

MAINTENANCE FACILITIES

BROWNSVILLE PLANT

November, 1975

MAINTENANCE FACILITIES TEAM

David McMahon

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DE 005128

## MAINTENANCE FACILITIES SURVEY RESULTS

### BROWNSVILLE PLANT

The METT Facilities Project Team conducted a Maintenance Facilities Survey of the Brownsville Plant in conjunction with the MOT Maintenance Survey. It was generally found that many improvements had been made in the shops since the last survey. The Central Shops are well equipped, have improved lighting throughout, and are constructed with adequate height and material handling capability. The Field Shops for maintenance crews with plantwide responsibilities are scattered in the plant and their quality range from more than adequate for those in the Old Machine Shop to inadequate for the 930 Field Shop. The three zone shops are very beneficial to the maintenance effort due to their location, size, equipment, and ease of control. In continuing the improvement program for the maintenance shops, it is recommended that:

- (1) Better utilization of the Old Machine Shop should be investigated. This is a very sturdy building with more than adequate space, height, and materials handling capabilities than the present shops require. Consideration should be given to moving the Welding/Sheet Metal Shop to this location and constructing smaller shops for the present tenants in location better suited to their needs. Another possibility would be to build a facility with 8 to 10 feet ceiling height to house many of the shops that require low ceilings (process mechanics, carpenter, insulation, glass fitters, etc.).
- (2) A general improvement program for personnel facilities should be developed. In numerous shops it was found that the personnel ate at their work benches. This can become an extremely critical problem at some shops such as the Glass Fitters. The guardhouse lunch room and cafeteria are too small or too distant to handle the plant needs. More shop lunchrooms should be considered or possibly an extra shift should be considered

for the cafeteria. Most shops lacked enough lockers for their personal effects (slicker suits, coveralls, lunches, etc.). Most restrooms were clean and well ventilated but lacked a sufficient number of toilets, urinals, and lavatories. The plant should also start making plans for the installation of female personnel facilities in the maintenance shops. Many of the Kanawha Valley and Gulf Coast plants are already seeing an influx of female maintenance employees in both central shop and field maintenance capacities.

- (3) The plant should continue with its present plans for the Fire Station/Safety Equipment Shop and the Mezzanine Feasibility Study for the warehouse. The proposed Fire Station/Safety Equipment Shop would place emphasis on the plant's commitment to individual safety in the plant and would help to insure that adequate and timely safety inspections are made. The warehouse has adequate height to allow a mezzanine and the economic justification of this possibility needs to be investigated.
- (4) Portable buildings should be considered to reduce the Maintenance Department's office space problems. The use of portable buildings could reduce some of the crowded office space conditions that exist in the machine shop and 930 field shop. This would also allow the centralization of the planning group and RM-1 Group.
- (5) A "house cleaning" program needs to be implemented to improve the storage and safety in the shops. Although it is wise for the shops to maintain a limited amount of spare parts in the shops, this practice is being exceeded. Some shops were found to have so much being kept that the shop personnel really didn't know what they had, work space was being lost, and hazards existed from having to crawl over equipment or tools to retrieve items on shelves.

## MAINTENANCE FACILITIES

### BROWNSVILLE PLANT

In November, 1975, a survey of the Brownsville Plant's maintenance facilities was made by the METT-Facilities Project Team in conjunction with the Maintenance Operations Team Maintenance Survey. The attached is a compilation of information regarding these facilities. Included are:

1. Maintenance Facilities - Brownsville Plant.....Page 1  
(A short summary of features, strong and weak points and opinions as to the adequacy of present facilities.)
2. Major Maintenance Shops - Brownsville Plant.....Page 3  
(Charts showing use, size, conditions and features of the larger maintenance buildings and shops.)
3. Maintenance Facilities Description.....Page 7  
(A report provided by maintenance personnel giving a description of maintenance shops, storage areas, office and other facilities.)
4. Maintenance Shop Details.....Page 24  
(Charts showing heating, ventilation, lighting, insulation, utilities and material handling equipment of each shop.)
5. Maintenance Survey Questionnaire-Summary.....Page 29  
(Facilities section of an eleven-part questionnaire completed by maintenance supervisors and engineers.)
6. Maintenance Facilities Location Plan--.....Page 35  
Brownsville Plant

## MAINTENANCE FACILITIES

### BROWNSVILLE PLANT

It was generally found that the Maintenance Shops are progressing toward improved, more efficient, less hazardous work places. Although Shop Personnel are pleased with the changes that have been made in the last two years, there is still room for improvement. Most shops were found to be adequate in work area and equipment but were lacking in the areas of storage space and personnel facilities.

#### CENTRAL SHOPS

The Central Shops are well equipped but the Machine Shop equipment is in need of repair. The improvements that have been made in the Process Mechanics Shop are very beneficial for the plant and the personnel who work in the shop. The recent painting of the Central Shops has improved the lighting throughout. The shops are adequate in height and material handling capability with the possible exception of the Welding/Sheet Metal Shop. The installation of small, specialty shops (corrosion lab, T&I, blacklight room, safety) have disrupted the layout of the shops. This has resulted in crowded conditions in the specialty shops and major shops.

#### FIELD SHOPS

Most of the Field Shops were found to be adequate in size, equipment, height, and material handling needs except for the 930 Field Shop. Although the 930 Shop is used by approximately 45 personnel who work throughout the plant, the present facilities lack adequate office space for the foremen, utilities to meet their needs, materials handling equipment, and covered work area. The Old Machine Shop (Building 164) is an excellent building that is being under-utilized. The Insulation Shop personnel do most of their work in the Recovery/Reaction Area of the plant (90% according to the foreman) and are located in the opposite end of the plant.

#### Field Shops (Cont'd)

The Glass Fitters Shop is located in the Southeast corner of the building and the fiber-glass is drifting to all of the other shops due to the prevailing wind. The black-light room in the building is actively used for 30 to 45 days every 18 months for the "thaw" and essentially idle the rest of the time. The riggers' chokers and equipment is also stored in the Old Machine Shop. One end of the Quonset Hut serves as the Plant Garage and this shop has adequate work and storage space, equipment, and wash facilities. The Sand-blast Yard is in a good location with adequate equipment and outside work area. The Paint Storage Building is well ventilated and the shop building provides very adequate restrooms, lunch room, and Shop Office.

#### ZONE SHOPS

The three Zone Shops (Reaction, Recovery, and Oxygen/Energy) are all well located in relation to the units that the zone personnel service. All are well equipped with tools and the satellite stores provide much needed assistance. The Recovery Zone Shop would be rated the best of the Zone Shops. The Recovery and Reaction Foremen's Offices are not located at the shops but within the unit boundary. This facilitates their control of their personnel working in the shop and the unit. Unlike the other zone shops, the Oxygen/Energy Shop does not have a lunch room. The personnel are supposed to eat at the Guardhouse lunch room but most eat in the shop.

*Corrected*

# MAJOR MAINTENANCE SHOPS - BROWNSVILLE PLANT

| Building No. | Use                                                                 | Size (Sq.Ft.) | Age In Years | Construction                                                | General Condition | Number Of People | Remarks                                  |
|--------------|---------------------------------------------------------------------|---------------|--------------|-------------------------------------------------------------|-------------------|------------------|------------------------------------------|
| 163          | Rigging Loft -- Construction Shop                                   | 5000          | 26           | Floor - Cement<br>Wall - Asbestos<br>Ceiling - Asbestos     | Good              |                  | Now used by Construction for fabrication |
| 164          | Old Machine Shop                                                    | 6600          | 25           | Floor - Cement<br>Wall - Asbestos<br>Ceiling - Asbestos     | Good              | 31               |                                          |
|              | -Zone Shop(Oxygen/Energy)                                           | (1320)        |              |                                                             |                   | ( 7)             |                                          |
|              | -Glass/Tubing Filters Shop                                          | ( 770)        |              |                                                             |                   | (13)             |                                          |
|              | -Riggers Loft                                                       | (1210)        |              |                                                             |                   |                  |                                          |
|              | -Insulation Shop                                                    | ( 660)        |              |                                                             |                   | (11)             |                                          |
|              | -Black Room & Field Mech.                                           | ( 660)        |              |                                                             |                   |                  |                                          |
|              | -Main Aisle                                                         | (1760)        |              |                                                             |                   |                  |                                          |
|              | -Personnel Facilities                                               | ( 220)        |              |                                                             |                   |                  |                                          |
| 166          | Old Cafeteria-Dry Room, Critical Spare Parts Storage, O2 Clean Room | 2800          | 27           | Floor - Concrete<br>Wall - Brick<br>Ceiling-Acoustical Tile | Fair              | None             | Remote Storage Area                      |
| 166          | B&R Training                                                        | 5341          | 28           | Floor - Concrete<br>Wall - Brick<br>Ceiling-Acoustical Tile | Good              |                  |                                          |

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MAJOR MAINTENANCE SHOPS - BROWNSVILLE PLANT (Cont'd)

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| Building No. | Use                                                 | Size (Sq.Ft.) | Age In Years | Construction                                                              | General Condition | Number Of People   | Remarks                                                           |
|--------------|-----------------------------------------------------|---------------|--------------|---------------------------------------------------------------------------|-------------------|--------------------|-------------------------------------------------------------------|
| 424          | Central Shops                                       | 10,780        | 20           | Floor - Concrete<br>Wall - Corr.Asbestos<br>Ceiling-Corr.Asbestos         | Fair              | 63                 |                                                                   |
|              | -Machine Shop                                       | (3080)        |              |                                                                           |                   | (14)               |                                                                   |
|              | -Welding Shop                                       | (2520)        |              |                                                                           |                   | (15)               |                                                                   |
|              | -Electrical Shop                                    | ( 900)        |              |                                                                           |                   | ( 8)               |                                                                   |
|              | -Process Mechanics/<br>Instrument Shop              | ( 770)        |              |                                                                           |                   | (11)               |                                                                   |
|              | -Carpenter Shop                                     | (1500)        |              |                                                                           |                   | (13)               |                                                                   |
|              | -Fire Station/Safety<br>Equipment Service<br>Center | ( 969)        |              |                                                                           |                   | ( 2)               | New shop in<br>preliminary<br>construction                        |
|              | -Personnel Facilities                               | (1040)        |              |                                                                           |                   |                    |                                                                   |
| 425          | Maintenance Office                                  | 3180          | 27&1         | Floor - Concrete<br>Wall-Asbestos &<br>Sheet Rock<br>Ceiling-Celotex Tile | Excellent         | 25                 |                                                                   |
| 461          | Garage                                              | 14,480        |              | Floor - Concrete<br>Wall - Steel<br>Ceiling - Steel                       | Good              | 4-Shop<br>12-Field | Quonset Hut: size<br>includes outside<br>storage and work<br>area |

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MAJOR MAINTENANCE SHOPS - BROWNSVILLE PLANT (Cont'd)

| Building<br>No. | Use                                    | Size<br>(Sq.Ft.) | Age<br>In<br>Years | Construction                                                    | General<br>Condition | Number<br>Of<br>People | Remarks                                |
|-----------------|----------------------------------------|------------------|--------------------|-----------------------------------------------------------------|----------------------|------------------------|----------------------------------------|
| 489             | Sand Blast Yard                        | 30,000           | 27                 | Floor - Concrete<br>Wall - Transite<br>Ceiling-Corr.Steel       | Good                 | 7                      | Size includes<br>outside work<br>area. |
| --              | Recovery Zone Shop<br>(S-3 Field Shop) | 2000             | 1                  | Floor - Concrete<br>Wall-Corr.Asbestos<br>Ceiling-Corr.Asbestos | Good                 | 12                     |                                        |
| --              | 930 Field Shop                         | 30,940           | 2                  | Floor - Wooden<br>Wall-Corr.Steel<br>Ceiling-Corr.Steel         | Good                 | 30                     | Size includes<br>outside work<br>area  |
| --              | Reaction Zone Shop                     | 1000             |                    | Floor - Cement<br>Wall-Corr.Asbestos<br>Ceiling-Corr.Asbestos   | Fair                 | 7                      |                                        |

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MAINTENANCE FACILITIES DESCRIPTION

MAINTENANCE AREA

BUILDING NO: 163

BUILDING NAME: Riggers Loft

1. CONSTRUCTION: Permanent - Cement floor; Asbestos wall and ceiling
2. AGE: 26 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>                                   | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|---------------------------------------------------|-----------------------------|-------------------------|
| Boilermaker Shop<br>(Now used by<br>Construction) | 5000                        |                         |

6. PERSONNEL FACILITIES:

|                    |                      |
|--------------------|----------------------|
| Lunch Room:        | None                 |
| Rest Room:         | 1 toilet; 1 lavatory |
| Lockers:           | None                 |
| Female Facilities: | Not required         |

MAINTENANCE AREA

BUILDING NO: 164

BUILDING NAME: Old Machine Shop

1. CONSTRUCTION: Permanent - Cement floor; Asbestos wall and ceiling
2. AGE: 25 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes: East, North and South
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>                     | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-------------------------------------|-----------------------------|-------------------------|
| Zone Shop<br>(Oxygen/Energy)        | 1320                        | 7                       |
| Glass/Tubing fitters                | 770                         | 13                      |
| Riggers Loft                        | 1210                        |                         |
| Insulation Shop                     | 660                         | 11                      |
| Black Room &<br>Field Mechanics     | 660                         |                         |
| Main Aisle (Shared by<br>all shops) | 1760                        |                         |
| Personnel Facilities                | 220                         |                         |
|                                     | <hr/> 6600                  | <hr/> 31                |

6. PERSONNEL FACILITIES:

Lunch Room: None *yes*

Rest Room: 2 toilets; 2 urinals; 2 laboratories;  
220 Sq. Ft. *needs up grading*

Lockers: 20 lockers: 1 assigned per man

Female Facilities: Not Required

MAINTENANCE AREA

BUILDING NO: 164 (Cont'd)

BUILDING NAME: Old Machine Shop

| 7a | <u>ZONE SHOP-<br/>OXYGEN/ENERGY</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|-------------------------------------|-----------------------------|-------------------------|
|    | Shop Office                         | 220                         | 1                       |
|    | Work Area                           | 880                         | 6                       |
|    | Inside Storage                      | 220                         |                         |
|    |                                     | <u>1320</u>                 | <u>7</u>                |

7b PERSONNEL:

- 1 - Foreman
- 4 - Pipe Fitters
- 2 - Riggers

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7 - Total

7c INADEQUACIES: Storage area in need of housecleaning. Potential hazard from having to crawl over equipment on floor to reach items on storage shelves.

| 8a | <u>GLASS/TUBING<br/>FITTERS SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|--------------------------------------|-----------------------------|-------------------------|
|    | Shop Office                          | 110                         | 1                       |
|    | Work Area                            | 484                         | 12                      |
|    | Storage Inside                       | 176                         |                         |
|    |                                      | <u>770</u>                  | <u>13</u>               |

8b PERSONNEL:

- 1 - Foreman
- 12 - Glass Fitters

---

13 - Total

8c INADEQUACIES: Due to prevailing wind through shop, fiber glass from this shop drifts down to the insulators and zone shops at the other end of the building.

MAINTENANCE AREA

BUILDING NO: 164 (Cont'd)

BUILDING NAME: Old Machine Shop

| 9a | <u>INSULATION SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|------------------------|-----------------------------|-------------------------|
|    | Office (Shared)        | 110                         | 1                       |
|    | Work Area              | 550                         | 10                      |
|    | Outside Storage        | 1000                        |                         |
|    |                        | <u>1660</u>                 | <u>11</u>               |

9b PERSONNEL:

|                   |
|-------------------|
| 1 - Foreman       |
| 10 - Insulators   |
| <u>11 - Total</u> |

9c INADEQUACIES:

Vacuum barrel for insulation bond saw should be located on outside of building in water tight enclosure. 90 percent of work in Recovery/Reaction area but shop is located at opposite end of plant.

MAINTENANCE AREA

BUILDING NO: 166

BUILDING NAME: B&R Training Room

1. CONSTRUCTION: Permanent - Tile floor; Brick wall; Acoustical ceiling
2. AGE: 28 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes: East, South, or West side
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-----------------|-----------------------------|-------------------------|
| Training Area   | 5340                        | N/A                     |
| Dry Room        | 2800                        |                         |
|                 | <u>8140</u>                 |                         |

6. PERSONNEL FACILITIES:

Lunch Room: Personnel eat in training room

Rest Room: 2 toilets; 2 urinals; 2 laboratories  
120 Sq. Ft.

Lockers: None

Female Facilities: Required but not separate

7. PERSONNEL: N/A

MAINTENANCE AREA

BUILDING NO: 424

BUILDING NAME: Central Shops

1. CONSTRUCTION: Permanent - Concrete floor; Corrugated asbestos wall and ceiling
2. AGE: 20 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>                 | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|---------------------------------|-----------------------------|-------------------------|
| Machine Shop                    | 3080                        | 14                      |
| Welding Shop                    | 2520                        | 15                      |
| Electric Shop                   | 900                         | 8                       |
| Process Mechanics Shops         | 770                         | 11                      |
| Carpenter Shop                  | 1500                        | 13                      |
| Safety Equipment Service Center | 970                         | 2                       |
| Personnel Facilities            | 1040                        |                         |
|                                 | <u>10,780</u>               | <u>63</u>               |

6. PERSONNEL FACILITIES:

Lunch Room: -

None - Personnel eat at cafeteria or work benches

Rest Room:

Machine Shop: 5 toilets; 2 urinals;  
2 laboratories; 600 Sq. Ft.

Electrical/Instrument Shop: 1 toilet;  
3 urinals; 1 laboratory; 200 Sq. Ft.

Welding Shop: 3 toilets; 1 urinal;  
1 laboratory; 240 Sq. Ft.

MAINTENANCE AREA

BUILDING NO: 424 (Cont'd)

BUILDING NAME: Central Shops

6. PERSONNEL FACILITIES: (Cont'd)

Lockers: None  
Female Facilities: Not required

| 7a | <u>MACHINE SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|---------------------|-----------------------------|-------------------------|
|    | Office              | 80                          | 2                       |
|    | Work Area           | 3000                        | 12                      |
|    |                     | <u>3080</u>                 | <u>14</u>               |

7b PERSONNEL:

|                       |
|-----------------------|
| 1 - Foreman           |
| 1 - Working Foreman   |
| 6 - Inside Machinists |
| 6 - Field Machinists  |
| <u>14 - Total</u>     |

7c INADEQUACIES:

Heat circulation poor  
Work benches with storage space poor  
Lockers for machinists' slicker suits lacking  
Noise and smoke problems from Welding Shop  
Shop office too small for 2 foremen  
Floor space lost due to specialty shops -  
metalurgical lab, valve shop, etc.

| 8a | <u>WELDING SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|---------------------|-----------------------------|-------------------------|
|    | Shop Office         | 120                         | 1                       |
|    | Work Area           | 2400                        | 14                      |
|    |                     | <u>2520</u>                 | <u>15</u>               |

8b PERSONNEL:

|                              |
|------------------------------|
| 1 - Foreman                  |
| 14 - Welders and Fabricators |
| <u>15 - Total</u>            |

MAINTENANCE AREA

BUILDING NO: 424 (Cont'd)

BUILDING NAME: Central Shops

8c INADEQUACIES: People eat on fabrication tables or floor  
Need lockers for personnel  
Need improved ventilation to remove smoke *- installed*  
Need another overhead crane

8d DEFICIENCY: Need sheet metal roll, shear and saw

| 9a | <u>ELECTRICAL SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----|------------------------|-----------------------------|-------------------------|
|    | Shop Office            | 140                         | 1                       |
|    | Work Area (14' height) | 660                         | 7                       |
|    | Storage Inside         | 100                         |                         |
|    |                        | <u>900</u>                  | <u>8</u>                |

9b PERSONNEL:

|                  |
|------------------|
| 1 - Foreman      |
| 7 - Electricians |
| <u>8 - Total</u> |

9c INADEQUACIES:

Housekeeping a problem due to limited size  
Work bench areas lacking  
Motors larger than 50HP are worked on in  
Machine Shop where they have the needed  
lift capacity  
Wooden step ladders stored outside in the open  
where they get wet--electricians working on  
hot lines might get shocked  
Pipe cutter and threading machine in poor  
locations due to limited space

| 10a | <u>PROCESS<br/>MECHANICS SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-----|-----------------------------------|-----------------------------|-------------------------|
|     | Office                            | 150                         | 1                       |
|     | Instrument Shop                   | 450                         | 9                       |
|     | Electronics Shop                  | 170                         | 1                       |
|     |                                   | <u>770</u>                  | <u>11</u>               |

MAINTENANCE AREA

BUILDING NO: 424 (Cont'd)

BUILDING NAME: Central Shops

10b PERSONNEL:                   1 - Foreman  
                                  10 - Instrument Mechanics  
                                  11 - Total

| 11a | <u>CARPENTER SHOP</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-----|-----------------------|-----------------------------|-------------------------|
|     | Office                | 100                         | 1                       |
|     | Work Area             | 1400                        | 12                      |
|     |                       | <u>1500</u>                 | <u>13</u>               |

11b PERSONNEL:                   1 - Foreman  
                                  3 - Carpenters  
                                  1 - Painter  
                                  1 - Sheet Metal Worker  
                                  7 - Helpers  
                                  13 - Total

11c INADEQUACIES:               Radial and band saws are too close to each other  
                                  No phone for the foreman--he must use weld shop office

| 12a | <u>SAFETY EQUIPMENT SERVICE CENTER</u> | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-----|----------------------------------------|-----------------------------|-------------------------|
|     | Work Area                              | 252                         | 2                       |
|     | Fire Station                           | 525                         |                         |
|     | Foam Trailer Storage                   | 192                         |                         |
|     |                                        | <u>969</u>                  | <u>2</u>                |

12b PERSONNEL:                   2 - Fire Station Attendants

MAINTENANCE AREA

BUILDING NO: 424 (Cont'd)

BUILDING NAME: Central Shops

12c INADEQUACIES:

Ventilation and insulation poor  
Rest rooms and water fountain 150 feet away--  
200 feet allowable maximum  
Need plant air  
Facilities for cleaning safety equipment is  
lacking  
Storage space cramped

MAINTENANCE AREA

BUILDING NO: 425

BUILDING NAME: Maintenance Office

1. CONSTRUCTION: Permanent - Concrete; Tile floor; Asbestos & Sheet-rock
2. AGE: 27 Years; Addition is one year old
3. GENERAL CONDITION: Excellent
4. EXPANDABLE: Yes: on South side
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>            | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----------------------------|-----------------------------|-------------------------|
| Technical Staff<br>Offices | 3180                        | 25                      |

6. PERSONNEL FACILITIES:

|                    |                                                      |
|--------------------|------------------------------------------------------|
| Lunch Room:        | None - Personnel eat in cafeteria or lunch room      |
| Rest Room:         | 2 toilets; 2 urinals; 2 laboratories;<br>100 Sq. Ft. |
| Lockers:           | None                                                 |
| Female Facilities: | 2 toilets; 2 laboratories;<br>100 Sq. Ft.            |

MAINTENANCE AREA

BUILDING NO: 461

BUILDING NAME: Garage

1. CONSTRUCTION: Permanent - Concrete floor; Steel wall and ceiling (Quonset Hut)
2. AGE:
3. GENERAL CONDITION: Good
4. EXPANDABLE: No
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>           | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|---------------------------|-----------------------------|-------------------------|
| Shop Office               | 36                          | 1                       |
| Work Area<br>(25' height) | 2124                        | 3                       |
| Inside Storage            | 300                         |                         |
| Outside Storage           | 12,000                      |                         |
| Personnel Facilities      | 30                          |                         |
|                           | <hr/> 14,480                | <hr/> 4                 |

6. PERSONNEL FACILITIES:

Lunch Room: None

Rest Room: 1 toilet; 1 lavatory;  
30 Sq. Ft.

Lockers: None

Female Facilities: Not required

7. PERSONNEL:
- |                          |                            |
|--------------------------|----------------------------|
| 1 - Foreman              | 3 - Drivers                |
| 2 - Mechanics            | 1 - Utility (Dumpster)     |
| 1 - Helper               | 8 - Rigger/Cr. Operators   |
| <hr/> 4 - Shop Personnel | <hr/> 12 - Field Personnel |

MAINTENANCE AREA

BUILDING NO: 461 (Cont'd)

BUILDING NAME: Garage

8. INADEQUACIES:

Rigging equipment is stored in Old Machine Shop instead of quonset hut.

MAINTENANCE AREA

BUILDING NO: 489

BUILDING NAME: Sandblast Yard

1. CONSTRUCTION: Permanent - Concrete floor; Transite wall;  
Corrugated steel ceiling
2. AGE: 27 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>                     | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-------------------------------------|-----------------------------|-------------------------|
| Office                              | 168                         | 1                       |
| Work Area (Covered)<br>(10' height) | 1200                        |                         |
| Work Area (Outside)<br>Storage      | 28,120                      |                         |
| Personnel Facilities                | 512                         | 6                       |
|                                     | <hr/> 30,000                | <hr/> 7                 |

6. PERSONNEL FACILITIES:

Lunch Room: Seating for 14 people;  
280 Sq. Ft.

Rest Room: 2 toilets; 2 urinals; 2 laboratories;  
32 Sq. Ft.

Lockers: 8 available; 1 assigned per person  
32 Sq. Ft.

Female Facilities: Not required

7. PERSONNEL:
- |                 |
|-----------------|
| 1 - Foreman     |
| 6 - Painters    |
| <hr/> 7 - Total |

MAINTENANCE AREA

BUILDING NO:

BUILDING NAME: Recovery Zone Shop  
(S-3 Field Shop)

1. CONSTRUCTION: Permanent - Concrete floor; Corrugated asbestos wall and ceiling
2. AGE: 1 Year
3. GENERAL CONDITION: Good
4. EXPANDABLE: Yes; to the South or West ?
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>               | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|-------------------------------|-----------------------------|-------------------------|
| Office<br>(Portable Building) | 200                         | 4                       |
| Work Area                     | 1500                        | 8                       |
| Personnel Facilities          | 300                         |                         |
|                               | <u>2000</u>                 | <u>12</u>               |

6. PERSONNEL FACILITIES:

Lunch Room: Seating capacity for 10 people;  
300 Sq. Ft.

Rest Room: Personnel use area rest room in unit

Lockers: Assigned per man

Female Facilities: Not required

7. PERSONNEL:

1 - Foreman  
1 - Working Foreman  
2 - Planners  
8 - Craftsmen  
12 - Total

MAINTENANCE AREA

BUILDING NO:

BUILDING NAME: 930 Field Shop

1. CONSTRUCTION: Permanent - Wooden floor; Corrugated steel wall and ceiling
2. AGE: 2 Years
3. GENERAL CONDITION: Good
4. EXPANDABLE:
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>     | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|---------------------|-----------------------------|-------------------------|
| Offices             | 340                         | 6                       |
| Work Area (Covered) | 600                         | 24                      |
| Work Area (Outside) | 30,000                      |                         |
|                     | <u>30,940</u>               | <u>30</u>               |

6. PERSONNEL FACILITIES:

Lunch Room: None - Personnel eat in main cafeteria

Rest Room: None - Personnel use central shop rest room across the street

Lockers: 25 available

Female Facilities: Not required

7. PERSONNEL:

4 - Foremen  
1 - Scheduler  
1 - Mat'l Expediter  
24 - Craftsmen  
30 - Total

MAINTENANCE AREA

BUILDING NO:

BUILDING NAME: Reaction Zone Shop

1. CONSTRUCTION: Permanent - Cement floor; Corrugated asbestos walls and ceiling
2. AGE:
3. GENERAL CONDITION: Fair
4. EXPANDABLE: Yes; all except North
5. MAINTENANCE FUNCTION:

| <u>FUNCTION</u>      | <u>FLOOR SPACE (Sq.Ft.)</u> | <u>NO. OF PERSONNEL</u> |
|----------------------|-----------------------------|-------------------------|
| Work Area            | 700                         | 6                       |
| Personnel Facilities | 300                         |                         |
|                      | <u>1000</u>                 | <u>6</u>                |

6. PERSONNEL FACILITIES:

Lunch Room: Seating capacity for 8 people;  
300 Sq. Ft.

Rest Room: Portable unit; also Reaction II Control building

Lockers: 10 lockers

Female Facilities: Not required

7. PERSONNEL:
- 1 - Foreman (office in unit)
  - 3 - Pipefitters
  - 3 - Riggers
- 
- 7 - Total

8. INADEQUACIES: No heat in shop - open sides

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# MAINTENANCE SHOP DETAILS

## BROWNSVILLE PLANT

| BLDG. NO. | SHOPS                                                               | HEATING                          | VENTILATION -Shop-      | VENTILATION -Spec. Exhaust | LIGHTING (Foot Candles)                           | INSULATION  | UTILITIES                                                                             | Mat'l Hand'l EQUIPMENT  | REMARKS |
|-----------|---------------------------------------------------------------------|----------------------------------|-------------------------|----------------------------|---------------------------------------------------|-------------|---------------------------------------------------------------------------------------|-------------------------|---------|
| 163       | Rigging Loft-Construction Shop                                      | Steam                            | 2 Vents                 | None                       | Incandescent<br>OFF-75 Ft.Can.<br>SHOP-55 Ft.Can. | None        | Plant Air(90#)<br>230, 460 VAC                                                        | None                    |         |
| 164       | Old Machine Shop<br>(Glass Filters)<br>(Oxygen/Energy<br>Zone Shop) | Steam &<br>Electric<br>Unit      | 4 Vents                 |                            | Incandescent<br>OFF-55 Ft.Can.<br>SHOP-45 Ft.Can. | None        | Plant Air(90#)<br>Steam(30#)<br>Drinking Water<br>Acetylene<br>Oxygen<br>115, 230 VAC | Bridge Crane-<br>15-Ton |         |
| 164       | Old Machine Shop<br>(Insulation Shop)                               | Steam                            | Roof<br>Vents           | Fan                        | Incandescent<br>OFF-55 Ft.Can.<br>SHOP-45 Ft.Can. | None        | Plant Air(85#)<br>Steam(40#)<br>Drinking Water<br>Fire Water<br>115, 230 VAC          | Bridge Crane-<br>15-Ton |         |
| 166       | B&R Training<br>Room                                                | Electric-<br>Central &<br>2 Unit | A/C and<br>Draft<br>Fan | A/C and<br>Draft<br>Fan    | Fluorescent                                       | Thick Walls | Drinking Water                                                                        |                         |         |
| 166       | Old Cafeteria-<br>Dry Room                                          | Electric-<br>Unit                | A/C                     |                            | Fluorescent<br>Incandescent                       | Thermal     | 115 VAC                                                                               |                         |         |
| 424       | Central Service<br>Center                                           | Steam-<br>Unit                   | A/C                     | None                       | Fluorescent<br>45 Ft.Candles                      | None        | Plant Air(90#)<br>115 VAC                                                             |                         |         |

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# MAINTENANCE SHOP DETAILS (Cont'd)

## BROWNSVILLE PLANT

| BLDG.<br>NO. | SHOPS (Cont'd)                    | HEATING                     | VENTILATION           |                                  | LIGHTING<br>(Foot Candles)                         | INSULATION         | UTILITIES                                                                                                                                                                   | Mat'l Hand'l<br>EQUIPMENT             | REMARKS |
|--------------|-----------------------------------|-----------------------------|-----------------------|----------------------------------|----------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------|
|              |                                   |                             | VENTILATION<br>-Shop- | VENTILATION<br>-Spec.<br>Exhaust |                                                    |                    |                                                                                                                                                                             |                                       |         |
| 424          | Electric Shop                     | Steam                       | Window<br>Fan         | None                             | Fluorescent<br>OFF-50 Ft.Can.<br>SHOP-70 Ft.Can.   | None               | Plant Air(80#)<br>Drinking Water<br>115,230,460 VAC                                                                                                                         | Monorail-<br>1 1/2-Ton<br>Chair hoist |         |
| 424          | Machine Shop                      | Steam &<br>Electric<br>Unit | Fans                  | None                             | Mercury Vapor<br>OFF-25 Ft.Can.<br>SHOP-50 Ft.Can. | None               | Plant Air(74#)<br>Instrument Air<br>Steam (20#)<br>Drinking Water<br>Cooling Water<br>Fire Water<br>Acetylene<br>Oxygen<br>Other Fuel Gas<br>Storm Sewer<br>115,230,460 VAC | 1-Bridge<br>Crane-<br>5-Ton           |         |
| 424          | Process Mech./<br>Instrument Shop | Electric-<br>Unit           | A/C                   | A/C                              | Fluorescent<br>OFF-75 Ft.Can.<br>SHOP-75 Ft.Can.   | Thermal<br>& Sound | Plant Air(80#)<br>Instrument Air<br>Drinking Water<br>Fire Water<br>Vacuum<br>115, 230 VAC                                                                                  |                                       |         |
| 424          | Welding Shop                      | Gas                         | None                  | Fans to be<br>Installed          | Fluorescent<br>OFF-75 Ft.Can.<br>SHOP-55 Ft.Can.   | None               | Plant Air(70#)<br>Drinking Water<br>Fire Water<br>Acetylene<br>Oxygen<br>Other Fuel Gas<br>Storm Sewer<br>Sanitary Sewer<br>115,230,460 VAC                                 | 1-Overhead<br>Crane-2-Ton             |         |

# MAINTENANCE SHOP DETAILS (Cont'd)

## BROWNSVILLE PLANT

| <u>BLDG.<br/>NO.</u> | <u>SHOPS (Cont'd)</u> | <u>HEATING</u>      | <u>VENTILATION<br/>-Shop-</u> | <u>VENTILATION<br/>-Spec.<br/>Exhaust</u> | <u>LIGHTING<br/>(Foot Candles)</u>             | <u>INSULATION</u> | <u>UTILITIES</u>                                                                                                                       | <u>Mat'l Hand'l<br/>EQUIPMENT</u>         | <u>REMARKS</u> |
|----------------------|-----------------------|---------------------|-------------------------------|-------------------------------------------|------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------|
| 425                  | Maintenance<br>Office |                     |                               |                                           |                                                |                   |                                                                                                                                        |                                           |                |
| 461                  | Garage                | None                | Fans                          |                                           | Mercury Vapor<br>35 Ft.Candles                 | Thermal           | Plant Air<br>Drinking Water<br>Cooling Water<br>Fire Water<br>Acetylene<br>Oxygen<br>Storm Sewer<br>Sanitary Sewer<br>115, 230 VAC     | 1-Fork Trk.<br>1-4Inch Trk.<br>14-Pickups |                |
| 489                  | Sand Blast<br>Yard    | Electric-<br>Unit   | A/C                           | None                                      | Fluorescent                                    | Thermal           | Plant Air<br>Breathing Air<br>Drinking Water<br>Fire Water<br>Storm Sewer<br>Sanitary Sewer<br>115,230,460 VAC                         | None                                      |                |
| --                   | Reaction Zone<br>Shop | None-<br>Open-sided | Open-sided                    |                                           | Incandescent<br>Mercury Vapor<br>65 Ft.Candles | None              | Plant Air(80#)<br>Steam (40#)<br>Drinking Water<br>Cooling Water<br>Acetylene<br>Oxygen<br>CO <sub>2</sub><br>Process Sewer<br>115 VAC | Honorail                                  |                |

MAINTENANCE SHOP DETAILS (Cont'd)

BROWNSVILLE PLANT

| <u>BLDG.<br/>NO.</u> | <u>SHOPS (Cont'd)</u> | <u>HEATING</u>    | <u>VENTILATION<br/>-Shop-</u> | <u>VENTILATION<br/>-Spec.<br/>Exhaust</u> | <u>LIGHTING<br/>(Foot Candles)</u> | <u>INSULATION</u> | <u>UTILITIES</u>                                                                                   | <u>Mat'l Hand'l<br/>EQUIPMENT</u>                              | <u>REMARKS</u> |
|----------------------|-----------------------|-------------------|-------------------------------|-------------------------------------------|------------------------------------|-------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------|
| --                   | S-3 Field Shop        | Electric-<br>Unit | None                          |                                           | Mercury Vapor                      | None              | Plant Air<br>Steam<br>Drinking Water<br>Acetylene<br>Oxygen<br>Nitrogen<br>115, 400 VAC            | 1-Monorail (1 Ton)<br>1-Monorail (3 Ton)<br>1-Monorail (4 Ton) |                |
| --                   | 930 Field Shop        | Steam             | A/C                           | None                                      | Fluorescent                        | Thermal           | Plant Air<br>Drinking Water<br>Fire Water<br>Acetylene<br>Oxygen<br>Storm Sewer<br>115,230,460 VAC | None                                                           |                |

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# MAINTENANCE SURVEY QUESTIONNAIRE SUMMARY

## 11. Maintenance Facilities

a) Do the maintenance people in your area have adequate personnel facilities in?

☐ Offices?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |     |
|----------------|-----|------|-----|------|----------------|-----|
|                | NO. | %    | NO. | %    | NO.            | %   |
| UCC            | 8   | 57.2 | 5   | 35.7 | 1              | 7.1 |
| Brown & Root   | 5   | 55.6 | 4   | 44.4 | 0              | 0.0 |
| TOTAL RESPONSE | 13  | 56.5 | 9   | 39.1 | 1              | 4.4 |

☐ Lunch Rooms?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 9   | 64.3 | 4   | 28.5 | 1              | 7.2  |
| Brown & Root   | 5   | 55.6 | 3   | 33.3 | 1              | 11.1 |
| TOTAL RESPONSE | 14  | 60.9 | 7   | 30.4 | 7              | 8.7  |

☐ Locker Rooms?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 6   | 42.8 | 6   | 42.8 | 2              | 14.4 |
| Brown & Root   | 4   | 44.4 | 5   | 55.6 | 0              | 0.0  |
| TOTAL RESPONSE | 10  | 43.5 | 11  | 47.8 | 2              | 8.7  |

b) In your area are the following aspects of the facilities located, designed, and/or equipped to handle work efficiently?

☐ Heating?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |     |
|----------------|-----|------|-----|------|----------------|-----|
|                | NO. | %    | NO. | %    | NO.            | %   |
| UCC            | 11  | 78.5 | 2   | 14.3 | 1              | 7.2 |
| Brown & Root   | 7   | 77.8 | 2   | 22.2 | 0              | 0.0 |
| TOTAL RESPONSE | 18  | 78.3 | 4   | 17.4 | 1              | 4.3 |

■ Ventilation?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |     |
|----------------|-----|------|-----|------|----------------|-----|
|                | NO. | %    | NO. | %    | NO.            | %   |
| UCC            | 12  | 85.7 | 2   | 14.3 | 0              | 0.0 |
| Brown & Root   | 7   | 77.8 | 2   | 22.2 | 0              | 0.0 |
| TOTAL RESPONSE | 19  | 82.6 | 4   | 17.4 | 0              | 0.0 |

■ Lighting?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |     |
|----------------|-----|------|-----|------|----------------|-----|
|                | NO. | %    | NO. | %    | NO.            | %   |
| UCC            | 13  | 92.8 | 0   | 0.0  | 1              | 7.2 |
| Brown & Root   | 7   | 77.8 | 2   | 22.2 | 0              | 0.0 |
| TOTAL RESPONSE | 20  | 87.0 | 2   | 8.7  | 1              | 4.3 |

■ Insulation?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 9   | 68.3 | 3   | 21.4 | 2              | 14.3 |
| Brown & Root   | 5   | 55.6 | 3   | 33.3 | 1              | 11.1 |
| TOTAL RESPONSE | 14  | 60.9 | 6   | 26.1 | 3              | 13.0 |

■ Material Handling Equipment?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 8   | 57.2 | 4   | 28.5 | 2              | 14.3 |
| Brown & Root   | 6   | 66.7 | 3   | 33.3 | 0              | 0.0  |
| TOTAL RESPONSE | 14  | 60.9 | 7   | 30.4 | 2              | 8.7  |

■ Utilities ?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 10  | 71.4 | 0   | 0.0  | 4              | 28.6 |
| Brown & Root   | 5   | 55.6 | 3   | 33.3 | 1              | 11.1 |
| TOTAL RESPONSE | 15  | 65.3 | 3   | 13.0 | 5              | 21.7 |

■ Shop Equipment?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 8   | 57.2 | 4   | 28.5 | 2              | 14.3 |
| Brown & Root   | 5   | 55.6 | 3   | 33.3 | 1              | 11.1 |
| TOTAL RESPONSE | 13  | 56.5 | 7   | 30.4 | 3              | 13.1 |

■ Storage Area?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 6   | 42.8 | 6   | 42.8 | 2              | 14.3 |
| Brown & Root   | 3   | 33.3 | 5   | 55.6 | 1              | 11.1 |
| TOTAL RESPONSE | 9   | 39.1 | 11  | 47.8 | 3              | 13.1 |

■ Transportation Support?

| PERSONNEL      | YES |      | NO  |      | DID NOT ANSWER |      |
|----------------|-----|------|-----|------|----------------|------|
|                | NO. | %    | NO. | %    | NO.            | %    |
| UCC            | 7   | 50.0 | 6   | 42.8 | 1              | 7.2  |
| Brown & Root   | 4   | 44.4 | 4   | 44.4 | 1              | 11.1 |
| TOTAL RESPONSE | 11  | 47.8 | 10  | 43.5 | 2              | 8.7  |