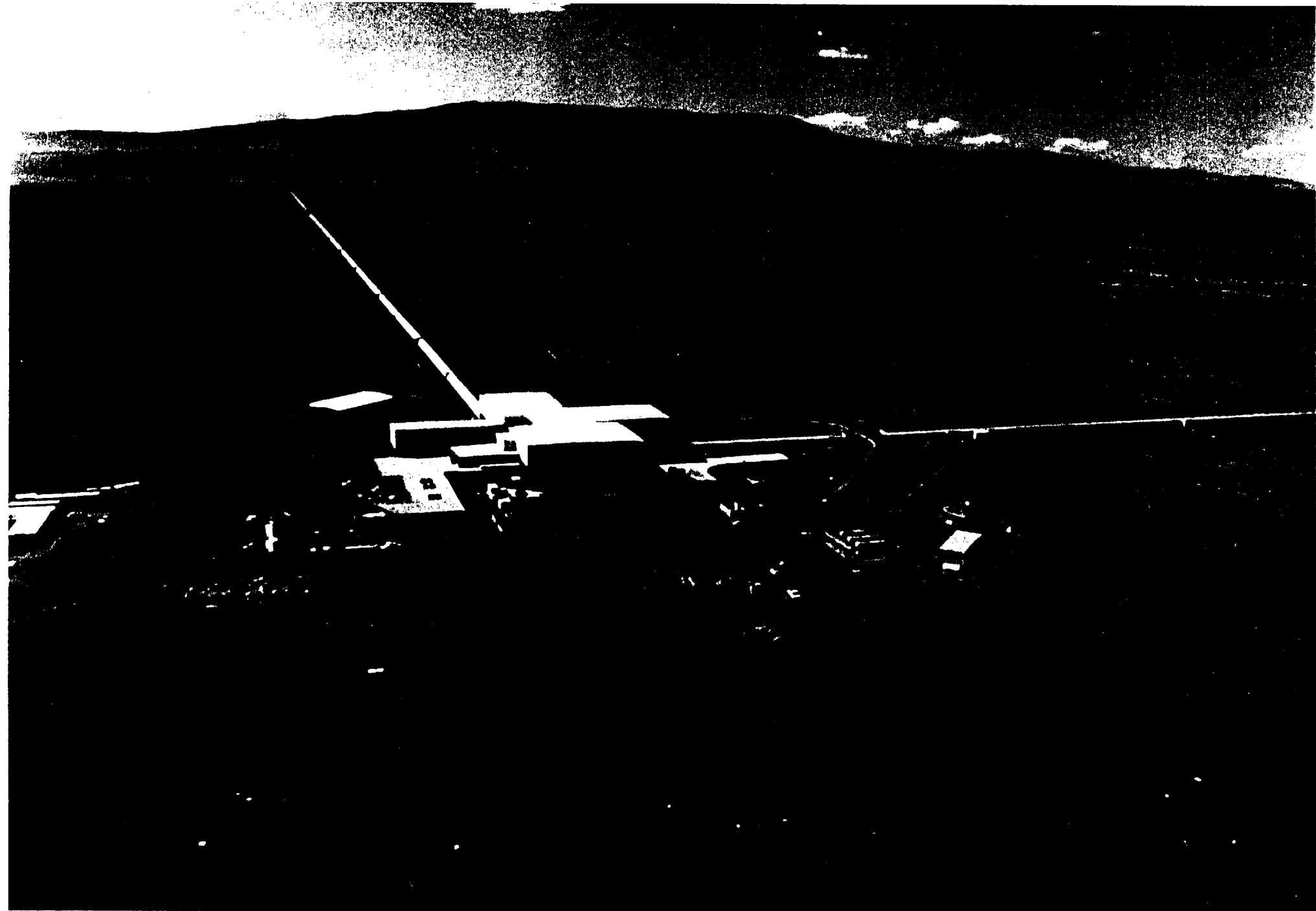

LIGO Hanford Observatory Update

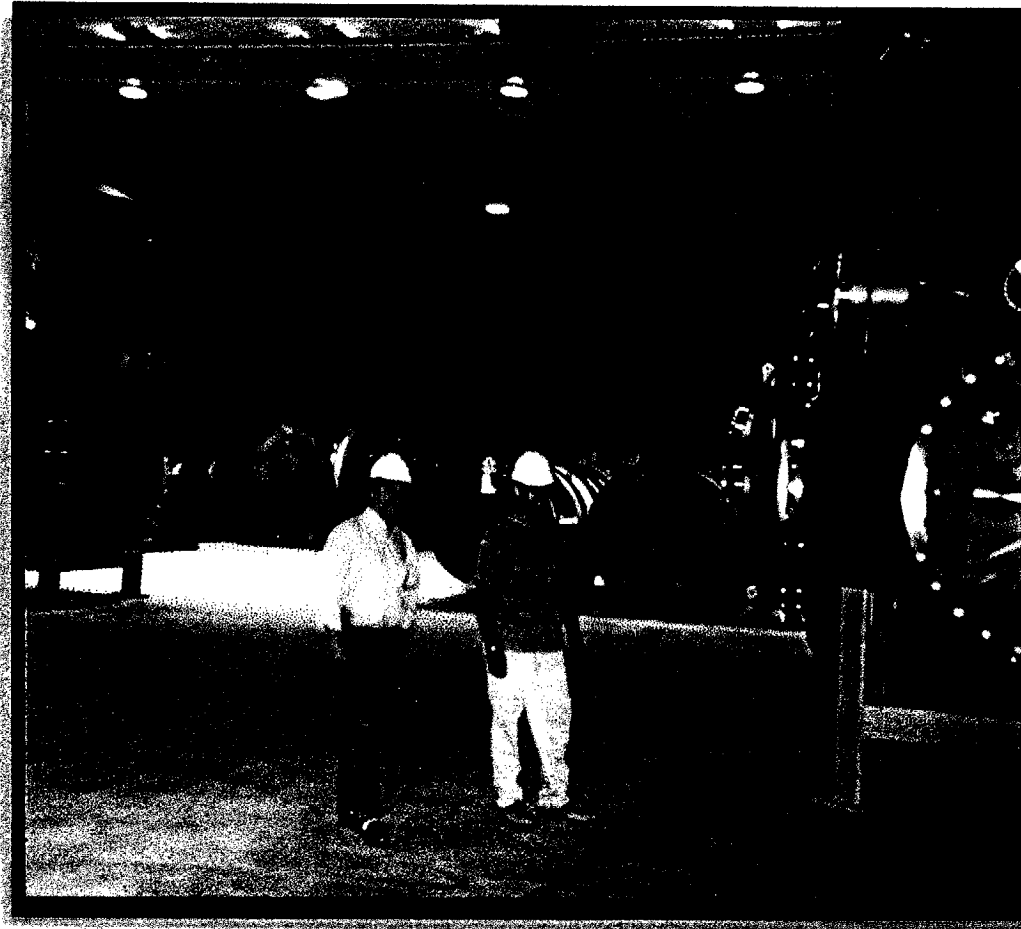
Fred Raab

April 23, 1998



G970235-02-O-V

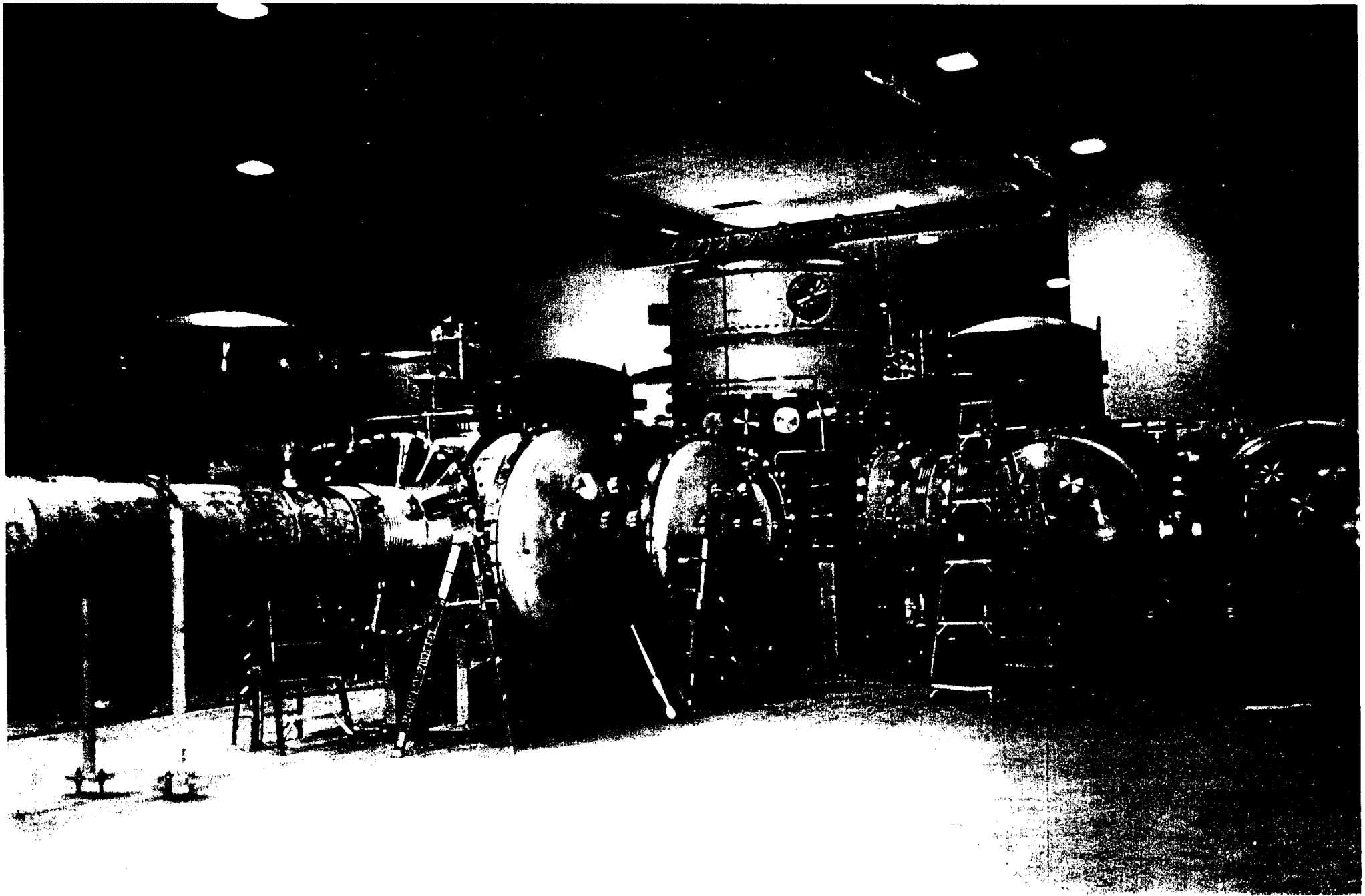
Photo of John & Kyle with LVEA Vacuum Equipment

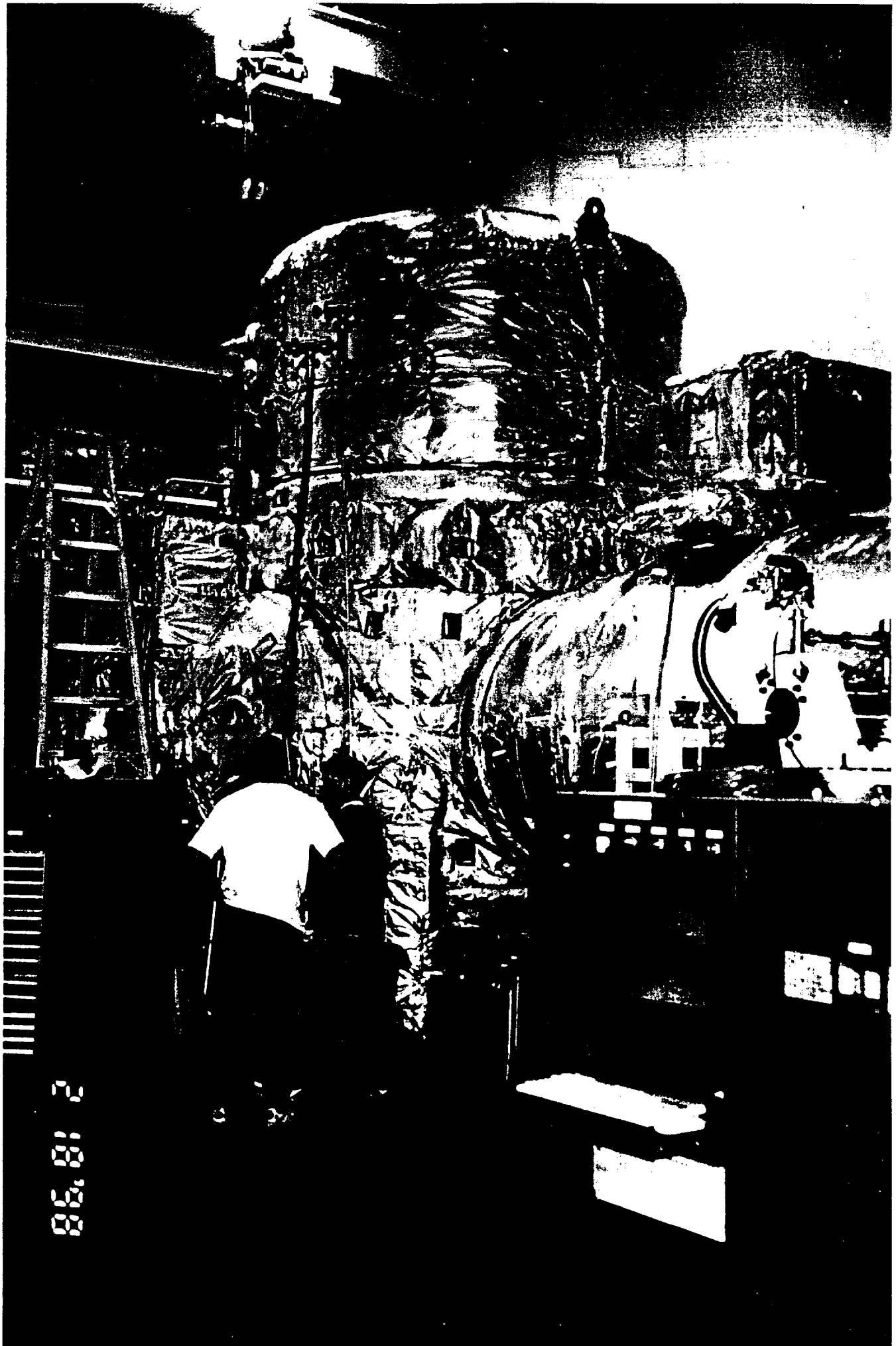


Status of LIGO Hanford Observatory

- Buildings are completed (total of 6 - corner station, x & y mid stations, x & y end stations, office/support structure)
- Beam-tube modules (4ea of 2-km weldments) have been built, evacuated and leak checked; preparing to bake out
- Vacuum chambers, gate valves, cryopumps, and other hardware are assembled; systems in 3 of 5 buildings have been evacuated, leak checked and baked out
- Installation of support laboratories and computer networks is now under way
- First-article tests of seismic isolation systems underway
- Preparing for installation of first laser-system in July







2 18 '98

Management Philosophy

Head

personnel

scientific infrastructure

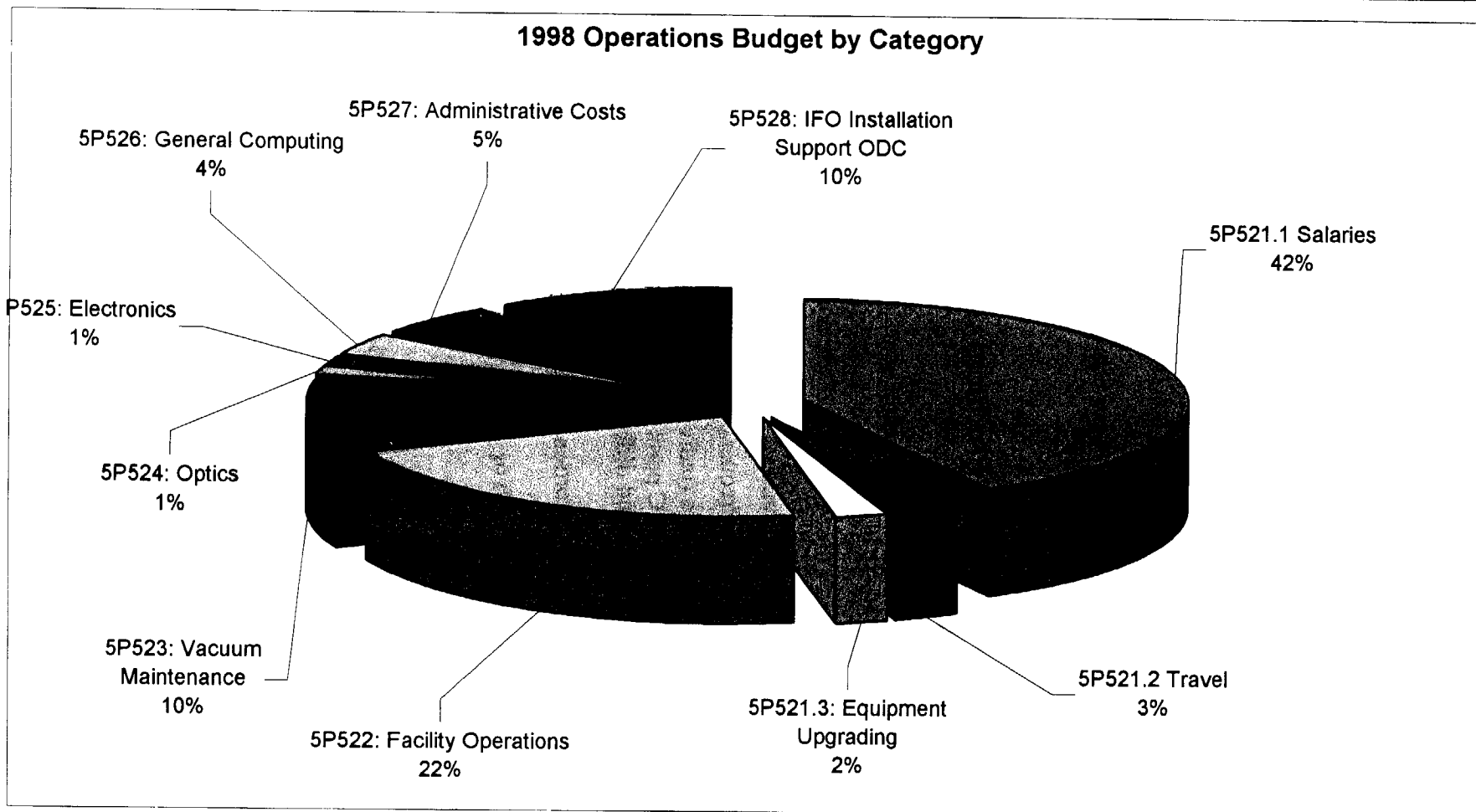
install detectors

Science

intellectual atmosphere

-
- Management structure is flat, not hierarchical
 - ››analogous to a small physics department
 - Head has overall responsibility for operational mission
 - Facility Manager provides facilities management, oversight of business administration and safety issues
 - Science and engineering staff provide leadership and liaison on technical matters within laboratory and collaboration
 - Technical support staff, together with science/engineering staff, both build and operate interferometers
 - ››no separate “technician” or “operator” classes
 - ››support staff can and will stand in for scientists on various operations tasks

LIGO Hanford Observatory (LHO) Budget Chart



LIGO Hanford Observatory (LHO) Budget Table

Operations Budget - WA Observatory (98K\$) Revised Basis of Estimate

<i>Category</i>	<i>Direct</i>	<i>Indirect</i>	<i>Total</i>	<i>%of Total</i>
5P521.1 Salaries	738.7	158.8	897.5	41.6%
5P521.2 Travel	45.0	9.7	54.7	2.5%
5P521.3: Equipment Upgrading	70.9	0	70.9	3.3%
5P522: Facility Operations	402.2	58.5	460.7	21.4%
5P523: Vacuum Maintenance	190.4	20.8	211.2	9.8%
5P524: Optics Maintenance & Supplies	24.0	5.2	29.2	1.4%
5P525: Electronics Maintenance & Supplies	24.0	5.2	29.2	1.4%
5P526: General Computing	63.3	13.6	77.0	3.6%
5P527: Administrative Costs	91.3	19.6	110.9	5.1%
5P528: IFO Installation Support ODC	200.0	14.3	214.3	9.9%
Total Budget (in 98K\$)	1849.7	305.7	2155.4	100.0%



LHO Personnel Budget

<i>Position</i>	<i>Name</i>	<i>Category</i>	<i>FTEs</i>	<i>Rate</i>	<i>Salary</i>	<i>Benefits</i>	<i>Direct</i>	<i>Indirect</i>
Head	Raab	Mgr	1.00					
Fac.Mgr.	Matherny	Mgr	0.50					
Admin	Berry	Admin	0.50					
Sr.Sci.	Savage	Sci	1.00					
Sci.	Sigg	Sci	1.00					
Sci.	open	Sci	0.25					
Sci.	open	Sci	0.25					
Sci.		Sci						
Vac.Eng.	Worden	Eng	0.33					
El. Eng.	McCarthy	Eng	1.00					
Soft.Eng.	Barker	Eng	0.50					
Vac.Spec.	Ryan	Spec	0.75					
Opt.Spec.	Cook	Spec	0.83					
El. Spec.	open	Spec	0.50					
Ops.Spec.	Lubinski	Spec						
Ops.Spec.	Guenther	Spec						
Ops.Spec.	offer out	Spec	0.50					
Ops.Spec.	Gray	Spec	0.33					
Ops.Spec.	offer out	Spec	0.33					
Ops.Spec.		Spec						
Ops.Spec.		Spec						
Ops.Spec.		Spec						
Ops.Spec.		Spec						
Subtotals			9.57		590,921	147,730	738,651	158,810
Fully Loaded Salaries								897,461



Issues + Challenges

- Planned staffing is quite lean, but cannot prove that it cannot work
 - $\frac{7 \text{ days} \times 24 \text{ hrs} \times 2 \text{ people}}{40 \text{ hrs}} = 8.4$; plan has 9 operators
 - two independent interferometers require full time monitoring
 - no full time system administrator; count on staff to be savvy and share load
 - require large & effective presence from campuses (6mo/person detached duty for installation/commissioning)
- Staff training is critical
 - traditionally ~12 LIGO personnel who could be left alone w/ interferometer
 - need ~15 by 2000 for Hanford alone
- To attract & retain top-notch people at the peak of their art must develop a strong intellectual environment, including:
 - significant participation in Advanced R&D
 - opportunities to mingle w/ intellectual peers in both this and other fields

LIGO Hanford Budget Projection

