# LIGO All-Hands Meeting

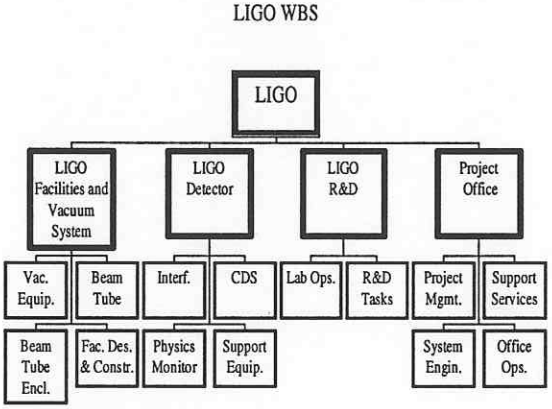
January 4, 1995
Gary Sanders



# Topics

- Status of Project
- Organization
  - » Accountability and Deliverables
  - » Staffing
- Communication and Teaming
- Roles, Responsibilities, Job Assignments and Appraisals
- How the Project Should Run
  - » Oversight and Attention
  - » Communication
  - » Controls
  - » Policies

# LIGO WBS






# Status of Project

- Vacuum Equipment
  - » RFP in hands of industry, selection by Spring
- Beam Tube
  - » Qualification Test in progress
  - » Decision on fabrication contractor by Spring
- Beam Tube Enclosure
  - » Conceptual study being reviewed
- Facility Design and Construction
  - » Hanford graded; Livingston to be cleared, pipelines crossed
  - » A/E kickoff next week, following document turnover
  - » Design packages to bidders by Summer

# Status of Project

- R&D
  - » Displacement noise progress significant in 1994
  - » Recombination task has begun
  - » CDS to be applied to prestabilized laser
  - » Safety walk-through and hazard analysis of 40m initiated
  - » Phase noise experiment being prepared at MIT
  - » ...
- Detector
  - » Detector Implementation Plan under review
  - » Coating RFP with industry
  - » Polishing RFP nearly ready for release



# Status of Project

- Project Management Plan
  - » Plan ready for signature by NSF, MIT, Caltech
  - » Plan in use now
- Cooperative Agreement
  - » Redraft in progress
- MIT/Caltech Memorandum of Understanding
  - » Attachment for MIT work scope to be completed this month
- 1995 Work Plan
  - » $74 million proposal under review by NSF

# Status of Project

- Cost Baseline
  - » Cost Book is in use as baseline
  - » SUCCESS™ Baseline to be formalized this month after a cleanup review
- Schedule Baseline
  - » OPEN PLAN™ Integrated schedule completed in February by addition of contractors
- Performance Measurement Baseline
  - » COBRA™ System implemented by April with addition of contractors

LIGO Project

# Status of Project

- Technical baseline
  - » Baseline 1 document in use, but not sufficient
  - » Configuration management plan drafted to define how to identify and control and track the design to the baseline
  - » Document Control Plan due this month
    - – Lot's of formal document turnovers underway with contractors and lot's of deliverable documents expected

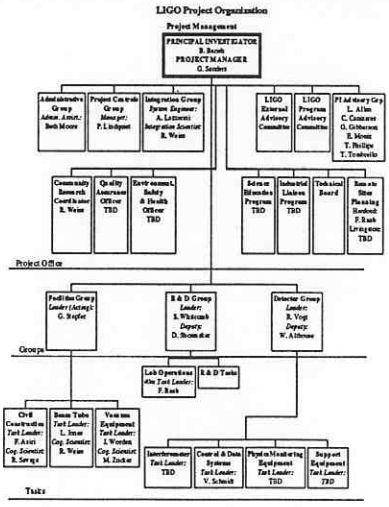
LIGO Project

# Status of Project

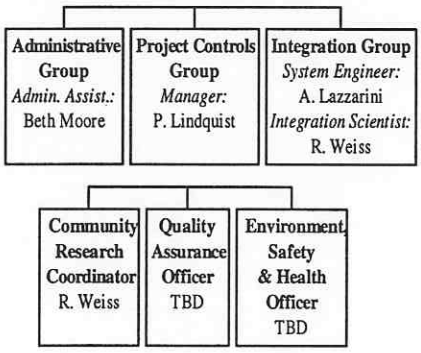
- Integration
  - » Specification document in progress
  - » Communication between Facilities and Detector groups initiated
- Modeling
  - » Evaluation of tools and consolidation of efforts in progress
- Computing
  - » Multiple platform LIGO computing environment formed
  - » Computing Committee at work (i.e. Framemaker adopted)
  - » All LIGO hardware/software infrastructure to be part of integration effort



# LIGO Organization



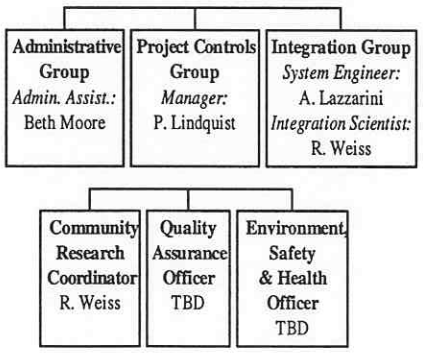
# LIGO Organization




- Integration Group
  - » Part of LIGO "Science Group"
  - » About 8 staff
  - » modeling
  - » integration
  - » computing hard/software
- Project Controls Group
  - » About 6 staff
  - » Subcontracts managed by Irena Petrac
  - » Cost/schedule/tracking
  - » Accounting/purchasing
  - » Configuration/Documentation
  - » Reporting

LIGO Project

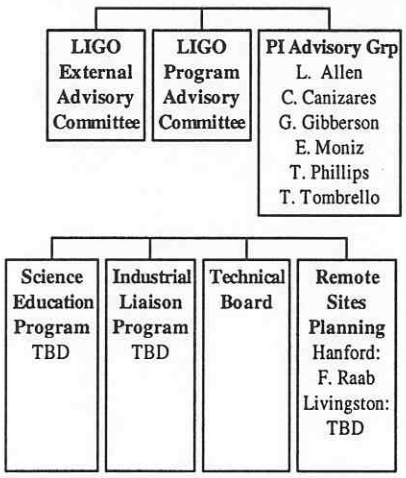
# LIGO Organization




- Administrative Group
  - » About 5 staff
  - » Geography
  - » Much higher level of activity
  - » Team approach
- Community Research
  - » Weiss, Meshkov
  - » establish LIGO collaborator program
- QA/ES&H
  - » 1-2 staff
  - » Build in at design stage

LIGO Project

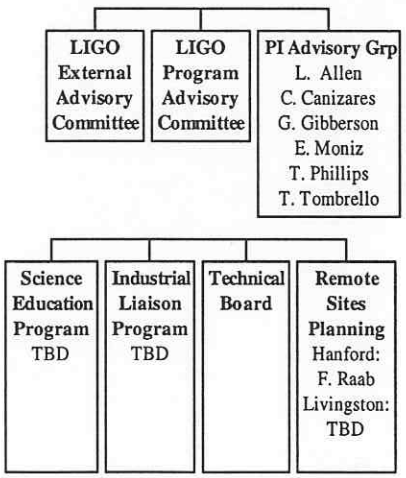
# LIGO Organization




- External Advisory Committee
  - » technical
  - » to be chartered
- Advisory Group
  - » to be chartered
- Program Advisory Committee
  - » reviews community research proposals
- Science Education/Industrial Liaison
  - » substantive outreach programs
  - » to be staffed

LIGO Project

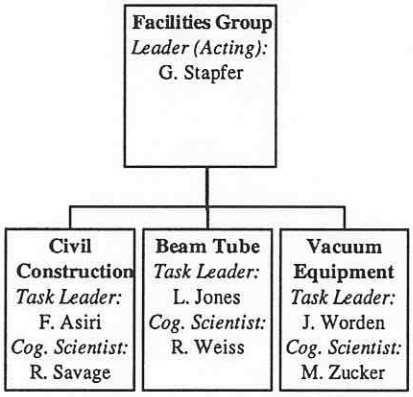
# LIGO Organization




- Technical Board
  - » Project and Group Leaders
  - » Reviews major technical decisions
  - » Serves as Change Control Board
- Remote Sites Planning
  - » Initiate operating phase and site focus
  - » Raab to lead Hanford site
  - » Site construction managers being recruited
  - » Project to evolve operating organization

LIGO Project

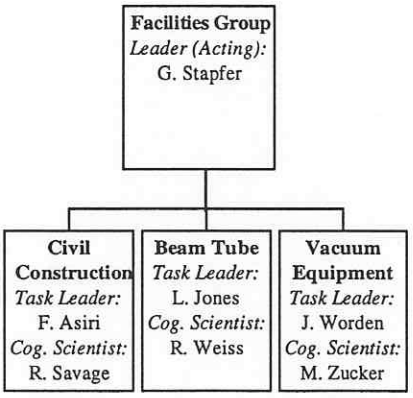
# LIGO Organization




- Facilities Group
  - » Integrating the construction of the biggest part of LIGO
- Civil Construction
  - » Architect Engineer/Construction Management contract
  - » Construction contract
  - » contact with "Science Group" through Rick Savage
  - » Technical direction of contractors through Fred Asiri only

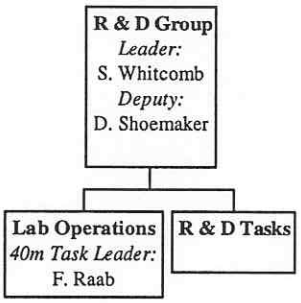


# LIGO Organization




- Beam Tube
  - » Deliver beam tube system meeting LIGO requirements
  - » Technical direction of beam tube contractors through Larry Jones only
- Vacuum Equipment
  - » Deliver vacuum equipment
  - » Technical direction of vacuum equipment contractors through John Worden only
- Vacuum engineer to be added

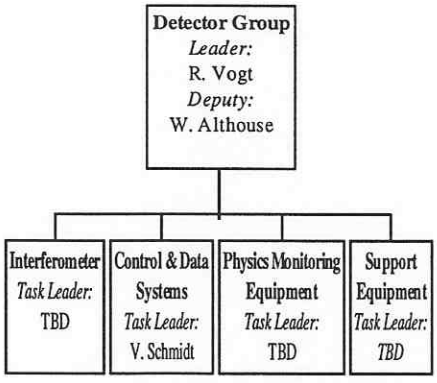
# LIGO Organization




- R&D Group
  - » Part of LIGO "Science Group"
  - » Accountable to deliver R&D results needed to underpin baseline initial detector
  - » Accountable to develop more aggressive options for initial detector
  - » Other advanced R&D as possible
- Lab Operations
  - » develop operational competence for LIGO
- Staff to grow

LIGO Project

# LIGO Organization




- Detector Group
  - » Part of the LIGO "Science Group"
  - » Accountable to deliver the final design and the fabrication of the initial detector components during the construction phase
- Staff to grow
- IFO Task Leader is major open position

LIGO Project

# LIGO Organization

- Accountability and Teaming
  - » Organization designed to express responsibility and accountability to deliver parts of the LIGO system
  - » Teaming and open, transparent communication of all information essential to integrating LIGO
  - » Accountability means full ownership of delivered result
- Lateral communication is very important
  - » Use of Weekly Report to promote this
  - » Essential part of our work process



# Roles and Responsibilities

- Job Assignments
  - » Defined in writing (SUMMARY VERSIONS TODAY)
  - » Supervisors defined
  - » Expected performance to be defined in full versions
- Performance Appraisals
  - » Individual performance to be appraised at least annually in writing using assignment and expected performance
  - » Appraisal will be main input in annual salary review
  - » LIGO managers/supervisors will learn the appraisal process in 1995 and assume implementation in 1996
  - » Managers/supervisors will be appraised with upward/downward/lateral appraisal input

# Running the Project

- Oversight and Attention
  - » Weekly Report
    - – Upward/Downward/Lateral flow of information
  - » Project Control Meeting
    - – Wednesday morning
    - – Focus on progress and difficulties
    - – Rolling schedules discussed
    - – Open discussion by all LIGO management
  - » Monthly Report
    - – Emphasis on variance from baseline plan
  - » Performance Measurement Baseline

LIGO Project

# Running the Project

- Communication
  - » Weekly Report
  - » Project Control Meeting
  - » World Wide Web and Electronic Publishing
    - – increased use internally for calendars, agendas, document access
  - » Increased emphasis on publication of results
- Controls
  - » Baseline controls (cost, schedule, technical)
  - » Purchasing status

LIGO Project

# Running the Project

- Policies
  - » Project Management Plan
  - » Configuration Management Plan
  - » Cost Estimating Plan
  - » Publication Policy
  - » Performance Appraisal
  - » Attendance
    - – Scheduled absences should be preceded by discussion with supervisor and backup plan for work in progress
  - » Conference Attendance
    - – A single conference attended passively per year is a planning target



# Promises

- We have promised NSF that we will build LIGO for a certain cost, on a certain schedule, with defined performance
- They have promised to deliver the funds on the requested schedule
- Both promises are good faith promises
- We cannot go back for more
- We are very fortunate to be in this position!