE	RANGE mg Pb/M^3	AIR PURIFYING Half-Face	Full-Face	Power-ed	Air-Line	S.C. B.A.
RMPS - All Classifications Baghouseman Refining-All Classifications Maintenance-All Classifications Material Prep.-All Classifications Plant Services, Sample Lab, Whse.	0-500	X	X	X	X	X
Oxide Blast Furnace - All Classifications Reverb Furnace - All Classifications	500-2500	0	X	X	X	X
Clean Out of Ventilation Ducts Clean Out of Metallurgical Ducts Clean Out of Blast Riser Clean Out of Baghouses	> 2500	0	0	0	X	X

D. Cartridge Selection Chart:

AREA WORKED/JOB CLASSIFICATION	TYPE OF NEGATIVE - PRESSURE AIR-PURIFYING CARTRIDGE
RMPS - All Classifications Refinery - All Classifications Oxide - All Classifications Plant Services - All Classifications Warehouse Sample Lab Maintenance - Garage Mechanic Outside Truck Drivers	Highly toxic particulate -- (Dust, Fume, Mist, Radionuclide) -- Purple Color
Blast Furnace All Classifications Reverb Furance Baghouseman Material Preparation Maintenance All Classifications	Highly toxic particulate in combination with acid gas. -- Purple and while colors
Spray Painting/Baghouseman, Garage, Warehouse & Maintenance	Organic vapor - Black color.

6. Respirator Fit Testing.

A. Before entering the work environment, every regular respirator wearer must receive respirator fit instructions including demonstration and actual practice in how the respirator is worn, how to adjust it and how to check if the respirator fits properly.

Respirators shall not be worn whenever conditions prevent a good facepiece to face seal. Such conditions include:

1.) Improperly sized face mask.

2.) Growth of hair, beard, mustaches, sideburns and whiskers that project under the facepiece to prevent a good face seal. It is imperative that clean smooth skin be in contact with the respirator sealing surface.

3.) Temple pieces of eye glasses that project under the facepiece. Wearing of contact lenses in contaminated atmospheres shall not be allowed. Systems have been developed for mounting corrective lenses inside full facepiece respirators. Consult the Safety Director for further information one these systems.

4.) The absence of one or both dentures.

5.) The absence of a respirator strap or improper adjustment of respirator straps.

B. There are two common pressure tests which must be taught to each respirator user. When performed every time the mask is donned, they will insure that he has the respirator adjusted on his face properly. These two tests, negative and positive pressure, are the first steps to be taken in properly fitting a respirator to the face. They indicate gross leaks and are to be used in conjunction with other more efficient tests.

1.) Positive Pressure Test - Close the exhalation valve with the heel of your hand and gently exhale into the facepiece. The fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal.

2.) Negative Pressure Test - Close the inhalation valve by placing the palm of your hand over the cartridges. Inhale gently so that the facepiece collapses slightly and hold your breath for ten seconds. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the fit of the respirator is considered satisfactory.

C. Two additional qualitative fit tests are available for testing the facepiece-to-face seal. They are the banana oil (isoamyl acetate) test and the irritating smoke test. Both tests require some inexpensive equipment available from our local suppliers.

BANANA OIL/IRRITATING SMOKE TEST SCHEDULE

EMPLOYEE STATUS	TEST FREQUENCY
1. All new or rehired employees	Prior to entering the workplace.
2. All employees who are required to regularly wear respirators.	Semi-annually in conjunction with quantitative fit test.
3. Any employee who requires substitution of a different approved respirator.	At the time of substitution.

1.) Banana oil (isoamyl acetate) test.

EQUIPMENT:

a.) A supply of banana oil (fit test ampules or bulk isoamyl acetate and an applicator).

b.) A supply of organic vapor cartridges for the type of respirator used during the test.

PROCEDURE:

a.) Select the type of respirator that the employee regularly uses and fit it with organic vapor cartridges.

b.) Review the respirator parts and functions with the employee.

c.) Have the employee put on and adjust the respirator. This should be reviewed with the employee and supervised by the person conducting the test.

d.) Have the employee conduct a positive and negative pressure test.

e.) Upon successful completion of both tests, the employee is to be told that he will smell an odor and that he must identify the odor. (This reverse technique should eliminate cheating.)

f.) Have the employee sit in a chair and instruct him to close his eyes.

g.) The ampule is broken to allow the banana oil odor to wet the sorbent material. Keep the ampule or applicator in a closed plastic bag whenever it is not being utilized to conduct a test.

1.) Banana oil (isoamyl acetate) test cont'd.

h.) The ampule or applicator is then waved close to the face, following a circuitous path that traverses the facepiece to face seal border of the respirator. DO NOT TOUCH THE RESPIRATOR OR FACE WITH THE AMPULE OR OIL!!!!!!!!

i.) The respirator wearer should conduct a series of exercises during the test (e.g. moving head back and forth, up and down) to simulate actual wearing conditions.

j.) If the acetate smell is identified, the respirator must be repositioned and adjusted.

k.) If after the adjustments have been made, the wearer can still smell the acetate, a different respirator must be used.

l.) Once there is a successful test, the respirator is fitted with the cartridges/filters approved for the specific job classification of the employee.

m.) The test procedure is documented on both the Respiratory Fit Test and Training Documentation Record (IH-5) and the respiratory protection equipment documentation record (IH-7) for each employee tested. Any subsequent fit testing (e.g. change in respirator or semi-annual fit test) shall be documented on the Respiratory Fit Test & Training Documentation Record (IH-5).

n.) Under NO circumstance shall an employee be permitted to work in an exposure area unless a successful qualitative fit test is obtained.

o.) The testing procedure should take approximately 10-12 minutes per employee.

2.) Irritating Smoke Test.

The materials found in ventilation smoke tubes (ethylenediamine and acetic acid) sublime upon exposure to moist air to produce smoke composed of internally irritating fine particles. Applied with caution, the smoke tubes can be used to conduct an excellent qualitative fit test.

EQUIPMENT:

a.) MSA Ventilation Smoke Tube Kit - MSA Data Sheet 08-00-20 (ordering Catalog Kit 458481; TUBES package of 12, 458480).

b.) A supply of high efficiency particulate cartridges for the type of respirator used during the test.

2.) Irritating Smoke Test Cont'd.

PROCEDURE:

a.) Select the type of respirator that the employee will regularly use and fit with high efficiency cartridges.

b.) Review the respirator parts and functions with the employee.

c.) Have the employee put on and adjust the respirator. This should be reviewed with the employee and supervised by the individual conducting the test.

d.) Have the employee conduct both a positive and negative pressure test.

e.) Upon successful completion of the positive and negative pressure test, the employee is informed of the irritating nature of the smoke. Instruct the employee to signal (by waving hand) when the smoke is smelled.

f.) Have the employee sit in a chair and instruct him/her to close his/her eyes.

g.) Smoke is blown toward the respirator from a distance of approximately two feet. If no leakage is detected, the smoke tube is moved toward the subject.

h.) Due to the highly irritating nature of the smoke, one must be ALERT for any sign that the smoke has penetrated the mask.

i.) The respirator wearer should perform a series of exercises during the test (e.g. moving head back and forth, up and down), to simulate actual wearing conditions.

j.) If no smoke is detected, the fit test is considered to be satisfactory.

k.) If the irritating smoke penetrates the respirator, the respirator must be repositioned and adjusted or exchanged for a suitable fitting respirator.

l.) Once there is a successful test, the respirator is fitted with the cartridges/filters approved for the specific job classification of the employee.

m.) The test procedure is documented on both the Respirator Fit Test and Training Documentation Record (III-5) and the Respiratory Protection Equipment Documentation Record (see III-7). Any subsequent fit testing (e.g. change in respirator or semi-annual fit test) shall be documented on the Respirator Fit Test and Training Documentation Record (III-5).

2.) Irritating Smoke Test Cont'd.:

PROCEDURE:

n.) Under NO circumstance shall an employee be allowed to work in an exposure area unless a successful qualitative fit test is obtained.

o.) The testing procedure should take approximately 10-12 minutes per employee.

3.) Quantitative Fit Testing:

The qualitative fit test determines whether the respirator leaks whereas the quantitative fit test determines the degree of leakage. The quantative fit test is required by the new OSHA lead standard. the standard requires that GNB Batteries Inc., Metals Division must provide a quantitative fit test at the time of initial fitting and at least semi-annually thereafter for each employee wearing negative pressure respirators.

The quantitative fit test is used to select facepieces that provide the required protection. By conducting the quantitative fit test, each respirator can be given a protection factor that will assure the employee's potential environmental exposure is less than the permissible exposure limit (PEL). Presently, GNB Batteries Inc., Metals Division is using the G.C.A. RAM-1 as a quantitative fit testing machine.

The quantitative fitting is conducted in the plant's Laboratory Building where room dust concentrations are stable. The fitting procedure uses a facepiece which has been modified by the insertion of a probe into the front bottom half of the facepiece, which is then sealed to the facepiece to prevent leakage around the probe's periphery -- to this test facepeice is mounted high efficiency filter cartridges. A G.C.A. RAM-I (real-time aerosol monitor) is used to measure the dust within and outside the facepiece -- it is capable of sensing mass concentrations in the range of 1 ug/m^3 to 200 ug/m^3. The G.C.A. unit uses the sensing principle of near-forward scattered light, scattered over the angular range of 45-95 degrees, being proportional to the mass concentration of particles traversing the sensing volume.

The G.C.A. monitor is calibrated using its built-in reference scatter. The G.C.A. monitor's analog output signal is connected to a Houston Instruments Omniscribe strip chart recorder and the monitor is set at its highest resolution scale (0-2 mg/cubic meter, 1 ug/cubic mt. resolution) and the time constant at its highest signal averaging time of 32 seconds. A chart is made of employee's breathing zone concentration, outside the facepiece--the challenge dust being the innocuous airborne room dust.

3.) Quantitative Fit Testing Cont'd.:

While still monitoring the breathing zone concentration, outside the facepiece, the employee is asked to don the same-size-facepiece test respirator as he was qualitatively fitted with in the Pressure Test fit training. The facepiece probe is immediately connected to the G.C.A.'s sample inlet, via a hose, and the inside facepiece concentration is recorded for 3-4 minutes--until it stabilizes at its lowest average within facepiece concentration. The worker is asked to simulate typical job actions such as; moving his head from side to side, moving his head up and down, talking, or deep breathing to see if these actions will affect the within-facepiece concentration. Following this, the hose is removed from the facepiece probe and the concentration outside of the facepiece is remeasured. From the inside and outside facepiece concentration the protection factor (PF) is calculated--the PF is the ratio of outside to inside dust concentration. If the base protection factor of 10 cannot be met, we attempt to adjust the position of the respirator or substitute the facepiece with another size; then try again--until successful.

Because the quantitative fit procedures are:

1.) Lengthy
2.) Subject to change by adoption of federal and/or state standards.
3.) Conducted by a qualified technician.

They will be detailed in the appendix.

7. Training

A. The overall success of this program relies on training the user. Both new employee and ongoing respirator training are needed. The coordination of all the training efforts are needed to insure low employee exposure to airborne lead.

B. New employee respirator training.

Prior to being issued a respirator and actually working in the plant, each new employee shall be trained by the plant respirator issue attendant, plant nurse or safety director in the following areas:

1. Nature of exposure hazard, whether acute, chronic or both and an appraisal of what may happen if the respirator is not worn.

2. The selection process used to determine appropriate respiratory protection.

3. Proper use of the selected respirator.

4. Limitations of the selected respirator.

5. Factors affecting proper facepiece to face seal.

7. Training Cont'd.

B. New employee respirator training.

6. Other available respirators with higher levels of protection.

7. Daily turn in procedures.

8. Maintenance, cleaning, disinfection and storage of respirators.

C. Continuing respirator training.

Each employee who regularly wears a respirator shall be retrained by the plant respirator issue attendant, plant nurse or the safety director every six (6) months. The training shall cover the eight areas mentioned above.

In addition, whenever a higher level of exposure or a significant increase in employee blood lead level dictates a change in respiratory protective equipment, the employee will be counseled regarding the proper use of the new respirator, as well as other aspects of lead hygiene.

D. Respirator issue attendant training.

Each appointed plant respirator issue attendant(s) will be trained by the Division Industrial Hygienist, or Plant Safety Director in the following areas:

1. Respirator selection criteria including cartridge or canister selection.

2. Respirator identification and labeling procedures.

3. Complete inventory of available approved respirators.

4. Proper use of respiratory protective equipment.

5. Limitations of selected respirators.

6. Qualitative fit test procedures.

7. Factors affecting facepiece-to-face seal.

8. Maintenance, cleaning, disinfecting and storage of respirators.

9. Procedures for ordering respirators, new parts and all necessary respirator supplies.

10. Record keeping requirements.

8. Respirator Cleaning and Issue.

A. Initial issure procedure.

1.) From employee's job classificaiton and assigned work area, determine the minimum level of protection required.

2.) Select respirators at that level and begin fitting facepiece to find best fit.

3.) Once a respirator is selected, check fit with positive and negative pressure tests. Also use irritating smoke or banana oil to check the fit.

4.) Once respirator fit is established qualitatively, either

a.) Make up two half face respirators.
b.) Make up one of all others.
c.) Select cartridges to fit the expected contaminants.

5.) Label each facepiece with the employee's name or clock number. Label each cartridge with the name or clock number <u>and</u> the issue date.

6.) Document the fit testing of the employee on the "Respirator Fit Test and Training Documentation" form - #IH-5.

7.) Notify the Safety Director of the fitting by giving him the white and yellow copies. The pink is given to the user.

B. Storage procedure.

1.) Once cleaned, every respirator must be placed into a clean plastic bag and sealed shut.

2.) Each assigned respirator shall be put into a storage cubbyhole with the user's name or clock number <u>above</u> it.

3.) No clean respirator shall be stored without being sealed in a plastic bag.

C. Daily cleaning and maintenance.

1.) Before any respirator is cleaned, it should be inspected in the following areas:

a.) Tightness of connections.
b.) Condition of the facepiece, valves, connecting tubes, headbands and cartridges/filters.
c.) Rubber or elastomer parts shall be inspected for pliability and signa of deterioration.
d.) All defective or missing respirator parts must be replaced or repaired before the respirator is reissued.

C. Daily cleaning and maintenance cont'd.

2.) Machine cleaning of partial face respirators.

a.) Remove both cartridges from facepiece and put them on the low table in the respirator room.

b.) Put 20-25 facepieces into the front loading washer and add 2-3 rags or small cloths.

c.) Put in one (1) jigger of Amway L.O.C. as the cleaner/sanitizer.

d.) Run the facepieces on a normal wash, rinse, and spin dry cycle. Check that the water is set to warm, NOT THE HOT setting.

e.) Remove the facepieces from the machine at the end of the cycle. Put them on a clean counter surface to air dry. Remove any excess moisture with a clean, dry towel.

f.) Inspect the cartridges to see if expiration date is exceeded. Replace and label as necessary.

g.) Assemble cartridges to facepieces. Match names and number. Inspect valves, gaskets, facepiece and headbands. Replace any missing or deteriorated.

h.) Put clean, assembled respirator into a clean plastic bag and seal the end shut.

3.) Hand cleaning of respirators: 1/2 face, full face, P.A.P.R., Air Line and Vehicle Mount.

a.) Remove respirator prefilters, cartridges/filters, inhalation and exhalation valves.

b.) Face masks are washed in luke warm water with a cleaning sanitizing agent (e.g. MSA Cleaner-Sanitizer, Catalog No. 34337). To avoid distortion of parts due to overheating, the wash and rinse water should not exceed 120°F.

c.) After washing, place the respirators on a clean countertop. Allow the respirators to dry at room temperature.

d.) Cartridges and filters are inspected to assure that the expiration date has not been exceeded. Replace if necessary.

e.) The cartridges/filters, inhalation and exhalation valves are installed on the same face mask.

f.) Clean assembled respirators are sealed in a plastic bag with the clock number or I.D. number visible.

4.) Powered air purifying respirator cleaning.

a.) After each use the attendant will clean the facepiece and connecting tubes as outlined above - Cleaning by Hand.

b.) Using a clean damp cloth, wipe the battery pack free of any dust or dirt.

c.) The attendant will remove the high efficiency filters and inspect them for particulate buildup and damage.

d.) The attendant will check the filters for resistance to air flow using a MSA magnetic test device. Whenever the flow-rate drops below 4.0 liters per minute, the filters must be replaced. See manufacturers instructions for further information.

e.) The attendant will put the battery on charge for 12-16 hours. Do not charge the batteries for greater than 16 hours! Overcharging will greatly decrease battery life.

f.) Clean assembled facepeices and connecting tubes are sealed in a plastic bag with the clock number or I.D. number visible.

5.) Cleaning and inspection of 3M White Caps:

a.) After each use, the attendant will clean the white caps, tubes and accessories as described above - Cleaning by Hand. Specifically:

- Washing all skimmer parts in a luke warm cleaning and sanitizing solution.

- Wiping the inside of the air filtration shell with a clean damp cloth.

- Washing the screen and cap in a luke warm cleaning and sanitizing solution.

b.) The attendant will remove the high efficiency filters and inspect them for particulate buildup and damage. Replace if damaged or heavily loaded with dust.

6.) Cleaning and inspection of air hoses.

a.) Wipe down each hose with soapy rag.

b.) Dry and inspect for damage. Repair or replace as necessar-.

c.) Test under pressure for leaks.

d.) Coil and store for future use.

E. Documentation

1.) Daily document cleaning for each respirator turned in. Record this on a monthly chart listing all employees and their assigned respirators.

2.) Daily document each airline issue and receipt.

3.) Document all qualitative fit testing and training using "Respirator Fit Test and Training Documentation" - Form 1H-5.

4.) Document all quantitative fit testing using "Respiratory Protection Equipment Documentation Record" - Form 1H-7.

Month [illegible], 19[illegible]

Clock No.	Name	ASSIGNED RESPIR.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00	[illegible]	M-½			X	X	X	X	X			X	X	X	X	X			X	X	X	X	X	X		X	X	X	X	X			X

SAMPLE

Respirator code: M = M.S.A. N = Norton W = Wilson ½ = half face F/F = Full face P.A. = powered

Gould Inc., Metals Division
Division Headquarters
P.O. Box 43484
St. Paul, Minnesota 55164

GOULD
An Electrical/Electronics Company

Respirator Issue/Maintenance Record

Plant LOS ANGELES, CA

Employee M. LABOR

SAMPLE

I, MANUEL LABOR have been fitted with a MSA-[illegible] respirator and given the following tests: Positive Pressure, Negative Pressure, Smoke Tube or Banana Oil, to make sure that the respirator fits correctly and has an air-tight seal to my face. The use, care and maintenance of the respirator has been explained to me and I fully understand and accept the responsibility of wearing and caring for my respirator.

Signed: Manuel Labor

Date: 1/2/88

White: Plant Respirator Issue Attendant Or Plant H.&S. Dept. (Regulated EEF)
Yellow: Plant Medical Department (Regulated EMF)
Pink: Employee

IH-5-1280-C-1200

Gould Inc., Metals Division
Division Headquarters
P.O. Box 43484
St. Paul, Minnesota 55164

SAMPLE

GOULD
An Electrical/Electronics Company

Respirator Selection Recommendation Record

Employee	Job Classification	Respirator Make	Respirator Model	Respirator Type	Cartridge H.E. Partic.	Cartridge Acid Gas	Date Of Issue	Quantitative Date	Quantitative P.F.	Qualitative Date	Qualitative +	Qualitative −	Smoke	Isoamyl Acetate
MILAYNE	UTILITY	[illegible]	[illegible]	½	✓		1/3/83	1/3/83	14	1/3/83	✓	✓		✓

White: Plant Respirator Issue Attendant Or Plant H.&S. Dept. (Regulated EEF) Yellow: Medical Department (Regulated EMF)

APPENDIX C

RESPIRATOR QUANTITATIVE FIT TEST PROCEDURE

A. Required Equipment for Testing.

1. GCA R.A.M.-1

2. Houston Omniscribe, with chartpaper and spare pens.

3. Probed respirators for:

   a. MSA Comfo II, (S,M,L)
   b. MSA Ultraview - standard size
   c. MSA PAPR Partial Face - (S,M,L)
   d. MSA PAPR Ultraview - standard
   e. Norton 7500 (S,M,L)
   f. Norton 7600 - standard
   g. Willson 1200 - med, large

4. Fit documentation forms:

   a. Respirator Fit Test & Training Documentation - Form IH-5.

   b. Respiratory Protection Equipment Documentation Record - Form IH-7.

5. Qualitative testing chemicals:

   a. Irritating smoke tubes.
   b. Isoamyl acetate (banana oil) and applicator or banana oil ampules.

6. Pen, pencil, calculator:

B. Test Procedure:

1. Calibrate R.A.M.-1 in accordance with manufacturer's instructions.

   a. Range-set to 0-2 mg/M^3.
   b. Time constant - set to 32 seconds.
   c. Voltage - use charging cord in 110V. outlet.

2. Set Up Houston Omniscribe.

   a. Put powercord in 110V. socket.
   b. Chart speed - set to 1 in/minute.
   c. Full scale = 1 volt.
   d. Attach input line to R.A.M.-1's analog output jack.
   e. Zero instrument per manufacturer's instructions.

3. Label each test chartpaper with the following information:

   a. Name of employee.
   b. Date test conducted.
   c. Respirator description.
   d. Area where he works.
   e. Job classification.
   f. RAM-1 time constant.
   g. RAM-1 range setting.
   h. Omniscribe chart speed.
   i. Omniscribe full scale voltage.
   j. Any facial characteristics that may interfere with fit.

4. Test Protocol - Both Seated:

   a. Explain the function while showing the physical parts of employee's respirator to him.

   b. Explain the different qualitative tests to employee - smoke/banana oil/positive pressure/negative pressure.

   c. Inspect the cartridges for issue date, suitability, damage.

   d. Explain and have employee show how to don and adjust his own respirator.

   e. Have employee don and adjust respirator. Test fit with isoamyl acetate. Have employee breathe deeply and move head. Also, have him simulate work movements.

   f. If employee unable to taste/smell the acetate after test, use irritating smoke for test. Repeat deep breathing, head movement and work motions.

   g. Have employee demonstrate negative and positive pressure tests. Insure he knows and demonstrates procedures to you.

   h. Cover use and storage of respirator.

   i. Explain the quantitative fit test to employee.

   j. Have employee don a probed respirator identical to his own respirator. Have him adjust the mask for comfortable fit.

   k. Take room ambient readings with RAM. Label the chartpaper, when stable reading for two minutes.

   l. Connect probed respirator to RAM and read inside concentration.

   m. Have employee move head, breathe deeply, talk with mask on; put finger in to break seal.

4. Test Protocol - Both Seated Cont'd.

   n. Remove mask and record reading after 3 minutes.

   o. Explain what he has seen.

   p. Fill out both test forms. Have employee sign the Fit Test and Training documentation form.

   q. Chart of fit should be labeled as follows:

      1.) Standard info per B.3.
      2.) Stable ambient value - pretest.
      3.) Time mask donned.
      4.) Value at 2 minutes.
      5.) Value at 3 minutes.
      6.) Time and value while moving head.
      7.) Time and value while deep breathing.
      8.) Time and value while talking.
      9.) Time broke seal with finger.
      10.) Time removed mask.
      11.) Value 3 minutes after removal.
      12.) Value for stable ambient post-test.
      13.) Protection factor for respirator.

   r. Attach chartpaper and one copy of training documentation form.

APPENDIX D

OPERATION OF RESPIRATORS

1. MSA Powered Air Purifying Respirators PAPR.

   a. Put the waist belt and battery pack on and adjust the belt to fit properly.

   b. To start the blower, turn the blower motor switch to the "on" position.

   c. Put the facepiece on and adjust the straps to fit properly.

   d. To stop the blower, turn the blower motor switch to the "off" position.

   e. Battery life is rated only (4) hours per charge. Therefore, each PAPR must have two batteries for an eight (8) hour shift.

   f. IMPORTANT - This respirator must not be used in oxygen deficient areas (e.g. confined spaces, baghouses, furnace feed floors, furnaces, kettle settings, settling chambers, etc.).

2. 3M White Cap° PAPR - Vehicle Mount Operation.

   a. Adjust the White cap so that it fits properly.

   b. Put the waist belt (with helmet strain relief) on.

   c. Connect the breathing tube from the air purifying filter outlet to the helmet and secure with KWIK clamps.

   d. To start, flip the motor toggle swithc to the "on" position.

   e. To stop, flip the motor toggle switch to the "off" position.

   f. Remove the helmet before leaving the vehicle.

   g. IMPORTANT - This respirator must not be used in oxygen deficient space, baghouses, furnace feed floors, furnaces, kettle settings, settling chambers, etc.).

   h. Should problems with the unit develop, see Table 3-4, "White Cap Trouble Shooting Guide" for assistance.

3. Supplied Air Respirators - Full Facepiece Positive Pressure

   a. Connect the air hose to both the respirator and the air supply quick connect couplings.

   b. Adjust the air regulator to an air pressure between 50 and 80 pounds per square inch (psig).

   c. Remove your air purifying (negative pressure) respirator and place it in the plastic bag that contained the supplied air respirator.

   d. Put the supplied air respirator on and adjust the belt mounted air flow regulator for proper air flow.

   e. Adjust the facepiece head straps for proper fit.

   f. At the end of the job, remove the supplied air respirator and put the air purifying respirator on.

   g. Disconnect the hose from both the respirator and the air supply quick connect couplings.

   h. After each use, return the supplied air respirator and air hose to the central respirator issue room for cleaning, inspection and maintenance.

4. Supplied Air Respirators - 3M White Cap°

   a. Take the plastic bagged helmet and hose to the nearest air station where the work is to be done.

   b. Put the waist belt on and adjust to fit properly.

   c. Connect the hose to the belt mounted air regulator and to the air supply quick connect couplings.

   d. Adjust the air regulator to a pressure between 50 and 80 pounds per square inch (psig).

   e. Remove the White Cap from the plastic bag.

   f. Remove your air purifying (negative pressure) respirator and place it in the plastic bag that contained the White Cap.

   g. Put the White Cap on and adjust the helmet skirts to fit properly.

   h. Adjust the belt mount airflow regulator for proper air flow.

   i. At the end of the job, remove the supplied air respirator and put the air purifying respirator on.

4. Supplied Air Respirators - 3M White Cap° Cont'd.

   j. Disconnect the air hose from the air regulator and the air supply quick connect couplings.

   k. After each use, return the supplied air respirator and air hose to the central respirator issue room for cleaning, inspection and maintenance.

   l. Should problems with the unit develop, see Table 3-5, "White Cap Trouble Shooting Guide" for assistance.

WHITE-CAP TROUBLE SHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	REMEDY
Blower does not run.	1. Switch not "ON".	1. Push switch to "ON".
	2. Electrical connector not plugged into battery box.	2. Plug connector in.
	3. Connector from battery to battery box not connected.	3. Check connection in battery box.
	4. Battery out of charge.	4. Re-charge or change battery.
	5. Electrical lead broken.	5. Repair broken lead.
	6. Motor defective.	6. Replace blower assembly.
	7. Fuse blown.	7. Replace fuse.
Blower runs but low air flow.	1. Battery voltage output low.	1. Recharge battery.
	2. High efficiency filter loaded.	2. Install new filter.
	3. Inlet screen plugged.	3. Clean screen.
High efficiency filter clogs prematurely.	1. Skimmer assembly plugged.	1. Clean skimmer assembly.
	2. Dump tube plugged	2. Clean tube with pipe cleaner.
	3. Prefilter not in correct position.	3. Reposition filter.

EMPLOYEE RESPIRATOR USE AND FIT-TEST RECORD

:OYEE NAME _____ CLOCK # _____ DATE _____ DEPARTMENT _____

CLASSIFICATION _____ AIR LEAD EXPOSURE FOR THIS JOB CLASSIFICATION _____

?IRATOR MFG, TYPE, AND SIZE _____ RESPIRATOR USE DUE TO: BLOOD LEAD, AIR LEAD (circle one)

NGE FILTERS: DAILY, WEEKLY, EVERY TWO WEEKS, MONTHLY, EVERY ___ MONTHS, OTHER _____ (circle one)

SENSITIVITY TEST WITH SOLUTION # 1

oyee must wear FT-10 hood without a respirator, breathing with his mouth open during the entire sequence of the sensitivity :. Squeeze 10 squeezes of solution # 1 into the hood, and ask the employee if he detects a sweet taste. If he does, then .eed to the next test. If he does not detect, squeeze another 10 squeezes into the hood and ask for his response. If he l does not detect the sweet taste, then try squeezing a final 10 squeezes. If there is no taste sensation after this total 0 squeezes, then you will have to use another fit-test method. Most people will detect the sweet taste after 10 squeezes. ing, or chewing tobacco or gum may temporarily affect the employees ability to taste the test solution. Please have oyees refrain from these habits prior to a respirator fit-test. Fill in appropriate blank below:

er of squeezes necessary for employee to detect sweet taste _____ (A) Divide this number by 2 = _____ (B).

oyee could not detect sweet taste after 30 squeezes _____.

IRRITANT SMOKE TEST

test is to be done for those employees that detected the saccharin solution in the first test. The employee should wear a ir fitted with high efficiency filters. The following exercises must be done by the employee for a period of 10 seconds . k ( ) is the employee does not detect the irritant smoke, or mark (X) if the employee detects the irritant smoke ng course of any of the exercises. Advise employee to keep his eyes closed throughout the entire test, as the irritant e is very irritating to both eyes and throat. Break open both ends of a glass MSA smoke tube Part no.# 5645, and attach a eze bulb to one end. Squeeze the bulb to emit smoke. Direct the smoke into the hood through the front opening. During the se of exercises, try to aim the smoke towards the area of the face where you expect the respirator facepiece seal might k due to that type of exercise. (For Example: Aim the smoke under the chin and at the bridge of the nose when employee bead up and down. Aim the smoke at the sides of the face when the employee turns his head side to side)

EXERCISES: Each exercise to be done for 10 seconds

NORMAL BREATHING ___ DEEP BREATHING (DEEP AND REGULAR) ___ HEAD SIDE TO SIDE (ONE SIDE PER SECOND) ___

HEAD UP AND DOWN (ONE DIRECTION PER SECOND ___ TALKING (RAINBOW PASSAGE-ON BACK) ___ NORMAL BREATHING ___

TANT SMOKE TEST: PASS _____ FAIL _____ (Employee fails test if he has detected smoke. Refit the respirator after ing all straps, filter attachment, respirator facepiece and overall appearance of respirator on the employee's face)

FT-10 SOLUTION # 2

successfully passing the irritant smoke test, employee is to keep respirator on and stay under the FT-10 hood. The same ises as that were performed in the irritant smoke test should be done for this test, except that each excercise must be for 1 minute each. To start the test, squeeze Solution # 2 into the hood for the number of times it was necessary for the yee to detect the sweet taste in the first test (Blank A). Every 30 seconds thereafter, squeeze half that number (Blank to the hood until all the excercises have been completed. Again, mark ( ) if the employee does not detect the sweet in taste, and (X) is the employee detects the saccharin taste. Remember, the employee must breathe through his mouth g the entire course of this test.

EXERCISES: Each exercise to be done for 60 seconds

NORMAL BREATHING ___ DEEP BREATHING (DEEP AND REGULAR) ___ HEAD SIDE TO SIDE (ONE SIDE PER SECOND) ___

HEAD UP AND DOWN (ONE DIRECTION PER SECOND) ___ TALKING (RAINBOW PASSAGE- ON BACK) ___ NORMAL BREATHING ___

TEST # 2: PASS _____ FAIL _____ (If employee fails this test, then he cannot be approved to wear that respirator in a environment. The employee should be retested with a better fitting respirator, and the irritant smoke test and FT-10 Test t be repeated.)

WHEN THE SUNLIGHT STRIKES RAINDROPS IN THE AIR, THEY ACT LIKE A PRISM AND FORM A RAINBOW. THE RAINBOW IS A DIVISION OF WHITE LIGHT INTO MANY BEAUTIFUL COLORS. THESE TAKE THE SHAPE OF A LONG ROUND ARCH, WITH IT PATH HIGH ABOVE, AND ITS TWO ENDS APPARENTLY BEYOND THE HORIZON. THERE IS, ACCORDING TO LEGEND, A BOILING POT OF GOLD AT ONE END. PEOPLE LOOK, BUT NO ONE EVER FINDS IT. WHEN A MAN LOOKS FOR SOMETHING BEYOND HIS REACH, HIS FRIENDS SAY HE IS LOOKING FOR THE POT OF GOLD AT THE END OF THE RAINBOW.

RESPIRATOR TRAINING

heck all those topics that were discussed with the employee)

_ RESPIRATOR USE (USE OF BOTH STRAPS, WEARING STRAPS UNDER HARDHAT, KEEPING RESPIRATOR ON WHILE TALKING)

_ RESPIRATOR FIT (POSITIVE AND/OR NEGATIVE FIT TEST EACH TIME RESPIRATOR IS PUT ON)

_ RESPIRATOR STORAGE (USE OF PLASTIC BAG DURING BREAKS AND LUNCH)

_ STORAGE OF FILTERS (DIRTY SIDE TO DIRTY SIDE OR CLEAN SIDE TO SIDE, DAILY WIPING OF FILTERS WITH ALCOHOL WIPE, AND STORAGE IN A PLASTIC BAG)

_ RESPIRATOR INSPECTION (VALVES, FACEPIECE, STRAPS, FILTERS)

_ TYPES OF CONTAMINANTS (LEAD DUST AND/OR LEAD FUME)

_ FACIAL HAIR LIMITATION (NO BEARDS PERMITTED. MUSTACHES AND LONG SIDEBURNS MUST NOT INTERFERE WITH RESPIRATOR FACEPIECE SEAL, DAILY SHAVING)

_ USE OF ALCOHOL WIPES (ON INSIDE OF FACEPIECE AFTER BREAKS AND LUNCH, FILTERS AND OUTSIDE OF FACEPIECE AFTER THE INSIDE HAS BEEN WIPED)

_ EFFECT FROM CHANGING FACIAL STRUCTURE (CIRCLE AND DISCUSS ALL THAT APPLY: MISSING TEETH, DENTURES, FACIAL SCARS, PREVIOUSLY BROKEN FACIAL BONES, WEIGHT GAIN OR LOSS OF 10 POUNDS)

EMPLOYEE STATEMENT

DERSTAND THAT I AM RESPONSIBLE FOR:

WEARING MY RESPIRATOR WHENEVER I MAY BE EXPOSED TO LEAD

WEARING MY RESPIRATOR WHENEVER I HAVE AN ELEVATED BLOOD LEAD LEVEL

DAILY INSPECTION OF VALVES, FACEPIECE, STRAPS, AND FILTERS

DAILY STORAGE OF RESPIRATOR IN ITS PLASTIC BAG DURING BREAKS AND LUNCH

POSITIVE OR NEGATIVE FIT TESTS EACH TIME I PUT ON THE RESPIRATOR

WEARING MY RESPIRATOR PROPERLY WITH USE OF BOTH STRAPS TIGHTLY

WEARING THE TOP STRAPS UNDERNEATH MY HARDHAT

KNOWING THE SIZE AND BRAND NAME OF THE RESPIRATOR THAT FITS ME BEST

KNOWING THE TYPE OF FILTERS I NEED FOR PROPER PROTECTION

REPORTING ANY RESPIRATOR PROBLEM TO MY SUPERVISOR

CARING FOR THE RESPIRATOR ITSELF, AND WILL BE CHARGED SHOULD THE LOSS OF MY RESPIRATOR OCCUR

OYE SIGNATURE _____ DATE _____

ICIAN SIGNATURE _____

IONAL COMMENTS: _____

_____

APPENDIX E

PAPR USER LIST

GOULD

To	All Employees	From	Safety Director	Dept./Div.	Safety/Metals
Date	November 23, 1982			Location	Los Angeles, CA
Subject	POWERED AIR PURIFYING RESPIRATOR USE/ASSIGNMENT			Copies to	J. Papp B. Smith A. Saldana

1. The powered air purifying respirators (P.A.P.R.) used in this plant, provide protection from 20 to 100 times greater than a half-face respirator. They also provide four to 20 times the protection of a full face respirator. Because of the proven protection of these units, they have been assigned to jobs which are highly contaminating, or to persons with high or rising blood lead values.

2. Once assigned into a powered air respirator, an individual may not stop using them at their own request. Permission to stop must either be given by the Safety Director or the Nurse.

3. The following jobs require a powered air respirator to be worn by the persons performing them:

RMPS:	Truck Dump Operator Reverb Chargemaker
SMELTER:	Reverb Furnace Operator Blast Furnace Operator Blast Furnace Chargemaker

4. The following persons are required to wear a P.A.P.R.:

OXIDE:	Cleveland Ross John Carpenter Claude Pratt	
MAINTENANCE:	John Cox Dennis Garcia Frank Hemenway	
WEST YARD:	Pedro Montalvan Willie Brown	
SMELTER:	Austin Belisle John Martinez George Carrera Modesto Lopez Benny Harris Willie Moore John Drake Michael Hooper Joe Taylor Abraham Jones	Ron Johnson

GOULD

4. The following persons are required to wear a P.A.P.R. (Cont'd.):

RMPS: Michael Gibson, Lawrence Spears, Antonio Marquez

5. All powered air respirators must:

Be turned in at the end of each shift.
(Belts, batteries, motors, face pieces.)

Failure to do so is a major offense - in that it puts another man's health in jeopardy.

Douglas Weber
Safety Director

DW:mlf

CURRENT ASSIGNMENT - PAPR

11/23/82

JOBS REQUIRING PAPR	DAY SHIFT	SWING SHIFT	GRAVE SHIFT	ROTATION SHIFT
RMPS Truck Dump Operator	M. Gibson	---	---	---
Reverb Chargemaker	M. Cuen	J. DeLaRosa	A. Jones	S. Contreras
Reverb Operator	M. Lopez	R. Hernandez	S. Banks	M. Hooper
Blast Operator	O. Christopher	S. Rangel	A. Cortez	R. Batiste
Blast Chargemaker	R. Rodriquez	F. Basoco	J. Drake	H. Saddler

INDIVIDUAL ASSIGNMENT	C. Pratt J. Cox D. Garcia F. Hemenway P. Montalvan W. Brown A. Belisle J. Martinez W. Moore	J. Carpenter Ron Johnson	C. Ross B. Harris	G. Carrera

GNB INCORPORATED

RESPIRATORY PROTECTION/SCBA TRAINING

RESPIRATORY PROTECTION LEARNING OBJECTIVES

1. The student will gain an appreciation of the need for respiratory protective devices.

2. The student will be able to properly select, wear, and care for respiratory protective devices.

RESPIRATORY PROTECTION AND TRAINING PROGRAM

1. Proper selection
   A. Self-Contained Breathing Apparatus
      Demand - air metered when breathing
      Positive pressure - air flow continuously positive
   B. Air purifying
      Mechanical filter
      Chemical cartridge
      Combination
      Gas mask
2. Instruction
   A. Nature of hazard
   B. Correct use
   C. Limitations
   D. Actual use
   E. Field training emergency
   F. Fit test
3. Supervision
4. Medical surveillance
5. Cleaning and disinfecting
6. Inspection and maintenance
7. Storage
8. Approvals

RESPIRATORY PROTECTIVE DEVICES

INTRODUCTION

In the control of occupational disease caused by breathing contaminated air, the primary objective should be to prevent the air from becoming contaminated. If industrial work processes present hazards of exposure to harmful vapors, gases, dusts, mists, or fumes, these processes should be enclosed or ventilated to eliminate or minimize the hazards. However, there are circumstances in which engineering controls, will be impractical, inapplicable, or ineffective. In these situations, respiratory protective equipment should be provided to workers exposed to possible danger. In addition to their employment as a control measure in occupational exposures, respiratory protective devices are also essential in emergencies that may arise from failure or improper use of other control equipment.

From a practical standpoint, respiratory protective devices will not be worn continuously by workers because of the discomfort involved. Therefore, protective respiratory equipment should be considered a last resort, or as standby protection, but never as a substitute for effective engineering controls.

TYPES OF RESPIRATORY PROTECTION

Respiratory protective devices fall into two broad groupings on the basis of their mode of functioning: A. atmosphere supplying respirators, and B. air-purifying respirators.

A. Atmosphere-supplying respirators provide a respirable atmosphere to the wearer independent of the immediate atmospheric environment. They are divided into two main subgroups:

1. SELF-CONTAINED BREATHING APPARATUS (SCBA).

   The unique feature of all types of self-contained breathing apparatus is that the wearer need not be connected to a stationary air source, such as a compressor. Instead, enough air or oxygen for up to four hours is carried on the person. For this reason, this type of respirator provides protection against all types of atmospheric contaminants in any concentration that can be endured by the skin. There are two basic classifications of SCBA's - "closed circuit" and "open circuit".

   In the close circuit category, the air is rebreathed after the exhaled carbon dioxide has been removed and the oxygen content restored. These types of devices are designed for longer continuous use than the open circuit devices which exhaust the

exhaled air to the atmosphere instead of recirculating it. Because closed circuit SCBA's operate under negative pressure, they have limited approval for use in atmospheres classified as "Immediately Dangerous to Life and Health", (IDLH). They are generally restricted to mine rescue.

NOTE: Immediately Dangerous to Life and Health (IDLH) is defined by NOISH as "Conditions that pose an immediate threat to life or health or conditions that pose an immediate threat of severe exposure to contaminants such as radioactive materials which are likely to have adverse cumulative or delayed effects on health".

Two factors are considered when establishing IDLH concentrations:

1. The worker must be able to escape without losing his life or suffering permanent health damage within 30 minutes. Thirty minutes is considered by OSHA as the maximum permissible exposure time for escape.

2. The worker must be able to escape without severe eye or respiratory irritation or other reactions that could inhibit escape.

2. SUPPLIED-AIR RESPIRATORS

The distinguishing feature of supplied-air respirators is that air is supplied from a stationary, remote source to the wearer through a hose. The air supplying respirators are divided into three types, namely hosemasks, air-line respirators, and abrasive blasting hoods.

NOTE: No supplied-air respirator is approved for use in IDLH atmospheres.

a. Hose masks supply air from an contaminated source through a strong, large-diameter hose. There are two basic types of hosemasks available. One has a blower, either hand or motor operated, (Type A). The other type, (Type B), of hosemask has no blower and requires the wearer to inhale through the hose. The Type "A" hosemask may have a facepiece, helmet, or hood, and up to 300 feet of hose. Type "B" hosemask must have a tight fitting facepiece, and may have only up to 75 feet of hose.

b. Airline respirators, (Type C), all use a stationary source of compressed air delivered through a high pressure hose. Type "C" respirators are available in demand, pressure-demand, and continuous flow configurations. The respiratory-inlet covering may be a facepiece, helmet, hood, or complete suit. Airline respirators provide a high degree of protection, but their use is limited to atmospheres not immediately dangerous to life.

c. Abrasive Blasting Respirators, (Type AE, BE, or CE), are essentially air supplying respirators that have been modified by the addition of a suitable covering to protect the head and shoulders against impact and abrasion by rebounding material. They are designed principally for use in abrasive blasting operations.

B. Air purifying respirators remove gaseous or particulate contaminants, or both, from otherwise respirable air that is inhales by the wearer. They are of no use where an oxygen deficiency exists, or in IDLH atmospheres. They are divided into the following types.

1. MECHANICAL FILTER RESPIRATORS

Mechanical filter respirators offer respiratory protection against airborne particulate matter including dusts, mists, metal fumes, and smokes. They consist of a soft resilient full or half-mask facepiece. Directly attached is one of several types of mechanical filters made up of some fibrous material which removes particles by physically trapping them as air is inhaled through the materials. NOISH certifies respirators for one or any combination of particulate hazards-nuisance, fibrosis producing, and/or toxic dusts, mists, and fumes. Mechanical filter respirators have been designed for protection against atmospheres which are not immediately harmful. They do not protect against gases or vapors or against an atmosphere deficient in oxygen (less than 19.5%). There is a practical limit for the concentration in which a mechanical filter respirator should be used. If the concentration is so high that the filter must be changed several times an hour in order that the wearer can inhale without undue resistance, a more suitable type of device should be selected.

2. CHEMICAL CARTRIDGE RESPIRATORS

Chemical cartridge respirators afford protection against high concentrations (up to 0.1 percent by volume, depending upon the contaminant) of certain acid gases and organic vapors by utilizing various chemical filters to purify the inhaled air. Chemical cartridge respirators are "non-emergency" respiratory protective devices and should never by used in dangerous atmospheres. It is necessary that oxygen be present at all times to support life (greater than 19.5%). Facepieces are the same as for mechanical filter respirators.

3. COMBINATION RESPIRATORS

Combination respirators use dust, mist, or fume mechanical filters plus a chemical cartridge for dual or multiple exposure. One common job where combination respirators should be used would be spray painting.

TABLE I

ATMOSPHERIC CONTAMINANTS TO BE PROTECTED AGAINST	COLORS ASSIGNED
Acid Gases	White
Hydrocyanic acid gas	White with 1/2 inch green stripe completely around the canister near the bottom.
Chlorine gas	White with 1/2 inch yellow stripe completely around the canister near the bottom.
Organic Vapors	Black
Ammonia gas	Green
Acid gases and ammonia gas	Green with 1/2 inch white stripe completely around the canister near the bottom.
Carbon Monoxide	Blue
Acid gases and organic vapors	Yellow
Hydrocyanic acid gas and chloropicrin vapor	Yellow with 1/2 inch blue stripe completely around the canister near the bottom.
Acid gases, organic vapors, and ammonia gases	Brown
Radioactive materials, excepting tritium and noble gases	Purple (magenta)

TABLE I (con't)

ATMOSPHERIC CONTAMINANTS TO BE PROTECTED AGAINST	COLORS ASSIGNED
Particulates (dusts, fumes, mists, fogs, or smokes) in combination with any of the above gases or vapors	Canister color for contaminant as designated above, with 1/2 inch gray stripe completely around the canister near the top
All of the above atmospheric contaminants	Red with 1/2 inch gray stripe completely around the canister near the top

INSTITUTING AN EFFECTIVE RESPIRATORY PROTECTION PROGRAM

If a respirator is to do the job for which it is chosen, it must be worn properly, kept clean, and in a good operating condition. Frequently workers do not know how to wear a respirator. If it is not clean, it is unpleasant to wear. OSHA 1910.134 outlines the requirements of a proper respirator program. There are 11 "Commandments", including the following points:

A. SELECTION

The use of a respiratory protective device is justified only after a consideration of the factors involved indicates that the device selected will provide satisfactory protection when properly used. In selecting respirators, the questions in Table II should be considered.

Another guide for the proper selection of respiratory protection is the Respirator Protection Factor which indicates how much protection a respirator provides. It is the ratio of the contaminant concentrations outside and inside the respirator, one must know both the actual contaminant concentration in the work area and the established time-weighted average concentration. Multiplying the time-weighted average concentration by the respirator protection factor gives the maximum concentration of the contaminant against which the particular type of respirator may be used.

Respirator Protection Factors are shown in Table III. These should be used unless greater factors have been determined for each worker quantitatively.

Tables II, III, and IV can provide enough information for choosing respirators for routine and emergency use.

B. INSTRUCTION

It is important that the wearer be properly instructed in the selection, use, and maintenance of the respirator by a competent person. No one should be permitted to wear a respirator unless they have been instructed in its use. Such instruction should cover:

1. Instruction in the nature of the hazard, whether acute, chronic, or both, and an honest appraisal of what may happen if the proper device is not used.

2. Explanation of why more positive control is not immediately feasible. This shall include recognition that every reasonable effort is being made to reduce or eliminate the need for respiratory protection.

3. A discussion of why this is the proper type of unit for the particular purpose.

4. A discussion of the device's capabilities and limitations.

5. Instruction and training in actual use (especially a respiratory protective device for emergency use) and close and frequent supervision to assure that it continues to be properly used.

6. Classroom and field training to recognize and cope with emergency situations.

   Training shall provide the employees an opportunity to handle the device, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and finally, to wear it in a test atmosphere.

C. SUPERVISION

After the wearer is instructed in the use of a respirator, adequate supervision should be given to assure that the proper device is being used properly for each exposure condition and the device is in good operating condition.

D. MEDICAL SURVEILLANCE

Workers should never be assigned to any operations requiring respiratory protection, until a physician has determined that they are capable physically and psychologically to perform the work using the respiratory protective equipment. Many plants have pre-employment physical examinations which aid in such evaluation, but additional checks may be necessary to determine suitability for specific assignment.

Should an employee have exposure to certain toxic materials, periodic examinations such as urinalysis or bioassay may be necessary even though the worker wears the proper respiratory protective equipment.

E. CLEANING AND DISINFECTING

Routinely used respirators should be cleaned after each use. If a respirator is used by only one individual, they should be briefed on the cleaning procedure. The respirator should be washed with warm water and soap, rinsed in clean warm water, and air dried in a clean place. The device should then be placed in a plastic bag for storage.

Respirators should also be disinfected at regular intervals. If the respirator is worn by the same person, disinfection once a week is probably satisfactory in most cases. A respirator that has been worn once should be thoroughly cleaned before it is given to another person to wear. The compounds generally considered to be the most reliable for disinfecting respirators are:

1. A hypochlorite solution (50 parts per million of chloring) for 2 minutes.

2. An aqueous iodine solution (50 parts per million of iodine) for 2 minutes.

3. A quaternary ammonium solution (200 parts per million of quaternary ammonium compounds in water with less than 500 parts per million total hardness).

   Live steam or very hot water (170 F), organic solvents, and ultraviolet light should not be used in disinfecting respirators because of their injurious effects, particularly on the rubber parts.

F. INSPECTION AND MAINTENANCE

Washing and disinfecting of respirators affords an opportunity to inspect them for repairs. In addition, they should be inspected thoroughly on a periodic basis, the time interval depending on the apparatus, conditions of use, and storage. Equipment for emergency purposes should be inspected once a month and after each use to be sure that it will be in good condition and immediately available if an emergency arises.

When it is necessary to replace worn or deteriorated parts, only those made specifically for the device by the manufacturer should be used, and the repair work should be accomplished by experienced personnel.

G. STORAGE

Respirators should be stored in dustproof containers (original cartons, cases, or plastic bags) away from sunlight, heat, extreme cold, and excessive moisture. A good procedure is to have a central place of storage where the respirators are kept clean. A check-out system, essentially the same as that used for tools, may be used for distribution of respirators to the proper workmen. The respirators should only be issued with the approval of an individual qualified to select the proper protection for exposure.

H. APPROVALS

All respirators provided in the plant should be certified by NIOSH. Bureau of Mines approvals are no longer in effect for any respirators. In some cases, manufacturers of respirators will help substitute approved respirators for non-approved BOM respirators which may still be in the plant. In general, approved respirators carry an approval number prefaced with "TC" and the now non-approved Bureau of Mines respirators have a "BM" prefix to the approval number.

TABLE II

RESPIRATOR SELECTION WORKSHEET

1. Material -
   a. Chemical Name _____
   b. Trade Name _____
   c. Formula _____
   d. TLV or TWA OSHA 1910.1000 _____ Current ACGIH _____

2. Form in which it will be used-
   a. Liquid? _____ b. Solid? _____ c. Gaseous? _____
   d. If gaseous, is it an organic vapor? _____ or acid gas? _____
   Other? _____

3. Maximum expected concentration -
   a. _____ parts per million, or
   b. _____ milligrams per cubic meter.

4. Will material be heated?
   a. If so, to what temperature? _____ F.

5. What is the odor threshold of the material? _____

6. At what concentration is the material considered to be immediately dangerous to life or health? _____

7. Can the substance be absorbed through the skin? _____

8. Irritant to eyes? _____ respiratory tract? _____ skin? _____

9. At what concentration is it an irritant? _____

10. If the substance is known to be flammable, what are the lower and upper flammable limits, in percent by volume? _____

11. What is the vapor pressure of the material? _____

12. Will material be mixed with other chemicals? _____ if so, give details.

    _____

    _____

13. Any possibility of oxygen deficiency? _____

14. Can good ventilation of the area be maintained? _____

15. Will exposure be continuous? _____ or intermittent? _____

16. Will the respiratory device be used for routine exposures, or will it be used as an escape device? _____

    _____

17. Provide as much detail as possible concerning exposure conditions.

    _____

    _____

TABLE III

RESPIRATOR PROTECTION FACTORS

Type	For	Range
Pressure demand, SCBA	Toxic gases, IDLH, Oxygen deficiency	10,000 x TLV
Emergency escape unit	Hazardous atmospheres, IDLH, oxygen deficiency, escape use only	Below IDLH concentration, oxygen level must be above 19.5% unless escape bottle is attached
Chemical cartridge, full face mask	Chemical hazards, with eye irritants	50 x TLV
Chemical cartridge, half face mask	Chemical hazards	10 x TLV
Half mask, particulate, disposable	Various dusts, mists, and fumes	5 x TLV

Following is a partial list of gaseous materials for which chemical cartridge respirators should not be used for respiratory protection regardless of concentration or time of exposure; this far-from-complete list is offered only as a guide of proper evaluation of the many contaminants found in industry. Contact MSA for further information on other specific materials.

- Acrolein
- Aniline
- Arsine
- Bromine
- Carbon monoxide
- Dasocyanates
- Dimethylaniline
- Dimethylsulfate
- Hydrogen cyanide
- Hydrogen fluoride
- Hydrogen selenide
- Hydrogen sulfide
- Methanol
- Methyl bromide
- Methyl chloride
- Methylene chloride
- Nickel carbonyl
- Nitro compounds:
  - Nitrobenzene
  - Nitrogen oxides
  - Nitroglycerin
  - Nitromethane
- Ozone
- Phosgene
- Phosphine
- Phosphorus trichloride
- Stibine
- Sulfur chloride
- Vinyl chloride

RESPIRATOR INSPECTION RECORD

1. DATE _____

2. NAME _____

3. TYPE/NO. _____

4. DEFECTS FOUND:

   a. Facepiece _____

   b. Inhalation valve _____

   c. Exhalation valve _____

   d. Headbands _____

   e. Cartridge holder _____

   f. Cartridge assembly _____

   g. Filter _____

   h. Harness assembly _____

   i. Hose assembly _____

   j. Speaking diaphram _____

   k. Gaskets _____

   l. Connections _____

   m. Other defects _____

   _____

SELF CONTAINED BREATHING APPARATUS

A. General Information

1. An SCBA provides clean air and is independent of the environment.

2. This type of respirator should be chosen for the following situations:

   a. Oxygen-deficient atmospheres

   b. In concentrations of chemicals over the IDH level

   c. Where the concentration is unknown

   d. When the chemical has inadequate warning properties below the permissible exposure limit.

3. There are two modes of operation: Demand and pressure demand.

4. No respirator, not even an SCBA, protects against contaminants that absorb through the skin or explosions caused by flammable vapors.

5. In industrial emergency response applications, entry into the life-threatening environments is not recommended - not even with SCBA's. The goal of emergency response is to limit an emergency without risking personal safety.

6. Do not use an SCBA if you have the following medical conditions:

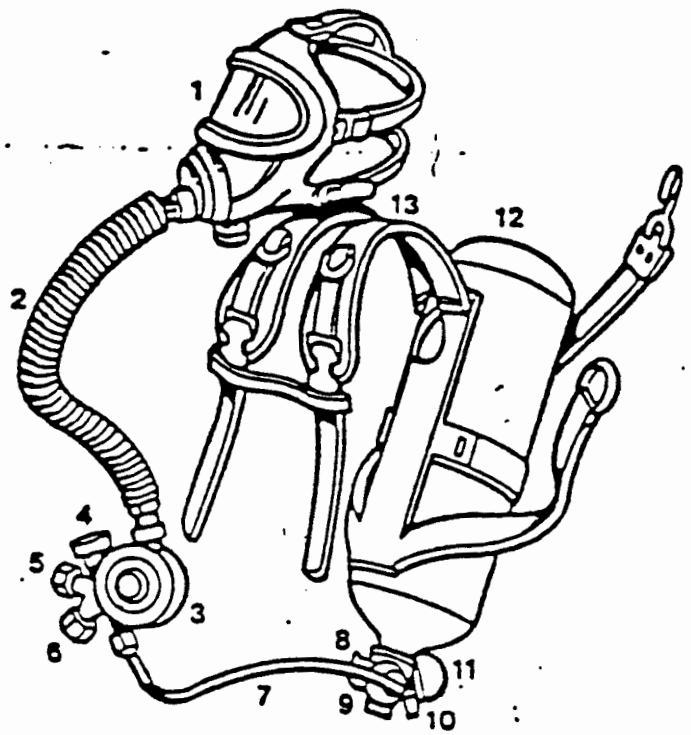
   a. Respiratory infection and/or congestion

   b. Wear contact lenses

   c. Punctured eardrum

   d. Claustrophobia

B. Parts of an SCBA



1. mask
2. low pressure hose
3. regulator
4. regulator gauge
5. by-pass valve
6. regulatory valve
7. high pressure hose
8. low pressure alarm
9. high pressure coupling
10. tank gauge
11. main valve
12. tank
13. backpack

C. RECOMMENDED SELF-CONTAINED BREATHING APPARATUS CHECK-OUT PROCEDURES

1. Check cylinder gauge for a "full" indication.

2. Check the connection between the cylinder and high pressure hose to assure that it is snug.

3. Check by-pass knob - it should be fully closed.

4. Check main line knob - it should be fully open, and the locking ring engaged.

5. Make sure don-use switch is in the don (up) position.

6. Open cylinder valve and check regulator gauge for comparison to cylinder gauge. (± 10%)

7. Close cylinder valve and watch regulator gauge for "creepage" (one increment on gauge is allowable, more indicates a leak).

8. Place mouth over regulator opening and take several breaths to make sure air is flowing.

9. With your mouth still over the opening, blow back into regulator until the diaphragm takes a seat. You should not be able to force air back into the system. (Very important step)

10. Place palm of hand over regulator opening and switch regulator to "use", (positive pressure) position (down), then slowly allow air to escape while watching regulator gauge. Bell should ring at about 500 psig on regulator gauge.

11. Switch regulator to don (up) position, open cylinder valve fully, engage locking ring.

12. Put unit on, adjust harness.

13. Stretch hose, check overall condition of mask (straps, lens, etc.).

14. Put mask on and adjust, starting with bottom straps, then temple straps and finally top strap.

15. Place palm over end of hose and inhale slowly until mask is drawn toward face, and hold breath for 10 seconds to see if there is any leakage in the facepiece-to-face seal.

16. With palm still over the end of the hose, exhale, noting if there is any leakage around the facepiece. (This step also clears exhalation valve.)

17. Connect breathing hose to regulator.

18. Always switch regulator to "use", (positive pressure) mode (down) before entry into hostile atmosphere.

D. Maintenance of an SCBA

1. SCBA's must be cleaned and sanitized after each use. Procedures are as follows:

   a. Make sure bottle has been replaced.

   b. Release all straps to their fully extended position.

   c. Remove mask.

   d. Using warm water and mild soap, wash the entire mask, inside and out. Pay special attention to the exhalation valve and underside of mask lip.

   e. Rinse in running warm water.

   f. Shake out excess water.

   g. Blot dry with soft cloth. Avoid scratching faceplate.

   h. Allow to air dry in a clean, dry place.

   i. Reattach mask to unit. Store in dust-free box or place mask in a tightly sealed bag to prevent it from getting dirty.

2. SCBA tanks must be filled with SCUBA grade air. Contact a local SCUBA shop, fire department or your dealer. Never use air from an unknown source.

DON - FIT CHECK EVALUATION SHEET

Pre-Donning checklist:

Each E.R.T. member will be evaluated on performance of the following:

1. Check cylinder pressure. (1 pt.)
2. Check high-pressure coupling. (must be hand tight) (1 pt.)
3. Check bypass valve. (should be closed) (1 pt.)
4. Check that hoses are in good condition. (1 pt.)
5. Straps are not damaged. (1 pt.)
6. Mask is in good condition and straps are fully extended. (1 pt.)

Donning:

1. Was SCBA donned in an acceptable manner? (5 pts.)

Fit Check:

1. Did wearer fit check respirator before proceeding with exercise? (5 pts.)

Time of Use Facepiece Seal Fit Check

A) Negative-Pressure Fit Check.

The inlet opening is closed off by covering with the palm of the hand or by squeezing the breathing tube or blocking its inlet so that it will not allow the passage of air. The wearer inhales gently and holds his/her breath for 10 seconds. If the facepiece collapses slightly and the wearer detects no inward leakage of air around the facepiece seal, the fit of the respirator is assumed to be satisfactory.

B) Positive-Pressure Fit Check.

The exhalation valve or breathing tube, or both, is/are closed off and the wearer exhales gently. If the facepiece inflates slightly and the wearer detects no outward leakage of air around the facepiece seal, the fit of the respirator is assumed to be satisfactory.

QUALITATIVE RESPIRATOR FIT TEST RECORD

Employee_____ Date_____

SSN_____ Mail Stop_____ Org. Code_____ Position Title_____

	mfr.	model	size
Respirator(s) selected: (1)	_____	_____	_____
(2)	_____	_____	_____
(3)	_____	_____	_____
(4)	_____	_____	_____

Odor sensitivity test(check) [] 0.4 [] ND cc stock/500 cc water

Taste sensitivity test(check) [] 10 [] 20 [] 30 [] ND squeezes

Conditions which may affect respirator fit test: (check)

[] Facial scar [] Wrinkles [] Other (Describe)
[] Dentures Absent [] Ruptured

Respriator Fit Test Performed:	Respirator 1	2	3	4
Positive pressure				
Negative pressure				
Isoamyl acetate				
Saccharin				
Irritant smoke				

(P=passed, F=failed, N=not run)

	mfr.	model	size
Respirator(s) Assigned: (1)	_____	_____	_____
(2)	_____	_____	_____

Prescription eyeglass adapter required for full facepiece: [] Yes [] No

Comments:_____

_____

I have received respirator protection training/fitting and understand the conditions under which it is to be used.

REQUEST FOR RESPIRATOR ISSUE AND APPROVAL

Name: _____ _____ _____
Last, First,M.I. Mail Stop Date

_____ _____ _____
Social Security Number Org. Code Position Title

TO BE COMPLETED BY EMPLOYEE'S SUPERVISOR

1. What type of work will the above employee be performing (briefly describe and include estimate of number of days per month and hours per day respirators may be worn)?

_____

2. What type of exposure - Dusts___Vapor___Mists___Gases___Fumes___

3. Is work considered (please circle)

Sedentary?	Yes	No
Mild exertion?	Yes	No
Marked exertion?	Yes	No

4. Is SCBA required? Yes No

5. Does job entail working in hot environment? Yes No

_____ _____
Supervisor Date

TO BE COMPLETED BY EXAMINING PHYSICIAN

1. Date of examination or medical review_____

2. Name_____

3. Type(s) of respirator(s) which can be worn_____

_____

4. List potential face-fit problems_____

5. Are spectacle inserts required for full face piece respirators

Yes_____ No_____

6. Other_____

7. Physician's signature_____

THIS EXAMINATION EXPIRES ONE YEAR FROM THE DATE OF COMPLETION

GENERAL MEDICAL EXAM REQUIREMENTS FOR SCBA WEARERS

The employer is required to make medical exams available to all SCBA wearers (at no cost to employee).

The employer should comply with the following requirements when providing a medical examination performed by or under the supervision of a licensed physician to evaluate an employee's ability to wear a respirator.

(A) The employer shall provide the physician with the following information in writing:

1. a description of the respiratory hazard;
2. the type of respirator to be used;
3. the expected duration and frequency of use;
4. the nature of the work to be performed including the level of physical effort involved;
5. any special environmental conditions including temperature extremes, use of clothing, and confined space use;

(B) The employer shall obtain and consider the physician's written recommendation as to any restrictions on the employee's ability to wear the respirator under the conditions of intended use.

1. The employer shall instruct the physician to:

   a) Not reveal in the written recommendation any specific medical findings or diagnoses; and
   b) Not reveal to the employer by any means medical findings or diagnoses unrelated to the employee's ability to wear a respirator or to perform the job.

2. The employer shall provide a copy of the written recommendation to the employee.

RELATIONSHIP OF OXYGEN CONCENTRATIONS,
DURATION OF EXPOSURE AND EFFECT

Concentration%	Duration	Effect*
20.9	Indefinite	Usual oxygen content of air
19.5	not stated	REHD recommended minimum oxygen content for entry without air supplied respirators. Also OSHA standard 29CFR 1910.
18.0	not stated	ANSI Z117.1-1977 definition of oxygen deficient atmospheres.
16.0	not stated	Lowest limit of standards reported in literature.
12-16	second to min.	Increased pulse and respiration, impaired judgment, some coordination loss.
10-14	second to min.	Distrubed respiration, fatigue, faulty judgments, emotional upset, poor circulation.
6-10	seconds	Nausea, vomiting, inability to move freely, loss of consciousness followed by death
Below 6	seconds	Convulsions, gasping respiration followed by cessation of breathing, cardiac arrest, death in minutes.

*Effect - Warning properties of low oxygen are inadequate except to trained individuals. Most persons fail to recognize danger until too weak to effect self-rescue. Signs include increased rate of respiration, and circulation, which accelerates onset of more profound effects, including loss of consciousness, irregular heart action and muscle twitching. Unconsciousness and death can be sudden.

From F.C. Thomas et al., "Guidelines for Confined Spaces," in The Medical Bulletin, summer issue, p.9.

RESPIRATORY PROTECTION QUIZ

1. Threshold limit value indicates:

   a. The maximum life of a cartridge respirator.
   b. Maximum exposure for a time weighted eight-hour period.
   c. The limiting factor of respirator use.
   d. None of the above.

2. Air purifying respirators are required for all chemical spills. True or false?

3. SCBA air tanks hold six hours of air supply. True or false?

4. Smoking tobacco can multiply the effects of toxic materials in the lungs. True or false?

5. A dust mask can be used for:

   a. Asbestos.
   b. Chlorine.
   c. Lead.
   d. None of the above.
   e. All of the above.

6. Respirators can not be used in areas where oxygen content is less than:

   a. 14.5%
   b. 20%
   c. 19.5%
   d. None of the above.

7. A fit test for one brand of respirator is good for other brands as long as the size is the same. True or false?

8. Lung capacity tests are:

   a. Required for SCBA use.
   b. Required for respirator use.
   c. Not required.
   d. A and B.

9. If a contaminant in an area is unknown, to put on a respirator and enter the room is acceptable. True or false?

10. Respirator face pieces should be cleaned in acetic acid solution. True or false?

SCBA QUIZ

1) It shall be assumed (unless otherwise indicated by authorized personnel) that atmospheres in an emergency response situation which require respiratory protection are immediately dangerous to life and health (IDLH).

True or False (2 pts.)

2) Define an atmosphere which is immediately dangerous to life or health.

(5 pts.)

Give an example. (2 pts.)

3) Define oxygen deficient atmosphere - Immediately Dangerous to Life or Health in terms of percent oxygen by volume at sea level. In other words, at what percentage of O_2 is an atmosphere considered to be IDLH? (2 pts.)

4) An SCBA must have a minimum service life rating of 30 minutes for entry, however, SCBA used for emergency escape only (ESCBA), may be of shorter duration.

True or False (1 pt.)

5) A low pressure audible alarm is designed to indicate when the remaining service life of an SCBA is reduced to within _____to_____percent of its rated service life.

(3 pts.)

6) List four disadvantages of SCBA's. (8 pts.)

List two advantages of SCBA's (4 pts.)

7) A positive pressure SCBA provides each individual with a known level of protection for a given time period - no matter what the contaminant concentration or conditions.

True or False? (2 pts.)

8) Positive-Pressure Emergency SCBA should be inspected on a regular basis.
Circle: a. weekly b. monthly c. quarterly d. yearly (2 pts.)

9) During an emergency, when is it acceptable to put your SCBA in the demand mode? (2 pts.)

10) Briefly describe the storage requirements for SCBA.

(7 pts.)

GNB INCORPORATED

HAZARD COMMUNICATION PROGRAM

July, 1988

HAZARD COMMUNICATION POLICY

GNB Incorporated shall implement a continuing, systematic program to communicate, evaluate, control and record the degree of employee exposure to hazardous chemical and physical agents both regulated and nonregulated.

HAZARD COMMUNICATION PROGRAM

SUMMARY

GNB Incorporated has developed a hazard communication program to enhance employee health and safety.

The program applies to hazardous agents regulated by legally promulgated health standards and is designed to control exposure at or below the permissible exposure limits prescribed by federal or state regulations and to meet other provisions of such standards.

Potential exposures from which employees are protected through the use of personal protective equipment will also be identified, assessed and documented.

Documentation of the data derived from the assessment of all hazardous agents shall be maintained in a form which complies with legal requirements and provides the information required to support a comprehensive occupational health program for all employees.

The program shall include the following elements:

- Identification of all hazardous chemical and physical agents by workplace
- Employee Exposure Assessment
- Control of unacceptable exposures
- Training and information
- Documentation and recordkeeping

The program requires the identification, assessment and control of exposures to hazardous chemical and physical agents which employees may experience under normal operating conditions and during planned maintenance and shutdowns.

HAZARD COMMUNICATION PROGRAM

OBJECTIVE

The primary objective of the program is to insure that no employee suffers adverse health effects which result from occupational exposures to hazardous chemical and physical agents.

As a company we intend to provide information about chemical hazards, hazardous substances, and their control. This includes Container Labeling, Material Safety Data Sheets (MSDS) and Training.

The following outlines how we will accomplish this objective.

I. CONTAINER LABELING

This responsibility has been assigned to the plant safety director. No container of hazardous substances will be released for use or storage until the following label information is verified:

- Container contents clearly identified.
- Appropriate hazard warnings.
- Manufacturer's name and address

Secondary containers will be labeled to further ensure that employees are aware of hazardous materials used in their work areas.

The plant safety director will ensure that all secondary containers are labeled with either a copy of the original manufacturer's label or with generic labels which have blocks for identity and the hazard warning.

II. MATERIAL SAFETY DATA SHEETS (MSDS)

MSDS's for all hazardous substances to which employees may be exposed are located in the department offices. The plant safety director is responsible for providing proper MSDS's for all materials used or warehoused at any of our facilities. The safety director will be responsible for obtaining and maintaining the data sheet system. The plant safety director will review incoming data sheets for new and significant health/safety information. He will insure that any new infomation is passed on to the appropriate department.

MSDS's are available to all employees in their work area for review during each work shift. If an MSDS is not available or new hazardous substances in use do not have MSDS's, contact your foreman/manager immediately.

MSDS's will be reviewed for completeness by the plant safety director. A new MSDS will be requested from the manufacturer if an MSDS is missing or obviously incomplete. The Local Federal OSHA Director will be notified if an MSDS is not received on a timely basis.

III. TRAINING AND EMPLOYEE INFORMATION

Employees are to attend a health and safety orientation prior to starting work. This will include information and training on the following:

- Operations in work areas where hazardous substances are present.
- Location and availability of the written hazard communication program.
- Physical and health effects of the hazardous substances.
- Methods and observation techniques used to determine the presence or release of hazardous substances.
- How to lessen or prevent exposure to these hazardous substances through controlled work practices and personal protective equipment.
- Steps the company has taken to lessen or prevent exposures to these substances.
- Emergency and first aid procedures to follow if employees are exposed to hazardous substances.
- How to read labels and review an MSDS to obtain appropriate hazard information.

When new hazardous substances are introduced, the plant safety director will review the above items as they relate to the new material in your work area in a safety meeting.

GNB Incorporated

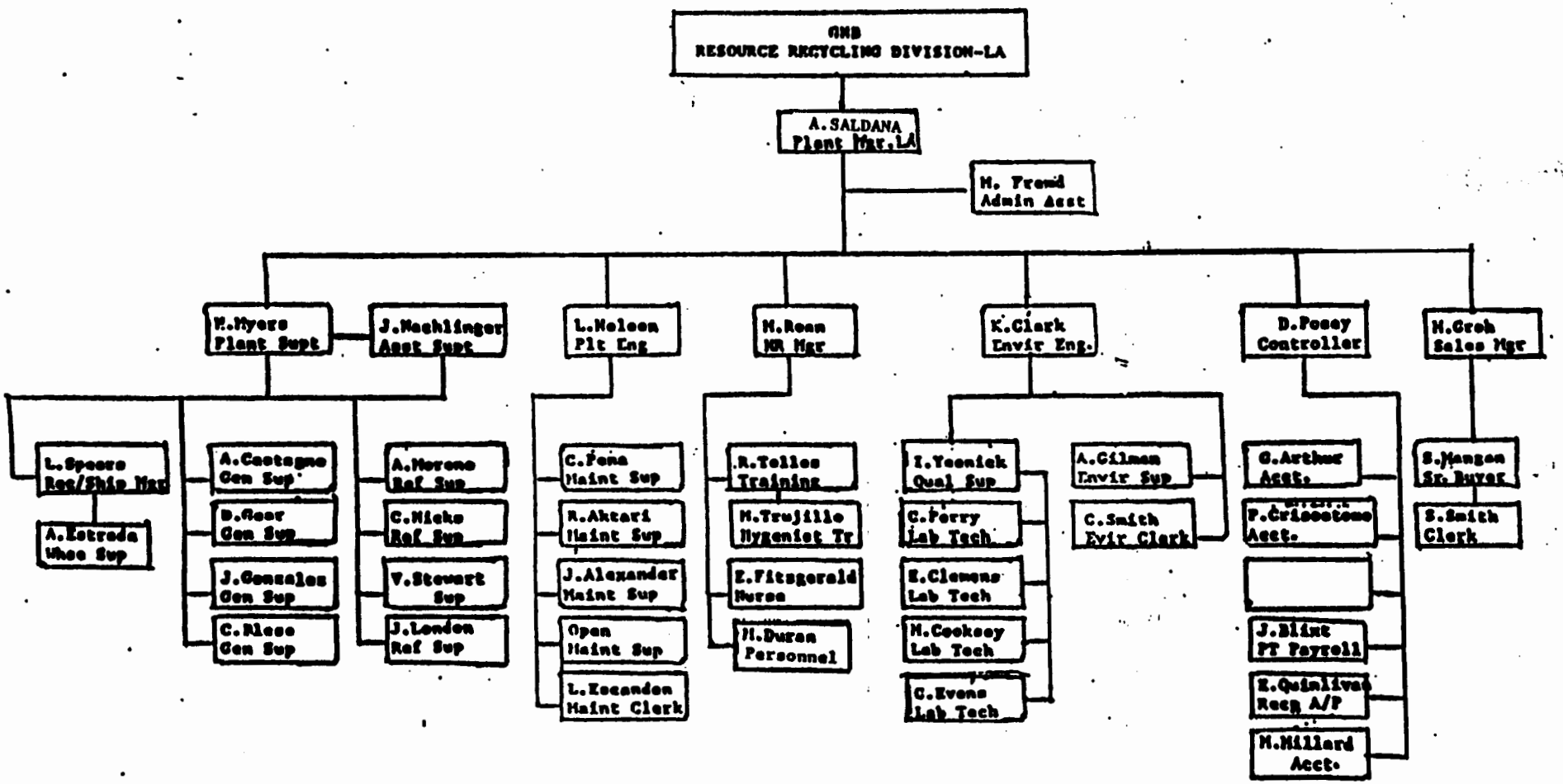
LIST OF HAZARDOUS SUBSTANCES

1-12-89

The following is a list of all known hazardous or potential hazardous substances present.
Specific information on each noted hazardous substance can be obtained by reviewing the Material Safety Data Sheets.

Lead
Lead Oxide
Lead sulfate
Battery acid (20% sulfuric acid)
Propane
Oxygen - liquid
Diesel oil
Sodium hydroxide
Sodium carbonate
Calcium metal
Phosphorus - red
Ammonium chloride
Sulfur
Sodium nitrate
Aluminum metal
Selenium metal
Hydrogen - compressed gas
Acetylene - compressed gas
Argon - compress gas
Potassium hydroxide
Safety-Kleen solvent
Solvent degreaser MR-678
68-A degreaser
   sodium metasilicate
   trisodium phosphate
Paints, paint thinners and adhesives (petroleum naphtha, petroleum hydrocarbons)
Methyl ethyl ketone
Ferric chloride solution
Betz Entec 321
   acrylate copolymer
Betz Entec 351
   organophosphonate
   phosphate salts, aromatic
Hydrated lime
Arsenic, metallic
Tennant 601 floor cleaner
Lubricants 705 (Pennzoil)
Degreaser SC-X100
Gasoline
Muriatic acid
Hydrogen peroxide

Rust-Ban 392 (petroleum hydrocarbons)
Rust Pel #42 (mineral spirits)
Unocal Steaval A (petroleum hydrocarbons)
Molub-Alloy 40 (petroleum base lube oil)
Molub-Alloy 5 (petroleum base lube oil)
Molub-Alloy 655 XHT (petroleum base lube oil)
Molub-Alloy 690 XHT (petroleum base lube oil)
Molub-Alloy 777 XHT (petroleum base lube oil)
Molub-Alloy 814 XHT (petroleum base lube oil)
Ridge Nu-Clear (sulfurized petroleum hydrocarbons)
Ridge Dark Cutting Oil (sulfurized petroleum hydrocarbons)
Molub Alloy Chain Oil 22 (petroleum base lube oil)
Plasite 947 Caulking Compound (vinyl ester MEK peroxide)


GNB
RESOURCE RECYCLING DIVISION-LA
A. SALDANA
Plant Mgr. LA
M. Fremd
Admin Asst
M.Myers
Plant Supt
J.Machlinger
Asst Supt
L.Nelson
Plt Eng
M.Ream
HR Mgr
K.Clark
Envir Eng.
D.Posey
Controller
M.Greb
Sales Mgr
L.Speers
Rec/Ship Mgr
A.Estrada
Whse Sup
A.Castagne
Gen Sup
D.Geer
Gen Sup
J.Gonzales
Gen Sup
C.Riese
Gen Sup
A.Moreno
Ref Sup
C.Hicks
Ref Sup
V.Stewart
Sup
J.London
Ref Sup
C.Pena
Maint Sup
R.Akturi
Maint Sup
J.Alexander
Maint Sup
Open
Maint Sup
L.Kocanden
Maint Clerk
R.Telles
Training
M.Trujillo
Hygeniet Tr
E.Fitzgerald
Nurse
M.Duran
Personnel
I.Yesnick
Qual Sup
C.Perry
Lab Tech
E.Clemens
Lab Tech
M.Cookesy
Lab Tech
C.Evens
Lab Tech
A.Gilman
Envir Sup
C.Smith
Evir Clerk
G.Arthur
Acct.
F.Criscotone
Acct.
J.Blint
PT Payroll
E.Quinlivan
Recn A/P
M.Millard
Acct.
S.Mangan
Sr. Buyer
S.Smith
Clerk

HAZARDOUS NON-ROUTINE TASKS

Prior to starting work on hazardous non-routine tasks, each effected employee will be given information by their supervisor about hazards to which they may be exposed during such an activity.

This information will include measures that the company has taken to lessen the hazards including ventilation, respirators, presence of another employee and emergency procedures.

INFORMING CONTRACTORS

It is the responsibility of the plant safety director to provide contractors the following information:

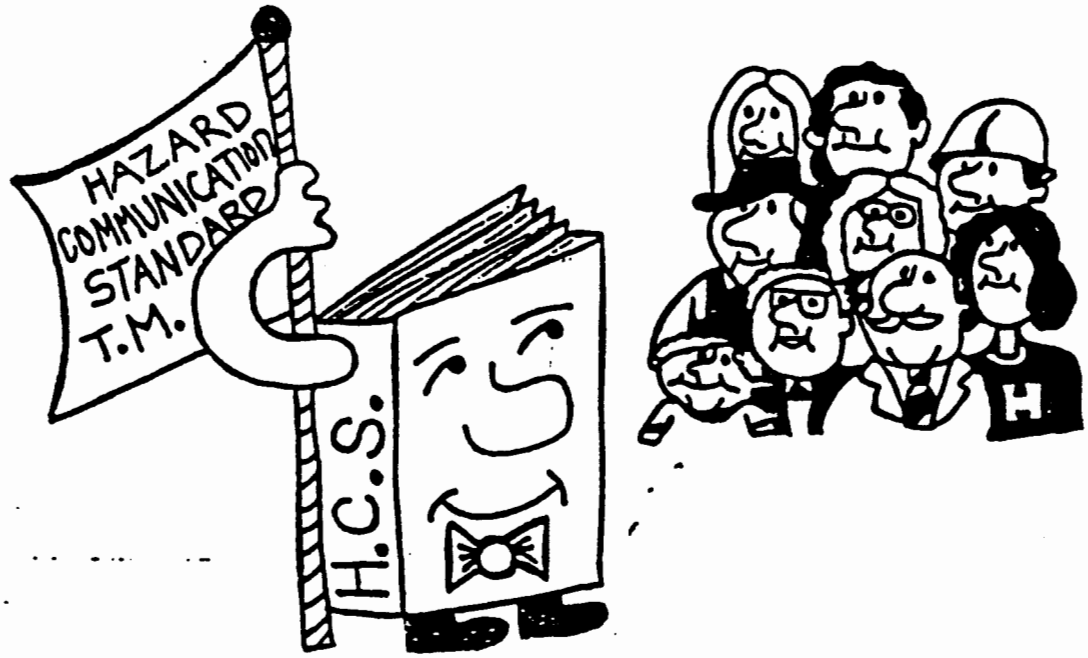
- Hazardous substances to which they may be exposed while on the jobsite.
- Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures.

GENERAL

If anyone has questions about this plan contact the plant safety director. Our plan will be monitored by the M&M Health and Safety Consultant to ensure that the policies are carried out and that the plan is effective.

GNB INCORPORATED

HAZARD COMMUNICATIONS MANUAL



TRAINING MANUAL OUTLINE

I. INTRODUCTION.....2

II. YOUR RIGHTS.....3

III. KNOW THE LABELING SYSTEM.....4-8

IV. HOW TO READ AND UNDERSTAND AN MSDS.....9-16

V. WHERE AND HOW TO GET THE INFORMATION YOU NEED...17

You have just watched "Right to Know", a program that illustrates the importance of knowing how to protect your health and safety when working around hazardous substances. Access to information about such substances is your right, as specified under federal standards 29CFR 1910.1200. Even more important, it makes good sense for you to know the nature of potential hazards, the measures you should take to protect yourself, and what to do in case of an accident!! It's your right to know.

A great deal of information is available to you, ranging from warning signs and labels to training and communications programs like this one. Of course, it isn't necessary for you to try to become a technical expert on the hazardous substances you might encounter in the workplace, but it is important to know the general hazards, and precautions for all the materials you work with. And it is important for you to know how and where to find technical data, or other specific information, should the need ever arise.

"YOUR RIGHTS"

* You have the right to information about the known and suspected health hazards of the toxic substances to which you are exposed in the normal course of employment.

* You have the right to information concerning the location of any operations where hazardous chemicals are present in your workplace, as well as the location and availability of your written hazard communication program, including the required list of hazardous chemicals and Material Safety Data Sheets in the workplace.

* You have the right to information in the form of training, on labels and Material Safety Data Sheets, and how to obtain them; specific methods of detecting hazardous chemicals, as well as the hazaards of chemicals in the workplace, and the protective measures that you can take against these hazards.

You have to do something to protect yourself, too. You have to read labels and Material Safety Data Sheets, and naturally, follow their instructions and warnings.

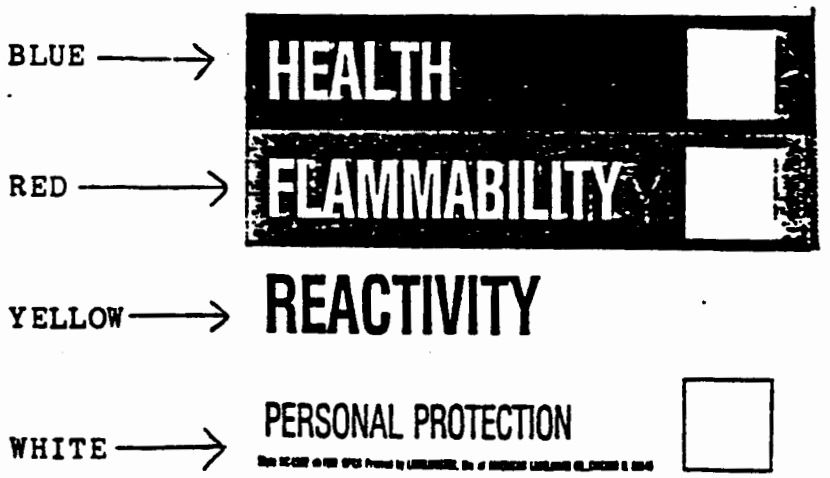
We as an employer have a big responsibility to educate you about chemical hazards and how to stay safe on the job; but it's up to you to follow these instructions.

THE LABELING SYSTEM

The Hazardous Mateials Identification system shows everyone how to safely handle the materials they work with.

Each of the colors stands for a specific kind of hazard and the number in that color indicates how much of a potential hazard it is...the white part of the label tells you what kind of protective equipment to wear when working with it.

<u>COLOR</u>

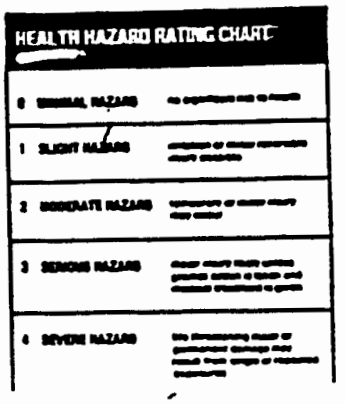


This is the key to the whole system. All of the raw materials in the facility have one of these four colored labels on it.

Let's look at each of these colors separately.

HEALTH

The blue section indicates health. The overall level of the health hazard from contact with the materials is scaled 0-4. 0 is the minimum and 4 the most severe level of the hazard.



There are a lot of ways you can come into contact with materials in the facility---

* You can get it on your hands.
* It can splash and soak through your clothes.
* You can breath the dust or vapors.

Note: Some materials cause health problems immediately. They are ACUTE Hazards.

Other materials are Chronic Hazards - They take time but with repeated exposure could have disastrous effects.

List, if any, materials in your work area that would be classified as acute:

_____

_____

_____

_____

_____

_____

List, if any, materials in your work area that would be classified as chronic:

_____

_____

_____

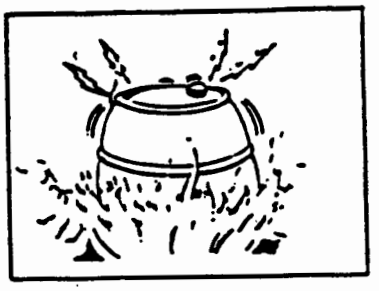
_____

_____

_____

FLAMMABILITY

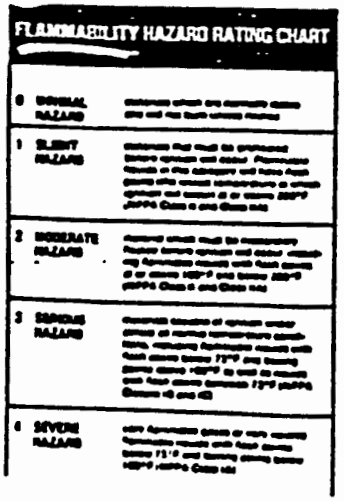
The red section indicates flammability. A 0-4 scale for this section is also used.



A good number of the materials we use might not burn at room temperature, but if they are heated, they can become flammable. Materials rated zero will not burn unless they are heated to very high temperatures.

List, if any, materials with a flammable rating of 3 or 4 in your work area.

4 rating	3 rating



REACTIVITY

The yellow section indicates how stable the material is.

REACTIVITY HAZARD RATING CHART

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

Very few of the materials we use will explode under any condition. Those that will are handled with great care.

Most chemicals we use are rated zero, which indicates that they are chemically stable even in fire.

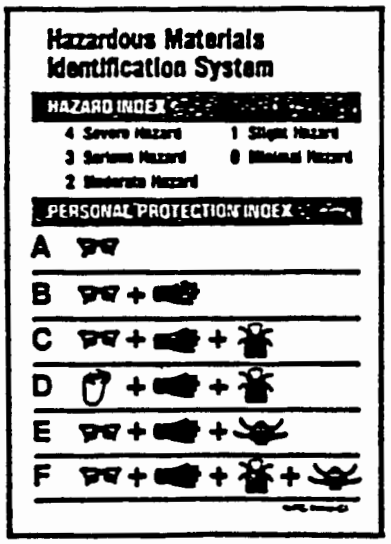
PERSONAL PROTECTIVE EQUIPMENT

Our workers are protected in a lot of different ways. Engineering controls are the most important means of protection.

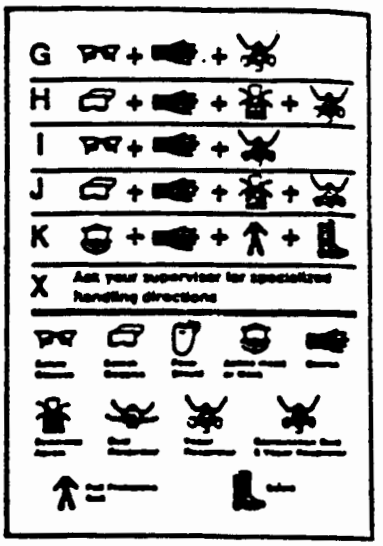
We also have operating procedures and work practices that eliminate a lot of hazards... but sometimes you still need to use personal protective equipment.

The letter in the white section tells you what equipment to wear when you're handling that material. For example, something marked "B" means you have to wear gloves and safety glasses to handle it safely.

WALLET CARD



FRONT



BACK

You will be provided with a wallet card that explains the system. You need to carry this wallet card with you at all times.

THE MATERIAL SAFETY DATA SHEETS

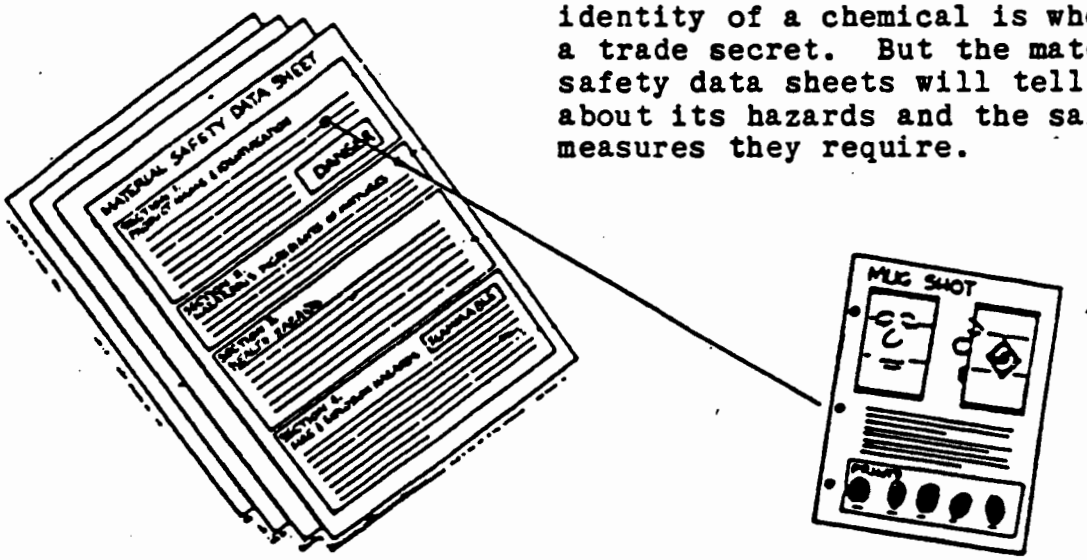
The Material Safety Data Sheet is your guide to workplace safety.

This basic hazard communication tool gives details on health and physical dangers, safety procedures, and emergency response techniques.

The Material Safety Data Sheet covers:

1. Identity, including the chemical and common names of the substances, its CAS and other identifying numbers, who makes it, and the degree of hazard it presents.

   The only time you won't find the identity of a chemical is when it's a trade secret. But the material safety data sheets will tell you about its hazards and the safety measures they require.



SECTION 1: IDENTIFICATION

<u>Product</u> - commercial or marketing name

<u>Manufacturer's Name & Address</u> - self explanatory

<u>Chemical Trade Name</u> - commercial or marketing name

<u>Synonyms</u> - approved chemical name, common name and/or synonym

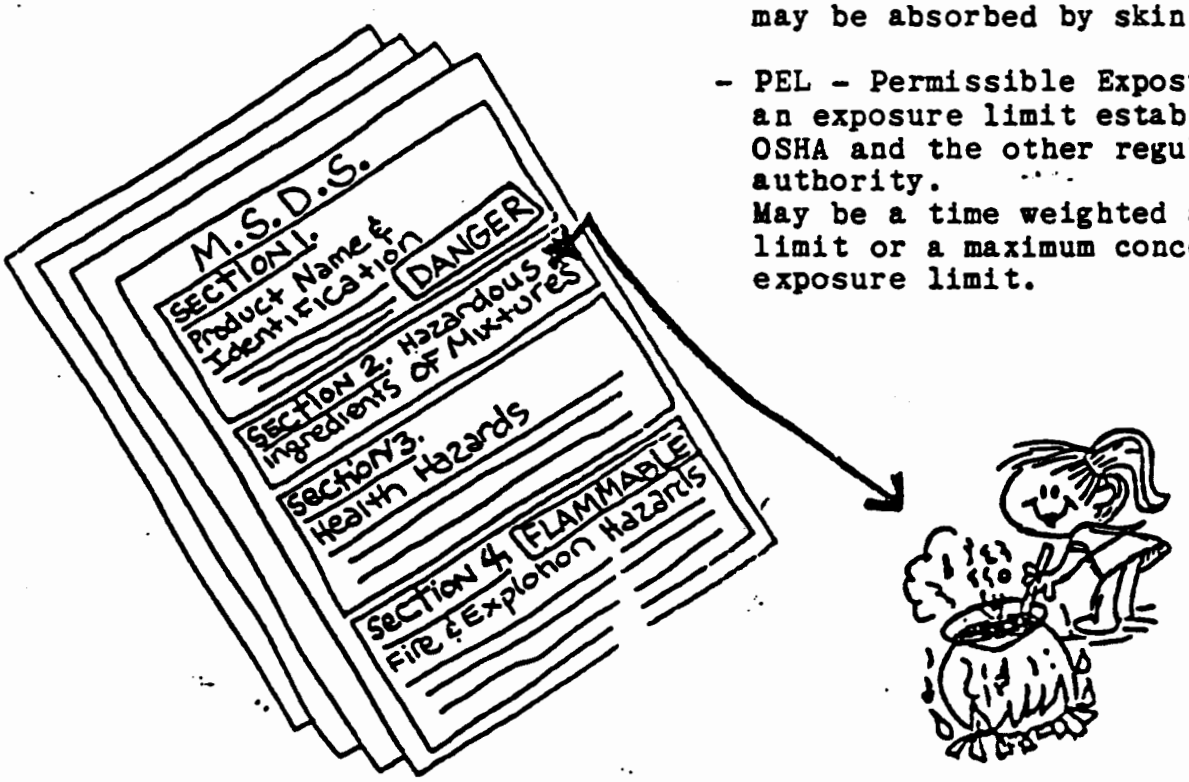
<u>CAS #</u> - number assigned to chemicals or materials by <u>C</u>hemical <u>A</u>bstract <u>S</u>ervice.

<u>Chemical Family</u> - group of chemicals with related physical and chemical properties.

SECTION 2: INGREDIENTS

- Materials or Components - all materials or components.
- Percentage by Weight of Each Listed Component of a mixture
- CAS # - of each component
- HAZARD DATA - exposure data. OSHA permissible exposure limit (PEL); American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV); Other Exposure Limits.

  - TLV - Threshold Limit Value - American Conference of Governmental Industrial Hygienists' term for allowable exposure levels. May be expressed as:
  - TLV-C ceiling level; this level should never be exceeded
  - TLV-STEL - short-term exposure level
  - TLV-Skin - indicates that material may be absorbed by skin.
  - PEL - Permissible Exposure Limit- an exposure limit established by OSHA and the other regulatory authority.
    May be a time weighted average limit or a maximum concentration exposure limit.



SECTION 3: HEALTH HAZARD

Health Hazard Data - defines the medical signs and symptoms that may be encountered with normal exposure or overexposure to the material or its components.

a. Routes of Entry - means by which material may gain access to the body:

Skin absorption - ability to pass through the skin into the blood stream.

Inhalation - the drawing of a substance into the body (lungs) through the nose, mouth and breathing passages in the form of a gas, vapor, mist or dust.

Ingestion - the taking in of a substance into the body through the mouth (swallowing).

b. Nature of Effects and Types - definitions

Acute - effects which occur rapidly as a result of a short-term exposure or short duration, i.e., irritation, corrosivity, sensitization, narcissus, etc.

Chronic - effects which occur as a result of long term exposure and are of long duration; example, carcinogenicity, chronic bronchitis, liver atrophy, etc.

Corrosive - a chemical that causes visible destruction of or irreversible alterations in living tissues, by chemical action at the site of contact.

Sensitizer - a chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissues after repeated exposure to the chemical.

Carcinogen - a chemical which has been shown or suspected of causing cancer if a material is listed in:

- Annual Report on Carcinogens published by National Toxicology Program.
- Regulated by OSHA
- International Agency for Research on Cancer

Headache

Eye irritation

c. Other Terms

Allergic Reaction - an abnormal physiological response to a chemical or physical stimuli by a sensitive person.

Asphyxiant - a vapor or gas which can cause unconsciousness or death by suffocation - simple and chemical types.

Erythema - a name applied to redness of the skin which may result from exposure to a substance or product.

Mutagen - a substance or agent capable of altering the genetic material of a living cell.

Narcosis - a state of stupor, unconsciousness or arrested activity produced by the influence of narcotics or other chemicals.

Systemic Toxicity - the adverse effects caused by a substance which affects the body in a general rather than a local manner.

Target Organ - that specific organ where the effect of a toxic chemical is evident.

Teratagen - a substance upon exposure to the parent which causes malformations and/or alterations in the appearance or function of the fetus.

d. Toxicity Data - found in NIOSH Registry of toxic effects or other toxicology publications.

LD-50 - lethal dose at which 50% of animal population dies. Note animal species and routes of exposure; administered via injection, skin absorption, etc.

LC-50 - lethal concentration at which 50% of the population dies from airborne inhalation of a substance.

Environmental Toxicity - information obtained as a result of conducting environmental testing designed to study the effects on aquatic and plant life.

Skin rashes

Nausea,
Dizziness,

SECTION 4: FIRE AND EXPLOSION HAZARD

Fire and Explosion Hazard indicates hazards such as fire and explosion and ways to handle these hazards, such as fire fighting equipment and procedures.

a. Flashpoint - minimum temperature (either C/F) at which a liquid (or volatile solid), gives off sufficient flammable vapors to form, with air, an ignitable mixture.

   Test Methods: TOC - Tag Open Cup
   COC - Cleveland Open Cup
   SETA - Seta Flash Closed Tester
   TCC - Tag Closed Cup

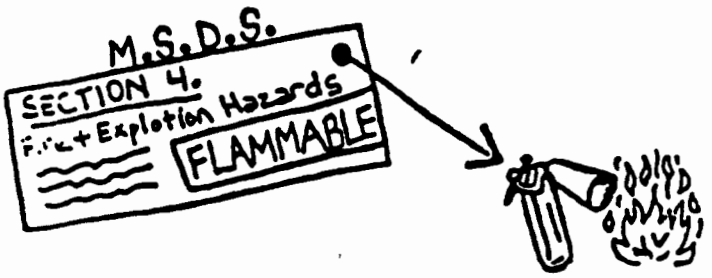
b. Flammable Limits - Percent of Vol/Air. This area indicates the range of gas or vapor concentrations in the air that may ignite or explode if an ignition source is present.

c. Autoignition Temperature - the approximate temperature at which a flammable gas-air mixture will ignite without a spark or flame. Vapors and gases will spontaneously ignite at lower temperatures in oxygen than in air.

d. Extinguishing Media - appropriate extinguishing agents; water spray, fog, stem/water. CO_2 - carbon dioxide; dry chemical - a powdered fire extinguishing agent usually composed of sodium bicarbonate, potassium bicarbonate, etc., foam - a stable aggregation of small bubbles made by mixing air into a water solution containing a concentrate utilizing suitably designed equipment.

e. Special Firefighting Procedures - appropriate equipment and methods are indicated for limiting hazards encountered in fire situations.

f. Unusual Fire and Explosion Hazards - hazards and/or conditions which may cause fire or exlosion.



SECTION 5: PHYSICAL DATA

Physical Data are items such as:

a. Boiling Point - temperature at which a liquid changes to a vapor state.

b. Melting Point - temperature at which a solid substance begins to change to a liquid state.

c. Freezing Point - temperature at which a liquid will freeze.

d. Molecular Weight - weight of substance based on chemical formula.

e. Specific Gravity Ratio - volume weight of material to equal volume weight of water usually at 60 °F., unless otherwise specified.

f. Vapor Density (Air=1) - weight of a vapor or gas compared to the weight of an equal volume of air.

g. plt - measure of the degree of acidity or alkalinity; plt 7 = Neutral; plt 8-14 = alkaline or basic; 1-6 = acidic.

h. Solubility in H_2O - the percentage of material that will dissolve in water, usually at ambient temperature unless specified otherwise.

i. % Volatiles by Volume - percentage of a liquid or solid, by volume that evaporates at a temperature of 70 °F.

Negligible	.1%
Slight	.1% - 1%
Moderate	1 - 10%
Appreciable	10%

j. Evaporation Rate - usually expressed as a time ratio with ethyl ether = 1 unless specified otherwise.

k. Appearance and Odor - color, physical state at room temperature, size of particles, consistency, odor, as compared to common substances. Odor threshold refers to the concentration required in the air before vapors are detected or recognized.

SECTION 6: REACTIVITY

Reactivity tells you if the substance is stable. You'll learn which substances and situations to keep it away from so it will not react.

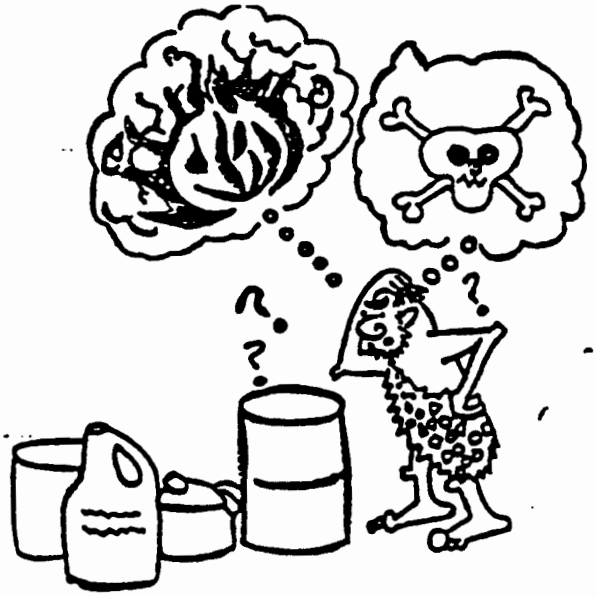
a. Stability - determine if material is stable or unstable under reasonable foreseeable conditions of storage, use or misuse.

b. Incompatibility - information on common materials and contaminates with which the product may reasonably come into contact to produce a reaction which would release large amounts of energy.

c. Hazardous Decomposition Products - hazardous materials produced in dangerous amounts by burning, oxidation or by heating in welding, or burning. Thermal decomposition products, such as CO, CO_2, and hydrochloric acid form vinyl chloride plastics.

d. Hazardous Polymerization - hazardous polymerization is that which takes place at a rate which releases large amounts of energy.

e. Conditions to Avoid - conditions encountered during use, storage or abuse which could cause instability.



Reactivity tells you if the substance is stable. You'll learn which substances and situations to keep it away from so it will not react.

SECTION 7: SPILLS, LEAKS AND DISPOSAL INDICATES

a. Steps to be taken if material is released or spilled; procedures, precautions and methods of clean-up of spills.

b. Waste Disposal Methods - appropriate disposal methods as required for safety and environmental protection.

SECTION 8: HANDLING AND STORAGE

a. Ventilation - recommended air flow schemes to limit hazardous substances in the air.

b. General - removal of contaminated air from a large area by an air circulation or exchange system.

c. Local - a system for capturing and exhausting contaminants from the air at the point where the contaminates are released.

M.S.D.S. REQUEST PROCEDURE

If you wish to see a certain Material Safety Data Sheet for a product or raw material with which you are working, you have the right to do so, but must follow the following procedural steps.

1. Contact your immediate supervisor and request to see the needed M.S.D.S.

2. Your supervisor will, within a reasonable time, produce the requested M.S.D.S. for your inspection. (Usually at break, lunch or after work).

If you wish to have a copy of a particular M.S.D.S. for a product or material with which you are working, you should:

1. Request an M.S.D.S. request form.

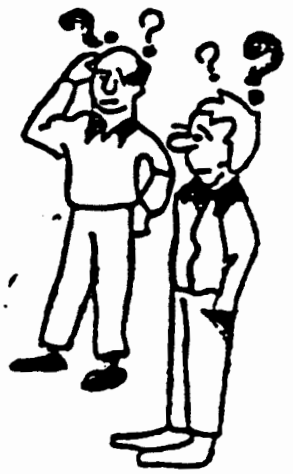
2. Fill the request form out with all necessary information.

3. Return the request form to your supervisor.

4. Your supervisor will supply you with the M.S.D.S. copy within a reasonable time of your request.

If you have any questions about either the M.S.D.S. or the product or material involved, please direct them to your immediate supervisor.

M.S.D.S.'s are located AT THE DEPARTMENT OFFICE.
The written hazard communication program is located AT THE TRAINING MANAGER'S OFFICE.



But, remember, hazard communication can protect only if YOU:

- Read labels and Material Safety Data Sheets;
- Know where to find information about your chemicals;
- Follow warnings and instructions;
- Use the correct protective clothing and equipment when handling hazardous substances;
- Learn emergency procedures;
- Practice sensible, safe work habits.

A lot is up to YOU now

Your company and the government have gone to a lot of trouble to protect you. But the only person who can keep you safe every day on the job is you. Make these common sense rules part of your job:

- Identify hazards before you start a job;
- Respect all precautions - don't take chances;
- Ask your supervisor when in doubt;
- Know in advance what could go wrong and what to do about it;
- Know how and where to get help;
- Learn basic first aid measures.

RESPIRATORY PROTECTION AND TRAINING PROGRAM

1. Proper selection
   A. Self-Contained Breathing Apparatus
      Demand - air metered when breathing
      Positive pressure - air flow continuously positive
   B. Air purifying
      Mechanical filter
      Chemical cartridge
      Combination
      Gas mask
2. Instruction
   A. Nature of hazard
   B. Correct use
   C. Limitations
   D. Actual use
   E. Field training emergency
   F. Fit test
3. Supervision
4. Medical surveillance
5. Cleaning and disinfecting
6. Inspection and maintenance
7. Storage
8. Approvals

RESPIRATORY PROTECTIVE DEVICES

INTRODUCTION

In the control of occupational disease caused by breathing contaminated air, the primary objective should be to prevent the air from becoming contaminated. If industrial work processes present hazards of exposure to harmful vapors, gases, dusts, mists, or fumes, these processes should be enclosed or ventilated to eliminate or minimize the hazards. However, there are circumstances in which engineering controls, will be impractical, inapplicable, or ineffective. In these situations, respiratory protective equipment should be provided to workers exposed to possible danger. In addition to their employment as a control measure in occupational exposures, respiratory protective devices are also essential in emergencies that may arise from failure or improper use of other control equipment.

From a practical standpoint, respiratory protective devices will not be worn continuously by workers because of the discomfort involved. Therefore, protective respiratory equipment should be considered a last resort, or as standby protection, but never as a substitute for effective engineering controls.

TYPES OF RESPIRATORY PROTECTION

Respiratory protective devices fall into two broad groupings on the basis of their mode of functioning: A. atmosphere supplying respirators, and B. air-purifying respirators.

A. Atmosphere-supplying respirators provide a respirable atmosphere to the wearer independent of the immediate atmospheric environment. They are divided into two main subgroups:

1. SELF-CONTAINED BREATHING APPARATUS (SCBA).

   The unique feature of all types of self-contained breathing apparatus is that the wearer need not be connected to a stationary air source, such as a compressor. Instead, enough air or oxygen for up to four hours is carried on the person. For this reason, this type of respirator provides protection against all types of atmospheric contaminants in any concentration that can be endured by the skin. There are two basic classifications of SCBA's - "closed circuit" and "open circuit".

   In the close circuit category, the air is rebreathed after the exhaled carbon dioxide has been removed and the oxygen content restored. These types of devices are designed for longer continuous use than the open circuit devices which exhaust the

exhaled air to the atmosphere instead of recirculating it. Because closed circuit SCBA's operate under negative pressure, they have limited approval for use in atmospheres classified as "Immediately Dangerous to Life and Health", (IDLH). They are generally restricted to mine rescue.

NOTE: Immediately Dangerous to Life and Health (IDLH) is defined by NOISH as "Conditions that pose an immediate threat to life or health or conditions that pose an immediate threat of severe exposure to contaminants such as radioactive materials which are likely to have adverse cumulative or delayed effects on health".

Two factors are considered when establishing IDLH concentrations:

1. The worker must be able to escape without losing his life or suffering permanent health damage within 30 minutes. Thirty minutes is considered by OSHA as the maximum permissible exposure time for escape.

2. The worker must be able to escape without severe eye or respiratory irritation or other reactions that could inhibit escape.

2. SUPPLIED-AIR RESPIRATORS

The distinguishing feature of supplied-air respirators is that air is supplied from a stationary, remote source to the wearer through a hose. The air supplying respirators are divided into three types, namely hosemasks, air-line respirators, and abrasive blasting hoods.

NOTE: No supplied-air respirator is approved for use in IDLH atmospheres.

a. Hose masks supply air from an contaminated source through a strong, large-diameter hose. There are two basic types of hosemasks available. One has a blower, either hand or motor operated, (Type A). The other type, (Type B), of hosemask has no blower and requires the wearer to inhale through the hose. The Type "A" hosemask may have a facepiece, helmet, or hood, and up to 300 feet of hose. Type "B" hosemask must have a tight fitting facepiece, and may have only up to 75 feet of hose.

b. Airline respirators, (Type C), all use a stationary source of compressed air delivered through a high pressure hose. Type "C" respirators are available in demand, pressure-demand, and continuous flow configurations. The respiratory-inlet covering may be a facepiece, helmet, hood, or complete suit. Airline respirators provide a high degree of protection, but their use is limited to atmospheres not immediately dangerous to life.

c. Abrasive Blasting Respirators, (Type AE, BE, or CE), are essentially air supplying respirators that have been modified by the addition of a suitable covering to protect the head and shoulders against impact and abrasion by rebounding material. They are designed principally for use in abrasive blasting operations.

B. Air purifying respirators remove gaseous or particulate contaminants, or both, from otherwise respirable air that is inhales by the wearer. They are of no use where an oxygen deficiency exists, or in IDLH atmospheres. They are divided into the following types.

1. MECHANICAL FILTER RESPIRATORS

Mechanical filter respirators offer respiratory protection against airborne particulate matter including dusts, mists, metal fumes, and smokes. They consist of a soft resilient full or half-mask facepiece. Directly attached is one of several types of mechanical filters made up of some fibrous material which removes particles by physically trapping them as air is inhaled through the materials. NOISH certifies respirators for one or any combination of particulate hazards-nuisance, fibrosis producing, and/or toxic dusts, mists, and fumes. Mechanical filter respirators have been designed for protection against atmospheres which are not immediately harmful. They do not protect against gases or vapors or against an atmosphere deficient in oxygen (less than 19.5%). There is a practical limit for the concentration in which a mechanical filter respirator should be used. If the concentration is so high that the filter must be changed several times an hour in order that the wearer can inhale without undue resistance, a more suitable type of device should be selected.

2. CHEMICAL CARTRIDGE RESPIRATORS

Chemical cartridge respirators afford protection against high concentrations (up to 0.1 percent by volume, depending upon the contaminant) of certain acid gases and organic vapors by utilizing various chemical filters to purify the inhaled air. Chemical cartridge respirators are "non-emergency" respiratory protective devices and should never by used in dangerous atmospheres. It is necessary that oxygen be present at all times to support life (greater than 19.5%). Facepieces are the same as for mechanical filter respirators.

3. COMBINATION RESPIRATORS

Combination respirators use dust, mist, or fume mechanical filters plus a chemical cartridge for dual or multiple exposure. One common job where combination respirators should be used would be spray painting.

TABLE I

ATMOSPHERIC CONTAMINANTS TO BE PROTECTED AGAINST	COLORS ASSIGNED
Acid Gases	White
Hydrocyanic acid gas	White with 1/2 inch green stripe completely around the canister near the bottom.
Chlorine gas	White with 1/2 inch yellow stripe completely around the canister near the bottom.
Organic Vapors	Black
Ammonia gas	Green
Acid gases and ammonia gas	Green with 1/2 inch white stripe completely around the canister near the bottom.
Carbon Monoxide	Blue
Acid gases and organic vapors	Yellow
Hydrocyanic acid gas and chloropicrin vapor	Yellow with 1/2 inch blue stripe completely around the canister near the bottom.
Acid gases, organic vapors, and ammonia gases	Brown
Radioactive materials, excepting tritium and noble gases	Purple (magenta)

TABLE I (con't)

ATMOSPHERIC CONTAMINANTS TO BE PROTECTED AGAINST	COLORS ASSIGNED
Particulates (dusts, fumes, mists, fogs, or smokes) in combination with any of the above gases or vapors	Canister color for contaminant as designated above, with 1/2 inch gray stripe completely around the canister near the top
All of the above atmospheric contaminants	Red with 1/2 inch gray stripe completely around the canister near the top

INSTITUTING AN EFFECTIVE RESPIRATORY PROTECTION PROGRAM

If a respirator is to do the job for which it is chosen, it must be worn properly, kept clean, and in a good operating condition. Frequently workers do not know how to wear a respirator. If it is not clean, it is unpleasant to wear. OSHA 1910.134 outlines the requirements of a proper respirator program. There are 11 "Commandments", including the following points:

A. SELECTION

The use of a respiratory protective device is justified only after a consideration of the factors involved indicates that the device selected will provide satisfactory protection when properly used. In selecting respirators, the questions in Table II should be considered.

Another guide for the proper selection of respiratory protection is the Respirator Protection Factor which indicates how much protection a respirator provides. It is the ratio of the contaminant concentrations outside and inside the respirator, one must know both the actual contaminant concentration in the work area and the established time-weighted average concentration. Multiplying the time-weighted average concentration by the respirator protection factor gives the maximum concentration of the contaminant against which the particular type of respirator may be used.

Respirator Protection Factors are shown in Table III. These should be used unless greater factors have been determined for each worker quantitatively.

Tables II, III, and IV can provide enough information for choosing respirators for routine and emergency use.

B. INSTRUCTION

It is important that the wearer be properly instructed in the selection, use, and maintenance of the respirator by a competent person. No one should be permitted to wear a respirator unless they have been instructed in its use. Such instruction should cover:

1. Instruction in the nature of the hazard, whether acute, chronic, or both, and an honest appraisal of what may happen if the proper device is not used.

2. Explanation of why more positive control is not immediately feasible. This shall include recognition that every reasonable effort is being made to reduce or eliminate the need for respiratory protection.

3. A discussion of why this is the proper type of unit for the particular purpose.

4. A discussion of the device's capabilities and limitations.

5. Instruction and training in actual use (especially a respiratory protective device for emergency use) and close and frequent supervision to assure that it continues to be properly used.

6. Classroom and field training to recognize and cope with emergency situations.

   Training shall provide the employees an opportunity to handle the device, have it fitted properly, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and finally, to wear it in a test atmosphere.

C. SUPERVISION

After the wearer is instructed in the use of a respirator, adequate supervision should be given to assure that the proper device is being used properly for each exposure condition and the device is in good operating condition.

D. MEDICAL SURVEILLANCE

Workers should never be assigned to any operations requiring respiratory protection, until a physician has determined that they are capable physically and psychologically to perform the work using the respiratory protective equipment. Many plants have pre-employment physical examinations which aid in such evaluation, but additional checks may be necessary to determine suitability for specific assignment.

Should an employee have exposure to certain toxic materials, periodic examinations such as urinalysis or bioassay may be necessary even though the worker wears the proper respiratory protective equipment.

E. CLEANING AND DISINFECTING

Routinely used respirators should be cleaned after each use. If a respirator is used by only one individual, they should be briefed on the cleaning procedure. The respirator should be washed with warm water and soap, rinsed in clean warm water, and air dried in a clean place. The device should then be placed in a plastic bag for storage.

Respirators should also be disinfected at regular intervals. If the respirator is worn by the same person, disinfection once a week is probably satisfactory in most cases. A respirator that has been worn once should be thoroughly cleaned before it is given to another person to wear. The compounds generally considered to be the most reliable for disinfecting respirators are:

1. A hypochlorite solution (50 parts per million of chloring) for 2 minutes.

2. An aqueous iodine solution (50 parts per million of iodine) for 2 minutes.

3. A quaternary ammonium solution (200 parts per million of quaternary ammonium compounds in water with less than 500 parts per million total hardness).

   Live steam or very hot water (170 F), organic solvents, and ultraviolet light should not be used in disinfecting respirators because of their injurious effects, particularly on the rubber parts.

F. INSPECTION AND MAINTENANCE

Washing and disinfecting of respirators affords an opportunity to inspect them for repairs. In addition, they should be inspected thoroughly on a periodic basis, the time interval depending on the apparatus, conditions of use, and storage. Equipment for emergency purposes should be inspected once a month and after each use to be sure that it will be in good condition and immediately available if an emergency arises.

When it is necessary to replace worn or deteriorated parts, only those made specifically for the device by the manufacturer should be used, and the repair work should be accomplished by experienced personnel.

G. STORAGE

Respirators should be stored in dustproof containers (original cartons, cases, or plastic bags) away from sunlight, heat, extreme cold, and excessive moisture. A good procedure is to have a central place of storage where the respirators are kept clean. A check-out system, essentially the same as that used for tools, may be used for distribution of respirators to the proper workmen. The respirators should only be issued with the approval of an individual qualified to select the proper protection for exposure.

H. APPROVALS

All respirators provided in the plant should be certified by NIOSH. Bureau of Mines approvals are no longer in effect for any respirators. In some cases, manufacturers of respirators will help substitute approved respirators for non-approved BOM respirators which may still be in the plant. In general, approved respirators carry an approval number prefaced with "TC" and the now non-approved Bureau of Mines respirators have a "BM" prefix to the approval number.

TABLE II

RESPIRATOR SELECTION WORKSHEET

1. Material -
   a. Chemical Name _____
   b. Trade Name _____
   c. Formula _____
   d. TLV or TWA OSHA 1910.1000 _____ Current ACGIH _____

2. Form in which it will be used-
   a. Liquid? _____ b. Solid? _____ c. Gaseous? _____
   d. If gaseous, is it an organic vapor? _____ or acid gas? _____
   Other? _____

3. Maximum expected concentration -
   a. _____ parts per million, or
   b. _____ milligrams per cubic meter.

4. Will material be heated?
   a. If so, to what temperature? _____ F.

5. What is the odor threshold of the material? _____

6. At what concentration is the material considered to be immediately dangerous to life or health? _____

7. Can the substance be absorbed through the skin? _____

8. Irritant to eyes? _____ respiratory tract? _____ skin? _____

9. At what concentration is it an irritant? _____

10. If the substance is known to be flammable, what are the lower and upper flammable limits, in percent by volume? _____

11. What is the vapor pressure of the material? _____

12. Will material be mixed with other chemicals? _____ if so, give details.

    _____

    _____

13. Any possibility of oxygen deficiency? _____

14. Can good ventilation of the area be maintained? _____

15. Will exposure be continuous? _____ or intermittent? _____

16. Will the respiratory device be used for routine exposures, or will it be used as an escape device? _____

    _____

17. Provide as much detail as possible concerning exposure conditions.

    _____

    _____

TABLE III

RESPIRATOR PROTECTION FACTORS

Type	For	Range
Pressure demand, SCBA	Toxic gases, IDLH, Oxygen deficiency	10,000 x TLV
Emergency escape unit	Hazardous atmospheres, IDLH, oxygen deficiency, escape use only	Below IDLH concentration, oxygen level must be above 19.5% unless escape bottle is attached
Chemical cartridge, full face mask	Chemical hazards, with eye irritants	50 x TLV
Chemical cartridge, half face mask	Chemical hazards	10 x TLV
Half mask, particulate, disposable	Various dusts, mists, and fumes	5 x TLV

Following is a partial list of gaseous materials for which chemical cartridge respirators should not be used for respiratory protection regardless of concentration or time of exposure; this far-from-complete list is offered only as a guide of proper evaluation of the many contaminants found in industry. Contact MSA for further information on other specific materials.

- Acrolein
- Aniline
- Arsine
- Bromine
- Carbon monoxide
- Dasocyanates
- Dimethylaniline
- Dimethylsulfate
- Hydrogen cyanide
- Hydrogen fluoride
- Hydrogen selenide
- Hydrogen sulfide
- Methanol
- Methyl bromide
- Methyl chloride
- Methylene chloride
- Nickel carbonyl
- Nitro compounds:
  - Nitrobenzene
  - Nitrogen oxides
  - Nitroglycerin
  - Nitromethane
- Ozone
- Phosgene
- Phosphine
- Phosphorus trichloride
- Stibine
- Sulfur chloride
- Vinyl chloride

RESPIRATOR INSPECTION RECORD

1. DATE _____

2. NAME _____

3. TYPE/NO. _____

4. DEFECTS FOUND:

   a. Facepiece _____

   b. Inhalation valve _____

   c. Exhalation valve _____

   d. Headbands _____

   e. Cartridge holder _____

   f. Cartridge assembly _____

   g. Filter _____

   h. Harness assembly _____

   i. Hose assembly _____

   j. Speaking diaphram _____

   k. Gaskets _____

   l. Connections _____

   m. Other defects _____

   _____

SELF CONTAINED BREATHING APPARATUS

A. General Information

1. An SCBA provides clean air and is independent of the environment.

2. This type of respirator should be chosen for the following situations:

   a. Oxygen-deficient atmospheres

   b. In concentrations of chemicals over the IDH level

   c. Where the concentration is unknown

   d. When the chemical has inadequate warning properties below the permissible exposure limit.

3. There are two modes of operation: Demand and pressure demand.

4. No respirator, not even an SCBA, protects against contaminants that absorb through the skin or explosions caused by flammable vapors.

5. In industrial emergency response applications, entry into the life-threatening environments is not recommended - not even with SCBA's. The goal of emergency response is to limit an emergency without risking personal safety.

6. Do not use an SCBA if you have the following medical conditions:

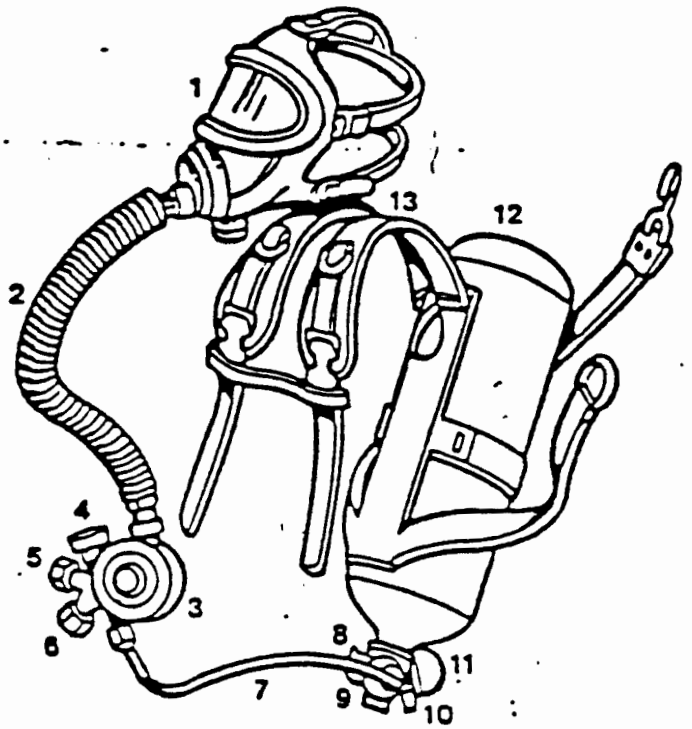
   a. Respiratory infection and/or congestion

   b. Wear contact lenses

   c. Punctured eardrum

   d. Claustrophobia

B. Parts of an SCBA



1. mask
2. low pressure hose
3. regulator
4. regulator gauge
5. by-pass valve
6. regulatory valve
7. high pressure hose
8. low pressure alarm
9. high pressure coupling
10. tank gauge
11. main valve
12. tank
13. backpack

C. RECOMMENDED SELF-CONTAINED BREATHING APPARATUS CHECK-OUT PROCEDURES

1. Check cylinder gauge for a "full" indication.

2. Check the connection between the cylinder and high pressure hose to assure that it is snug.

3. Check by-pass knob - it should be fully closed.

4. Check main line knob - it should be fully open, and the locking ring engaged.

5. Make sure don-use switch is in the don (up) position.

6. Open cylinder valve and check regulator gauge for comparison to cylinder gauge. (± 10%)

7. Close cylinder valve and watch regulator gauge for "creepage" (one increment on gauge is allowable, more indicates a leak).

8. Place mouth over regulator opening and take several breaths to make sure air is flowing.

9. With your mouth still over the opening, blow back into regulator until the diaphragm takes a seat. You should not be able to force air back into the system. (Very important step)

10. Place palm of hand over regulator opening and switch regulator to "use", (positive pressure) position (down), then slowly allow air to escape while watching regulator gauge. Bell should ring at about 500 psig on regulator gauge.

11. Switch regulator to don (up) position, open cylinder valve fully, engage locking ring.

12. Put unit on, adjust harness.

13. Stretch hose, check overall condition of mask (straps, lens, etc.).

14. Put mask on and adjust, starting with bottom straps, then temple straps and finally top strap.

15. Place palm over end of hose and inhale slowly until mask is drawn toward face, and hold breath for 10 seconds to see if there is any leakage in the facepiece-to-face seal.

16. With palm still over the end of the hose, exhale, noting if there is any leakage around the facepiece. (This step also clears exhalation valve.)

17. Connect breathing hose to regulator.

18. Always switch regulator to "use", (positive pressure) mode (down) before entry into hostile atmosphere.

D. Maintenance of an SCBA

1. SCBA's must be cleaned and sanitized after each use. Procedures are as follows:

   a. Make sure bottle has been replaced.

   b. Release all straps to their fully extended position.

   c. Remove mask.

   d. Using warm water and mild soap, wash the entire mask, inside and out. Pay special attention to the exhalation valve and underside of mask lip.

   e. Rinse in running warm water.

   f. Shake out excess water.

   g. Blot dry with soft cloth. Avoid scratching faceplate.

   h. Allow to air dry in a clean, dry place.

   i. Reattach mask to unit. Store in dust-free box or place mask in a tightly sealed bag to prevent it from getting dirty.

2. SCBA tanks must be filled with SCUBA grade air. Contact a local SCUBA shop, fire department or your dealer. Never use air from an unknown source.

DON - FIT CHECK EVALUATION SHEET

Pre-Donning checklist:

Each E.R.T. member will be evaluated on performance of the following:

1. Check cylinder pressure. (1 pt.)
2. Check high-pressure coupling. (must be hand tight) (1 pt.)
3. Check bypass valve. (should be closed) (1 pt.)
4. Check that hoses are in good condition. (1 pt.)
5. Straps are not damaged. (1 pt.)
6. Mask is in good condition and straps are fully extended. (1 pt.)

Donning:

1. Was SCBA donned in an acceptable manner? (5 pts.)

Fit Check:

1. Did wearer fit check respirator before proceeding with exercise? (5 pts.)

Time of Use Facepiece Seal Fit Check

A) Negative-Pressure Fit Check.

The inlet opening is closed off by covering with the palm of the hand or by squeezing the breathing tube or blocking its inlet so that it will not allow the passage of air. The wearer inhales gently and holds his/her breath for 10 seconds. If the facepiece collapses slightly and the wearer detects no inward leakage of air around the facepiece seal, the fit of the respirator is assumed to be satisfactory.

B) Positive-Pressure Fit Check.

The exhalation valve or breathing tube, or both, is/are closed off and the wearer exhales gently. If the facepiece inflates slightly and the wearer detects no outward leakage of air around the facepiece seal, the fit of the respirator is assumed to be satisfactory.

QUALITATIVE RESPIRATOR FIT TEST RECORD

Employee_____ Date_____

SSN_____ Mail Stop_____ Org. Code_____ Position Title_____

	mfr.	model	size
Respirator(s) selected: (1)	_____	_____	_____
(2)	_____	_____	_____
(3)	_____	_____	_____
(4)	_____	_____	_____

Odor sensitivity test(check) [] 0.4 [] ND cc stock/500 cc water

Taste sensitivity test(check) [] 10 [] 20 [] 30 [] ND squeezes

Conditions which may affect respirator fit test: (check)

[] Facial scar [] Wrinkles [] Other (Describe)
[] Dentures Absent [] Ruptured

Respriator Fit Test Performed:	Respirator 1	2	3	4
Positive pressure				
Negative pressure				
Isoamyl acetate				
Saccharin				
Irritant smoke				

(P=passed, F=failed, N=not run)

	mfr.	model	size
Respirator(s) Assigned: (1)	_____	_____	_____
(2)	_____	_____	_____

Prescription eyeglass adapter required for full facepiece: [] Yes [] No

Comments:_____

I have received respirator protection training/fitting and understand the conditions under which it is to be used.

REQUEST FOR RESPIRATOR ISSUE AND APPROVAL

Name: _____ _____ _____
Last, First, M.I. Mail Stop Date

_____ _____ _____
Social Security Number Org. Code Position Title

TO BE COMPLETED BY EMPLOYEE'S SUPERVISOR

1. What type of work will the above employee be performing (briefly describe and include estimate of number of days per month and hours per day respirators may be worn)?

_____

2. What type of exposure - Dusts___ Vapor___ Mists___ Gases___ Fumes___

3. Is work considered (please circle)

Sedentary?	Yes	No
Mild exertion?	Yes	No
Marked exertion?	Yes	No

4. Is SCBA required? Yes No

5. Does job entail working in hot environment? Yes No

_____ _____
Supervisor Date

TO BE COMPLETED BY EXAMINING PHYSICIAN

1. Date of examination or medical review_____

2. Name_____

3. Type(s) of respirator(s) which can be worn_____

_____

4. List potential face-fit problems_____

5. Are spectacle inserts required for full face piece respirators

Yes_____ No_____

6. Other_____

7. Physician's signature_____

THIS EXAMINATION EXPIRES ONE YEAR FROM THE DATE OF COMPLETION

APPENDIX F
RE: SECTION 10
PRE-ARRANGED AGREEMENT LETTERS AND RESPONSES

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

City of Vernon Fire and Rescue
4305 Santa Fe Avenue
Vernon, CA 90058

Attn: Hazardous Materials Response Team Dispatcher

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

As such, we have prepared an Emergency Contingency Plan that names your company as a source of equipment, manpower, materials or services that could be available to us should an emergency condition exist at our facility. Location and description of the facility are attached.

In compliance with the regulation, we would like to invite a representative of your facility to meet with us at your earliest convenience to familiarize you with our operation and establish plans to handle any emergency that might arise in the future. If a personal visit is not deemed necessary, a phone call to discuss the subject would be greatly appreciated.

Since this request is based on a regulatory standard, we would appreciate your timely response as to whether or not you can assist us in establishing a pre-arranged plan to handle matters within your area of expertise.

Thank you for your assistance.

Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

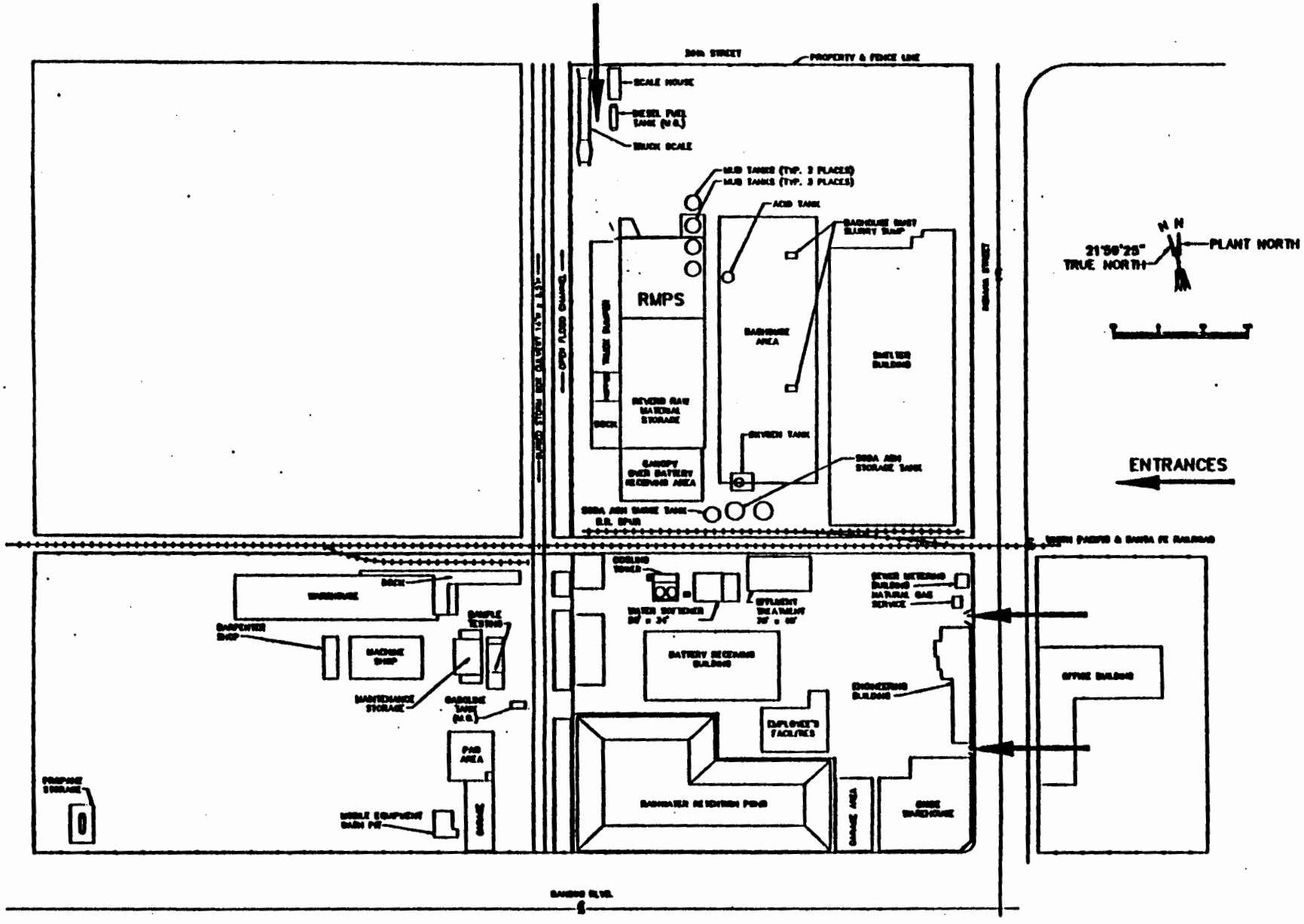
KGC:mlf

Description of the Facility:

GNB Incorporated
2700 S. Indiana Street
Vernon, CA 90023

Processes:

Recycles lead-acid batteries and battery manufacturing scrap to produce lead and lead alloys. Spent batteries and battery manufacturing scrap are separated into their various components and processed. Lead parts are processed by blast furnace or reverberatory furnace. Battery cases are broken, drained, and chipped. The acid is neutralized. Chips from the cases are washed and separated into rubber or plastic components. Plastic chips are sold to a reclaimer.



LAKE ENGINEERING, INCORPORATED
6000 LAKE FORREST DR. SUITE 350
ATLANTA, GEORGIA 30328

GNB, INCORPORATED
VERNON, CALIFORNIA

ACCESS MAP

Appendix D

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

City of Vernon Police Department
4305 Santa Fe Avenue
Vernon, CA 90058

Attn: Dispatcher

Gentlemen:

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Thank you for your assistance.

Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Los Angeles County Sheriff
11515 Colima Road
Whittier, CA 90604

Attn: Hazardous Waste Unit Dispatcher

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Telegraph Medical Clinic
6538 Telegraph Road
Commerce, CA 90040

Attn: Emergency

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

Septmber 27, 1988

Beverly Hospital
2nd and Harding
Montebello, CA 90640

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Rio Hondo Hospital
8300 E. Telegraph Road
Downey, CA 90240

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Spectrum Industrial Medical Clinic, Inc.
4730 Eastern Avenue
Commerce, CA 90040

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

California Office of Emergency Services
Hazardous Materials Division
2800 Meadowview Road
Sacramento, CA 95832

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Kerr-McGee Chemical Company
2975 Wilshire Blvd.
Los Angeles, CA 90051

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

FMC Chemicals
15453 Gale Avenue
City of Industry, CA 91745

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

General Chemical Company
P. O. Box 44131
San Francisco, CA 94144

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

A. J. Lynch Company
4560 E. 50th Street
Los Angeles, CA 90058

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Van Waters and Rogers
5353 Jillson Street
Los Angeles, CA 90040

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Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Industry Equipemnt Rentals
822 South Nogales
City of Industry, CA 91748

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

As such, we have prepared an Emergency Contingency Plan that names your company as a source of equipment, manpower, materials or services that could be available to us should an emergency condition exist at our facility. Location and description of the facility are attached.

In compliance with the regulation, we would like to invite a representative of your facility to meet with us at your earliest convenience to familiarize you with our operation and establish plans to handle any emergency that might arise in the future. If a personal visit is not deemed necessary, a phone call to discuss the subject would be greatly appreciated.

Since this request is based on a regulatory standard, we would appreciate your timely response as to whether or not you can assist us in establishing a pre-arranged plan to handle matters within your area of expertise.

Thank you for your assistance.

Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Clarklift of Los Angeles
8314 E. Slauson Avenue
Pico Rivera, CA 90660

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

J & J Rentals
13628 Valley Boulevard
City of Industry, CA 91746

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Adco Equipment
P. O. Box 2100
City of Industry, CA 91746

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Oil Process Company
5756 Alba Street
Los Angeles, CA 90058

Attn: Al Thompson

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

JC Inc.
3650 E. 26th Street
Vernon, CA 90023

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Disposal Control Services
1369 W. 9th Street
Upland, CA 91786

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

J. H. Kleinfelder & Associates
~~901 W. Victoria Street~~ 17100 PIONEER BLVD.
~~Compton, CA 90220~~ ARTESIA, CA. 90701-2700

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

September 27, 1988

Woodward-Clyde Consultants
203 N. Golden Circle Drive
Santa Ana, CA 92705

Gentlemen:

In compliance with the rules and regulations of the California Department of Health Services, Toxic Substances Control Division, and as required by California Administrative Code, Division 4, Chapter 30, Article 19, Paragraph 67126, this letter is notice that GNB Incorporated at 2700 South Indiana Street, Vernon, California, operates a manufacturing plant that handles material that is classified as hazardous waste and includes an on-site waste treatment facility that is classified as a hazardous waste treatment facility.

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Thank you for your assistance.

Yours very truly,

GNB Incorporated

Kenneth G. Clark

Kenneth G. Clark
Tech. & Envir. Manager

cc: Regional Director
Plant Manager

Enclosure

KGC:mlf

POLICE DEPARTMENT

BOARD OF POLICE
COMMISSIONERS

LEONIS C. MALBURG, CHAIRMAN
THOMAS A. YBARRA
WILLIAM M. MCCORMICK

POLICE HEADQUARTERS
4305 SANTA FE AVENUE

L.A. ESPINOZA
POLICE CHIEF

PHONE
587-5171

CITY HALL
4305 SANTA FE AVE., VERNON, CALIF. 90058

October 7, 1988

Mr. Kenneth G. Clark
Technical & Environmental Manager
2700 S. Indiana St.
Los Angeles, CA 90023

Mr. Clark:

With reference to our meeting of October 7, 1988 regarding the contingency plan which is presently being prepared by GNB Inc., I would like to inform you that members of the Vernon Police Department would respond and assist as needed in the safe evacuation of GNB Inc. employees in the event of a toxic or hazardous incident that may take place.

Very truly yours,

VERNON POLICE DEPARTMENT

L. W. BROWN
LIEUTENANT

LWB/mlc

BEVERLY HOSPITAL
309 WEST BEVERLY BOULEVARD, MONTEBELLO, CALIFORNIA 90640 • PHONE (213) 726-1222 • 723-0951

October 19, 1988

Mr. Kenneth G. Clark, Tech. & Envir. Manager
GNB INCORPORATED
2700 South Indiana Street
P.O. Box 23957
Los Angeles, California 90023-0957

Dear Mr. Clark:

In reference to your letter of September 27, 1988 naming Beverly Hospital in your GNB Emergency Contingency Plan as a service source.

Beverly Hospital operates an Emergency Room 24 hrs. a day, 7 days a Week. We would be able to treat patients from your facility within the limits of our capabilities. The local Paramedic Units can provide for transportation to the Hospital.

If I can be of further assistance, please do not hesitate to contact me at (213)-725-4221.

Sincerely,

Richard Taylor
General Services Manager

RT:lb

SPECTRUM INDUSTRIAL MEDICAL CLINIC, INC.
DAVID B. LANDERS, M.D.
MICHAEL A. MIRKOVICH, M.D.

October 4, 1988

GNB Incorporated
Kenneth G. Clark
Tech. & Envir. Manager
2700 S. Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957

Re: CAL Admin. Code/Emergency Contingency Plan

Dear Mr. Clark:

Thank you for your letter of September 27, 1988 regarding the above.

Spectrum Medical is an occuaptional specialty treatment and evaluation center. As such, we are familiar with the ECP requirements for our clients.

We are pleased to be listed in your ECP document and are cognizant of the requirements of such.

We are familiar with the GNB facility from having visited previously and upon our close working relationship with your medical department. We review each and every Pre-Placement Physical Examination and Occupational Injury/Illness case with Ellie Fitzgerald, R.N.

Dr. Mirkovich and I are also especially familiar with lead and the requirements of the lead standard.

Rest assured that we stand ready to assist you should the need every arise on an emergency basis.

Best wishes.

Sincerely,

David B. Landers

David B. Landers, M.D.
Medical Director
DBL:dl

4730 EASTERN AVENUE
COMMERCE, CALIF. 90040
(213) 728-9078

FMC Corporation

Chemical Products Group
15453 Gale Avenue
City of Industry California 91745
818 330 0686

FMC

October 11, 1988

Mr. Kenneth G. Clark
Technical & Environmental Manager
GNB Incorporated
2700 South Indiana Street
Los Angeles, California 90023-0957

Dear Ken:

Thank you for taking time out of your busy day to show me around your facility. Your description of the process was very informative and I feel that we, as your supplier, have a better understanding of how to best meet your needs.

In reference to your letter of September 27, 1988, we at FMC will lend any assistance that we can, should an emergency arise. As we discussed, this assistance will most likely be in the form of emergency supplies of Soda Ash for spill treatment. If this should become necessary we can be reached at the following numbers:

Office (8:00 a.m. to 4:30 p.m., M-F)	(818) 330-0686
Bill DeKleine (home)	(714) 595-8800
Tom Taft (home)	(818) 961-2730
Lynda Hawthorne (home)	(818) 968-5834

If there is anything more we can do for you at this time, please let me know.

Sincerely,

William C. DeKleine

William C. DeKleine
Distribution Center Manager

WCD:lh

A. J. LYNCH & COMPANY
OILS :: PAINT RAW MATERIALS
CHEMICALS :: CONTAINERS

MANUFACTURERS' REPRESENTATIVES AND JOBBERS

4560 EAST 50th STREET
LOS ANGELES, CALIFORNIA 90058
(213) 583-2271
FAX: (213) 588-7486

8707 SAN LEANDRO STREET
OAKLAND, CALIFORNIA 94621
(415) 632-2520

PLEASE REPLY TO
4560 EAST 50TH STREET
LOS ANGELES, CALIF. 90058

October 7, 1988

Mr. Kenneth G. Clark
GNB INCORPORATED
2700 S. Indiana St.
Los Angeles, CA. 90023

Dear Mr. Clark:

We acknowledge receipt of your letter of September 27th, advising that you are a hazardous waste treatment facility, and that in an emergency situation, could require the availability of Sodium Hydroxide, or technical assistance.

In case of an emergency during regular business hours, please note our phone number above. Ask for Mr. Erickson or Mr. Morgan for technical assistance, or Oscar for product help.

If an emergency occurs during other than regular business hours, please call 714/551-0951 for Joe Wright. He will be able to contact the proper party to give you any assistance you require.

Very truly yours,

J.L. Wright

J.L. Wright

JLW/dc

Adco EQUIPMENT, INC.

RENTALS • SALES • SERVICE

P.O. Box 2100 / City of Industry, CA 91746

(213) 695-0748 (714) 670-0333

October 10, 1988

GNB Incorporated
2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA. 90023-0957
ATTN: Mr. Ken Clark

Dear Ken,

In reference to your letter dated 9-27-88 and our conversation of 10-7-88, Adco is prepared to provide the necessary equipment to you and your company when the time comes. Adco appreciates you listing us as one of your suppliers, if an emergency should take place. We would also welcome the opportunity to service you with equipment at other times, as your needs come up.

If there are any other questions, please do not hesitate to call.

Sincerely,

Lance Sorenson

Lance Sorenson
Sales Representative

Oil Process Company OPC

October 5, 1988

GNB Incorporated
Kenneth G. Clark
Tech. & Envir. Manager
2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957

Dear Mr. Clark:

We are in receipt of your letter dated September 27, 1988. After visiting your plant and observing your operation, we are studying your application.

Literature and a business card of Oil Process are now in your possesion. We will notify you of our observations of the washed battery chips with 2% lead, antimony, and arsenic in your rolloff, soon. In the meantime, Oil Process' expertise for spills, emergencies, and similar contingencies are available.

Thank you for your interest and kindness during my tour.

Very truly yours,

Robert Anderson

Robert Anderson
Oil Process Company

kt

ROBLTR.DOC

Telephone: (213) 585-5063 • 5756 Alba Street • Los Angeles, California 90058

INCORPORATED
Liquid Waste Disposal

October 18, 1988

Mr. Kenneth G. Clark
GNB INCORPORATED
Post Office Box 23957
Los Angeles, CA 90023-0957

Dear Mr. Clark:

This letter is in response to your letter of September 27, 1988 and our meeting on October 11, 1988.

J.C. Transportation, Inc. is qualified as a source of equipment, manpower, materials and services to be available to GNB should an emergency condition exist there.

Our facilities are available on a seven day a week, 24 hours per day basis. Simply call our dispatcher at the phone number listed below with as much information as you have regarding the emergency and we will send the necessary crews and equipment.

We appreciate the opportunity to serve you, should you have any questions, please call me.

Respectfully,

JC INC. LIQUID WASTE DISPOSAL

R. L. Moss

R. L. Moss

RLM/br

3650 East 26th Street Los Angeles, California 90023 (213) 268-3137

DISPOSAL CONTROL SERVICE, INC.

1369 W. 9th STREET, UPLAND, CALIFORNIA 91786
(800) 824-3345 (714) 983-0342

October 19, 1988

GNB Incorporated
2700 South Indiana Street
Los Angeles, CA 90023
Attention: Ken Clark

Dear Ken:

SUBJECT: Your letter dated September 27, 1988

Thank you for your extended courtesy during our facility visit. We have established a file with all of the relevant blueprints and data you supplied which outlines the location of your chemical storage areas as well as, the various components of your overall process.

If an emergency response becomes necessary this information will allow our responding personnel to have advance information, that will also expedite the response, and result in reduced costs.

From time to time we will visit and/or call to keep our file updated.

We are enclosing our company data, references, copies of permits and licenses, and an insurance certificate for your files.

Very truly yours,
DISPOSAL CONTROL SERVICE, INC.

JEANNE DELPERDANG
E.R. Project Coordinator/Chemist

JD/tt

Enclosures

203 North Golden Circle Drive
Santa Ana, CA 92705
(714) 835-6886
(213) 581-7164
Telex 68-3420

Woodward-Clyde Consultants

30 September 1988
Project No. 8841996D

GNB Incorporated
2700 South Indiana Street
Los Angeles, CA 90023

Attention: Mr. Ken Clark
Technical and Environmental Manager

SUBJECT: ASSISTANCE OF WOODWARD-CLYDE CONSULTANTS DURING PLANT EMERGENCY CONDITIONS

Dear Ken:

Woodward-Clyde Consultants is in receipt of your letter dated 27 September 1988 asking that we be available to assist GNB Incorporated should an emergency condition exist at the Vernon plant. We would be happy to assist GNB Incorporated in any way that we can during a plant emergency condition.

Yours truly,

WOODWARD-CLYDE CONSULTANTS

Steve Mulligan

Steve Mulligan
Senior Project Engineer

SM/jn
(SM/GNB-01)

APPENDIX G
RE: SECTION 11
ENVIRONMENTAL PERMITS

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2000-0474. Approval expires 4-3

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F C A D 0 9 7 8 5 4 5 4 1

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, a it in the designated space. Review the info ation carefully; if any of it is incorrect, cr through it and enter the correct data in appropriate fill—in area below. Also, if any the preprinted data is absent *(the area to left of the label space lists the informat that should appear)*, please provide it in proper fill—in area*(s)* below. If the labe complete and correct, you need not comp Items I, III, V, and VI *(except VI-B wh must be completed regardless)*. Complete items if no label has been provided. Refer the instructions for detailed item desc tions and for the legal authorizations ur which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP G N B I N C O R P O R A T E D

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 C L A R K K E N T E C H N I C A L M A N A G E R	2 1 3 2 6 2 1 1 0 1

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 2 7 0 0 S. I N D I A N A S T R E E T

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 L O S A N G E L E S	C A	9 0 0 2 3

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 2 7 0 0 S. I N D I A N A S T R E E T

B. COUNTY NAME

L O S A N G E L E S

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 V E R N O N	C A	9 0 0 5 8	0 3 2

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
7 3 3 4 1 (specify) Secondary Lead Smelting	7 (specify) NA
C. THIRD	**D. FOURTH**
7 (specify) NA	7 (specify) NA

VIII. OPERATOR INFORMATION

A. NAME: 8 GNB INCORPORATED

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ]

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.): A 612 681 500

E. STREET OR P.O. BOX: P. O. BOX 64140

F. CITY OR TOWN: B ST. PAUL

G. STATE: MN

H. ZIP CODE: 55164

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N	9 P
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**
9 U	9 (specify) See Attachment, Operation Plan
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
9 R	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must sh the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous wa treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surf water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Recycling of lead acid storage batteries and production of refined lead and lead alloys.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application an attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submit false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Edward L. Puckett General Manager	E L Puckett	2-7-91

COMMENTS FOR OFFICIAL USE ONLY

C

(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER: F C A D 0 9 7 8 5 4 5 4 1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facilit EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8			

[ ] 2. NEW FACILITY *(Complete item below.*

FOR NEW FACILI PROVIDE THE DA *(yr., mo., & day)* OP TION BEGAN OR EXPECTED TO BE

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided f entering codes. If more lines are needed, enter the code*(s)* in the space provided. If a process will be used that is not included in the list of codes below, it describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT MEASU COD
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	H
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	2. UNIT OF MEASURE (enter code)	FO OFFI US ON
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 1	137,300	G		7				
2	S 0 2	4,250	G		8				
3	T 0 1	110,000	E		9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER — Enter the four—digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four—digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminents of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

 CONTINUE ON PAGE

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W C A D 0 9 7 8 5 4 5 4 1 T/A C 1	W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	D002	44,500	T	T01	
2	K069	4,643	T	T01	
3	D008	170,500	T	T01	
4					
5					
6					
7					
8					
9					
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11					
12					
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22					
23					
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25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. (enter from page 1)

F C A D 0 9 7 8 5 4 5 4 1 T/A C 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
3 4 0 0 0 2 2	1 1 8 1 1 0 4 8

VIII. FACILITY OWNER

XXX A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

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

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Edward L. Puckett General Manager	E L Puckett	2-7-91

X. OPERATOR CERTIFICATION

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

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
Edward L. Puckett General Manager	E L Puckett	2-7-91

Continued from page 4.

V. FACILITY DRAWING *(see page 4)*

See attached Operation Plan

South Coast
AIR QUALITY MANAGEMENT DISTRICT

HEADQUARTERS, 9150 FLAIR DR., EL MONTE, CA 91731

NOVEMBER 06, 1990

GNB INCORPORATED
2700 S INDIANA ST
VERNON CA 90023

ID - 044551

PERMIT RENEWALS

PERMIT NUMBER	DESCRIPTION	APPLIC NUMBER	EXPIRATION DATE
M40004	BAGHOUSE - VALID FOR INACTIVATION ONLY	123780	11/01/91
M40005	BAGHOUSE - VALID FOR INACTIVATION ONLY	123781	11/01/91
M34466	OTHER AGGREGATE CONVEYING	123782	11/01/91
M40009	FURNACE REVERB (SWEATING) LEAD & TYPE	123801	11/01/91
M40012	BAGHOUSE - VALID FOR INACTIVATION ONLY	123805	11/01/91
M56001	BAGHOUSE - VALID FOR INACTIVATION ONLY	127145	11/01/91
M56003	FURNACE CUPOLA LEAD & TYPE METAL BAGHOUSE, HOT	127247	11/01/91
M56006	SODA ASH CONVEYING	137012	11/01/91
M56007	PLASTIC/RESIN SIZE REDUCTION MIST CONTROL	147525	11/01/91
M56008	FURNACE POT LEAD & TYPE METAL BAGHOUSE - VALID FOR INACTIVATION ONLY	151106	11/01/91
M56009	PLASTIC/RESIN SIZE REDUCTION MIST CONTROL	153016	11/01/91
D22935	FURNACE POT LEAD & TYPE METAL	178384	11/01/91
D22932	FURNACE POT LEAD & TYPE METAL	178385	11/01/91
D22933	FURNACE POT LEAD & TYPE METAL	178386	11/01/91
D23197	FURNACE POT LEAD & TYPE METAL	178387	11/01/91
D23195	FURNACE POT LEAD & TYPE METAL	178388	11/01/91
D23196	FURNACE POT LEAD & TYPE METAL	178391	11/01/91
D22934	FURNACE POT LEAD & TYPE METAL	178392	11/01/91
D22931	FURNACE POT LEAD & TYPE METAL	178393	11/01/91
M95180	STORAGE TANK GASOLINE	183380	11/01/91
D23190	STORAGE TANK FX RF W/CTL LPG	192994	11/01/91

INVOICE

For Information Call - 818-307-2200
Mail Remittance To: 9150 Flair Dr., El Monte, Ca. 91731

Invoice No. 044551-09-90

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301 authorizes the District to charge permit fees on the equipment identified below.

EQUIPMENT LOCATED AT: 2700 S INDIANA ST

INVOICE DATE 09/11/90

VERNON CA 900230000

ANNUAL BILL MONTH NOVEMBER

CO. ID. 044551

LEGAL OWNER OR OPERATOR:
GNB INCORPORATED
P.O. BOX 23957
LOS ANGELES CA 900230957

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE
01300364	082190	183380	APPLICATION EVALUATION FEE LEAD SCRAP SMELTING SYSTEM	185.00	185.00
01341555	091190	178382	TEMP. ANNUAL FEE APC SYSTEM #2	1,200.00	1,200.00
01341556	091190	178383	TEMP. ANNUAL FEE FURNANCE #1	1,200.00	1,200.00
01341557	091190	178389	TEMP. ANNUAL FEE FURNANCE #6	500.00	500.00
01341558	091190	178394	TEMP. ANNUAL FEE FURNANCE #7	500.00	500.00
01341559	091190	178395	TEMP. ANNUAL FEE FURNANCE #8	500.00	500.00
01341560	091190	178396	TEMP. ANNUAL FEE FURNANCE #9	500.00	500.00
01341561	091190	178397	TEMP. ANNUAL FEE APC SYSTEM	500.00	500.00
01341562	091190	178893	TEMP. ANNUAL FEE FURNANCE	1,200.00	1,200.00
01341563	091190	178390	TEMP. ANNUAL FEE ACID NEUT. & WATER TREAT. SYS	500.00	500.00
01341564	091190	167288	TEMP. ANNUAL FEE SCRUBBER SOLUTION MIX SYSTEM	500.00	500.00
01341565	091190	167289	TEMP. ANNUAL FEE BAGHOUSE	150.00	150.00
01341566	091190	167286	TEMP. ANNUAL FEE NEW SCREW CONVEYOR	150.00	150.00
01341567	091190	167285	TEMP. ANNUAL FEE SODIUM CARBONATE BIN	150.00	150.00
01341568	091190	167284	TEMP. ANNUAL FEE SODIUM CARBONATE REC & STORAG	500.00	500.00

REMARKS:

BALANCE NOW DUE

CONTINUED

payment not received by application/permit will be delinquent.
If payment not received by application/permit will expire. Operation of equipment without a permit subjects owner or operator to misdemeanor or civil penalties for each day of operation.

Please return duplicate copy with remittance. *"Make check payable to South Coast A.Q.M.D."*

INVOICE

044551-09-90

For Information Call - 818-307-2200
Mail Remittance To: 9150 Flair Dr., El Monte, Ca. 91731

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301 authorizes the District to charge permit fees on the equipment identified below.

EQUIPMENT LOCATED AT: 2700 S INDIANA ST

VERNON CA 900230000

INVOICE DATE 09/11/90

ANNUAL BILL MONTH NOVEMBER

CO. ID. 044551

LEGAL OWNER OR OPERATOR:
GNB INCORPORATED
P.O. BOX 23957
LOS ANGELES CA 900230957

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE
01343703	091190	D23190	ANNUAL BILLING FURNACE POT LEAD & TYPE METAL	150.00	150.00
01343704	091190	D23195	ANNUAL BILLING FURNACE POT LEAD & TYPE METAL	500.00	500.00
01343705	091190	D23196	ANNUAL BILLING FURNACE POT LEAD & TYPE METAL	500.00	500.00
01343706	091190	D23197	ANNUAL BILLING STORAGE TANK GASOLINE	500.00	500.00
01343707	091190	M95180	ANNUAL BILLING	150.00	150.00

REMARKS: PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT.
IF YOU HAVE ANY QUESTIONS PLEASE CALL (818) 307-2200

BALANCE NOW DUE $20,285.00

f payment not received by 11/01/90 application/permit will be delinquent.
If payment not received by 12/01/90 application/permit will expire. Operation of equipment without a permit subjects owner or operator to misdemeanor or civil penalties for each day of operation.

Please return duplicate copy with remittance. *"Make check payable to South Coast A.Q.M.D."*

02944

044551-15-90

For Information Call – 818-307-2200

Mail Remittance To: 9150 Flair Dr., El Monte, Ca. 91731

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301 authorizes the District to charge permit fees on the equipment identified below.

EQUIPMENT LOCATED AT: 2700 S INDIANA ST
LOS ANGELES CA 90023

INVOICE DATE 12/03/90

ANNUAL BILL MONTH NOVEMBER

CO. ID. 044551

LEGAL OWNER OR OPERATOR:
GNB INCORPORATED
P.O. BOX 23957
LOS ANGELES CA 90023-0957

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE
01405036	112990	178389	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	1,450.00	1,450.00
01405037	112990	178389	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	850.00	850.00
01405369	112990	178390	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	175.00	175.00
01405370	112990	178390	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	212.50	212.50
01405371	112990	178394	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	175.00	175.00
.405372	112990	178394	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	212.50	212.50
01405373	112990	178395	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	175.00	175.00
01405374	112990	178395	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	212.50	212.50
01405375	112990	178396	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	175.00	175.00
01405376	112990	178396	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	212.50	212.50
01405377	112990	178397	FURNACE POT LEAD & TYPE METAL APPLICATION EVALUATION FEE	175.00	175.00
01405378	112990	178397	FURNACE POT LEAD & TYPE METAL PERMIT EVAL. ADJ.	212.50	212.50

REMARKS: PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT.
IF YOU HAVE ANY QUESTIONS PLEASE CALL (818) 307-2200

BALANCE NOW DUE $4,237.50

If payment not received by 02/01/91 application/permit will be delinquent.
Payment not received by 03/01/91 application/permit will expire. Operation of equipment without a permit subjects owner or operator to misdemeanor or civil penalties for each day of operation.

Please return duplicate copy with remittance. *"Make check payable to South Coast A.Q.M.D."*

01195

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40004

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
2700 SOUTH INDIANA STREET

EQUIPMENT LOCATED AT: LOS ANGELES, CALIFORNIA

APPL. NO. 123780
PREVIOUS PERMIT NO. M39107

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 5 CONSISTING OF:

1. BAGHOUSE, EIGHT COMPARTMENTS, 64,000 SQ. FT. FILTER AREA WITH EIGHT 2 H.P. SHAKERS AND AN EMERGENCY AIR-BLEED-IN DAMPER.
2. EXHAUST SYSTEM WITH A 450 H.P. BLOWER VENTING BLAST FURNACE THIMBLE, LEAD WELL, SLAG TAP, TWO LAUNDERS, GENERAL FEED FLOOR HOOD, TWO RECEIVING FURNACES, FIVE REFINING FURNACES AND SEVEN DROSS HOPPERS.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

96P239M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40005

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123781
PREVIOUS PERMIT NO. M39108

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 6 CONSISTING OF:

1. BAGHOUSE, EIGHT COMPARTMENTS, 64,000 SQ. FT. FILTER AREA, WITH EIGHT 2 H.P. SHAKERS AND AN EMERGENCY AIR BLEED-IN DAMPER.
2. EXHAUST SYSTEM WITH A 450 H.P. BLOWER VENTING REVERBERATORY FURNACE FEED BELT CONVEYOR, TWO RAM FEEDERS, TWO RABBLE DOORS, SLAG TAP, LEAD WELL, THREE LAUNDERS, HEAT EXCHANGER CLEANOUT DOOR, THREE RECEIVING FURNACES, FOUR REFINING FURNACES, AND SEVEN DROSS HOPPERS.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P235M-REV. 3-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 34466

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123782
PREVIOUS PERMIT NO. M38606

EQUIPMENT DESCRIPTION AND CONDITIONS:

DUST AND MUD HANDLING SYSTEM CONSISTING OF:

1. A.P.C. SUBSYSTEM NO. 1, (REVERB) DUST CONVEYING, INCLUDING:
   A. THREE U-TUBE HOPPER SCREW CONVEYORS WITH ROTARY VALVES, EACH 5 H.P.
   B. CYCLONE SEPARATOR ROTARY VALVE, 2 H.P., WITH A DUST TRANSFER SCREW CONVEYOR, 3 H.P.
   C. TEN REVERB BAGHOUSE HOPPER SCREW CONVEYORS, EACH 5 H.P.
   D. TWO BAGHOUSE HOPPER COLLECTION SCREW CONVEYORS, EACH 7.5 H.P., AND TWO ROTARY VALVES, EACH 1 H.P.
2. A.P.C. SUBSYSTEM NO. 2 (BLAST) DUST CONVEYING, INCLUDING:

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA HOY

DATE 08/29/84

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VOID UNLESS VALIDATED

76PE20M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 34466
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 123782

   A. TWO U-TUBE HOPPER SCREW CONVEYORS WITH ROTARY VALVES, EACH 5 H.P.
   B. CYCLONE SEPARATOR ROTARY VALVE, 2 H.P., WITH A DUST TRANSFER SCREW CONVEYOR, 3 H.P.
   C. FIVE BLAST BAGHOUSE HOPPER SCREW CONVEYORS, EACH 5 H.P.
   D. BAGHOUSE HOPPER COLLECTION SCREW CONVEYOR, 7.5 H.P., WITH A ROTARY VALVE, 1 H.P.
3. A.P.C. SUBSYSTEM NO. 5 (HARD LEAD) DUST COLLECTING, INCLUDING TWO HARD LEAD BAGHOUSE HOPPER COLLECTION SCREW CONVEYORS, EACH 5 H.P., AND A ROTARY VALVE.
4. A.P.C. SUBSYSTEM NO. 6 (SOFT LEAD) DUST COLLECTING, INCLUDING:
   A. TWO SOFT LEAD BAGHOUSE HOPPER COLLECTION SCREW CONVEYORS, EACH 5 H.P., AND A ROTARY VALVE.
   B. DUST TRANSFER SCREW CONVEYOR, 10 H.P.
5. A.P.C. SUBSYSTEM NO. 7 (MATERIAL STORAGE) DUST COLLECTING, INCLUDING TWO MATERIAL STORAGE BAGHOUSE HOPPER COLLECTION SCREW CONVEYORS, EACH 5 H.P., AND A ROTARY VALVE.
6. TWO DUST SLURRY SUMPS, NORTH AND SOUTH, EACH WITH A 5 H.P. AGITATOR, 20 H.P. SLURRY PUMP, WATER ADDITION AND WASHDOWN SYSTEM, AND SURFACTANT ADDITION PUMP, 1/3 H.P.
7. FOUR DUST TRANSFER SCREW CONVEYORS, EACH 10 H.P.
8. TWO VACUUM PICKUP SUBSYSTEMS, NORTH AND SOUTH PLANTS, EACH WITH A 25 H.P. VACUUM BLOWER, A 2'-0" DIA. CYCLONE SEPARATOR, WITH A 3/4 H.P. ROTARY VALVE, 92 SQ. FT. FILTER DUST COLLECTOR WITH A 3/4 H.P. ROTARY VALVE AND ONE COMMON DUST TRANSFER SCREW CONVEYOR, 3 H.P.
9. ONE REVERB FURNACE FEEDER PIT SUMP PUMP, 15 H.P.
10. TWO KETTLE GALLERY SUMP PUMPS EACH 5 H.P.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40009

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123801
PREVIOUS PERMIT NO. M21022

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE, LEAD SAMPLE SWEATING, REVERBERATORY TYPE, 500 LBS. CAPACITY, 250,000 BTU PER HOUR GAS FIRED.

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

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VOID UNLESS VALIDATED

70P2354-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40012

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 6 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123805
PREVIOUS PERMIT NO. M38609

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 7 (MATERIAL STORAGE), CONSISTING OF:

1. BAGHOUSE, EIGHT COMPARTMENTS, 64,000 SQ. FT. FILTER AREA, WITH EIGHT DUST COLLECTION HOPPERS, AND EIGHT 2 H.P. SHAKERS.
2. EXHAUST SYSTEM WITH A 300 H.P. BLOWER VENTING TWO REVERB FEED HOPPERS, THREE WEIGHBELT HOODS, THREE FILTERCAKE CONVEYOR TRANSFER POINTS, A BLAST FURNACE SKIPHOIST CHARGING HOOD, AND SEVEN OVERHEAD HOODS. 7

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

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VOID UNLESS VALIDATED

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

P6P23546-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 40012
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 123805

-CONDITIONS-

1. A MECHANICAL GAUGE MUST BE MAINTAINED IN EACH BAGHOUSE COMPARTMENT SO AS TO INDICATE, IN INCHES WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE BAGS.

2. DUSTS COLLECTED IN THE BAGHOUSE MUST BE DISCHARGED ONLY INTO THE ENCLOSED DUST AND MUD HANDLING SYSTEM.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 56001

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

APPL. NO. 127145

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. BAGHOUSE, SPENCER, 4'-0" DIA. X 11'-0" H., 306 SQ. FT. FILTER AREA, WITH A 1/2 H.P. SHAKER.
2. EXHAUST SYSTEM WITH A 5 H.P. BLOWER VENTING TWO LEAD SAMPLE SMELTING FURNACES.

-CONDITION-

DUSTS COLLECTED IN THE BAGHOUSE MUST BE DISCHARGED ONLY INTO CLOSED CONTAINERS.

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY RAQUEL M. PUERTA

DATE 04/09/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 56003

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 20 this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

APPL. NO. 127247

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

EQUIPMENT DESCRIPTION AND CONDITIONS:

LEAD SMELTING SYSTEM NO. 2 CONSISTING OF:

1. FURNACE, LEAD SMELTING, CUPOLA TYPE, 6'-8" W. X 8'-7" L. X 23'-3" H., 200 TONS PER DAY CAPACITY, 4,000,000 BTU PER HOUR GAS-FIRED, WITH A LEAD WELL AND A SLAG TAP.
2. JACKET COOLING SYSTEM WITH FIVE WATER JACKETS AND A THERMOSIPHON TANK.
3. COMBUSTION AIR SUPPLY SYSTEM WITH A 75 H.P. AIR BLOWER & AN OXYGEN ENRICHMENT SYSTEM.
4. CHARGING SYSTEM WITH SKIPHOIST, WEIGHT PLATFORM, 15 H.P. ELECTRIC WINCH, AND AN EMERGENCY CHARGING SYSTEM CONSISTING OF A MONORAIL, HOIST, 7-1/2 H.P., AND A BUCKET.

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY RAQUEL M. PUERTA

DATE 04/09/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 56003
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 127247

-CONDITIONS-

1. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED A PERMIT TO OPERATE BY THE EXECUTIVE OFFICER.

2. THE TOTAL WEIGHT OF ALL MATERIALS CHARGED INTO THIS FURNACE MUST NOT EXCEED 200 TONS DURING ANY ONE DAY.

3. RECORDS OF ALL MATERIALS CHARGED INTO THIS FURNACE MUST BE KEPT ON FILE AND MADE AVAILABLE FOR INSPECTION UPON REQUEST BY DISTRICT PERSONNEL.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

REISSUED

RM56006

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 5 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 137012
PREVIOUS PERMIT NO. M56006

EQUIPMENT DESCRIPTION AND CONDITIONS:

SODIUM CARBONATE PNEUMATIC CONVEYING SYSTEM CONSISTING OF:

1. TWO ROTARY AIRLOCKS, 1/2 H.P. EACH.
2. PNEUMATIC CONVEYOR WITH A SUTORBILT, POSITIVE DISPLACEMENT BLOWER, 30 H.P.
3. BAGHOUSE, FLEX-KLEEN, PULSE-JET CLEANING TYPE, MODEL NO. 84-BVBS-9, 2'-0" W. X 2'-0" L. X 9'-11" H., 95 SQ. FT. FILTER AREA WITH A 1 H.P. EXHAUST BLOWER, A 1-1/2 H.P. ROTARY VALVE, AND A 1-1/2 H.P. REVERSIBLE DICHARGING SCREW CONVEYOR.

PERMIT NO. RM56006 SUPERSEDES PERMIT NO. M56006 ISSUED 04/09/87

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

DISTRICT OFFICER

BY RAQUEL M. PUERTA

DATE 05/22/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

REISSUED

RM56007

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 147525
PREVIOUS PERMIT NO. M56007

PAGE 1 OF 2

EQUIPMENT DESCRIPTION AND CONDITIONS:

ADVANCED BATTERY RECLAMATION SYSTEM CONSISTING OF:

1. USED BATTERIES TRUCK RECEIVING HOPPER, 18'-0" W. X 40'-0" L.
2. BATTERY CRUSHER, WILLIAMS HAMMERMILL TYPE, MODEL KS50, 200 H.P. WITH AN OSCILLATING PAN FEEDER, 10 H.P. TOTAL, A BELT CONVEYOR FEEDER, 10 H.P. AND A VIBRATING DISCHARGING FEEDER, 5 H.P.
3. PLANT SCRAP RECEIVING SCALE-HOPPER.
4. BELT CONVEYOR, 3 H.P., WITH A MAGNETIC BELT CLEANER, 2 H.P., AND A MAGNETIC SEPARATOR.
5. SCRAP-IRON DISCHARGING HOPPER AND CHUTE.

PERMIT NO. RM56007 SUPERSEDES PERMIT NO. M56007 ISSUED 04/09/87

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If bills for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY RAQUEL M. PUERTA

DATE 05/22/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. RM56007
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 147525

6. HYDRASIEVE SCREEN, BAUER, W/ A WATER SPRAY & A SCREEN UNDERFLOW ACID MUD PUMP, 5 H.P.
7. SCREW CONVEYOR, SCREEN OVERSIZE MATERIALS, 10 H.P.
8. BUCKET CONVERYOR, WITH A STATIONARY DISCHARGING CHUTE, 5 H.P.
9. TWO SEPARATORS, ELUTRIATION COLUMN TYPE, EACH WITH A DISCHARGING SCREW CONVEYOR, 25 H.P., AND A LIQUID RECIRCULATING PUMP, 20 H.P.
10. RADIAL STACKER, GRIDMETAL, 2 H.P.
11. TWO SCREENS, ELUTRIATION FLOAT, WITH WATER SPRAYS.
12. TANK, SCREEN UNDERFLOW WITH A RECIRCULATING PUMP, 40 H.P., AND FOUR CYCLONE SEPARATORS.
13. SEPARATOR, ORGANIC FLOTATION TYPE, WITH A SCREW CONVEYOR FEEDER, 10 H.P., A PADDLE WHEEL, 5 H.P., A PLASTIC DISCHARGING SCREW CONVEYOR, 3 H.P., AND TWO RUBBER DISCHARGING SCREW CONVEYORS, 5 H.P. EACH.
14. SCREEN, RUBBER WASHING, TROMMEL, 7-1/2 H.P.
15. PNEUMATIC CONVEYOR, WITH A RECEIVING VENTURI HOPPER, AND AN AIR BLOWER, 15 H.P.
16. LINED ACID SUMP WITH AN AGITATOR, 7-1/2 H.P., AND A DISCHARGING PUMP, 5 H.P.
17. THREE TANKS, ACID MUD HOLDING, EACH WITH AN AGITATOR, 40 H.P., AND A DISCHARGING PUMP, 100 H.P.
18. ABRP FLOOR SUMP WITH AN AGITATOR, 10 H.P., AND A DISCHARGING PUMP, 20 H.P.
19. MUD FILTER PRESS, RECESSED PLATE TYPE, 7-1/2 H.P., WITH A FILTER CAKE SCREW CONVEYOR, 7-1/2 H.P., TWO BELT CONVEYORS, 3 H.P. EACH, AND A RADIAL FILTER CAKE STACKER, 2 H.P.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 56008

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 151106

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE, LEAD MELTING, POT TYPE, 4,000 POUND CAPACITY, 180,000 BTU PER HOUR GAS-FIRED.

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing (or appeal/renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY RAQUEL M. PUERTA

DATE 04/09/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 56009

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 153016

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 9, CONSISTING OF:

1. SCRUBBER-MIST ELIMINATOR, MECHANICAL-CENTRIFUGAL TYPE, TRI-MER CORPORATION, MODEL F-S-10.

2. EXHAUST SYSTEM WITH A 20 H.P. BLOWER VENTING ONE BATTERY RECEIVING HOPPER, ONE BATTERY CRUSHER, ONE CRUSHER BELT CONVEYOR FEEDER, ONE VIBRATING DISCHARGING FEEDER AND ONE HYDRASIEVE SCREEN.

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

Executive Officer

BY RAQUEL M. PUERTA

DATE 04/09/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D22935
A/N 178384
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 44551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE A, HARD LEAD RECEIVING AND REFINING, CONTINENTAL BOILER WORKS, POT TYPE, 75-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR LPG-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACES NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/ps
April 11, 1990

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D22932
A/N 178385
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 44551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE B, HARD LEAD RECEIVING AND REFINING, CONTINENTAL BOILER WORKS, POT TYPE, 75-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR LPG-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACES NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/ps
April 11, 1990

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D22933
A/N 178386
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 44551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE E, SOFT LEAD RECEIVING AND REFINING, G. W. TAYLOR TANK CO., POT TYPE, 105-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR LPG-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACES NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/ps
April 11, 1990

ORIGINAL

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D23197
A/N 178387
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 044551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE F, SOFT LEAD RECEIVING AND REFINING, G. W. TAYLOR TANK CO., POT TYPE, 105-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR LPG-FIRED WITH A 30-H.P. PORTABLE AGITATOR AND A 7-1/2-H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/mb
April 18, 1990

ORIGINAL

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D23195
A/N 178388
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 044551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE G, SOFT LEAD RECEIVING AND REFINING, G. W. TAYLOR TANK CO., POT TYPE, 105-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR LPG-FIRED WITH A 30-H.P. PORTABLE AGITATOR AND A 7-1/2-H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 CUBIC FEET IN ANY ONE DAY.

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

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EXECUTIVE OFFICER

By Raquel Puerta/mb
April 18, 1990

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D23196
A/N 178391
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 044551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE 3, HARD LEAD RECEIVING AND REFINING, G. W. TAYLOR TANK CO., POT TYPE, 105-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR LPG-FIRED WITH A 30-H.P. PORTABLE AGITATOR AND A 7-1/2-H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

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EXECUTIVE OFFICER

By Raquel Puerta/mb
April 18, 1990

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Permit No.
D22934
A/N 178392
Page 1

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 44551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE 4, HARD LEAD RECEIVING AND REFINING, G. W. TAYLOR TANK CO., POT TYPE, 105-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR LPG-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, OIL, OR GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE DURING PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED IN THE MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACES NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET IN ANY ONE DAY.

ORIGINAL

CONTINUATION OF PERMIT TO OPERATE

8. A DAILY LOG CONCERNING FURNACE NOS. A, B, E, F, G, AND 1 TO 9, INCLUSIVE, MUST BE KEPT. THIS LOG MUST BE MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST. THIS LOG MUST CONTAIN THE FOLLOWING INFORMATION:

   A. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN ALL OF THE FURNACES MENTIONED ABOVE, IN CUBIC FEET.

   B. THE TYPE OF GASEOUS FUEL USED.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY MUST BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

By Raquel Puerta/ps
April 11, 1990

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes own
If the billing for annual renewal fee (Rule 301.f) is not received by the expiration date, contact the District.

Legal Owner Or Operator: GNB INCORPORATED
2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA 90023
ATTN: K. G. CLARK

ID 44551

Equipment located at: SAME AS ABOVE

Equipment Description:

FURNACE 5, SPECIALTY LEAD CASTING AND REFINING, CONTINENTAL BOILER WORK TYPE, 40-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR LPG-FIRED WITH H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

Conditions:

1. OPERATION OF THIS EQUIPMENT MUST BE CONDUCTED IN COMPLIANCE WI DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT MUST BE PROPERLY MAINTAINED AND KEPT IN OPERATING CONDITION AT ALL TIMES.

3. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HA ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

4. ELEMENTAL SULFUR, COAL, SAWDUST, RUBBER, PLASTICS, PAPER, RAGS, (GREASE MUST NOT BE CHARGED TO THIS FURNACE.

5. LIQUIFIED PETROLEUM GAS MAY ONLY BE USED IN THIS FURNACE I PERIODS OF NATURAL GAS CURTAILMENT.

6. A FLOWMETER, INDICATING TOTAL CUBIC FEET, MUST BE MAINTAINED MAIN GASEOUS FUEL SUPPLY LINE TO FURNACE NOS. A, B, E, F, G, AND INCLUSIVE.

7. THE TOTAL AMOUNT OF GASEOUS FUEL CONSUMED IN FURNACES NOS. A, B, AND 1 TO 9, INCLUSIVE, MAY NOT EXCEED 400,000 STANDARD CUBIC FEET ONE DAY.

ORIGINAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 61227

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 159460
PREVIOUS PERMIT NO. M56002

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 1, CONSISTING OF:

1. QUENCH CHAMBER, WATER SPRAY TYPE, 10'-0" DIA. X 61'-0" H. WITH 12 SPRAY NOZZLES.
2. U-TYPE COOLER, SEVEN SECTION, WITH THREE DUST COLLECTION HOPPERS, ONE DAMPERED BY-PASS, TWO HOPPER DAMPERS, AND FOUR TUBE BY-PASSES.
3. TWO BAGHOUSES, EACH WITH FIVE COMPARTMENTS, 22,620 SQ. FT. OF FILTER AREA, AND FIVE 2-H.P. SHAKERS.
4. EMERGENCY BLEED-IN DAMPER.
5. SYSTEM ISOLATION DAMPER.

This initial permit must be renewed by 11/16 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY

RAQUEL M. PUERTA
PERMIT PROCESSING UNIT

DATE 03/20/88

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 61227
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 159460

6. SCRUBBER, VENTURI-TYPE 4'-0" DIA. X 13'-9" H., WITH A 2'-2" DIA. VARIABLE THROAT, COMMON WITH AIR POLLUTIION CONTROL SYSTEM NO. 2.
7. SCRUBBER, NEPTUNE AIR-POL, TRAY TOWER-TYPE, 8'-6" DIA. X 30'-0" H., WITH FOUR TRAY CONTACTOR STAGES, TWO 60-H.P. SCRUBBER RECIRCULATION PUMPS, ONE DISCHARGE COLLECTION SUMP WITH TWO 7.5 H.P. SUMP PUMPS, ONE 30,000 GALLON SCRUBBER DISCHARGE SURGE TANK, AND ONE 125-H.P. SCRUBBER DISCHARGE SURGE TANK AERATION SYSTEM, COMMON WITH AIR POLLUTION CONTROL SYSTEM NO. 2.
8. EXHAUST SYSTEM WITH A 450-H.P. BLOWER VENTING A REVERBERATORY FURNACE.

-CONDITIONS-

1. A MECHANICAL GAGE MUST BE MAINTAINED IN EACH BAGHOUSE COMPARTMENT SO AS TO INDICATE, IN INCHES OF WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE BAGS.

2. DUST COLLECTED IN THE BAGHOUSES MUST BE DISCHARGED ONLY INTO A CLOSED SYSTEM.

3. FLOW METERS MUST BE MAINTAINED IN THE RECIRCULATION SOLUTION SUPPLY LINES TO THE VENTURI AND TRAY TOWER.

4. THE pH OF THE COMBINED SOLUTIONS IN THE SCRUBBER DISCHARGE COLLECTION SUMP MUST NOT BE LESS THAN 7.0.

5. NOT LESS THAN 280 GPM OF RECIRCULATED SOLUTION MUST BE SUPPLIED TO THE SCRUBBER VENTURI AS WELL AS 280 GPM OF RECIRCULATED SOLUTION TO THE TRAY TOWER WHEN THIS AIR POLLUTION CONTROL SYSTEM IS IN OPERATION.

6. DIFFERENTIAL PRESSURE TRANSMITTERS MUST BE MAINTAINED IN THE VENTURI AND IN THE TRAY TOWER SO AS TO INDICATE, IN INCHES OF WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER AND THE TRAY TOWER.

7. THE STATIC PRESSURE DIFFERENTIAL ACROSS THE VENTURI AND TRAY TOWER MUST BE MAINTAINED AT NOT LESS THAN 26 INCHES OF WATER COLUMN WHEN THIS EQUIPMENT SERVES THE REVERBERATORY FURNACE ONLY.

8. THE STATIC PRESSURE DIFFERENTIAL ACROSS THE VENTURI AND TRAY TOWER MUST BE MAINTAINED AT NOT LESS THAN 36 INCHES OF WATER COLUMN WHEN THIS EQUIPMENT SERVES THE CUPOLA AND THE REVERBERATORY FURNACES SIMULATANEOUSLY.

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

REISSUED

RM56004

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 127248
PREVIOUS PERMIT NO. M56004

PAGE 1 OF 3

EQUIPMENT DESCRIPTION AND CONDITIONS:

AIR POLLUTION CONTROL SYSTEM NO. 2, CONSISTING OF:

1. AFTERBURNER, 8'-0" DIA. X 31'-9" H., 10,000,000 BTU PER HOUR NATURAL GAS-FIRED, WITH AFTERBURNER COMBUSTION AIR SYSTEM POWERED BY A 20 H.P. BLOWER.

2. HEAT EXCHANGER, WATER JACKET-TYPE, 8'-0" DIA. X 30'-0" H.

3. U-TUBE COOLER, FIVE SECTION, WITH TWO DUST COLLECTION HOPPERS, A TUBE BY-PASS, A TUBE DAMPER VALVE, AND A HOPPER BY-PASS WITH A DAMPER.

PERMIT NO. RM56004 SUPERSEDES PERMIT NO. M56004 ISSUED 04/09/87

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

DIRECTOR

BY RAQUEL M. PUERTA

DATE 05/22/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. RM56004
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 127248

4. CYCLONE SEPARATOR, 4'-9" DIA.
5. BAGHOUSE, FIVE COMPARTMENT, 22,620 SQ. FT. FILTER AREA, WITH FIVE DUST HOPPERS, FIVE 2 H.P. SHAKERS, AND AN EMERGENCY BLEED-IN DAMPER.
6. SYSTEM ISOLATION DAMPER.
7. SCRUBBER, VENTURI-TYPE, 4'-0" DIA. X 13'-9" H., WITH A 2'-2" DIA. VARIABLE THROAT, COMMON WITH AIR POLLUTION CONTROL SYSTEM NO. 1.
8. SCRUBBER, NEPTURE AIR-POL, TRAY TOWER-TYPE, 8'-6" DIA. X 30'-9" H. WITH FOUR TRAY CONTACTOR STAGES, TWO 60 H.P. SCRUBBER RECIRCULATION PUMPS, ONE DISCHARGE COLLECTION SUMP WITH TWO 7 1/2 H.P. SUMP PUMPS, ONE 30,000 GALLON SCRUBBER DISCHARGE SURGE TANK, AND ONE 125 H.P. SCRUBBER DISCHARGE SURGE TANK AERATION SYSTEM, COMMON WITH AIR POLLUTION CONTROL SYSTEM NO. 1.
9. EXHAUST SYSTEM WITH A 250 H.P. BLOWER VENTING A BLAST FURNACE.

-CONDITIONS-

1. A TEMPERATURE OF NOT LESS THAN 1200° F MUST BE MAINTAINED IN THE AFTERBURNER, WHEN THE EQUIPMENT IT SERVES IS IN OPERATION.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 56004
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 127248

2. A MECHANICAL GAUGE MUST BE INSTALLED IN EACH BAGHOUSE COMPARTMENT SO AS TO INDICATE, IN INCHES OF WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE BAGS.
3. DUST COLLECTED IN THE BAGHOUSE MUST BE DISCHARGED ONLY INTO A CLOSED SYSTEM.
4. FLOW METERS MUST BE MAINTAINED IN THE RECIRCULATION SOLUTION SUPPLY LINES TO THE VENTURI AND TRAY TOWER.
5. THE PH OF THE COMBINED SOLUTIONS IN THE SCRUBBER DISCHARGE COLLECTION SUMP MUST NOT BE LESS THAN 7.0.
6. NOT LESS THAN 280 GPM OF RECIRCULATED SOLUTION MUST BE SUPPLIED TO THE SCRUBBER VENTURI AS WELL AS 280 GPM OF RECIRCULATED SOLUTION TO THE TRAY TOWER WHEN THIS AIR POLLUTION CONTROL SYSTEM IS IN OPERATION.
7. DIFFERENTIAL PRESSURE TRANSMITTERS MUST BE MAINTAINED IN THE VENTURI AND IN THE TRAY TOWER SO AS TO INDICATE, IN INCHES OF WATER COLUMN, THE STATIC PRESSURE DIFFERENTIAL ACROSS THE SCRUBBER AND THE TRAY TOWER.
8. THE STATIC PRESSURE DIFFERENTIAL ACROSS THE VENTURI AND TRAY TOWER MUST BE MAINTAINED AT NOT LESS THAN 20 INCHES OF WATER COLUMN WHEN THIS EQUIPMENT SERVES THE CUPOLA FURNACE ONLY.
9. THE STATIC PRESSURE DIFFERENTIAL ACROSS THE VENTURI AND TRAY TOWER MUST BE MAINTAINED AT NOT LESS THAN 36 INCHES OF WATER COLUMN WHEN THIS EQUIPMENT SERVES THE CUPOLA AND THE REVERBERATORY FURNACES SIMULTANEOUSLY.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 56005

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES, INC.
METAL DIVISION

EQUIPMENT LOCATED AT: 2700 S. INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 127249

EQUIPMENT DESCRIPTION AND CONDITIONS:

LEAD SCRAP MELTING SYSTEM NO. 1 CONSISTING OF:

1. FURNACE LEAD SMELTING, REVERBERATORY TYPE, 19'-0" W. X 39'-5" L. X 12'-9" H., 404 TONS PER DAY CAPACITY, 30,000,000 BTU PER HOUR GAS-FIRED, WITH A LEAD WELL, THREE LAUNDERS, AND A SLAG TAP.
2. SLAG HANDLING SYSTEM, 7.5 H.P.
3. TWO HYDRAULIC RAM FEEDERS, EACH 40 H.P.
4. COMBUSTION AIR SYSTEM, 50 H.P.

This initial permit must be renewed by 11/01 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY RAQUEL M. PUERTA

DATE 04/09/87

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CONTINUATION OF PERMIT NO. M 56005
(MUST BE DISPLAYED WITH PERMIT)

APPL. NO. 127249

5. FEED BELT CONVEYOR, 5 H.P.
6. MATERIAL TRANSFER BELT CONVEYORS, 5 H.P.
7. THREE CHARGING WEIGHBELT CONVEYORS, EACH 1/2 H.P.

-CONDITIONS-

1. THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED A PERMIT TO OPERATE BY THE EXECUTIVE OFFICER.

2. THE TOTAL WEIGHT OF ALL MATERIALS CHARGED INTO THIS FURNACE MUST NOT EXCEED 404 TONS DURING ANY ONE DAY.

3. RECORDS OF ALL MATERIALS CHARGED INTO THIS FURNACE MUST BE KEPT ON FILE AND MADE AVAILABLE FOR INSPECTION UPON REQUEST BY DISTRICT PERSONNEL.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40006

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123797
PREVIOUS PERMIT NO. M36677

EQUIPMENT DESCRIPTION AND CONDITIONS:

ACID NEUTRALIZATION AND WATER TREATMENT SYSTEM CONSISTING OF:

1. TWO 3 H.P. PUMPS, SCRUBBER DISCHARGE SURGE TANK.
2. TWO 10 H.P. PUMPS, FILTRATE SURGE TANK.
3. TWO 15 H.P. PUMPS, STANDBY NEUTRALIZATION SOLUTION.
4. THREE pH ADJUSTMENT TANKS, EACH 4,000 GALLON CAPACITY WITH A 3/4 H.P. AGITATOR.
5. TWO 20 H.P. PUMPS, FILTER FEED.
6. FOUR CARTRIDGE-TYPE FILTERS, 30' DIA. X 4'-0" H.
7. ACID FEED TANK, 3,800 GAL. CAPACITY, WITH TWO 1/4 H.P. ACID METERING PUMPS.
8. FINAL pH ADJUSTMENT TANK, 4,000 GAL CAPACITY TOTAL, TWO COMPARTMENTS.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P239M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40007

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123799
PREVIOUS PERMIT NO. M36649

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 9, SOFT LEAD REFINING, POT TYPE, 75 TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	4,375	LBS/HR
ALLOWED LOSSES:	5.7	LBS/HR
ESTIMATED LOSSES:	0.07	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P235M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40008

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 5 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123800
PREVIOUS PERMIT NO. M36648

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 8, SOFT LEAD REFINING, POT TYPE, 75 TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	4,375	LBS/HR
ALLOWED LOSSES:	5.7	LBS/HR
ESTIMATED LOSSES:	0.07	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P225M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 40011

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 6 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123804
PREVIOUS PERMIT NO. M36647

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 7, SOFT LEAD REFINING, POT TYPE, 75 TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS-OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	4,375	LBS/HR
ALLOWED LOSSES:	5.7	LBS/HR
ESTIMATED LOSSES:	0.007	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IT IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA HOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

96P23AA-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 34467

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123783
PREVIOUS PERMIT NO. M29467

EQUIPMENT DESCRIPTION AND CONDITIONS:

SCRUBBER SOLUTION MIXING AND STORAGE SYSTEM CONSISTING OF:

1. TWO SODA ASH FEEDERS, MERRICK, WEIGH-BELT CONVEYOR TYPE, 1/2 H.P. EACH.
2. SOLUTION MIXING TANK, TWO COMPARTMENTS, 30,000 GALLON CAPACITY, WITH AN AGITATOR, 2 H.P., AND TWO TRANSFER PUMPS, 7-1/2 H.P. EACH.
3. SOLUTION SURGE TANK, 33,000 GALLON CAPACITY, WITH TWO TRANSFER PUMPS, 7-1/2 H.P. EACH.
4. SOLUTION STORAGE TANK, 33,000 GALLON CAPACITY.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal has (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA HOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P2334-REV. 3-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 34475

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.

EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123791
PREVIOUS PERMIT NO. M36641

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 1, HARD LEAD RECEIVING, POT TYPE, 75-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	1,834	LBS/HR
ALLOWED LOSSES:	3.5	LBS/HR
ESTIMATED LOSSES:	0.05	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IS IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

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EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

70PE23M-REV. 2-81

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 34476

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
EQUIPMENT LOCATED AT: 2700 SOUTH INDIANA STREET
LOS ANGELES, CALIFORNIA

APPL. NO. 123792
PREVIOUS PERMIT NO. M36642

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 2, HARD LEAD RECEIVING, POT TYPE, 75-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	1,834	LBS/HR
ALLOWED LOSSES:	3.5	LBS/HR
ESTIMATED LOSSES:	0.05	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IS IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA MOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P235M-REV. 2-81

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

M 34480

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
2700 SOUTH INDIANA STREET
EQUIPMENT LOCATED AT: LOS ANGELES, CALIFORNIA

APPL. NO. 123796
PREVIOUS PERMIT NO. M36646

EQUIPMENT DESCRIPTION AND CONDITIONS:

FURNACE NO. 6, SOFT LEAD RECEIVING, POT TYPE, 75-TON CAPACITY, 2,500,000 BTU PER HOUR NATURAL GAS- OR PROPANE-FIRED WITH A 30 H.P. PORTABLE AGITATOR AND A 7-1/2 H.P. PORTABLE TRANSFER PUMP.

PROCESS WEIGHT:	4,375	LBS/HR
ALLOWED LOSSES:	5.7	LBS/HR
ESTIMATED LOSSES:	0.07	LBS/HR

-CONDITION-

THIS EQUIPMENT MUST NOT BE OPERATED UNLESS IS IS VENTED ONLY TO AIR POLLUTION CONTROL EQUIPMENT WHICH IS IN FULL USE AND WHICH HAS BEEN ISSUED AN OPERATING PERMIT BY THE EXECUTIVE OFFICER.

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA HOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P2104-REV. 2-81

PERMIT to OPERATE

M 34481

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 204, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC.
2700 SOUTH INDIANA STREET
EQUIPMENT LOCATED AT: LOS ANGELES, CALIFORNIA

APPL. NO. 123798
PREVIOUS PERMIT NO. M36651

EQUIPMENT DESCRIPTION AND CONDITIONS:

SODIUM CARBONATE RECEIVING AND STORAGE SYSTEM CONSISTING OF:

1. PNEUMATIC CONVEYOR, WITH A 75 H.P. BLOWER.
2. TWO STORAGE BINS, EACH 300 TONS CAPACITY WITH A 295 SQ. FT. FILTER VENT AND A 4" DIA. PNEUMATIC CONVEYOR TUBE.

PROCESS WEIGHT:	50,000	LBS/HR
ALLOWED LOSSES:	14.6	LBS/HR
ESTIMATED LOSSES:	2.5	LBS/HR

This initial permit must be renewed by 11/01/84 unless the equipment is moved, or changes ownership. If billing for annual renewal fee (Rule 301.f) not received by expiration date, contact office above.

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EXECUTIVE OFFICER

BY VIRGINIA HOY

DATE 08/29/84

XXXXXXXXXX

VOID UNLESS VALIDATED

76P2334-REV. 2-81

PERMIT to OPERATE

9150 FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

PERMIT NO.
K83359

Operation under this permit must be conducted in compliance with all information included with the initial application and the initial permit conditions. The equipment must be properly maintained and kept in good operating condition at all times. In accordance with Rule 206, this Permit to Operate or copy must be posted on or within 8 meters of equipment.

APPL. # 123802 CO. ID. 044551
SECTOR

LEGAL OWNER OR OPERATOR: GNB BATTERIES INC, METALS DIV
EQUIPMENT LOCATED AT: 2700 S INDIANA ST
LOS ANGELES, CA 90023000

EQUIPMENT DESCRIPTION AND CONDITIONS:

R461 GASOLINE FUELING & DISPENSING FACILITY CONSISTING OF :
1. 01 GASOLINE STORAGE TANKS
2. 01 GAS DISPENSING NOZZLES
3. 03 VAPOR RECOVERY SYSTEM - BALANCE

PERMIT CONDITION:
PHASE I AND PHASE II VAPOR RECOVERY SYSTEMS MUST BE IN FULL OPERATION, WHENEVER THIS FACILITY IS IN USE. SUCH SYSTEMS MUST BE INSTALLED, OPERATED AND MAINTAINED TO MEET ALL CARB CERTIFICATION REQUIREMENTS.

This initial permit must be renewed by 11/1 ANNUALLY unless the equipment is moved, or changes ownership. If billing for annual operating fee is not received by expiration date, contact office above.

This permit does not authorize the emission of air contaminants in excess of those allowed by Division 26 of the Health and Safety Code of the State of California or the Rules of the Air Quality Management District. This permit cannot be considered as permission to violate existing laws, ordinances, regulations or statutes of other government agencies.

EXECUTIVE OFFICER

BY VIRGINIA HOY, PRINCIPAL
PERMIT PROCESS CLERK

DATE 11/03/84

70P2344-6/82

11.3

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road / Whittier, California
Mailing Address: / P. O. Box 4998, Whittier, California 90607
Telephone: (213) 699-7411 / From Los Angeles (213) 685-5217

CHARLES W. CARRY
Chief Engineer and General Manager

June 3, 1986
File:02-00.05-00/86-11092G

Mr. Victor Vaits
City of Vernon
4305 Santa Fe Ave.
Vernon, CA 90058

Dear Mr. Vaits:

Industrial Wastewater Discharge Permit No. 11092 (Ref. IW 10836)

GNB Incorporated
2717 S. Indiana St.
Vernon, CA 90023

Enclosed are two (2) approved sets of plans and copies of the approved Industrial Wastewater Discharge Permit for the subject company. Please review these for compliance with your requirements, and retain the copies you require for your files. A copy of this letter is forwarded to the applicant to notify him of the Sanitation Districts' permit requirements, which are in force from the current date. If any additional permit requirements are issued to the applicant by your agency, copies should be forwarded to the Sanitation Districts for our records. The approved plans consist of:

1. Dwg. No. DM-015: Plot Plan
2. Dwg. No. DF-101: North Yard Piping Plan
3. Dwg. No. DF-112: South Yard Piping Plan; Mobile Equipment Wash Pit Piping
4. Dwg. No. 39-724-100: South Yard Plan; Storm Water Retention Pond; Location of Meter Bldg & Point of Discharge M.H.
5. Dwg. No. 39-724-102: Details, South Yard Storm Water Retention Pond
6. Dwg. No. 39-724-103: Retention Pond Details
7. Dwg. No. 39-724-104: Drainage Details
8. Dwg. No. 39-724-106: Discharge Pump, Retention Pond, Los Angeles Smelter
9. Dwg. No. 39-724-106A: Discharge Intake, Retention Pond, Los Angeles Smelter
10. Dwg. No. 390724-108: Discharge Lines, Retention Pond, Los Angeles Smelter; Location of Meter Bldg, Sewers & Discharge M.H. with Grade Elevations
11. Dwg. No. 39-724-109: Metering Bldg., Retention Pond, Los Angeles Smelter
12. Dwg. No. 39-724-110: Metering Building, Retention Pond, Los Angeles Smelter
13. Dwg. No. 39-724-112: "Industrial Wastewater Flow Meter Vault, Los Angeles Smelter"; Details of New 90 Degree V-Notch Weir with Pressure Transducer & Auxilliary Bubble Tube
14. Dwg. No. 39-724-113: Mobil Equipt. Wash Pit, Los Angeles Smelter
15. Additional Permit Application Information, Attachment 1 - Retention Pond Calculations
16. Additional Permit Application Information, Attachment 2 - Procedure for Sampling the Rainwater Retention Pond Prior to Discharge and/or Treatment.

Approval of the plans and permit is contingent upon continuing compliance with applicable Sanitation Districts' Ordinance requirements, upon any corrections shown in red on the drawings, and upon the items indicated on the attached requirement list.

If you have any questions concerning these requirements, please call Gilbert Chang of the Sanitation Districts' Industrial Waste Section at extension 257.

Very truly yours,

Charles W. Carry

Leon S. Directo

Leon S. Directo
Supervising Civil Engineer

LSD:GC:wh
cc: Mr. Kenneth G. Clark
GNB Incorporated
P.O. Box 23957
Los Angeles, CA 90023-0957
cc: California Regional Water
Quality Control Board
Los Angeles Region, Room 4027
107 S. Broadway
Los Angeles, CA 90012
Attn: Robert P. Ghirelli

SANITATION DISTRICTS OF LOS ANGELES COUNTY

Charles W. Carry, Chief Engineer and General Manager
1955 Workman Mill Road, P.O. Box 4998, Whittier, California 90607

INDUSTRIAL WASTEWATER DISCHARGE PERMIT

REQUIREMENT LIST

Company Name GNB Incorporated

INDUSTRIAL WASTEWATER DISCHARGE PERMIT NO. 11092

DATE OF PERMIT ISSUANCE June 3, 1986

The above named company is required to comply with all indicated items on this list as a condition of the permit approval. Satisfactory evidence of compliance with these conditions should be supplied to the Sanitation Districts where requested. Satisfactory evidence will consist of a minimum of written notification signed by a responsible company official, and in some cases may involve the submission of additional drawings and data.

1. The Environmental Protection Agency (EPA) promulgated the Pretreatment Standards for the Nonferrous Metals Manufacturing Industry on March 8, 1984. According to information provided to the Sanitation Districts, GNB Incorporated is subject to the EPA Nonferrous Metal Manufacturing Regulation 40 CFR Part 421. For existing facilities, the compliance date is March 9, 1987 or as soon as attainable.

   The Sanitation Districts are committed to enforce the EPA's pretreatment standards for antimony, arsenic, lead, zinc, and ammonia from nonferrous metal manufacturing mills by March 9, 1987. Violations of the EPA's pretreatment standards may result in the initiation of enforcement action against your company and possible revocation of your Industrial Wastewater Discharge Permit.

   The EPA discharge limits are "mass-based", which means the actual discharge limits for a given facility must be calculated based on the production rate at that mill. According to the Baseline Monitoring Report submitted to the Sanitation Districts by GNB Incorporated, the following production rates have been calcualted and used to establish your company's mass discharge limits.

	Unit Process	Production Rate (lbs./day)
a)	Battery Cracking	524,270
b)	Blast, Reverberatory, or Rotary Furnace Wet Air Pollution Control	535,855
c)	Casting Contact Cooling	450,737
d)	Truck Wash	535,855
e)	Facility Washdown	535,855
f)	Battery Case Classification	524,270
g)	Employee Handwash	535,855
h)	Employee Respirator Wash	535,855
i)	Laundering of Uniforms	535,855

The EPA Pretreatment Standard Discharge Limits for GNB Incorporated are as follows:

Pollutant	Maximum Day Process Limit lbs/day	Monthly Average Process Limit lbs/day
Antimony	3.6	1.6
Arsenic	2.6	1.1
Lead	0.53	0.25
Zinc	1.9	0.79
Ammonia	0.0	0.0

For administrative enforcement purposes, the Sanitation Districts have divided the EPA mass discharge limits by GNB Incorporated's wastewater flow rate of 163,000 gallons per day and appropriate conversion factors to obtain the concentration limits. If the flow rate from GNB Incorporated is found to be appreciably different from 163,000 gallons per day, the concentration limits may be revised. All 24-hour composite wastewater samples collected by GNB Incorporated, must comply with the following concentration limits by March 9, 1987:

Pollutant	Maximum Day (mg/l)	Monthly Average (mg/l)
Antimony	2.7	1.2
Arsenic	1.9	0.81
Lead	0.39	0.18
Zinc	1.4	0.58
Ammonia	0.0	0.0

These limits are subject to periodic review and may be changed if your company's production or flow rates are found to change significantly.

For industrial pollutants not regulated by the EPA regulation or where the EPA regulation is less stringent than those of the Sanitation Districts, the Districts will continue to enforce its effluent limitations. The subject EPA regulations do no authorize any violations of the Districts' regulations. The Districts maximum concentration limits (for any wastewater effluent sample) for certain toxic materials are shown in the enclosed table of "Industrial Wastewater Effluent Limitations". Concentration Limits for cadmium and lead for your company are also specified in your company's permit amendment of 12-21-84.

2. Surcharge tests of the industrial wastewater must be performed at the intervals indicated on the enclosed Table of Surcharge Test Frequency and submitted annually with the wastewater treatment surcharge statement. The company is reminded that the surcharge tests requirements are independent of the tests for critical parameter reports required in Item No. 3.

3. Characterization tests of the industrial wastewater must be performed at the intervals indicated on the Required Characterization Tests form and reported on the enclosed Critical Parameter Report Form. All indicated analyses must be performed by a Sanitation Districts' approved laboratory. The certification section on the back of the Critical Parameter Report Form must be completed and signed by a responsible company official. Revision of the Required Characterization Tests may be considered after initial analyses and upon written request with valid supporting information from the subject company. It is the responsibility of the subject company to report analyses of any other toxic materials shown in the Critical Parameter List, which are known to be present in the wastewater.

4. The pH of the wastewater must be maintained above 6.0 at all times. Proper neutralization procedures must be observed to assure that this limit is not exceeded. Batch neutralization is required for any tanks containing acidic solutions before they are discharged to the sewer, if the solution pH is less than 6.0.

5. The pH equipment must be regularly calibrated and maintained in good working order. At least 180 days of pH records must be filed at the discharge address and must be made available for inspection by representatives of the Sanitation Districts at any time during business hours. If pH records indicated periods of acidic or alkaline discharge, the applicant may be required to install a pH controlled neutralization system.

6. All industrial wastewater discharged to the sewer must not contain over 0.1 milligram/liter of dissolved sulfides.

7. The permittee is required to notify the Sanitation Districts of any change in the status of the subject facility, if ownership or operating responsibility changes, or if the industrial waste connection is legally abandoned.

8. A new permit application must be submitted when there is a significant change in wastewater quantity (25% or more) or quality from that given in the approved Permit information. The completed application should be submitted to the local governmental agency for initial processing prior to Sanitation Districts review. Approval must be obtained prior to any construction of new facilities.

9. Waste haulers reports must be obtained and kept on file for a period of at least 180 days for any liquid wastes leaving the plant other than in the sewer system. These reports must be made available to representatives of the Sanitation Districts upon request.

10. <u>Sampling and Chemical Analysis Procedure for Thiosulfate and Sulfite</u>

The Sanitation Districts' Joint Water Pollution Control Plant is required by the State of California Regional Water Quality Control Board (CRWQCB) to chlorinate its effluent in order to meet coliform standards for the protection of shell fish. High concentrations of chlorine demanding substances such as thiosulfate and sulfite in the wastewater impose an excessive demand for chlorine during chlorination. The Districts have found it necessary to chlorinate during approximately six months of the year in order to meet coloform standards.

Because of possibility of high thiosulfate and/or sulfite concentrations in your effluent, as part of your permit requirements it is required to meet the following requirements:

a) In-plant control and/or pretreatment of industrial wastewater should be implemented to meet effluent limitations of no more than 50 mg/l of thoisulfate (as S), which is the specific limitation established in July 1973 for most industrial companies with high thiosulfate discharges.

b) You are required to make a daily sampling (24-hour flow proportioned composite sample) and analysis for determination of the thiosulfate (as S) and sulfite (as S) concentrations in your company wastewater. Your daily wastewater flow should also be determined. Monthly reports listing the daily flow and daily concentrations of thiosulfate (as S) and sulfite (as S) should be submitted to the Districts. Enclosed is a copy of the laboratory procedure required to be used to determine thiosulfate concentrations.

c) The Districts are presently charging industrial companies discharging thiosulfate for the chlorine consumed by these compounds during periods when the Districts are chlorinating at the Joint Water Pollution Control Plant. There is, however, an allowance of 50 pounds per day of thiosulfate (as S) permitted to be discharged without costs. There is no allowance for sulfite to be discharged without cost.

11. Storage of Excessive Rainfall Followed by Off-Peak Discharge to the Sewerage System.

The Sanitation Districts' Ordinance prohibits the discharge of rainwater to the sewer system. Discharge of the collected rainwater from retention pond to the sewerage system must be done between 10:00 p.m. and 10:00 a.m. at least 24 hours after cessation of rainfall. For your information, a copy of the Districts' Policy on Rainwater, is enclosed.

For Rainwater Discharge:

a) A list of operating instructions and a rainwater discharge log sheet, properly signed, for all rainwater discharged with all lab analysis results and dates of discharge shall be provided.

b) One representative sample of each rainwater pond discharged directly to the sewer shall be collected and stored in good order at the GNB plant for the Districts' compliance verification. The sample shall be labeled with the date of discharge.

12. Effective December 31, 1985, the industrial waste permit effluent limits for cadmium and lead for GNB Incorporated are 7 mg/l and 10 mg/l, respectively. GNB must submit four (4) sets of detailed drawings of the proposed wastewater treatment system for the Districts review and approval within 60 days from the date of this letter.

13. The after bay of the metering vault is hereby designated as the legal sampling point for the subject company. The permittee is responsible for maintaining and cleaning the sampling point to prevent any build-up of oil and grease, sediment or sludge; failure to do so does not invalidate sampling test results. Analytical results from samples taken from this location according to accepted sampling procedure shall be accepted as binding. Safe and convenient access to the sampling point must be provided for representatives of the Sanitation Districts.

14. Regular calibration and maintenance of the flow monitoring system will be required in accordance with the enclosed "Industrial Wastewater Flow Measurement Requirements."

15. The proposed flow monitoring system shall be installed and operating by August 3, 1986. The Sanitation Districts shall be given written notification upon completion of the installation. The installation shall not be considered complete until the hereinafter described calibration and report thereof are approved by the Sanitation Districts.

16. Since the new system will need to be calibrated after installation, a calibration report should also be prepared and submitted with the above mentioned written notification. The initial calibration should be a full flow calibration conducted in accordance with the above mentioned Districts' "Industrial Wastewater Flow Measurement Requirements" and the enclosed calibration report forms.

17. Manufacturer's calculations, catalogue cuts, and data sheets shall be included with the above mentioned calibration report for the manufactured equipment to be installed as part of the flow monitoring system. Complete rating data and calculations shall be submitted for any engineered flow metering device.

18. The Districts shall be notified within 48 hours of the commencement of construction of the new metering system and of the abandonment of (by cut and plug) the existing outfall line to the connection under Permit No. 10836 (Ref. Permit No. 8377).

19. Two sampler pacing sockets shall be installed by the sampling point. Two sockets shall be wired in parallel.

20. Information requested, or satisfactory evidence of compliance, must be submitted to the Sanitation Districts within 60 days to satisfy condition numbers 12 and 15.

SANITATION DISTRICTS OF LOS ANGELES COUNTY

INDUSTRIAL WASTE SECTION

REQUIRED WASTEWATER CHARACTERIZATION TESTS

m Name GNB Incorporsted Permit No. 11092

Address of Property Producing Wastewater Discharge 2717 S. Indiana Street Date June 3, 1986

Vernon, CA 90023 S.I.C.No. 3341

Frequency of Analyses 1 per 3 months 1/ Flow 58 Million Gal/Y

The following analyses and flow measurements shall be reported at the indicated frequency to the Sanitation Districts on the Districts' Critical Parameter Report Form (copy attached), which must be signed by an administrative officer of the company. Certain requested characterization tests may be deleted from future reports, if it can be demonstrated in writing that they exist in very minute amounts in the wastewater and are not used in any processes which generate wastewater.

Ident. Code	Test 3/	Ident. Code	Test 3/
A	Flow (Total) 2/	Q	Chromium
B	Flow (Peak) 2/	S	Copper
C	COD	U	Lead
D	SS (Suspended Solids)	W	Mercury
E	pH	FF	Zinc
G	Ammonia	GG	Oil & Grease
H	Sulfide - Dissolved	OO	Thiosulfate
L	Antimony	A1	Sulfite (SO_3 as S)
M	Arsenic		
P	Cadmium		

1/ Companies required to submit only annual characterization analysis data should submit it directly to the Districts on July 1; companies required to submit data every 6 months should submit data on January 1, and July 1; companies required to submit data every 3 months shoul submit data on January 1, April 1, July 1, and October 1. Required industrial wastewater characterization analysis data not received within 45 days of the required date will be considered delinquent and a possible cause for revocation of the Industrial Wastewater Discharg Permit.

2/ Total Flow and maximum 30-minute peak flow rate for the day when composite characterization sample is taken.

3/ It is the responsibility of the subject company to report analyses of any other toxic materi shown on the Critical Parameter Report Form, which are known to be present in the wastewater or may occur in the wastewater as a result of a process change.

SANITATION DISTRICTS OF LOS ANGELES COUNTY

TABLE OF SURCHARGE TEST FREQUENCY

YEARLY CUMULATIVE FLOW		Required Frequency of Tests for Surcharge Parameters (Critical Parameters A, B, C, D) 1/ (Flow, Peak Flow, COD and Suspended Solids, respt.)
Million Gallons	Million Cubic Feet	
Less than 6.0	Less than 0.80	0 2/
6.0 to 15.0	0.80 to 2.00	1 per 6 Months
15.1 to 36.0	2.00 to 4.80	1 per 3 Months
36.1 to 250	4.80 to 33.33	1 per Month
Over 250	Over 33.33	1 per Week

NOTES:

1/ Companies having peak flows of 100 gallons per minute or more or total flows of 50,000 gallons per working day or more must provide a continuous automatic indicating, totalizing and recording or total industrial wastewater flows discharged.

2/ Companies with cumulative yearly flows less than 6.0 million gallons may determine surcharge parameters for use in the "Long Form" Surcharge Statement or may pay for discharge at the current flat rate charge per million gallons used in the "Short Form" Surcharge Statement and not test for surcharge parameters. At least two determinations of the surcharge parameters must be made to furnish data for use in the "Long Form" Surcharge Statement.

Charles W. Carry, Chief Engineer & General Manager
Telephone: (213) 699-7411 / From Los Angeles (213) 685-5217

SURCHARGE ACCOUNT NO. _____

INDUSTRIAL WASTEWATER
CRITICAL PARAMETER REPORT FORM

PERMIT NO. 11092

GNB INCORPORATED
(Print) Name of Company Having Wastewater Discharge — SIC Number(s)

2717 S. INDIANA ST. VERNON CA 90023
(Print) Address of Wastewater Discharge

(Print) Sample Date — Sample Point Location — _____ to _____ Reporting Period

DAILY WATER USE FOR REPORTING PERIOD (GAL) AVG. _____ MAX. _____

WASTEWATER FLOW (A,B) DETERMINED BY: ☐ DIRECT MEASUREMENT ☐ METERED WATER SUPPLY ☐ ADJUSTED METERED WATER SUPP

TYPE OF SAMPLE: ☐ GRAB ☐ TIME COMPOSITE ☐ FLOW PROPORTIONED COMPOSITI

CRITICAL PARAMETER VALUES

IDENT. CODE	PARAMETER 1/	2/	QUANTITY VALUES	IDENT. CODE	PARAMETER 1/	2/	QUANTITY VAL
3 (A)	WASTEWATER FLOW (Total)		gals/day	LL-370 371, 372	RADIOACTIVITY (Alpha, Beta, Gamma)		p
3 (B)	WASTEWATER FLOW (Peak)		gals/mi.	MM-111	TEMPERATURE		Degre
C-403	COD		mg/1	NN-104	COLOR		U
D-151	SS (Suspended Solids)		mg/1	OO-253	THIOSULFATE (S)		m
E-101	pH		Units	PP-703	CALCIUM		m
F-155	TOTAL DISSOLVED SOLIDS		mg/1	QQ-704	MAGNESIUM		m
G-201	AMMONIA (N)		mg/1	RR-719	POTASSIUM		m
H-252	SULFIDE – DISSOLVED		mg/1	SS-706	BARIUM		m
I-206	CYANIDE		mg/1	TT-204	NITRATE		m
J-313	FLUORIDE		mg/1	UU-301	CHLORIDE		m
707	ALUMINUM – Total		mg/1	VV-319	BROMIDE		m
725	ANTIMONY – Total		mg/1	WW-257	SULFATE		m
705	ARSENIC – Total		mg/1	XX-311	PHOSPHATE – ORTHO		m
N-726	BERYLLIUM – Total		mg/1	620	BENZENE		µ
O-314	BORON – Total		mg/1	604	CARBON TETRACHLORIDE		µ
P-708	CADMIUM – Total		mg/1	611	CHLOROBENZENE		µ
Q-709	CHROMIUM – Total		mg/1	613	DICHLOROBENZENE		µ
R-711	COBALT – Total		mg/1	619	1, 2-DICHLOROETHANE		µ
S-712	COPPER – Total		mg/1	603	1, 1, 1-TRICHLOROETHANE		µ
T-713	IRON – Total		mg/1	657	2-CHLOROPHENOL		µ
U-714	LEAD – Total		mg/1	658	2, 4-DICHLOROPHENOL		µ
V-716	MANGANESE – Total		mg/1	663	PENTACHLOROPHENOL		µ
W-717	MERCURY – Total		mg/1	664	2, 4, 6-TRICHOROPHENOL		µ
X-732	MOLYBDENUM – Total		mg/1	602	CHLOROFORM		µ
Y-718	NICKEL – Total		mg/1	626	2, 4-DIMETHYLPHENOL		µ
Z-720	SELENIUM – Total		mg/1	624	ETHYL BENZENE		µ
AA-722	SILVER – Total		mg/1	601	METHYLENE CHLORIDE		µ
BB-723	SODIUM – Total		mg/1	607	TETRACHLOROETHYLENE		µ
CC-734	THALLIUM – Total		mg/1	621	TOLUENE		µ
DD-735	TIN – Total		mg/1	606	TRICHLDROETHYLENE		µ
EE-736	TITANIUM – Total		mg/1	525	HCH (Total)		µ
FF-724	ZINC – Total		mg/1	530	CHLORDANE (Total)		µ
GG-408	OIL & GREASE		mg/1	507	DDT (Total)		µ
HH-312	PHENOLS		mg/1	521	PCBs (Total)		µ
II-315	SURFACTANTS (MBAS)		mg/1	512	ALDRIN		µ
[illegible]6	NONIONIC SURFACTANTS(NID)		mg/1	514	ENDRIN		µ

1/ Report all critical parameters required by the Sanitation Districts and any other critical parameter known to be present in the wastewater. Those parameter required by the Districts but known to be absent from the wastewater may be reported by placing the word absent in the appropriate space. Test procedur must be in accordance with procedures contained in the current edition of STANDARD METHODS, if applicable. Test procedures for priority organics mu be run in accordance with the appropriate EPA method.

2/ If values are obtained by measurements or analyses write A in this column. Analysis values must be determined, using [illegible] composit samples (unless the parameter is identified by footnote 4/), by a State Certified or Districts Approved Laboratory. If valu[illegible]te, writ E in this column. Estimated values are acceptable for new plants only.

3/ Report flow rates for sampling day.

4/ Grab samples should be [illegible] with proper preservatives to insure that volatile constituents are preserved.

OTHER CRITICAL PARAMETERS

IDENT. CODE	PARAMETER	2/	QUANTITY VALUES	IDENT. CODE	PARAMETER
A-1	Sulfite (SO_3 as of S)				

(PRINT) Name and Address of Laboratory Preparing Analyses

(PRINT) Name and Address of Company Collecting Wastewater Sample

CERTIFICATION BY PERMITTEE

I certify, under the penalty of perjury, that I have personally examined, and am familiar with, all of th
Parameter Report. Based upon my inquiry of those persons immediately responsible for obtaining the informa
I believe that the information is a true and correct representation of the wastewater discharged from the stated

Signature of responsible company official: _____ D

Print name of official: _____

Title of person certifying report: _____

Please submit this report to:

INDUSTRIAL WASTE SECTION
Sanitation Districts of Los Angeles County
P.O. Box 4998
Whittier, CA 90607

GNB Batteries Inc.
Metals Division
2700 So. Indiana St.
P.O. Box 73957
Los Angeles, CA 90023-0957
Telephone: (213) 262-1101

GNB

May 14, 1985

Mr. Hank H. Yacoub
Regional Water Quality Control Board
107 S. Broadway - Room 4027
Los Angeles, CA 90012-4596

Dear Mr. Yacoub:

Enclosed is our application for facility permit/waste discharge for our rainwater retention pond. As you know, we are required by the County Sanitation Districts of Los Angeles County to provide a surface impoundment that will contain a six inch rainfall on the property, and, further, that we must retain the water until twenty-four hours after the cessation of the rainfall before beginning to discharge it.

To meet the above requirement, a 2.3 million gallon double-lined surface impoundment has been constructed. The collection system and grading of the property will be completed this summer, prior to the onset of the fall rains. Monitoring wells have been installed per your instructions and are shown on the enclosed prints.

The quality of the water contained should be quite good since it is only rainwater. It is expected that some particulate will be washed from the buildings and grounds but it is likely that airborne dust carried some distance by the winds will be the major contributor to the particulate content. Cleaning the sediment from the impoundment is expected to take place once a year and will be accomplished by slurrying the solids with water and pumping the slurry into the process tanks. Once combined with the process waters, the slurry will be treated and filtered before discharge into the sanitary sewer. Since rainfall is seasonal in this area we expect the impoundment to be dry during the summer and fall months.

In accordance with your recommendation we think it should be designated as a Class II site.

Please contact me if I can be of any assistance.

Yours sincerely,

Kenneth G. Clark

Kenneth G. Clark
Technical Manager

KGC:mlf

Enc.

09881

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
DEPARTMENT OF HEALTH SERVICES
SOLID WASTE MANAGEMENT BOARD
DEPARTMENT OF FORESTRY

APPLICATION FOR FACILITY PERMIT/WASTE DISCHARGE

This form is to be used for filing a/an: (check all appropriate)

1. [X] REPORT OF WASTE DISCHARGE (pursuant to Division 7 of the State Water Code)
2. [ ] APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT (pursuant to Health and Safety Code Section 25200)
3. [ ] APPLICATION FOR A SOLID WASTE FACILITIES PERMIT (pursuant to Government Code Section 66796.30)
4. [ ] APPLICATION FOR A RUBBISH DUMP PERMIT (pursuant to Public Resources Code Sections 4371—4375 and 4438)

FOR OFFICE USE ONLY
Form 200 Rec'd
Fee (RWQCB) (SWMB)
Letter to Discharger
Report Rec'd
Effective Date
CDF Notified
DOHS No.
SWMB No.

I. FACILITY

A. NAME OF FACILITY: GNB INCORPORATED, METALS DIVISION — TELEPHONE #: (213) 262-1101
ADDRESS: 2700 South Indiana Street, Los Angeles, California — ZIP CODE: 90023

B. NAME OF LEGAL OWNER OF FACILITY: GNB INCORPORATED — TELEPHONE #: ( )
ADDRESS: P. O. Box 64140 St. Paul, Minnesota — ZIP CODE: 55164

C. NAME OF BUSINESS OPERATING FACILITY: Same — TELEPHONE #: ( )
ADDRESS: — ZIP CODE:

D. TYPE OF BUSINESS OPERATING FACILITY
[ ] Sole Proprietorship [ ] Partnership [X] Corporation [ ] Government Agency

NAME OF OWNER(S) OF BUSINESS OPERATING FACILITY — TELEPHONE #: ( )

ADDRESS WHERE LEGAL NOTICE MAY BE SERVED: 2700 South Indiana Street Los Angeles, California — ZIP CODE: 90023

II. REASON FOR FILING

CHECK ALL APPROPRIATE:

A. [X] New discharge or facility
B. [ ] Existing discharge or facility
C. [ ] Increase in quantity of discharge
D. [ ] Change in character of discharge
E. [ ] Change in place or method of disposal
F. [ ] Change in design or operation
G. [ ] Change in business operating facility
H. [ ] Enlargement of existing facility
I. [ ] Other (explain below)

III. TYPE OF OPERATION

CHECK ALL APPROPRIATE:

A. [ ] Transfer station
B. [ ] Solid waste disposal site
C. [ ] Hazardous waste disposal site
D. [ ] Sewage treatment
E. [ ] Industry (on-site disposal facility)
F. [ ] Industry (discharge to sewer)
G. [ ] Woodwaste site
H. [X] Other (explain below)

Rainwater retention before discharge to sewer.

IV. TYPE OF WASTE

CHECK ALL APPROPRIATE:

A. [ ] Sewage, sewage sludge, and/or septic tank pumpings
B. [ ] Industrial wastes
C. [ ] Municipal solid wastes
D. [ ] Hazardous wastes
E. [ ] Agricultural wastes
F. [ ] Animal wastes
G. [ ] Forest product wastes
H. [ ] Construction/demolition wastes
I. [ ] Inert materials
J. [ ] Dead animals
K. [ ] Tires
L. [X] Other (explain below)

Rainwater

V. SITE DESIGN CAPACITY

A. PRESENT POPULATION OR CAPACITY	B. DESIGN POPULATION OR ULTIMATE CAPACITY	C. LIFE EXPECTANCY (YEARS)
2,300,000 Gallons	2,300,000 Gallons	20 years

09882

FORM 200 (REV. 9/66)

(OVER)

J. PRESENT OR PROPOSED DAILY FLOW (IN MGD):	2.3	0.015.		
C. SOLID WASTE DISPOSAL SITE (IN TONS OR CUBIC YARDS):	DAILY QUANTITY	TOTAL IN PLACE QUANTITY	D. AREA IN WHICH SOIL WILL BE DISTURBED (IN ACRES)	TOTAL SITE AREA

VII. LOCATION OF POINT OF DISPOSAL OR OPERATION

(DESIGN AND ATTACH MAP, SKETCH, OR LOCATION ON U.S.G.S. QUADRANGLE MAP, 7.5 OR 15 MINUTE SERIES.)
(SET DISTANCES OR BEARING AND DISTANCE FROM SECTION CORNER OR QUARTER CORNER, SECTION, TOWNSHIP, RANGE, BASE AND MERIDIAN)

See attached property description

VIII. SOURCE OF WATER SUPPLY (CHECK ALL APPROPRIATE)

A. ☐ MUNICIPAL OR UTILITY SERVICE:

NAME OF WATER PURVEYOR

ADDRESS OF PURVEYOR

B. ☐ INDIVIDUAL (Wells)

C. ☒ SURFACE SUPPLY: Rainwater

NAME OF STREAM, LAKE, SPRING, ETC. (IF NAMED)

TYPE OF WATER RIGHTS: ☐ Riparian ☐ Appropriation

WATER RIGHTS PERMIT OR LICENSE

IX. ENVIRONMENTAL IMPACT REPORT (EIR)

Has an EIR been prepared for this project? ☐ Yes ☒ No

If "Yes", please enclose a copy.

If "No", will an EIR be prepared? ☐ Yes ☒ No

Will a negative declaration be prepared? ☐ Yes ☒ No

If "Yes", please answer the following:

WHO WILL PREPARE THE NEGATIVE DECLARATION?

APPROX. DATE OF COMPLETION

CERTIFICATION

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge.

SIGNATURE OF OWNER OF FACILITY		SIGNATURE OF OPERATOR OF FACILITY	
		Robert L Smith	
PRINTED OR TYPED NAME		PRINTED OR TYPED NAME	
		Robert L. Smith	
TITLE	DATE	TITLE	DATE
		Director, Western Region	5/14/85

LIST TITLES OF ANY ATTACHMENTS:

1) Property Description - Mollenhauer, Higashi & Moore - Sheet 1 of 9
2) Drawings 39-724-100D, 39-724-101D, 39-724-102D, 39-724-103D, 39-724-104D

You will be notified of the correctness of filing fee and submittal of any additional information deemed necessary to complete your Report of Waste Discharge pursuant to Division 7, Section 13260 of the State Water Code, or to complete your permit application pursuant to Government Code Section 66796.30 and Health and Safety Code Section 25200.

09883

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
'S ANGELES REGION

. SOUTH BROADWAY, SUITE 4027
)S ANGELES, CALIFORNIA 90012–4596
(213) 620-4460

November 17, 1986

Kenneth G. Clark
Technical and Environmental Manager
GNB Incorporated
Metals Division
2700 South Indiana Street
Los Angeles, CA 90023

FACILITY INSPECTION UNDER THE TOXIC PITS CLEANUP ACT OF 1984
(File No. 85-50)

On November 6, 1986, your facility was inspected by staff from the Regional Water Quality Control Board (Board) to verify that you are not affected by the Toxic Pits Cleanup Act (TPCA) of 1984 [Article 9.5 (commencing with Section 25208) of Chapter 6.5 of Division 20 of the Health and Safety Code]. On the basis of our inspection, Board staff have determined that:

[xx] you do not own a surface impoundment as defined in Section 25208.1(w) of the Health and Safety Code.

[ ] you do not store hazardous waste.

[ ] your container is a flow-through device regulated and permitted by a local agency.

[ ] your container is an underground tank regulated and permitted by a local agency.

[ ]

Thank you for yor assistance in this matter. The name of your facility has now been removed from the Regional Board's list of sites possibly subject to TPCA. If additional information concerning the TPCA Program is needed, please contact me at (213) 620-4397 or Mr. Jonathan Mulder at (213) 620-5436.

Hank H. Yacoub

HANK H. YACOUB
Supervising Water Resource
Control Engineer

cc: State Water Resources Control Board
Division of Water Quality

POST IN A CONSPICUOUS PLACE

HEALTH AND ENVIRONMENTAL CONTROL SECTION

CITY OF VERNON

4305 SANTA FE AVENUE, VERNON, CA 90058

(213) 583-8811, EXT. 33

(01) NO. 2700

EXPIRES 06/30/89

(30) PRO/ELM 2301

(40) FEE PAID $74.00

HEALTH PERMIT

PERMIT TYPE: UNDERGROUND TANKS

OWNER'S NAME: C.A. GILMAN (DAY CONTACT)

BUSINESS LOCATION: 2700 S. INDIANA ST.
VERNON, CA 90023

BUSINESS NAME: GNB INCORPORATED

MAILING ADDRESS: PO BOX 23957
ATTN: C.A. GILMAN
LOS ANGELES, CA 90023-0957

CITY OF VERNON — EXCLUSIVELY INDUSTRIAL

BY

THE PERSON, FIRM OR CORPORATION ABOVE NAMED IS HEREBY GRANTED A PERMIT TO ENGAGE IN THE BUSINESS DESCRIBED ABOVE IN THE CITY OF VERNON FOR THE PERIOD INDICATED.

POST IN A CONSPICUOUS PLACE

HEALTH AND ENVIRONMENTAL CONTROL SECTION

CITY OF VERNON

4305 SANTA FE AVENUE, VERNON, CA 90058

(213) 583-8811, EXT. 33

(01) NO. 6244

EXPIRES 06/30/89

(30) PRO/ELM 199

(40) FEE PAID $250.00

HEALTH PERMIT

PERMIT TYPE	HAZARDOUS MATERIALS CLASS - C
OWNER'S NAME	KEN CLARK - PRIMARY
BUSINESS LOCATION	2717 S. INDIANA ST. VERNON, CA 90023
BUSINESS NAME	GNB INCORPORATED
MAILING ADDRESS	2700 S. INDIANA ST. LOS ANGELES, CA 90023

CITY OF VERNON — Joel Jeppson — EXCELLENCE IN INDUSTRIAL

BY _____

THE PERSON, FIRM OR CORPORATION ABOVE NAMED IS HEREBY GRANTED A PERMIT TO ENGAGE IN THE BUSINESS DESCRIBED ABOVE IN THE CITY OF VERNON FOR THE PERIOD INDICATED.

POST IN A CONSPICUOUS PLACE

HEALTH AND ENVIRONMENTAL CONTROL SECTION

CITY OF VERNON

4305 SANTA FE AVENUE, VERNON, CA 90058

(213) 583-8811, EXT. 33

(01) NO. 0202

EXPIRES 12/31/88

(30) PRO/ELM 4455

(40) FEE PAID $78.00

HEALTH PERMIT

PERMIT TYPE: WASTE PROCESSING FACILITY

OWNER'S NAME

BUSINESS LOCATION: 2700 INDIANA ST.
VERNON, CA 90023

BUSINESS NAME: GHB, INCORPORATED

MAILING ADDRESS: 2700 INDIANA ST.
VERNON, CA 90023

CITY OF VERNON California EXCLUSIVELY INDUSTRIAL

BY

THE PERSON, FIRM OR CORPORATION ABOVE NAMED IS HEREBY GRANTED A PERMIT TO ENGAGE IN THE BUSINESS DESCRIBED ABOVE IN THE CITY OF VERNON FOR THE PERIOD INDICATED.

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

NON-TRANSFERABLE LICENSE

LICENSE NUMBER	ISSUE DATE	EFFECTIVE DATE	EXPIRATION DATE
36409	12/28/89	———	2/28/91

CHP CARRIER NUMBER	LOCATION	
CA– 2561		☐ Initial ☒ Renewal

LICENSEE NAME AND ADDRESS (ONLY IF DIFFERENT FROM BELOW)

GNB Incorporated
2700 S. Indiana Street
Vernon, CA 90058

CONTROL NUMBER 79347

LICENSEE NAME AND MAILING ADDRESS

GNB Incorporated
P. O. Box 23957
Los Angeles, CA 90023

The person or firm named has been licensed pursuant to the California Vehicle Code for:

OPERATION OF:

☐ Emergency Ambulances ☐ Armored Cars ☐ (IMS) Inspection and Maintenance Station

HAZARDOUS MATERIALS TRANSPORTATION

☐ (HMX) Explosives subject to Division 14, Vehicle Code, Materials subject to Section 31302, Vehicle Code, and other hazardous materials.

☐ (HMO) Other Hazardous Materials.

☒ (HMW) Hazardous materials in certified waste hauler vehicles only (fee exempt); registration number: 2157

☐

CHP 360 (Rev 4-86) OPI 061

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
P.O. BOX 942732
SACRAMENTO, CA 94234-7320
(916) 324-2430

HAZARDOUS WASTE TRANSPORTER REGISTRATION
RESTRICTED REGISTRATION

OCT 0 3 1990
ENVIRONMENTAL DEVELOPMENT

NAME AND ADDRESS OF REGISTERED HAULER:

GNB Incorporated
P.O. Box 64100
St. Paul, MN 55164

HAULER REGISTRATION NUMBER: 2157

EXPIRATION DATE: October 31, 1991

This is to certify that the firm named above is duly registered to haul hazardous waste in the State of California in accordance with the provisions of Chapter 6.5, Division 20 of the California Health and Safety Code and Chapter 30, Division 4, Title 22 of the California Code of Regulations.

Please note that this registration is restricted, requiring the inspection of your vehicles/containers on their first trip entering California, and must be carried with the vehicles/containers used to transport hazardous waste. This restricted registration also meets the requirements of California Vehicle Code Section 34100 for the transportation of flammable or combustible liquids in a tank of proper DOT specification, provided that all inspection arrangements have been made with the California Highway Patrol.

To arrange for this inspection, you should contact the Hazardous Materials Section, California Highway Patrol, P. O. Box 942898, Sacramento, CA 94298-0001, telephone (916) 327-3310, to set up an inspection date. This must be completed at least three State working days before the vehicle(s)/container(s) are to enter the state. "State working days" do not include weekends or State holidays. (See enclosed information bulletin).

When transporting hazardous waste or flammable/combustible liquids in California immediately prior to vehicle/container certification, the driver must be prepared to provide the following information to any authorized person:

1. This Hazardous Waste Hauler Restricted Registration, and
2. The telephone number of the California Highway Patrol Motor Carrier Safety Unit that will be inspecting your vehicle and the address of your vehicle/container inspection

Lloyd A. Bettin
(AUTHORIZED SIGNATURE)

SEP 24 1990
(DATE)

cc: CHP Hazardous Materials Section

APPENDIX H

RE: SECTION 14

FINANCIAL RESPONSIBILITY DOCUMENTS

Inter-Office Memo

TO: KEN CLARK-RRD

FROM: ROBERT JOHNSON

DIV/DEPT: ABD/FINANCE

DATE: June 19, 1990

LOCATION: MENDOTA

SUBJECT: IRREVOCABLE LETTER OF CREDIT #0307278

COPIES: DICK CROWELL

Attached is a copy of Amendment #2 dated April 30, 1990, to the subject Letter of Credit increasing the amount to $740,714.00

Robert A. Johnson

RAJ/lar

NATIONAL WESTMINSTER BANK USA
TRADE SERVICES DEPARTMENT
60 PINE STREET - 11TH FLOOR
NEW YORK, NEW YORK 10005-1702
TEL. (212) 602-1240

DATE: APRIL 30, 1990

AMENDMENT NO.2
TO OUR STANDBY L/C NO. Q307278

BENEFICIARY:

TOXIC SUBSTANCES CONTROL DIVISIONS
DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
SACRAMENTO CA 95814

FOR ACCOUNT OF:

INCORPORATED
P.O. BOX 64100
ST PAUL, MN 55164-0100

OUR SUBJECT LETTER OF CREDIT IS NOW AMENDED AS FOLLOWS:
1) THE LETTER OF CREDIT AMOUNT IS INCREASED BY US$ 26,979.00 (USDOLLARS TWENTY SIX THOUSAND NINE HUNDRED SEVENTY NINE AND 00/100). TO A NEW BALANCE NOT EXCEEDING $740,714.00 (USDOLLARS SEVEN HUNDRED FORTY THOUSAND SEVEN HUNDRED FOURTEEN AND 00/100).
2) THE LETTER OF CREDIT NUMBER IS CHANGED TO READ: Q307278 INSTEAD OF 307278

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

COPY

AUTHORIZED SIGNATURE

National Westminster Bank USA

80 Pine Street
New York, NY 10005-1702 USA

CABLE ADDRESS: "INTIMATE"

March 08, 1988

IRREVOCABLE STANDBY LETTER OF CREDIT NUMBER 307278

Toxic Substances Control Division
Department of Health Services
714/744 P Street
Sacramento, California 95814
Reference: Hazardous Waste facility No. CAD0978541

Gentlemen:

We hereby establish our Irrevocable Standby Letter of Credit No. 307278 in your favor, for account of GNB Incorporated, P.O. Box 64100, St. Paul, Minnesota 55164-0100 in the aggregate amount of US$689,133.00 (SIX HUNDRED EIGHTY NINE THOUSAND, ONE HUNDRED THIRTY THREE AND 00/100 UNITED STATES DOLLARS) available as follows by:

1. Your sight draft(s) drawn on us, bearing reference to this Letter of Credit No. 307278

2. Your signed and dated statement reading:
"We certify that the amount of our draft drawn under National Westminster Bank USA Irrevocable Letter of Credit No. 307278 is payable pursuant to regulations issued under authority of the California Hazardous Waste Control Law."

Each draft must be also accompanied by the the original of this Letter of Credit upon which we may endorse our payment.

Partial drawings are permitted.

All drafts drawn under this Letter of Credit must be marked: "DRAWN UNDER NATIONAL WESTMINSTER BANK USA IRREVOCABLE LETTER OF CREDIT 307278 DATED MARCH 08, 1988.

We hereby engage with you that drafts drawn under and in compliance with the terms of this Letter of Credit will be duly honored upon presentation to our office at 80 Pine Street, New York, New York 10005, 11th Floor, and we shall deposit the amount of the draft directly into the standby trust fund of GNB Incorporated in accordance with your instructions.

This Letter of Credit is valid until February 28, 1989 and shall thereafter be automatically extended for an additional one year period unless at least one hundred twenty (120) days prior to such expiration date we notify you in writing via registered or certified mail at the above listed address of our intention not to renew this Letter of Credit for such additional period. In the event you are so notified, any unused portion of the Credit shall be available upon presentation to us of your clean sight draft on or before the then current expiration date.

This Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits, 1983 Revision, International Chamber of Commerce Publication No. 400.

Authorized Signature

GNB Incorporated Corporate Headquarters

Mailing Address:
P.O. Box 64100
St. Paul, MN 55164-0100 U.S.A.

1110 Highway 110
Mendota Heights, MN 55118
Telephone (612)681-5000

GNB, INCORPORATED
MAR 10 1989
RECEIVED

March 9, 1988

CERTIFIED

Director
Toxic Substances Control Division
Department of Health Services
State of California
714/744 "P" Street
Sacramento, CA 95814

RE: GNB Incorporated
2700 South Indiana Street
Los Angeles, CA 90023
Hazardous Waste Facility I.D. No. CAD 097854541

Gentlemen:

Enclosed is an executed Stand-by Trust Agreement for GNB Incorporated, Grantor, together with National Westminster Bank USA Letter of Credit No. 307278 dated March 8, 1988, relative to the above.

Very truly yours,

Richard L. Gerstein
Corporate Controller

RECEIVED
MAR 10 1988
LAW DEPARTMENT

RLG/tt

Enclosure

bcc: Andy Larson
Ev Milton
Curt Peterson — CORRECTED LETTER
Chuck Barry

This agreement is entered into as of March 2, 1988 (Date) by and between:

GRANTOR	TRUSTEE
Owner/Operator name: GNB Incorporated	Trustee name: NATIONAL WESTMINSTER BANK USA
Address: 1110 Highway 110 Mendota Heights, MN 55118	Address: 175 Water St, New York, N.Y. 10038
☒ Corporation ☐ Association ☐ Partner ☐ Proprietorship In the State of Delaware	☐ Incorporated in the State of _____ ☒ A National Bank

TERMS OF AGREEMENT

WHEREAS, the Department of Health Services (DHS), a department of the State of California, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility.

WHEREAS, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein.

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

NOW, THEREFORE, the Grantor and Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

(c) The term "Beneficiary" means State of California, Department of Health Services.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A [on Schedule A — for each facility list the hazardous waste facility identification number, name, address, and the current closure and/or post-closure cost estimates (indicate the closure and post-closure amounts separately), or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of the Beneficiary. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the Beneficiary.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as Beneficiary shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the Beneficiary from the Fund for closure and post-closure expenditures in such amounts as Beneficiary shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as Beneficiary specifies in writing. Upon refund, such funds shall not constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee shall discharge his or her duties with respect to the trust fund solely in the interest of the Beneficiary and with the care, skill, prudence and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2 (a), shall not be acquired or held, unless they are securities or other obligations of the Federal or State Government.

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State Government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State Government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

~~Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to Beneficiary a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 60 days after the statement has been furnished to the Grantor and Beneficiary shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.~~

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer and pay over to the successor trustee the funds and properties then constituting the Fund. If, for any reason, the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, Beneficiary, and the present Trustee by certified mail ten days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests and instructions by the Beneficiary to the Trustee shall be in writing, signed by the Beneficiary designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Beneficiary hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests and instructions from the Grantor and/or Beneficiary, except as provided for herein.

~~Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the Beneficiary, by either registered or certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust. If no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.~~

Section 16. Amendment of Agreement. This agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the Beneficiary, or by the Trustee and the Beneficiary, if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Beneficiary, or by the Trustee and the Beneficiary, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the Beneficiary issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed and enforced according to the laws of the State of California.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: The parties below certify that this document is being executed in accordance with the requirements of Article 17, Title 22, California Administrative Code.

Signature of Grantor:	Title: Corporate Controller
Types or Printed Name of Person Signing: Richard L. Gerstein	Seal:
Attest: Title Kathleen E. Finigan Ass't. Secretary	
Signature of Trustee: Laura L. Simons	Title: TRUST Officer
Types or Printed Name of Person Signing: Laura L. Simons	Seal:
Attest: Title TRUST Officer	

PRIVACY STATEMENT

This information is requested by the Department of Health Services, Toxic Substances Control Division, under Health and Safety Code, Section 25245 in order to verify adequate financial assurance of Hazardous Waste Facilities. Completion of the form is mandatory. The consequence of not completing the form is denial of a permit to operate a hazardous waste facility. Information may be provided to U. S. Environmental Protection Agency (EPA), State Attorney General, Air Resources Board, California Waste Management Board, Energy Resources Conservation and Development Commission, Water Resources Control Board and California Regional Water Quality Control Boards. For more information or access to your records, contact the Toxic Substances Control Division, 714 P Street, Sacramento, CA 95814, (916) 324-1626.

SAMPLE

EXHIBIT A

TRUST AGREEMENT BY AND BETWEEN GNB Incorporated

AND THE National Westminster Bank USA

As provided for in Section 14 of the Trust Agreement, the persons, other than the officials of the Beneficiary identified in Section 14 of the Trust Agreement, who, until this Exhibit A is amended, shall have the authority to make orders, requests, and instructions to the Trustee are:

Officials of the Grantor.

Officials of the Grantor who have authority to give instructions are:

Name:	F. X. Beaudette	Executive Vice President
	R. L. Gerstein	Corporate Controller
	R. A. Johnson	Assistant Treasurer
Title:	R. B. Crowell	Assistant Treasurer

SAMPLE

EXHIBIT A

Any orders, requests or instructions by the Grantor to the Trustee, pursuant to the foregoing Agreement, may be signed by any one or more of the following persons:

Name:

Title:

TRUST AGREEMENT/STANDBY TRUST

SAMPLE SCHEDULE A

This Agreement demonstrates financial assurance for the following cost estimate(s) for the following facility(ies):

Hazardous Waste Facility Identification Number	Name of Facility	Address of Facility	Cost Estimates For Which Financial Assurance Being Demonstrated By This Agreement
CAD 097854541	GNB Incorporated Los Angeles Smelter	2700 South Indiana St Los Angeles, CA 90023	Closure $ 689,133.00 Post-Closure .00 Total $ 689,133.00

The cost estimates listed here were last adjusted on: January 1988
Date

TRUST AGREEMENT (ONLY)

SAMPLE SCHEDULE B

The fund is established initially as consisting of the following:

$ _____ , _____ as evidence by
(Spell out dollar amount)

_____ Check Number _____
(Name of institution drawn on)

dated _____

I hereby certify that funds have been received and deposited.

Authorized Signature	Title:
Typed or Printed Name of Person Signing	Address:

STANDBY TRUST AGREEMENT (ONLY)

SAMPLE SCHEDULE B

List of Property Comprising Trust Fund

None at the time of trust establishment. Funding of this Standby Trust Agreement is contingent upon drafts against

that primary, Letter of Credit number 307278 and issued by
(Surety Bond or Letter of Credit)

the National Westminster Bank USA on March 8, 1988 in
(Issuing Institution) (Date)

accordance with the terms of that Letter of Credit.
(Surety Bond or Letter of Credit)

GNB Incorporated

2700 South Indiana Street
P.O. Box 23957
Los Angeles, CA 90023-0957
Telephone (213) 262-1101

November 16, 1990

Mr. David Rasmunson
Department of Health Services
1405 N. San Fernando Blvd., Suite 300
Burbank, CA 91504

Dear Dave:

Please find enclosed two documents which update the corresponding documents in our Part B application.

The first is the renewal of our Hazardous Waste Haulers Registration and the second renews our sudden and non-sudden liability insurance coverage (this previously had been covered by corporate financial assurance).

I'll try to keep this application updated as you consider it.

Sincerely,

Ken

Kenneth G. Clark
Tech. & Envir. Manager

KGC:mlf

Encls. (2)

Australia and New Zealand Banking Group Limited

ANZ Bank

Chicago Branch, 190 South LaSalle Street, Suite 500
Chicago, Illinois 60603

Telephone 312 236 6835
Telex 4330119 and 4330129
Fax 312 236 7112

IRREVOCABLE STANDBY LETTER OF CREDIT

SEPTEMBER 28, 1990

SBLC 182/8203

Toxic Substances Control Division
Department of Health Services
714/744 P Street
P.O. Box 942732
Sacramento, CA 94234-7320

Attn: Mr. Richard Castle:

Dear Sir:

We hereby establish our Irrevocable Standby Letter of Credit No. SBLC 182/8203 in favor of any and all third-party liability claimants, at the request and for the account of GNB Inc., P.O. Box 64100, St. Paul, MN 55164-0100, for third-party liability awards or settlements up to Eight Million ($8,000,000.00) in United States dollars per occurrence, and the annual aggregate amount of Two Million ($2,000,000.00) in United States dollars for sudden accidental occurrences and/or for third-party liability awards or settlements up to the amount of Six Million ($6,000,000.00) in United States dollars for nonsudden accidental occurrences. The maximum amount of drawings under this Standby Letter of Credit should not exceed USD 8,000,000.00, available upon presentation of a sight draft, bearing reference to this Letter of Credit No. SBLC 182/8203 and (1) a signed certificate reading as follows:

Certificate of Valid Claim

The undersigned, as parties GNB Inc. hereby certify that the claim of bodily injury (and/or) property damage caused by a [sudden or nonsudden] accidental occurrence arising from operations of GNB Inc. hazardous waste transfer, treatment, storage, or disposal facility should be paid in the amount $. We hereby certify that the claim does not apply to any of the following:

(a) Bodily injury or property damage for which GNB Inc. is obligated to pay damages by reason of the assumption of liability to contract or agreement. This exclusion does not apply to liability for damages that GNB Inc. would be obligated to pay in the absence of the contract or agreement.

Australia and New Zealand Banking Group Limited

ANZ Bank

Chicago Branch, 190 South LaSalle Street, Suite 500
Chicago, Illinois 60603

Telephone 312 236 6835
Telex 4330119 and 4330129
Fax 312 236 7112

(b) Any obligation of GNB Inc. under a worker's compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of GNB Inc. arising from, and in the course of employment by GNB Inc. or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by GNB Inc.. This exclusion applies:

(A) Whether GNB Inc. may be liable as an employer or any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by GNB Inc.

(2) Premises that are sold, given away, or abandoned by GNB Inc., if the property damage arises out or any part of those premises;

(3) Property loaned to GNB Inc.

(4) Personal property in the care, custody or control of GNB Inc.

(5) That particular part of real property on which GNB Inc. or any contractors of subcontractors working directly or indirectly on behalf of GNB Inc. are performing operations, if the property damage arises out of these operations.

Signatures
Principal

Signatures
Claimant(s)

Australia and New Zealand Banking Group Limited

ANZ Bank

Chicago Branch, 190 South LaSalle Street, Suite 500
Chicago, Illinois 60603

Telephone 312 236 6835
Telex 4330119 and 4330129
Fax 312 236 7112

Or (2) a valid final court order establishing a judgment against GNB Inc. for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from operation of the GNB Inc. facility or group of facilities.

Special Instruction

This Letter of Credit is valid until September 28, 1991 and shall thereafter be automatically renewed for a one-year period upon such date and upon each successive anniversary of such date, unless at least one hundred-twenty (120) days prior to such expiration date or each successive anniversary of such date we notify you in writing by either registered or certified mail that we elect not to renew the Letter of Credit for such additional period. In the event you are so notified, any unused portion of the credit shall be available upon presentation to us of your clean sight draft on or before the then current expiration date.

This credit is subject to, "The Uniform Customs and Practice for Documentary Credits, (1983 Revision), International Chamber of Commerce Publication No. 400."

AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
CHICAGO BRANCH

190 South LaSalle Street
Suite 500
Chicago, IL 60603

P. A. Botticelli

Patrick A. Botticelli
Vice President - Corporate

Ronald A. Kowalski

Ronald A. Kowalski
International Banking Officer

Date September 28, 1990

Application For Irrevocable Documentary Standby Letter of Credit

TO: ANZ Bank

Australia and New Zealand Banking Group Limited
Chicago Branch, 190 South LaSalle Street, Suite 500
Chicago, Illinois 60603
Telephone 312 236 6835
Telex 4330119 and 4330129
Fax 312 236 7112

DATE	L/C NUMBER (FOR BANK USE ONLY)
09/25/90	

Please issue an irrevocable Documentary Standby Letter of Credit substantially in accordance with this application and transmit it as indicated below (by "X"). In issuing the Credit you are expressly authorized to make such changes from the terms herein below set forth as you, in your sole discretion, may deem advisable provided that no such changes shall vary the principal terms hereof.

- ☐ Through your correspondent for delivery to the beneficiary
- ☐ Directly to the beneficiary
- ☐ To us for transmission to the beneficiary

By: ☐ Airmail ☐ Brief Cable ☐ Full Cable ☐ Overnight Courier ☐ Other _____

THIS SECTION FOR BANK USE ONLY UNLESS YOU DESIGNATE ADVISING BANK	APPLICANT
	GNB INCORPORATED PO BOX 64100 ST. PAUL, MN. 55164-0100
BENEFICIARY	**AMOUNT (UP TO)**
TOXIC SUBSTANCES CONTROL DIVISION DEPARTMENT OF HEALTH SERVICES 714/744 P. STREET P. O. BOX 942732 SACRAMENTO, CA. 94234-7320 MR. RICHARD CASTLE	IN FIGURES USD 8,000,000.00 IN WORDS EIGHT MILLION U.S. DOLLARSS EXPIRY DATE *(Month in words, day, year)* — AT YOUR COUNTERS UNLESS OTHERWISE INDICATED FOR PRESENTATION OF DOCUMENTS TO YOU UNLESS OTHERWISE INDICATED: FOR ☐ SIGHT PAYMENT ☐ NEGOTIATION

Draft(s) at sight to be drawn on you or *(Specify any other drawee)* _____

and accompanied by documents as indicated below:

☐ BENEFICIARY'S SIGNED STATEMENT READING: "

AS PER ATTACHED

OTHER DOCUMENTS/CONDITIONS:

(COMPLETE ONLY WHEN THE BENEFICIARY BANK IS TO ISSUE ITS UNDERTAKING BASED ON THE ISSUED STANDBY LETTER OF CREDIT)

☐ Request beneficiary bank to issue and deliver their *(Specify type of undertaking)* _____

in favor of _____

for an amount not exceeding the amount specified above, effective immediately and expiring at their office on _____

relative to *(Specify contract number or other pertinent reference)* _____

Partial drawings permitted if not checked as ☐ Prohibited

SHOULD THERE BE A NEED TO CLARIFY OUR ABOVE INSTRUCTIONS, PLEASE CONTACT:

NAME _____ TELEPHONE NO (___) _____

PLEASE DATE AND OFFICIALLY SIGN THE AGREEMENT ON THE REVERSE SIDE HEREOF.

Australia and New Zealand Banking Group Limited - Chicago Branch
190 South LaSalle Street • Suite 500 • Chicago, Illinois 60603

STANDBY CREDIT AGREEMENT

As consideration for issuing at our instruction your Standby Credit (as requested on the other side and as it may be [illegible] called the "Credit") the undersigned unconditionally agrees (jointly and severally, if there is more than one of the [illegible]) as follows:

1. [illegible]imbursement. We shall reimburse you at your office and in immediately available United States currency the amount paid or to be paid by you or your agent or any party on your behalf on each draft or other order, instrument or demand drawn or presented under the Credit (the "Items"). Items shall be reimbursed on demand. If Items are payable in currency other than United States currency, we shall reimburse you at your option in United States dollars at the rate at which you sell such other currency in Chicago in exchange for United States dollars for cable transfer to the place of payment of the Item or, if there is no such rate, the US dollar equivalent of your actual cost of settlement. We agree to pay you on demand in United States currency such amounts as you may be required to expend to comply with any and all governmental exchange regulations now or hereafter applicable to the purchase of foreign currency.

2. Commission and Charges. We shall pay you on demand any commissions or fees with respect to the Credit, which fees and commissions shall be at such rates as you may reasonably establish. In addition, we shall reimburse you for any and all costs, expenses, charges and liabilities incurred or paid by you in connection with the Credit and this Agreement.

3. Interest. We shall pay you on demand interest at the rate per annum equal to the sum of 2% plus the rate quoted by you as your prime commercial rate from time to time in effect for United States dollar loans on all amounts paid by you or any other drawee under any Item, the Credit or this Agreement from the date of such payment until you receive our reimbursement. Interest shall be calculated on the basis of a 360-day year and paid for actual days elapsed.

4. Set Off. We authorize you to charge any account or other funds in your possession for the payment of our Liabilities as defined in Section 8 of this Agreement.

5. Continuation of Liability. Regardless of the expiration date of the Credit, we shall remain liable hereunder until you are released from liability by every person, firm, corporation or other entity, which is entitled to draw or demand payment under the Credit.

6. Documentation. Unless specified to the contrary in the Application or any amendment to the Credit, we agree that you and your correspondents may receive and accept (a) any Items or documents otherwise in order, issued or purportedly issued by an agent, executor, trustee in bankruptcy, receiver or other representative of the party who is authorized under the Credit to issue such Items or other documents, as complying with the terms of the Credit and (b) documents which comply with the UCP as defined in Section 17 of this Agreement. The provisions of clause (a) above shall in no way be deemed to preclude the beneficiary of the Credit from issuing and presenting Items or documents under the terms of the Credit.

We agree to indemnify and hold you harmless from each and every claim, demand, liability, loss, cost or expense (including but not limited to reasonable attorney's fees and legal costs) which may arise or be created by your acceptance of telecommunication instructions in connection with the Credit including but not limited to telephonic instructions in connection with any waiver of discrepancies.

7. Increased Cost/Taxes. If as a result of any law, regulation, treaty or directive, or any change therein or in the interpretation or application thereof or your compliance with any request or directive (whether or not having the force of law) from any court or governmental authority, body or instrumentality, any reserve, premium, special deposit, special assessment, capital or similar requirements against your assets, deposits with you or for your account or credit extended by you are imposed, modified or deemed applicable and you determine that by reason thereof the cost to you of issuing or maintaining the Credit is increased, or reducing the rate of return on your capital as a consequence of your obligations under the Credit to a level below that which you could have achieved but for such imposition, modification or application (taking into consideration your policies with respect to liquidity and capital adequacy), we agree to pay you upon demand (which demand shall be accompanied by a statement setting forth the basis for the calculation thereof) such additional amount or amounts as will compensate you for such additional cost or reduced rate of return. Determinations by you for purposes of this Section of the additional amounts required to compensate you in respect of the foregoing shall be conclusive, absent manifest error. We further agree to pay any applicable levies or other taxes imposed in connection with the Credit other than net income taxes payable by you, and otherwise comply with all domestic and foreign laws and regulations applicable to all transactions under or in connection with the Credit.

8. Collateral. As security for the performance of all obligations of every kind (including, but not limited to, the obligation to make payment pursuant to Section 1 hereof) owed by us to you under the Credit, this Agreement or otherwise, whether [illegible] indirect, absolute or contingent, now or hereafter existing, or due or to become due, howsoever created, arising or [illegible] (the "Liabilities"), we hereby assign, pledge and grant to you a lien upon and a security interest for your benefit [illegible] recognize and admit your unqualified right to (a) all Property which is now or hereafter is in your possession [illegible] or in transit to you or your agent or bailee for any reason or purpose or [illegible] in which now or hereafter you may have a security interest securing any of the Liabilities, (b) all balances, credits, deposits, accounts or moneys held by you now or hereafter which we own or in which we may have an interest, and (c) all dividends, distributions and other rights in or with respect to, and substitutions for and products and proceeds of, any of the foregoing being referred to collectively as the "Collateral". In addition, we agree [illegible] that we shall keep all Collateral which is customarily insured against loss, damage, theft and other risks insured in amounts and by companies satisfactory to you and either assign the policies and certificates of insurance to you or make the loss or adjustment payable to you, and hold as your agent in trust for you any proceeds received by us under such policies and promptly deliver the same to you [illegible] that if you at any time deem such insurance inadequate for any reason, you may procure such insurance as you deem necessary at our expense and [illegible] furnish for you such certificates or other evidence with respect to the foregoing as you may request. "Property" includes any rights or interests in goods, merchandise, documents, securities, funds, choses-in-action and any and all forms of property, whether tangible or intangible, real, personal or mixed, and proceeds thereof, which are owned by all of us or each of us.

We agree to keep the Collateral free and clear of all other interests and claims and at any time and from time to time, upon your request (a) to deliver to you any of the Collateral that may then be in or may hereafter come into our possession or control, (b) to execute and deliver to you such further security agreements, financing statements and other documents (and to pay the cost of filing or recording the same in all public offices deemed necessary by you) and do such other acts and things required to perfect and maintain a valid security interest in the Collateral to secure the payment of the Liabilities (and any reproductions of this Agreement or of any such other security agreement or financing statement shall be sufficient for filing as a financing statement), (c) to furnish to you information concerning our financial condition, the Collateral and any obligors on the Collateral as you may reasonably request, and (d) to deliver and assign to you additional Collateral (including, but not limited to, cash Collateral) of a value and condition satisfactory to you in your sole judgment as additional security for the Liabilities if you feel insecure for any reason.

You shall be deemed to have exercised reasonable care in the custody and preservation of the Collateral if you take such action as we shall request in writing, but your failure to comply with any such request shall not be a failure to exercise reasonable care. If we do not make a request in writing, your failure to preserve or protect any rights to the Collateral shall not be a failure to exercise reasonable care in the custody and preservation of the Collateral.

You may, whether before or after the occurrence of any Default referred to in Section 14 hereof, at your sole discretion and without notice to us, take any or all of the following actions: (a) transfer all or any part of the Collateral into your name or the name of your nominee, with or without disclosing that such Collateral is subject to the security interest under this Agreement, (b) notify any obligors of any of the Collateral to make payment to you of any amounts due or to become due, (c) enforce collection of any of the Collateral by suit or otherwise, or surrender, release or exchange all or any part of the Collateral, (d) take control of any proceeds, including insurance proceeds, of any of the Collateral, and (e) extend or renew any obligation of any obligor to the Collateral or grant releases, compromises or indulgences for any obligation of any obligor to the Collateral.

The security interest granted by this Section shall continue until such time as all Liabilities have been paid in full and discharged.

9. Risks. We agree that any action or omission by you under or in connection with the Credit or any Items, documents or property shall, unless in breach of good faith, be binding on us and shall not put you under any resulting liability to us. We will indemnify you and hold you harmless from and against each and every claim, demand, liability, loss, cost or expense (including but not limited to reasonable attorney's fees and legal costs) to which you may be subjected or which you may incur by reason of any such action or omission, or by reason of any action taken pursuant to this Application and Agreement, unless in breach of good faith. In no event shall you be liable for incidental, consequential or special damages.

10. Discrepancies. We [illegible] promptly examine the copy of the Credit (and of any amendments thereto) sent to us by you as well as any and all instruments and documents delivered to us from time to time and, in the event we have any claim of non-compliance [illegible]

[illegible]

1[illegible] [illegible]ation. [illegible]

[illegible] Credit or failure [illegible] of any Item on the reverse of the Credit [illegible] items, each of which provisions [illegible] contained in the Credit itself, it is agreed may be waived [illegible] honor Items because of [illegible] regulation [illegible] or hereafter in effect [illegible] to pay Items because [illegible] foreign [illegible] Neither you nor your correspondents shall be responsible [illegible] documents pres[illegible] under the Credit [illegible] fraudulent or forg[illegible]

12. Attorney's Fees. We shall pay you for reasonable attorney's fees and legal costs paid or incurred by you in connection with the Credit or this Agreement or its enforcement, including, without limitation, all charges and expenses paid or incurred by you in connection with any court process served upon you in respect of the Credit.

13. Amendments and/or Modifications of Credit. If we request you to increase the amount of the Credit, extend or renew the Credit, or otherwise modify the terms of the Credit, we agree that this Agreement shall continue to bind us with respect to any action taken by you or any of your correspondents in accordance with such increase, extension, renewal or other modification.

14. Default. Upon any default with respect to the Liabilities or performance of any of our obligations under the Credit, this Agreement or otherwise (and not withstanding that any of the Items payable under the Credit may not then have been drawn, negotiated or presented and notwithstanding any provisions of this Agreement or any other agreement or instrument evidencing or relating to any of the Liabilities or Collateral) or (i) if we admit in writing our inability to pay debts as they mature, or (ii) if we apply for, consent to, or acquiesce in the appointment of a trustee or receiver, or in the absence of such application, consent or acquiescence, a trustee or receiver is appointed for us, or (iii) if any proceeding under any bankruptcy or insolvency law or any dissolution or liquidation proceeding is instituted by or against us and remains for 30 days undismissed, or (iv) if any writ of attachment is issued against any substantial portion of our property and is not released within 30 days of service, or (v) if, in good faith, you do not believe we can pay the Liabilities when they become due, you may, at your option and without demand or notice of any kind, declare all Liabilities immediately due and payable and take any and all action with respect to the Collateral as allowed by applicable law.

15. Delay and Waiver. No delay in the exercise of your rights or remedies shall be deemed a waiver, and no partial exercise of your rights or remedies shall preclude the further exercise of any right or remedy. No waiver shall be effective unless in writing and then only as to the specific subject waived.

16. Notice. Notices to you shall be addressed to your address noted above and shall be effective when received. Notices to us and any other party shall be effective when given or sent by mail, cable, telegraph, telex or other communication addressed to the last address, telephone number or communication terminal of such party which appears on your records with the same effect as if they were actually delivered to and received by such person. "Notice" shall include any request, demand or other communication.

17. Construction and Interpretation. The Credit and this Agreement shall be governed by the laws of the State of Illinois including the Uniform Commercial Code. Unless inconsistent with the Illinois law, the Credit and this Agreement are subject to the terms of the Uniform Customs and Practice for Documentary Credits (1983 Revision), the International Chamber of Commerce Publication No. 400 ("UCP"), as hereby expressly incorporated by reference.

18. Assigns. This Agreement is binding upon the parties hereto and their respective legal representatives, including without limitation any executor, trustee or guardian, heirs, successors and assigns.

19. (FOR MULTIPLE APPLICANTS/PARTIES ONLY) Applicant/Designated Party Nomination. We request that the Credit

be issued with the name of ______________________________ as Applicant.

We further agree that ______________________________
(the "Designated Party") shall have the exclusive right to issue all instructions relating to the Credit including (without limitation) instructions as to the disposition of documents and any unutilized funds, waiver of discrepancies, and to agree with you upon any amendments, modifications, extensions, renewals, or increases in the Credit or the further financing or refinancing of any transaction effected thereunder, irrespective of whether the same may now or hereafter affect our rights or those of our legal representatives, heirs, successors or assigns. The Designated Party shall have specimen signatures on file with you, and you may give any notices to the Designated Party without notice to us.

DATED, THIS 28 DAY OF September 1990

____
APPLICANT [illegible] (Party that is to be named in the Credit as "Applicant")

By [signature] Assistant Treasurer
Authorized Signature Title

By [signature] Cash Manager
Authorized Signature Title

____
JOINT APPLICANT (Full Name and Address) (Party, if any, co-signing with the Applicant. Correspondent banks do not sign here but complete section A instead. In both cases Section 19 must also be completed.)

By ______________________________
(Authorized Signature Title

By ______________________________
Authorized Signature Title

(WHERE SPECIMEN SIGNATURES OF THE APPLICANT NAMED ABOVE ARE NOT ON FILE WITH ANZ BANK, THE FOLLOWING SIGNATURE VERIFICATION IS REQUIRED.)

The above signature of an officer, partner or agent of the Applicant indicated above conforms to that on file with us and such officer, partner or agent is fully authorized to sign this Agreement for such Applicant.

____
BANK (Full Name and Address)

By ______________________________
Authorized Signature Title (Specimen signature of the signer must be on file with ANZ Bank.)

SECTION A FOR CORRESPONDENT BANK USE ONLY

We hereby appoint you as our agent to establish and issue in your name the Credit in accordance with the terms of the Application and Agreement. We acknowledge that we are primarily liable under the Application and Agreement and in consideration thereof we agree to act as and assume the duties of a Designated Party under Section 19 hereof. We agree to reimburse you for any and all amounts paid by you in connection with the Credit and any and all costs and expenses [illegible]

[illegible]

____
BANK (Full Name and Address)

By ______________________________

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY) 29-JUN-1990

PRODUCER 2958
Corroon & Black of Wisconsin, Inc.
One Plaza East
Suite 1400
East Kilbourn Avenue
Milwaukee WI 53202-3195
(414) 271-9800
CODE SUB-CODE
Contact : Kathy Gallick

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW

INSURED
GNB, Incorporated
P. O. Box 64100
St. Paul MN 55164

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	Home Insurance Company (The)
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
COMPANY LETTER E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	ALL LIMITS IN THOUSANDS	
A	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR OWNER'S & CONTRACTOR'S PROT.	GLR989037	30-JUN-1990	30-JUN-1991	GENERAL AGGREGATE PRODUCTS-COMP/OPS AGGREGATE PERSONAL & ADVERTISING INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MEDICAL EXPENSE (Any one person)	$ 5000 $ 5000 $ 1000 $ 1000 $ 1000 $ 5
A	AUTOMOBILE LIABILITY [X] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS [X] HIRED AUTOS [X] NON-OWNED AUTOS GARAGE LIABILITY	BAK980278	30-JUN-1990	30-JUN-1991	COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$ 1000 $ $ $
	EXCESS LIABILITY OTHER THAN UMBRELLA FORM				EACH OCCURRENCE $ AGGREGATE $	
A	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY	PWCP998538	30-JUN-1990	30-JUN-1991	STATUTORY $ 1000 (EACH ACCIDENT) $ 1000 (DISEASE-POLICY LIMIT) $ 1000 (DISEASE-EACH EMPLOYEE)	
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS/SPECIAL ITEMS

THIS CERTIFICATE MAY BE RELIED UPON ONLY IF THE DESCRIPTION OF OPERATIONS ATTACHMENT REFERRED TO HEREIN IS ATTACHED HERETO.

CERTIFICATE HOLDER

GNB, Inc.
P. O. Box 64100
St. Paul MN 55164

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES

AUTHORIZED REPRESENTATIVE
M. A. Peterson

© ACORD CORPORATION 1988

CORROON & BLACK

CERTIFICATE OF INSURANCE
DESCRIPTION OF OPERATIONS ATTACHMENT

ISSUE DATE (MM/DD/YY) 29-JUN-1990

PRODUCER 2958

Corroon & Black of Wisconsin, Inc.
One Plaza East
1400
East Kilbourn Avenue
Milwaukee WI 53202-3195
(414) 271-9800
CODE SUB-CODE
Contact : Kathy Gallick

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW

INSURED

GNB, Incorporated
P. O. Box 64100
St. Paul MN 55164

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	Home Insurance Company (The)
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
COMPANY LETTER E	

THIS DESCRIPTION OF OPERATIONS ATTACHMENT MAY BE RELIED UPON ONLY IF THE CERTIFICATE REFERRED TO HEREIN IS ATTACHED HERETO.

Certificate Holder : GNB, Inc.

The Commercial General Liability policy listed above includes Blanket Contractual and Broad Form Vendors coverages.

GNB, Incorporated/GNB Industrial Battery Company - (Pacific Dunlop Holdings, Inc.)

Auto Liability
Policy #BAK980278 (All Other States)
Policy #BAK980715 (TX)
Policy #BA984729 (NY,NJ,KS,MA,VA)

Worker's Compensation and Employer's Liability
Policy #PWCP998538 (All Other States)
Policy #PWCP998537 (TX)
Policy #PWCP998536 (LA)

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APPENDIX I

RE: SECTION 15

GROUNDWATER SAMPLING REPORT

Woodward-Clyde Consultants

(13)

REPORT ON GROUNDWATER SAMPLING AT GNB INCORPORATED FACILITY IN VERNON, CALIFORNIA

4-5-90

Prepared for:

Seyforth, Shaw, Fairweather & Geraldson
55 East Monroe Street
Chicago, Illinois 60603

Prepared by:

Woodward-Clyde Consultants
203 North Golden Circle Drive
Santa Ana, California 92705

Project No. 8741996D
April 1990

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REPORT ON GROUNDWATER SAMPLING AT GNB INCORPORATED FACILITY IN VERNON, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of groundwater sampling conducted by Woodward-Clyde Consultants at the GNB Incorporated facility in Vernon, California. The sampling program is a continuation of the assessment of groundwater conditions at the site. This assessment is being performed to address specific concerns of the California Regional Water Quality Control Board - Los Angeles Region, particularly the potential for contamination of the first groundwater zone (70 to 90 feet in depth) underlying the site.

2.0 SCOPE OF WORK

The groundwater sampling program consisted of the following elements:

- Measurement of static groundwater levels in Wells MW-5 through MW-15, PW-1 and PW-2
- Collection of groundwater samples from Wells MW-5 through MW-15, PW-1 and PW-2
- Chemical analyses of the collected groundwater samples.

The following sections describe these elements.

2.1 Measurement of Static Groundwater Levels

The elevation of the static water level in Wells MW-5 through MW-15, PW-1 and PW-2 (well locations shown on Figure 2-1) was

measured during the period from 3 April to 5 April 1990, prior to sampling. An electric sounder was used to measure the depth of water below the ground surface to the nearest 0.01 foot. Groundwater elevations were then calculated from these data. These data and results of earlier measurements are presented in Table 2-1. A groundwater contour map is presented on Figure 2-1.

2.2 Collection of Groundwater Samples

Water samples were collected from each of the groundwater monitoring wells (Wells MW-5 through MW-15, PW-1 and PW-2). Each water sample was obtained using a bailer and was placed in containers supplied by West Coast Analytical Service. Duplicate samples were taken from each well, though only one sample was analyzed by the laboratory (the duplicate samples were for emergency and/or confirmation purposes).

Three to five well volumes of water were bailed from each well, where possible, prior to sample collection. Measurements of pH and electrical conductivity of the groundwater in each well were taken until three consecutive samples yielded similar values for these parameters (similar values are those that agree within plus or minus five percent).

The bailer was cleaned between the sampling of each well to minimize the potential for cross contamination. The procedures used for cleaning the bailer are outlined below:

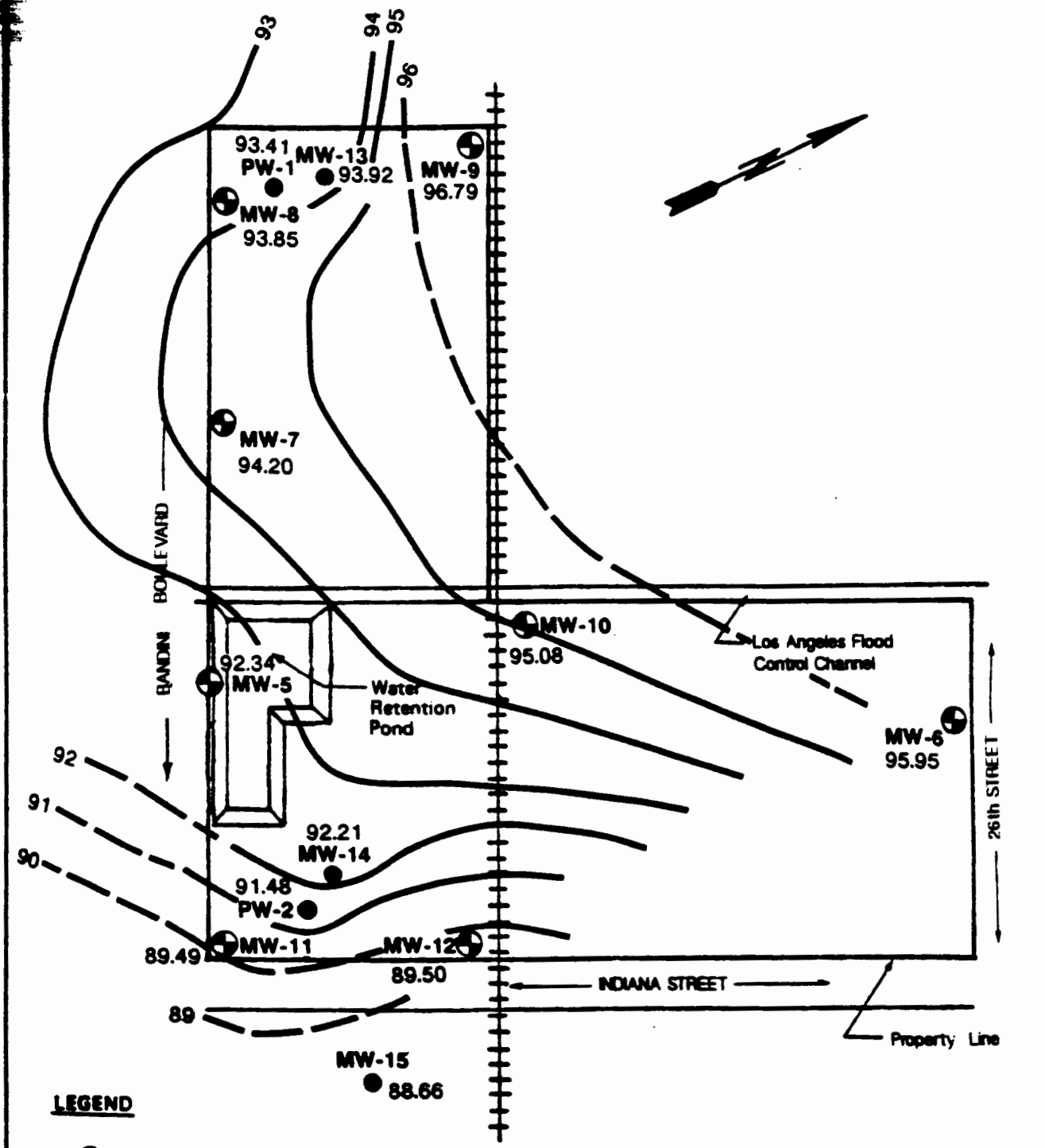
- Deionized water rinse, brush assisted if necessary, to remove dirt and mud;
- Deionized water wash with detergent;
- Rinse with deionized water to remove detergent; and

TABLE 2-1

GROUNDWATER ELEVATION MEASUREMENTS
(in feet, MSL)

MEASUREMENT DATE	WELL LOCATION												
	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13	MW-14	MW-15	PW-1	PW-2
July 1987	95.59	97.51	97.10	96.68	99.89	97.54	91.13	91.40	96.85	94.49	89.81	95.97	92.31
October 1987	95.27	97.19	96.90	96.34	99.39	97.19	90.78	90.83	96.43	94.37	89.52	95.73	92.71
February 1988	94.88	96.81	96.52	95.94	99.68	96.68	90.04	90.34	96.12	94.10	89.15	N/M*	N/M*
October 1988	93.67	96.18	94.75	94.98	98.48	95.83	88.85	90.84	95.32	92.84	88.49	94.65	91.65
January 1989	93.77	94.34	94.75	94.71	97.72	96.40	88.96	92.01	95.22	94.09	88.71	94.41	91.98
May 1989	93.84	96.33	94.55	94.53	97.27	94.94	90.00	92.01	94.97	94.61	89.16	94.13	92.19
August 1989	93.66	96.14	94.57	94.14	97.04	96.38	90.18	91.07	94.59	94.28	89.08	93.79	92.03
December 1989	93.34	94.96	94.55	94.09	97.01	95.65	89.96	90.05	94.34	93.84	88.93	93.61	91.78
April 1990	92.34	95.95	94.20	93.85	96.79	95.08	89.49	89.50	93.92	92.21	88.66	93.41	91.48

* N/M = not measured



LEGEND

- Previous Monitoring Wells
- Phase III Boring Locations/Monitoring Wells
- —100.0— Line of Equal Ground Water Elevation
- — — — Inferred Value
- 95.0 Ground Water Elevation, August 23-28, 1989.

0 200 400
FEET

LOCATIONS OF MONITORING WELLS AND ESTIMATED GROUND WATER GRADIENT

Project No.: 8741996D	Date: AUGUST 1989	Project: GNB - VERNON	Fig. 2-1

- Dry with a paper towel.

2.3 Chemical Analyses of Collected Samples

Groundwater samples were analyzed by West Coast Analytical Service, Santa Fe Springs (a California Department of Health Services approved hazardous waste analytical laboratory). These samples were analyzed by the following methods:

- pH (EPA Method 150.1)
- Sulfate, nitrate, and chloride (EPA Method 300.6/IC)
- Total concentrations of zinc, lead, aluminum, cadmium, arsenic, and antimony (inductively coupled plasma/mass spectrometry)
- Volatile organic compounds (EPA Method 624).

Results of the analyses and previous results are presented in Table 2-2. Copies of the analytical laboratory reports are contained in Appendix A.

3.0 RESULTS AND CONCLUSIONS

Results of groundwater elevation measurements in April 1990 for Wells MW-5 through MW-15, PW-1 and PW-2 (see Table 2-1) indicate that the general lowering of the groundwater table, reported in previous reports since 1987, continues. The change in groundwater elevation has not resulted in a significant change in the groundwater flow direction. Water in the first groundwater zone beneath the site appears to flow in a southeasterly direction.

In contrast to the general lowering of groundwater elevations at the site, water levels at Wells MW-11, MW-12, MW-14, MW-15, and PW-2 have declined at a slower rate since July 1987. This

phenomenon suggests that groundwater recharging from an unknown source may be occurring in the southeast quadrant of the site.

Relatively elevated concentrations of trichloroethene (approximately 1,900 and 5,200 micrograms per liter) are still present in the groundwater near Wells MW-11 and MW-15. A lower concentration of trichloroethene (360 micrograms per liter), though still above the drinking water action level of five micrograms per liter (µg/l), exists at Well MW-14. The trichloroethene concentration at Well PW-2, which was 1,400 µg/l in January 1989, decreased to the 100 to 200 µg/l range during the middle to later parts of 1989, and continues to remain in this range.

Concentrations of trichloroethene and benzene, which exceed the drinking water action levels of 5 and 0.7 µg/l, respectively, are still detected in Wells MW-8 and MW-13. A trace concentration of 1,2-dichloroethane, which was first detected in Well MW-8 in December 1989, was also detected during the present groundwater sampling round.

Tetrachloroethene continues to be detected in groundwater samples from upgradient Well MW-6 (6 µg/l). This pattern suggests that tetrachloroethene may be originating from offsite sources.

Lead concentrations in the groundwater samples from Wells MW-5 through MW-15, PW-1, and PW-2 ranged from non-detection (less than 0.005 ppm) to 0.26 ppm. The concentration of lead in the groundwater near Well MW-5, which had risen to 0.61 ppm during August 1989 from 0.18 ppm in May 1989, had decreased to 0.26 ppm in December 1989.

Aluminum concentrations in groundwater samples from Wells MW-5 through MW-15, PW-1, and PW-2 during the April 1990 sampling round ranged from non-detection (less than 0.8 ppm) to 260 ppm. The highest concentrations of aluminum in groundwater were detected in Wells MW-8, MW-13, and PW-1, all located along the western perimeter of the site.

To confirm the concentrations of lead detected in groundwater samples from Wells MW-6 and MW-14 and aluminum in Well MW-6, these wells were resampled on 1 May 1990. Sampling protocols used were those described in Section 2.2. Results of chemical analyses, shown in Table 2-2 (chain-of-custody form and analytical laboratory report are presented in Appendix A), indicate that lead and aluminum concentrations were 0.017 ppm and non-detection (less than 0.4 ppm), respectively, for Well MW-6, versus 0.44 ppm and 160 ppm as detected in groundwater samples collected in April 1990. Additionally, the lead concentration for Well MW-14 was 0.74 ppm, versus 0.64 ppm as detected in the groundwater sample collected in April 1990.

Low pH values (between 3.0 and 4.0) remain in the groundwater near Wells MW-8, MW-13, and PW-1. The acidity of the groundwater in these areas does not appear to have resulted in the increased solubilization of metals into the groundwater, except possibly aluminum.

The pH of the groundwater at Well MW-9 continues to remain moderately acidic. The groundwater has changed from essentially neutral (pH of 6.5) in April 1987 to moderately acidic (pH of 4.2 to 4.9) in 1989 and early 1990. Because Well MW-9 is an upgradient well, the data continue to suggest that the groundwater flowing onto the site in the area of Well MW-9 may be contaminated with acidic materials.

TABLE 2-2

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-5										
	4/87	7/87	2/88	10/88[1]	10/88	1/89[2]	4/89	5/89	8/89	12/89	4/90
pH	6.4	6.8	6.0	6.0		5.8	NA	5.8	6.0	5.8	6.4
zinc (ppm)	121	110	222	300	211	280	NA	340	490	420	280
arsenic (ppm)	ND(0.03)[3]	0.066	0.06	0.008	0.005	0.0082	NA[4]	0.2	0.0062	0.025	ND(0.025)
cadmium (ppm)	0.28	0.26	0.47	0.31	0.33	0.31	NA	0.42	0.55	0.049	0.42
antimony (ppm)	ND(0.01)	ND(0.02)	ND(0.001)	0.002	0.007	0.013	NA	ND(0.004)	0.008	0.009	0.006
lead (ppm)	0.175	0.63	0.045	0.052	0.043	2.5	0.6	0.18	0.61	0.26	0.26
aluminum (ppm)	34	23	1.4	2.6	5.0	3.2	NA	ND(4)	ND(2)	ND(0.7)	3.0
chloride (ppm)	440	500	680	620	640	690	NA	970	1400	1300	1000
nitrate (ppm)	240	--	260	240	56	20	NA	230	260	260	260
sulfate (ppm)	2470	2440	3200	2400	2940	2300	NA	2200	2200	2700	2500
trichloroethene (ug/l)	6	5	3	3	3	6	NA	2	2	ND(1)	ND(1)
toluene (ug/l)	ND(1)	ND(1)	3	ND(1)	ND(1)	2	NA	ND(1)	ND(1)	ND(1)	ND(1)
benzene (ug/l)	2	3	2	ND(1)	ND(1)	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)
xylene (ug/l)	13	3	10	4	ND(1)	11	NA	1	ND(1)	ND(1)	ND(1)
tetrachloroethene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)
1,2-dichloroethane (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA	ND(1)	ND(1)	ND(1)	ND(1)

NOTES:

1. Chemical analyses of groundwater samples from Well MW-5 during October 1988 performed by West Coast Analytical Services (results shown in first column) and Resource Consultants (results shown in second column).
2. Groundwater sample from Well MW-5 collected during April 1989 analyzed for total lead only.
3. ND( ) indicates not detected at concentration listed in parenthesis.
4. NA indicates not analyzed.

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-6									
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90	5/90
pH	7.4	7.7	7.2	6.9	7.0	7.0	7.2	7.2	7.5	NA
zinc (ppm)	0.23	0.14	ND(0.3)	0.011	ND(0.09)	ND(0.7)	ND(0.1)	0.2	0.49	NA
arsenic (ppm)	ND(0.1)	0.044	0.0213	ND(0.009)	0.005	ND(0.03)	ND(0.001)	0.017	0.04	NA
cadmium (ppm)	ND(0.01)	0.006	ND(0.002)	0.0006	ND(0.001)	ND(0.005)	ND(0.004)	0.014	0.003	NA
antimony (ppm)	ND(0.005)	ND(0.02)	ND(0.003)	0.0007	0.0012	ND(0.004)	ND(0.002)	ND(0.007)	ND(0.004)	NA
lead (ppm)	0.163	0.33	ND(0.009)	0.018	0.012	ND(0.02)	0.01	ND(0.005)	0.44	0.017
aluminum (ppm)	17	17	ND(0.4)	0.200	0.4	ND(4)	ND(2)	ND(0.7)	160	ND (0.4)
chloride (ppm)	430	400	510	930	800	800	1000	910	860	NA
nitrate (ppm)	70	---	97	83	79	77	99	88	84	NA
sulfate (ppm)	130	160	160	130	120	120	140	130	130	NA
trichloroethene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA
toluene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA
benzene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA
xylene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA
tetrachloroethene (ug/l)	11	10	13	9	5	7	9	6	6	NA
1,2-dichloroethane (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NA

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-7								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	6.6	7.1	6.8	6.1	6.4	N/A	6.4	5.9	6.4
zinc (ppm)	0.75	0.64	ND(0.3)	2	0.4	N/A	0.3	2.9	2.5
arsenic (ppm)	ND(0.03)	0.06	0.133	ND(0.01)	0.011	N/A	ND(0.001)	ND(0.01)	ND(0.064)
cadmium (ppm)	0.11	0.09	0.037	0.036	0.027	N/A	0.041	0.056	0.038
antimony (ppm)	ND(0.01)	ND(0.02)	ND(0.003)	ND(0.0009)	ND(0.001)	N/A	0.004	ND(0.007)	0.0029
lead (ppm)	0.029	0.54	ND(0.009)	0.052	0.13	N/A	0.18	0.15	0.13
aluminum (ppm)	23	3.1	ND(0.4)	1	0.2	N/A	ND(2)	2.2	1.2
chloride (ppm)	3230	2430	205	1100	1500	N/A	1700	1400	1500
nitrate (ppm)	110	---	11	140	140	N/A	100	120	120
sulfate (ppm)	540	680	63	1500	910	N/A	1100	1100	1100
trichloroethene (ug/l)	5	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)
toluene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)
benzene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)
xylene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)
tetrachloroethene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)
1,2-dichloroethane (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	N/A	ND(1)	ND(1)	ND(1)

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-8								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	3.0	3.2	3.6	3.5	3.6	3.4	3.6	3.4	3.4
zinc (ppm)	40	43	33.1	33	32	30	36	33	30
arsenic (ppm)	ND(0.03)	ND(0.008)	0.062	ND(0.005)	0.012	ND(0.02)	0.0092	ND(0.04)	0.008
cadmium (ppm)	0.25	0.26	0.237	0.24	0.12	0.23	0.19	0.22	0.23
antimony (ppm)	ND(0.04)	0.01	ND(0.003)	0.0026	0.0015	ND(0.005)	ND(0.002)	ND(0.005)	ND(0.004)
lead (ppm)	0.099	0.12	ND(0.009)	0.15	0.2	0.13	0.036	0.016	0.026
aluminum (ppm)	195	170	225	161	140	160	130	200	180
chloride (ppm)	790	880	105	910	840	850	780	830	890
nitrate (ppm)	ND(10)	ND(5)	ND(0.1)	ND(0.1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(10)
sulfate (ppm)	4890	5340	710	5400	5000	5600	5200	5200	6300
trichloroethene (ug/l)	31	21	17	10	40	24	30	24	31
toluene (ug/l)	17	13	11	17	23	14	22	14	15
benzene (ug/l)	18	11	11	7	25	14	20	14	14
xylene (ug/l)	44	31	13	26	120	40	51	41	130
tetrachloroethene (ug/l)	4	1	1	ND(1)	2	ND(1)	ND(1)	ND(1)	2
1,2-dichloroethane (ug/l)	4	ND(1)	3	1	ND(1)	ND(1)	ND(1)	2	3

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-9								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	6.5	6.0	5.2	5.0	4.2	4.5	4.9	4.8	4.9
zinc (ppm)	7.6	12	15.8	22	30	34	30	25	30
arsenic (ppm)	ND(0.03)	ND(0.008)	0.0104	0.002	0.0026	ND(0.001)	0.0091	ND(0.04)	0.006
cadmium (ppm)	0.03	0.043	0.067	0.066	0.07	0.11	0.12	0.07	0.11
antimony (ppm)	ND(0.04)	ND(0.01)	ND(0.003)	ND(0.003)	ND(0.001)	ND(0.005)	ND(0.01)	ND(0.005)	ND(0.0005)
lead (ppm)	ND(0.009)	0.076	ND(0.009)	0.011	ND(0.007)	0.07	ND(0.008)	ND(0.007)	0.0059
aluminum (ppm)	1.4	80	27	10	35	23	15	17	13
chloride (ppm)	120	1080	120	80	72	87	93	92	130
nitrate (ppm)	ND(10)	ND(50)	ND(0.1)	ND(0.1)	8.9	ND(10)	ND(10)	ND(10)	ND(10)
sulfate (ppm)	960	1180	1600	1400	1300	1900	2100	1900	2300
trichloroethene (ug/l)	1	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	4
toluene (ug/l)	1	ND(1)	ND(1)	10	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
benzene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
xylene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
tetrachloroethene (ug/l)	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(1)	5
1,2-dichloroethane (ug/l)	7	ND(1)	ND(1)	1	ND(1)	ND(1)	2	ND(1)	3

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-10								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	6.6	7.1	6.7	6.6	6.5	6.5	6.4	6.9	6.7
zinc (ppm)	ND(0.1)	0.12	0.08	0.022	ND(0.09)	ND(0.7)	0.19	ND(0.07)	0.012
arsenic (ppm)	ND(0.03)	0.02	ND(0.006)	0.0036	ND(0.001)	ND(0.004)	ND(0.001)	ND(0.003)	ND(0.007)
cadmium (ppm)	ND(0.01)	0.005	0.004	0.0046	0.004	ND(0.005)	0.009	ND(0.005)	0.0023
antimony (ppm)	ND(0.04)	ND(0.02)	ND(0.001)	0.0012	ND(0.001)	ND(0.004)	ND(0.01)	ND(0.001)	ND(0.0005)
lead (ppm)	0.009	0.43	0.024	0.102	0.077	ND(0.02)	0.036	0.007	0.0083
aluminum (ppm)	3.7	8.5	4.5	1.6	ND(0.2)	ND(4)	ND(0.8)	1.3	1.7
chloride (ppm)	130	150	180	180	190	160	160	130	250
nitrate (ppm)	40	--	22	40	48	57	45	100	110
sulfate (ppm)	2280	1770	1300	1300	2100	2000	2300	3300	1800
trichloroethene (ug/l)	4	2	2	4	ND(1)	ND(1)	ND(1)	ND(1)	2
toluene (ug/l)	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
benzene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
xylene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
tetrachloroethene (ug/l)	4	3	3	2	ND(1)	ND(1)	ND(1)	ND(1)	1
1,2-dichloroethane (ug/l)	ND(1)	ND(1)	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-11								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	7.1	7.5	7.4	7.1	7.0	6.8	6.9	7.2	7.8
zinc (ppm)	0.09	0.1	ND(0.1)	0.007	ND(0.09)	ND(0.7)	ND(0.06)	ND(0.07)	0.13
arsenic (ppm)	ND(0.03)	0.066	0.05	0.004	0.0018	0.05	0.0019	0.004	ND(0.004)
cadmium (ppm)	ND(0.02)	0.005	0.002	0.0014	ND(0.002)	ND(0.005)	ND(0.001)	ND(0.005)	ND(0.002)
antimony (ppm)	ND(0.01)	ND(0.02)	ND(0.001)	0.0006	0.0012	ND(0.004)	ND(0.01)	ND(0.001)	ND(0.004)
lead (ppm)	0.029	2.3	0.036	0.018	0.077	0.05	0.12	0.081	0.023
aluminum (ppm)	25	50	0.3	0.630	0.2	ND(4)	ND(0.8)	ND(0.6)	ND(0.8)
chloride (ppm)	470	420	480	500	430	330	400	440	400
nitrate (ppm)	40	--	39	41	31	28	40	39	38
sulfate (ppm)	1560	1410	1700	1400	1300	1100	1600	1700	1500
trichloroethene (ug/l)	2300	2400	2200	1200	1700	2700	1700	1800	1900
toluene (ug/l)	76	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)
benzene (ug/l)	ND(10)	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)
xylene (ug/l)	ND(10)	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)
tetrachloroethene (ug/l)	ND(10)	2	ND(10)	ND(5)	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)
1,2-dichloroethane (ug/l)	ND(10)	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-12								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	6.8	6.8	6.6	6.2	6.4	6.6	6.4	6.5	6.4
zinc (ppm)	ND(0.1)	0.3	0.66	0.048	ND(0.09)	ND(0.7)	ND(0.06)	ND(0.07)	0.013
arsenic (ppm)	ND(0.03)	0.061	0.022	ND(0.01)	0.0018	0.06	ND(0.001)	ND(0.003)	ND(0.008)
cadmium (ppm)	ND(0.01)	0.001	0.005	0.0046	ND(0.001)	ND(0.005)	ND(0.001)	ND(0.005)	0.0026
antimony (ppm)	ND(0.04)	0.05	0.002	0.0015	ND(0.001)	ND(0.004)	ND(0.01)	ND(0.001)	ND(0.0005)
lead (ppm)	ND(0.009)	0.11	0.24	0.039	0.056	ND(0.02)	ND(0.008)	ND(0.005)	0.0036
aluminum (ppm)	1.2	38	240	3	ND(0.2)	ND(4)	ND(0.8)	ND(0.6)	0.3
chloride (ppm)	270	290	290	240	240	170	210	260	250
nitrate (ppm)	90	--	125	91	82	67	85	110	110
sulfate (ppm)	2520	2890	3700	2600	1900	1800	2300	2800	2400
trichloroethene (ug/l)	8	9	5	3	ND(1)	1	3	2	2
toluene (ug/l)	1	ND(1)	ND(1)	1	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
benzene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
xylene (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
tetrachloroethene (ug/l)	2	1	2	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1
1,2-dichloroethane (ug/l)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-13								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	--	3.7	3.6	3.7	3.6	3.5	3.3	3.2	3.3
zinc (ppm)	--	36	36.9	40	41	43	34	38	37
arsenic (ppm)	--	0.064	0.0251	0.012	0.0098	ND(0.01)	0.019	ND(0.04)	ND(0.009)
cadmium (ppm)	--	0.26	0.367	0.35	0.31	0.28	0.29	0.27	0.23
antimony (ppm)	--	ND(0.02)	ND(0.003)	0.029	0.0051	ND(0.005)	ND(0.01)	ND(0.005)	ND(0.004)
lead (ppm)	--	0.87	0.191	2.5	0.47	ND(0.02)	0.047	0.034	0.021
aluminum (ppm)	--	120	375	190	230	180	180	250	180
chloride (ppm)	--	510	600	690	590	580	590	580	610
nitrate (ppm)	--	--	ND(0.1)	ND(0.1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(10)
sulfate (ppm)	--	6260	7900	5300	5600	4900	4600	4800	4700
trichloroethene (ug/l)	--	27	38	24	36	31	28	27	23
toluene (ug/l)	--	13	23	11	17	11	10	8	7
benzene (ug/l)	--	9	15	9	15	11	9	11	10
xylene (ug/l)	--	23	20	25	58	23	24	19	21
tetrachloroethene (ug/l)	--	3	2	ND(1)	1	ND(1)	ND(1)	ND(1)	ND(1)
1,2-dichloroethane (ug/l)	--	3	3	2	ND(1)	ND(1)	ND(1)	ND(1)	2

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-14									
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90	5/90
pH	--	6.8	4.4	4.6	4.4	5.4	5.5	6.0	5.9	NA
zinc (ppm)	--	11	17	16	12	2.8	2.3	2.1	1.2	NA
arsenic (ppm)	--	0.053	ND(0.02)	0.007	0.0081	0.15	0.0051	ND(0.003)	ND(0.013)	NA
cadmium (ppm)	--	0.045	0.12	0.1	0.049	0.043	0.039	0.029	0.024	NA
antimony (ppm)	--	ND(0.02)	0.002	0.0006	0.01	ND(0.004)	ND(0.01)	ND(0.001)	0.039	NA
lead (ppm)	--	0.08	0.086	0.12	0.49	0.07	ND(0.008)	0.12	0.64	0.74
aluminum (ppm)	--	130	170	110	140	16	6.1	6.1	2.9	NA
chloride (ppm)	--	470	550	570	470	330	380	430	390	NA
nitrate (ppm)	--	--	26	39	35	23	30	26	25	NA
sulfate (ppm)	--	3070	7500	6000	6300	2900	3000	4300	3600	NA
trichloroethene (ug/l)	--	270	200	150	120	280	120	280	360	NA
toluene (ug/l)	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	ND(1)	ND(2)	NA
benzene (ug/l)	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	ND(1)	ND(2)	NA
xylene (ug/l)	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	ND(1)	ND(2)	NA
tetrachloroethene (ug/l)	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	ND(1)	ND(2)	NA
1,2-dichloroethane (ug/l)	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(1)	ND(1)	ND(2)	NA

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL MW-15								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	--	7.4	7.0	6.7	6.7	6.6	6.5	6.9	7.5
zinc (ppm)	--	0.22	ND(0.1)	0.061	ND(0.09)	ND(0.7)	0.42	0.68	1.1
arsenic (ppm)	--	0.055	0.06	0.007	ND(0.002)	ND(0.04)	ND(0.001)	ND(0.003)	ND(0.007)
cadmium (ppm)	--	0.003	0.002	0.0025	0.002	ND(0.005)	0.003	0.006	ND(0.002)
antimony (ppm)	--	ND(0.02)	ND(0.001)	0.0013	0.0013	ND(0.004)	ND(0.01)	ND(0.001)	ND(0.004)
lead (ppm)	--	ND(0.02)	ND(0.007)	0.049	0.03	ND(0.02)	ND(0.008)	ND(0.005)	ND(0.006)
aluminum (ppm)	--	1.6	0.8	1.6	0.2	ND(4)	ND(0.7)	ND(0.6)	ND(0.8)
chloride (ppm)	--	510	640	570	440	370	370	350	310
nitrate (ppm)	--	--	40	50	51	67	84	90	86
sulfate (ppm)	--	2790	3600	2700	2300	2100	2300	2000	1800
trichloroethene (ug/l)	--	1500	2100	1800	1900	2400	2400	2800	5200
toluene (ug/l)	--	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(20)	ND(30)	ND(30)
benzene (ug/l)	--	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(20)	ND(30)	ND(30)
xylene (ug/l)	--	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(20)	ND(30)	ND(30)
tetrachloroethane (ug/l)	--	2	ND(10)	ND(5)	ND(10)	ND(20)	ND(20)	ND(30)	ND(30)
1,2-dichloroethane (ug/l)	--	ND(1)	ND(10)	ND(5)	ND(10)	ND(20)	ND(20)	ND(30)	ND(30)

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL PW-1								
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90
pH	--	3.7	--	3.2	3.3	3.3	3.2	3.4	3.6
zinc (ppm)	--	34	--	30	34	28	32	36	36
arsenic (ppm)	--	0.061	--	0.014	0.011	ND(0.004)	0.017	ND(0.04)	0.026
cadmium (ppm)	--	0.26	--	0.25	0.26	0.31	0.25	0.27	0.29
antimony (ppm)	--	ND(0.02)	--	0.001	ND(0.001)	ND(0.005)	ND(0.01)	ND(0.005)	ND(0.004)
lead (ppm)	--	0.14	--	0.049	ND(0.007)	0.05	ND(0.008)	ND(0.007)	0.019
aluminum (ppm)	--	240	--	120	220	160	200	200	260
chloride (ppm)	--	689	--	950	690	740	770	750	690
nitrete (ppm)	--	ND(5)	--	ND(0.1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(10)
sulfate (ppm)	--	8620	--	4800	7200	4900	5900	6800	8000
trichloroethene (ug/l)	--	35	--	52	42	29	36	34	27
toluene (ug/l)	--	32	--	33	42	21	29	26	24
benzene (ug/l)	--	18	--	23	27	17	20	18	15
xylene (ug/l)	--	64	--	100	150	53	65	65	53
tetrachloroethene (ug/l)	--	3	--	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2-dichloroethane (ug/l)	--	4	--	2	ND(1)	ND(1)	ND(1)	ND(1)	3

TABLE 2-2 (continued)

WELL LOCATION/DATE OF SAMPLING

CHEMICAL PARAMETER	WELL PW-2									RELEVANT DRINKING WATER STANDARD
	4/87	7/87	2/88	10/88	1/89	5/89	8/89	12/89	4/90	
pH	--	6.5	--	6.2	6.3	6.4	6.4	7.1	7.5	
zinc (ppm)	--	1.6	--	4.5	5.1	1.8	0.83	1.6	37	5(1)
arsenic (ppm)	--	0.025	--	0.006	0.0052	0.03	ND(0.001)	0.009	ND(0.009)	0.05(2a)
cadmium (ppm)	--	0.025	--	0.072	0.076	0.035	0.019	0.034	0.035	0.01(2a)
antimony (ppm)	--	ND(0.02)	--	0.0014	0.0022	ND(0.004)	ND(0.01)	0.002	ND(0.004)	
lead (ppm)	--	0.2	--	0.027	0.038	ND(0.02)	ND(0.008)	0.013	0.021	0.05(2a)
aluminum (ppm)	--	ND(0.06)	--	4.4	4.3	ND(4)	ND(0.7)	ND(0.6)	ND(0.8)	1(2a)
chloride (ppm)	--	508	--	550	480	410	440	520	520	250(1)
nitrate (ppm)	--	ND(5)	--	57	65	48	56	54	45	10(2a)
sulfate (ppm)	--	3640	--	5800	6100	4100	4300	5000	5200	250(1)
trichloroethene (ug/l)	--	300	--	170	1400	170	100	170	190	5(2b)
toluene (ug/l)	--	ND(1)	--	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	ND(2)	100(2b)
benzene (ug/l)	--	ND(1)	--	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	ND(2)	0.7(2b)
xylene (ug/l)	--	ND(1)	--	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	ND(2)	620(2b)
tetrachloroethene (ug/l)	--	1	--	ND(1)	ND(10)	ND(1)	ND(1)	1	ND(2)	4(2b)
1,2-dichloroethane (ug/l)	--	ND(1)	--	ND(1)	ND(10)	ND(1)	ND(1)	ND(1)	ND(2)	1(2b)

NOTES:

1. Secondary drinking water regulation - not enforceable.
2. Relevent drinking water standards include EPA Maximum Concentration Levels (a) and California Department of Health Services Action Levels (b).

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5 July 1990
Project No. 8741996D

Mr. A. J. Hipp
Vice President and General Counsel
GNB Incorporated
P.O. Box 64100
St. Paul, Minnesota 55164

Enclosed is the corrected table to replace the one in your copy of the April 1990 report. (Last table before text beginning on page 4).
Carl Landis
612/681-5418

SUBJECT: REVISED REPORT ON GROUNDWATER SAMPLING AT GNB INCORPORATED FACILITY IN VERNON, CALIFORNIA (April 1990)

Dear Mr. Hipp:

Enclosed please find three copies of the subject report. The report includes the corrected entry in Table 2-2 for the cadmium concentration in groundwater sampled from Well PW-2.

Yours truly,

WOODWARD-CLYDE CONSULTANTS

Stephen W Mulligan

Stephen W. Mulligan
Senior Project Engineer

SWM/ew

Enclosures

Hipp.ew