APPENDIX B

TESTING OF HOISTING EQUIPMENT

1. The stability of crawler, truck, and wheel-mounted cranes and their ability to perform safely shall be assured. The manufacturer's load rating chart may be used to determine the maximum allowable working load for each particular crane's boom angle provided that: prior to being placed in operation, a test load, with the boom at an angle of 20 degrees above the horizontal, confirms that of the manufacturer's load rating table; there is assurance that there has been no change in the boom or other structural members; and that there is assurance that there has been no change in the machine's original counter-weight.

a. Stability tests are required: (1) when there is no manufacturer's load rating chart securely fixed to the crane's cab; (2) when there has been a change in boom or other structural members; (3) when there has been a change in the counterweight. The test shall be conducted under close supervision and on a firm level surface.

b. The test shall consist of lifting a load without outriggers and with the boom in the least stable position with respect to the undercarriage and at an angle of 20 degrees above the horizontal. The test load shall be the load that tilts the machine. The test load (in pounds) shall then be multiplied by the distance (in feet) from the center of rotation of the machine to the load to get the test load moment (in foot-pounds).

c. Three-fourths of this test load moment shall then be used to compute the maximum allowable operating loads for the boom at 20, 40, 60, and 80 degrees above horizontal. From these maximum allowable operating loads, a curve shall be plotted and posted in the cab of the machine in sight of the operator. These values shall not be exceeded except in the performance test described below.

d. In lieu of the test above, the crane may be load tested for stability at each of the four positions listed above.

2. Performance tests shall demonstrate the strength, capability, and adequacy of power, brakes, clutches, and controls to safely maneuver 125% of the maximum allowable load as determined above at the 80 degree position. A performance test shall be conducted with outriggers in position, after each stability test, when the crane is placed in service on a project, and at least every 12 months. The test load of a crane shall never exceed 110% of the manufacturer's maximum rated capacity. Assure once that structural damage did not occur during the stability tests will be made prior to beginning the performance test.

3. Inspections will be made which will ensure a safe, economical operation of both cranes and draglines. Specific inspections and their frequencies are:

a. All control mechanisms for maladjustment interfering with proper operation: Daily.

b. All control mechanisms for excessive wear of components and contamination by lubricants or other foreign matter: Daily to monthly.

c. All safety devices for malfunction: Daily to monthly.

d. Deterioration or leakage in air or hydraulic systems: Daily.

e. Crane hooks for deformations or cracks. Hooks with cracks or having more than 15 percent in excess of normal throat opening, or more than 10 degrees twist from the plane of the unbent hook will be removed from service: Daily to monthly.

f. Rope reeving for noncompliance with manufacturer's recommendations: Daily to monthly.

g. Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation: Daily to monthly.

h. Deformed, cracked or corroded members in the crane structure and boom. Monthly to annually.

i. Loose bolts or rivets: Monthly to annually.

j. Cracked or worn sheaves and drums: Monthly to annually.

k. Worn, cracked, or distorted parts, such as pins, bearings, shafts, gears, rollers, and locking devices: Monthly to annually.

l. Excessive wear on brake and clutch system parts, linings, pawls, and ratchets: Monthly to annually.

m. Load, boom angle, and other indicators over their full range for any significant inaccuracies: Monthly to annually.

n. Gasoline, diesel, electric, or other power plants for improper performance or noncompliance with safety requirements: Monthly to annually.

o. Excessive wear of chain-drive sprockets and excessive chain stretch: Monthly to annually.

p. Travel, steering, braking, and locking devices for malfunction: Monthly to annually.

q. Excessively worn or damaged tires and tracks: Monthly to annually.

4. A complete dragline inspection will be made: (a) at least annually; (b) prior to the dragline being placed in operation; and (c) after the dragline has been out of service for more than six months.

5. Results of inspections and tests for cranes will be recorded on POD Safety Checklist Guide for Cranes and Derricks. Inspection results for draglines will be recorded on POD Safety Checklist Guide for Draglines. Copies of the inspections and tests will be available at the job site for review.

6. Cranes used to lift, lower, or hold human loads shall be equipped with power lowered boom and hoist lines.

7. Operators of Government owned cranes, derricks, draglines, mechanical shovels, hoists, motor patrols, bulldozers, rubber-tired and crawler tractors, front-end loaders, backhoes, and hauling equipment with capacity 5 tons or greater must show proof of having completed a physical examination within the last 12 months by a licensed physician prior to the beginning of operation of the equipment. Operators must be reexamined at least every 12 months. The examination certificate will state that in the opinion of the examining physician, the person is physically qualified to safely operate construction equipment.