

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION
CRANES AND HOIST PROGRAM

Objective

The objective of this directive is to outline the operation requirements and training program for the operation of station cranes and hoists.

Applicability

This directive shall apply to the operation and training of personnel in the operation of all overhead cranes and hoists used at McGuire Nuclear Station.

References

ANSI B30.2.0, 1976 Code

Responsibility

Safe, reliable operation of cranes and hoists require that operators be physically qualified and trained in the proper use of this equipment.

Responsibility for the training program for qualifying crane and hoist operators belongs to the Maintenance Engineer. His duties are to include the development of the training program, provide course materials, prepare test, administer test, grade test, and control documentation.

The Superintendent of Operations shall have the responsibility for providing operators for the spent fuel area manipulator cranes and reactor manipulator cranes for Unit 1 and Unit 2.

Operation Procedure

1.0 Inspection

1.1 Inspect overhead and gantry cranes according to McGuire's

"Overhead and Gantry Cranes Daily Visual Inspection Record",
(Enclosure 1.0).

- 1.2 Electrically operated hoists should be inspected by the operator prior to use, but does not require documentation.
- 1.3 Manually operated hoists, chain falls, and come-a-longs should be inspected prior to use and upon return to the tool room.
- 1.4 All lifting devices including slings, shackles, eye bolts, etc. should be inspected prior to use and upon return to the tool room.

2.0 Operation

- 2.1 Before moving any load, the crane or hoist operator should operate each switch or push button to attain a "feel" of each control and also determine that they do not bind or stick in any position. If any do, before doing anything else, the operator should report the condition to his or her supervisor.
- 2.2 All loads should be rigged only with approved lifting devices and only be qualified personnel. Before lifting a load, the hoist should be positioned directly over the load that is to be handled. Lower the hook until the load can be attached. As the hook approaches this level, reduce the speed so that the lowering can be stopped smoothly and quickly. Attach the lifting device to the hook making sure it is fully seated in the saddle of the hook.
- 2.3 When lifting, start slowly until all slack has been taken out of the slings, or lifting device, and until the load is clear and is determined to be properly balanced. The hoisting speed may be increased and maintained until the load is clear of all obstructions or until the rigger or signal man gives the stop signal. (NEVER LIFT A LOAD GREATER THAN THE RATED LOAD CAPACITY.)
- 2.4 Before using the trolley or bridge travel be sure the load can clear any obstructions or personnel below. All bridge and

trolley motion should be started and stopped slowly to minimize "SWINGING". Always follow the safest load path and use a signalman when necessary.

- 2.5 When lowering loads, the lowering speeds should be gradually decreased until the load is near the place where it is to be stopped. If a rigger or signalman is used, it is very important that the operator pay particular attention to their directions. When the operator is signaled to continue lowering, it should be done at the slowest possible speed.

Training

Personnel can be qualified in three classifications. Class 1 personnel are qualified to operate all floor operated and cab operated cranes and hoists. Class 2 personnel can operate only floor operated cranes and hoists. Class 3 personnel are qualified for the Mobile Grove Crane.

1.0 Prerequisites for qualification for Class 1:

1.1 Designated personnel

- 1.2 Must have attended and passed basic crane rigging course at the Technical Training Center or have taken and passed bypass exam.

1.3 Class 1 operator's must meet the following physical requirements.

- 1.3.1 Have vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.

- 1.3.2 Be able to distinguish colors, regardless of position of colors, if color differential is required for operation.

- 1.3.3 Hearing, with or without hearing aid, must be adequate for a specific operation.

- 1.3.4 Have sufficient strength, endurance, agility, coordination and speed of reaction to meet the demands of equipment operation.

- 1.3.5 Evidence of physical defects, or emotional instability which could render the operator a hazard to himself

or others, or which in the opinion of the examiner should interfere with the operator's safe performance may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgments and tests may be required.

1.3.6 Evidence that an operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification specialized medical tests may be required to determine these conditions.

1.3.7 Operators and operator trainees should have normal depth perception, field of vision, reaction time, manual dexterity, coordination and no tendencies to dizziness or similar undesirable characteristics.

1.4 Must have completed Class 2 training.

1.5 Prior to qualification, Class 1 operators shall have completed 16 hours practical experience on a cab operated crane.

1.6 An additional 8 hours training or experience on a cab operated polar crane earns the operator a 1A classification which is required to operate McGuire's polar cranes.

2.0 Prerequisites for Qualification of Class 2

2.1 Designated personnel

2.2 Must have attended and passed Basic Crane Rigging course or take and pass bypass exam.

3.0 Prerequisites for Qualification of Class 3

3.1 Class 3 operators shall meet the following physical qualifications:

3.1.1 Have vision of at least 20/30 Snellen in one eye, and 20/50 in the other, with or without glasses.

3.1.2 Be able to distinguish red, green, and yellow, regardless

of position of colors, if color differentiation is required for operation.

- 3.1.3 Hearing, with or without hearing aid, must be adequate for the specific operation.
- 3.1.4 A history of epilepsy or of a disabling heart condition shall be sufficient reason for his disqualification.
- 3.2 Prior to qualification the Class 3 operator must have completed 8 hours training or practical experience on Class 3 equipment.
- 3.3 Class 3 operator must have attended and passed Basic Crane Rigging course or have taken and passed the bypass exam.
- 3.4 Must have completed Class 2 training.

4.0 General

- 4.1 Crane and hoist training will consist of reading and reviewing ANSI B30.2.0, 1976 Code, Sections 2.0, 2.2 and 2.3 and the Crane Operator's Manual's section on operating rules. A written test will be given and graded with the results to be entered in the Crane and Hoist training files. A score of less than 70% will require additional training and retest.
- 4.2 A practical examination will be given to Class 1, 2 and 3 operators. The exam will consist of a load transfer exercise conducted by a team of operators on the type crane he or she wishes to qualify. Each operator must successfully complete the transfer exercise with rigging and signaling provided by the other team members.

Enclosures

- 1.0 Daily Visual Inspection Record
- 2.0 Class 1, 1A, 2 and 3 Cranes

McGUIRE NUCLEAR STATION OVERHEAD AND GANTRY CRANES DAILY VISUAL INSPECTION RECORD

CRANE NAME _____

INSPECTOR _____

DATE & TIME _____

	OK	N/S		OK	N/S
1. MAIN HOIST ROPE			11. CONTROLS		
2. AUX. HOIST ROPE			12. ALL BRAKES		
3. SPOOLING			13. LIMIT SWITCHES		
4. MAIN HOOK			14. WARNING DEVICES		
5. AUX. HOOK			15. TROLLEY TRAVEL		
6. HOOK SAFETY LATCH			16. BRIDGE TRAVEL		
7. MARKINGS			17. MAIN LOAD FUNCTIONS		
8. CLEANLINESS			18. AUX. LOAD FUNCTIONS		
9. LUBRICATION			19. FIRE EXTINGUISHER		
10. LIGHTS			20. RAIL CLAMPS		

OK = OKAY

N/S = NOT SUFFICIENT

IF ITEMS 1,2,4,5,11,12, & 13 ARE FOUND TO BE NOT SUFFICIENT,
THEY MUST BE REPAIRED PRIOR TO CRANE OPERATION.

COMMENTS: _____

Enclosure 2.0

CLASS 1 & 1A CRANES (CAB OPERATED)

<u>CRANE NUMBER</u>	<u>UNIT</u>	<u>LOCATION</u>	<u>CAPACITY</u>	<u>MANUFACTURER</u>
1- Polar Crane (1A)	1&2	Reactor Bldg	175/25	Whiting
2- Heater Bay Crane	1&2	Turbine Bldg	60/15	Whiting
3- Turbine Bay Crane	1&2	Turbine Bldg	200/20	Whiting

CLASS 2 CRANES (FLOOR OPERATED)

<u>CRANE NAME</u>	<u>UNIT</u>	<u>LOCATION</u>	<u>CAPACITY</u>	<u>MANUFACTURER</u>
1-Small Turbine Side	1&2	Turbine Bldg	25 Ton	Whiting
2-Low Level Intake	—	Intake	15 Ton	Whiting
3-Main Intake	—	Main Intake	50/5 Ton	Kranco
4-Waste Shipping	—	Service Bldg	10 Ton	Yale
5-Hot Mach. Shop	—	Service Bldg	12 Ton	Shaw-Bob
6-Fuel Bldg Crane	1&2	Fuel Bldg.	125/4 Ton	Whiting
7-Diesel Gen. Rm. A	1&2	Aux. Bldg	2 Ton	Yale
8-Diesel Gen. Rm. B	1&2	Aux. Bldg	2 Ton	Yale
9-Cond. Polisher Dem. Rm. B	—	Service Bldg	3 Ton	Acco Wright
10-Cond. Polisher Dem. Rm. B	—	Service Bldg	3 Ton	Acco Wright
11-Machine Shop	—	Service Bldg	10 Ton	Whiting
12-All Remaining	1&2	—	½ ton & Up	

CLASS 3 CRANES (MOBILE CRANES)

<u>CRANE NUMBER</u>	<u>UNIT</u>	<u>LOCATION</u>	<u>CAPACITY</u>	<u>MANUFACTURER</u>
Grove Crane	1	Mech. Maint.		Grove
Unimog	1	Mech. Maint.		Case