



# *The Commonwealth of Massachusetts*

## *Metropolitan District Commission*

*20 Somerset Street, Boston 02108*

SEWERAGE DIVISION

### BACKGROUND:

In 1981 the Metropolitan District Commission (MDC) completed a study on combined sewer overflows (CSO) which determined the impacts they have had on Boston Harbor. The study concluded, at a cost of \$5 Million to the MDC, that a major portion of pollution in Boston Harbor was created by wet and dry weather discharges from 108 combined sewer overflow (CSO) outlets.

The 108 CSOs are owned and operated by the local communities which are members of the Metropolitan Sewerage District. It has never been determined who will be responsible for construction and operation of control facilities which will abate wet weather discharges. The MDC has instituted a program of implementing CSO facilities that have major impacts on recreational beaches controlled by the MDC. The MDC already has 2 operational CSO facilities and is presently completing the designs for 3 additional CSOs.

The poor unreliable condition of the Deer Island Pumping Station is being addressed in the Fast-Track Improvement Program (\$40 Million which has already been included in part in the Clean Water Act Amendment supported by Congressman Donnelly). The necessity to provide relief for Deer Island is essential in case of emergency circumstances. A partial relief route is utilized at the present time via the Calf Pasture Pumping Station and associated Moon Island Facility. Even though the majority of activations from the Calf Pasture/Moon Island Facilities are storm related from combined sewer systems emergency provisions must be provided.

Therefore, even though the Old Harbor Plan and the Calf Pasture/Moon Island plans were not conceptually joined during planning, we feel that it can be accomplished and provide a better alternative than two separate, uncoordinated concepts. This would result in a cost effective CSO treatment and abatement program.

### MOON ISLAND CALF PASTURE:

#### Present Role:

Moon Island presently serves the dual role of wet weather overflow and partial dry weather flow bypass for the MDC's Deer Island Wastewater Treatment Plant. Most discharges from Moon Island occur when wet weather flows exceed the pumping capacity at Deer Island or emergency situations occur.

Future Need:

Previous planning for combined sewer overflow (CSO) control in 1980, recognized the need for wet weather flow diversion. Thus there is good reason to construct other CSO controls, such as is proposed at Moon Island/Calf Pasture, to provide the required long term diversion capability, and other roles as will be discussed.

Key Factors Influencing Discharges at Moon Island/Calf Pasture:

1. Rainfall and runoff
2. Deer Island Pumping capacity
3. Headworks capacity (holding and pumping)
4. Sanitary wastewater flow rate
5. New developments yielding new sewerage connections

Summary of Future Conditions:

1. Discharges from Moon Island can continue to be expected until an alternative means of wet weather relief is provided for the Columbus Park Headworks or the procedure for activating the Calf Pasture Pumping Station is changed. Thus harbor water quality degradation will continue.
2. If the Moon Island/Calf Pasture Project is not approved, no hydraulic relief could be provided for 10 years. This situation could cause back ups, overflows and related water pollution control problems.

It should be noted that most of the existing pumping equipment at Calf Pasture may have a remaining service life that is significantly less than 10 years.

MOON ISLAND/CALF PASTURE - OTHER ROLES:

1. Emergency Relief for Deer Island:

This is a significant role. Each headworks Columbus Park, Ward Street and Chelsea Creek, now has partial emergency bypass capability to Calf Pasture, Cottage Farm, and the East Boston Pumping Station respectively.

There are examples in other large combined sewer systems across the country, where emergency relief facilities are provided ahead of pumping, tunnel, siphon and treatment works. The examples include: Milwaukee, Wisconsin (Jones Island and South Shore Plants); Detroit, Michigan; Seattle, Washington (West Point Plant); Louisville, Kentucky; Omaha, Nebraska; Lawrence, Springfield, and Haverhill, Massachusetts.

2. Flood Control Role.

3. CSO Control Role.

The concept is to collect CSO discharges in the surrounding area, approximately 370 million gallons per day (these discharges are known to be significant sources of harbor pollution and flow from 108 discharge points in and around Boston Harbor and Quincy Bay) and convey it to detention tanks to be constructed at Calf Pasture. The detention tanks would provide a controlled release of the overflow.

It should be noted that with the construction of this facility, all overflows would receive treatment; detention, screening and chlorination. Presently these discharges receive no treatment, they are merely discharges or bypasses. Obviously, a significant improvement in harbor water quality would be noticed with the construction of this project as with other CSO projects.