

# Appendix B

## Pacific Northwest National Laboratory Key Facilities



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### 2400 Stevens Building

The 2400 Stevens Building occupies 93,000 square feet (sq ft) and is located at 2400 Stevens Drive in Richland. PNNL has been an occupant of this facility since 1979. It is a general research facility and contains multiple types of space including laboratories and offices. The structure consists of a two-story office section and high bay laboratories. All of the laboratories are on the first floor, and are classified as light chemistry or electronic.

Pacific Northwest National Laboratory (PNNL) occupies the entire building, which is considered a core research facility for PNNL. Work conducted at 2400 Stevens contributes to DOE's four mission areas, with most of the research activities focused on energy security.

### Applied Process Engineering Laboratory (APEL)

#### Process Science and Engineering Complex

APEL is located at 350 Hills Street in Richland. The 90,000-sq-ft building is a joint community project sponsored by the Port of Benton, the City of Richland, and DOE through PNNL. APEL serves as an incubator facility that any company, agency, or individual can use to test the commercial potential for new business concepts and innovative technologies. The facility is designed to foster interaction and collaboration between the various occupant groups. Three PNNL technical groups occupy 26,000 sq ft of laboratory and office space.

APEL offers a single-story office wing, two floors of laboratories, and a 28-foot high bay. The existing structure, built in 1975, was modified to meet APEL needs beginning in 1997 and was dedicated in March 1998. Battelle has a lease in APEL for the space PNNL occupies in the building. Most of PNNL's work at APEL is focused on environmental research, including vitrification technologies. The facility provides linked government/private facilities for research and chemical process studies.

### Chemical Sciences Laboratory (329 Building)

The 329 Building is a DOE-owned facility located in the Hanford Site's 300 Area. The two-story facility, built in 1952, has a partial basement and offers 39,000 sq ft of space. The building was substantially updated in 1994. The interior consists of standard laboratories, maintenance shop, offices, and counting rooms with one-foot-thick concrete walls and ceilings. Numerous "caves" constructed of lead bricks have been built to work with radioactive materials. The Neutron Multiplier Facility was added in 1974.

Battelle/PNNL has had sole operational responsibility for the 329 Building since 1987. Research conducted in the facility supports all four DOE mission areas, but the vast majority of the work is national security related.

## William R. Wiley Environmental Molecular Sciences Laboratory (EMSL)

EMSL, a 200,000-sq-ft DOE-owned national user facility, opened in 1997 and is the newest building at PNNL. EMSL is located at 3335 Q Avenue, in the heart of PNNL's main research campus. The two-story building houses advanced scientific instrumentation and computing resources, dry and wet laboratories, a state-of-the-art auditorium, office space, and conference rooms.

Hundreds of scientists from around the world travel to EMSL annually to conduct research in the facility's collaborative environment; others take advantage of EMSL's unique electronic capabilities to pursue projects from offsite locations via the Internet. Although research conducted at EMSL supports all of DOE's mission areas, most of the facility's work is focused in basic science disciplines.

## Life Sciences Laboratory-1 (331 Building)

The 331 Building is located in the south end of Hanford's 300 Area, adjacent to the Columbia River. The 115,000-sq-ft facility, owned by DOE, is a three-story, reinforced concrete building with laboratories on the first and third floors and a mechanical service floor between them. In addition to administrative offices that were part of the initial structure built in 1970, office space was added during modifications in 1982 and 1996.

The nature of the work activities conducted in the 331 Building is largely composed of biological and chemical studies directed at impacts on living organisms, both surface and subsurface. The building is equipped with many unique features to facilitate this research, including aquatic laboratories and accredited animal care facilities. Radioactive materials are also permitted within the building in accordance with prescribed limitations.

## Marine Sciences Laboratory (MSL)

The MSL, located in Sequim, Washington, is owned by Battelle. Primary buildings at the MSL consist of MSL1, a beach laboratory of 13,000 sq ft established in 1963, and MSL5, the "Uplands Facility" established in 1982 and containing 24,000 sq ft. MSL1 is a wood-frame facility made up of two wet laboratories with the capability to support research with seawater organisms. MSL5 is also a wood-frame building with offices, a conference room, and 10 laboratories, including one configured to handle radionuclides.

MSL was established to provide capabilities for advancing and applying state-of-the-art technology, techniques, and knowledge in the marine and aquatic sciences to address emerging needs in management of marine and estuarine systems, national security research, evaluation of the effects of human activity on such systems, and development of marine resources and biotechnology. A third building at MSL, MSLTRL1, is a Battelle-leased 3,300-sq-ft modular structure that provides critical office space at the beach facility.

## Material Science Laboratory (326 Building)

Located in Hanford's 300 Area, the DOE-owned 326 Building was constructed in 1953. The 63,000-sq-ft building features offices, wet and dry laboratories, and a concrete basement. Operational responsibility was assigned to Battelle in 1989. The primary mission of the two-story facility is analysis of metallurgical samples of post-irradiated materials (reactor components, fuel elements, and construction materials to evaluate characteristics and performance).

The metallurgical mission continues within the building, as well as the other missions: the development of radioactive materials detectors, the analysis of air filter samples routinely removed from all PNNL radioactive materials laboratories, and support for the other nonradioactive laboratories like EMSL. The building has the capability to do radiological work. Although the facility's research connects with all DOE mission areas, the majority of the work performed here is national security oriented.

## Math Building

The Math Building was built in 1967 and is owned by Battelle. Located at 906 Battelle Boulevard in the main PNNL research campus, it is a single-story building of almost 30,000 sq ft. The facility was designed and originally used as a support office that contained two large computer laboratories. These mainframe computers were used for computational processes to support research and business operations. It is a designated research laboratory because of its LAN, high-speed computing infrastructure, and connection to the EMSL at PNNL.

Currently the building is largely used to provide additional user space during peak EMSL workloads. Most of the work conducted in the Math Building supports DOE's fundamental science mission.

## Physical Sciences Laboratory (PSL)

The PSL is a two-story research laboratory located at 908 Battelle Boulevard in the main PNNL research campus. This Battelle-owned building was constructed in 1967 and contains more than 90,000 sq ft. The first floor of the building is primarily nonradiation wet chemistry physical sciences laboratories and adjacent office space. The basement area contains wet and dry laboratories with adjacent offices, six shop areas, and mechanical rooms. There is also a special room designed especially for the storage of hazardous materials. PSL research supports all four DOE mission areas.

## Radiochemical Processing Laboratory (325 Building or RPL)

The 325 Building, owned by DOE, is located in Hanford's 300 Area. It was built in 1953, contains nearly 145,000 sq ft, and has historically provided support to the environmental management cleanup mission at the Hanford Site. The 325 Building

continues to support work on other environmental and fundamental science projects, providing an important link to PNNL's molecular science capability and is uniquely equipped to manage work involving unsealed radioactive source terms.

The building is constructed on three levels and contains a mixture of laboratory and office space, as well as operating system workspaces. The building is designated as Hazard Category II nuclear building and, as such, has undergone the strictest form of Battelle's Integrated Operations Management process.

## Research Operations Building (ROB)

The ROB is located at 902 Battelle Boulevard in the main PNNL research campus. Built in 1969 and owned by Battelle, the ROB serves as the central corporate office building at PNNL. In addition to executive offices, ROB houses key PNNL functional organizations, such as Strategic Planning, Auditing, Communications, Finance, Facilities and Operations, and Human Resources. The building, nearly 70,000 sq ft in size, contains two floors.

## Research Technology Laboratory (RTL)

Located at 520 Third Street in Richland, the RTL is owned by Battelle, which bought the 56,000-sq-ft facility from Douglas Aircraft in 1982. RTL's main building, RTL 520, contains wet chemistry laboratories, dry laboratories, and adjacent administrative offices. It is one of only two facilities in the North Richland area in which radiological work can be performed. Assorted other storage, warehouse, and shop buildings make up the RTL complex.

## National Security Building (NSB)

The NSB is predominantly an office building housing a significant portion of PNNL's National Security Directorate staff. The two-story building, located at 3230 Q Avenue in the main PNNL research campus, offers 100,000 sq ft and is a Battelle-leased facility. It contains Limited Area Island workspaces, which allow for work involving classified and sensitive data. NSB also houses the Office of the Associate Manager for Science and Technology for the DOE Richland Operations Office<sup>(a)</sup>, which has oversight responsibility for PNNL.

## Information Sciences Buildings 1 and 2 (ISB1 and ISB2)

These mirror-image buildings were constructed in 1991 at the north end of the main PNNL research campus and are Battelle-leased facilities. ISB1 (50,000 sq ft) is located at 3350 Q Avenue; ISB2 at 3320 Q Avenue. Both are predominantly office buildings, providing centralized locations for PNNL's Information Technology staff. ISB1 contains the sub-network for the ARM project, which is a fundamental science project with dependency on information technology resources. ISB2 (60,000 sq ft) houses PNNL's high-speed computing infrastructure and LAN servers.

(a) As part of the EM and SC organizational restructuring, a Pacific Northwest Site Office (PNSO) was established on December 5, 2003, to provide continued oversight of PNNL, which is currently being supported by EM's Richland Operations Office through FY 2004.

## Analytical and Nuclear Research Laboratory (320 Building)

The 320 Building is located in Hanford's 300 Area. Built in 1965, the nearly 31,000-sq-ft facility is a DOE-owned building. The current missions include radiochemical environmental analyses, sample preparation, methods development, and classified programs using analytical procedures.

Special instrumentation available in the 320 Building includes various mass spectrometers, electron-beam microscopes, x-ray diffraction, and radiation counters.

In addition to limited office space, the first floor of the facility contains wet type chemistry laboratories, a portion of which are operated as clean rooms and are supplied with high-efficiency particulate air (HEPA)-filtered supply air. The remainder of the main floor laboratories are wet-type chemistry laboratories supplied with filtered exhaust air. The basement consists of primarily electronic type laboratories, a filter room, and a mechanical room.

## Biological Sciences Laboratories

The Biological Sciences Laboratories include the Microbial Cell Dynamics Laboratory Cellular Observatory, high-field mass spectroscopy, high-field nuclear magnetic resonance, and Molecular Science Computing Facility (all part of EMSL), all which support biological, proteomic, microbial, and ecological research.

## Gulfstream Aircraft and Atmospheric Radiation Monitoring Sites

Gulfstream Aircraft and Atmospheric Radiation Monitoring Sites are unique user facilities for atmospheric monitoring.

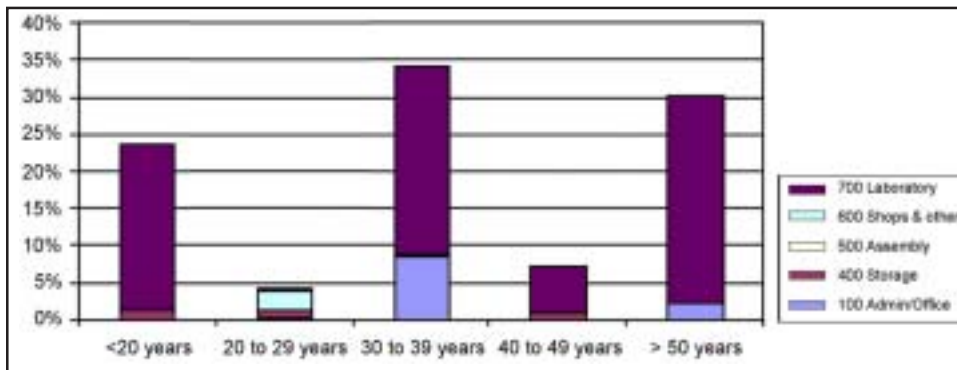
## Required Facilities and Infrastructure Tables and Charts

	DOE Office of Science Facilities			Other DOE Facilities		All DOE
	Total	Active	Non Operational Excess	Total	Active	Total All Facilities
Number of Facilities	29	23	6	13	13	42
Square Footage (SF in millions)	0.7	0.7	0.007	0.2	0.2	0.9
Deferred Maintenance (\$ in millions)	26	26		8	8	34
Replacement Plant Value (\$ in millions)	300	300		101	101	401
Deferred Maintenance Condition Index		9%		8%		8.4%

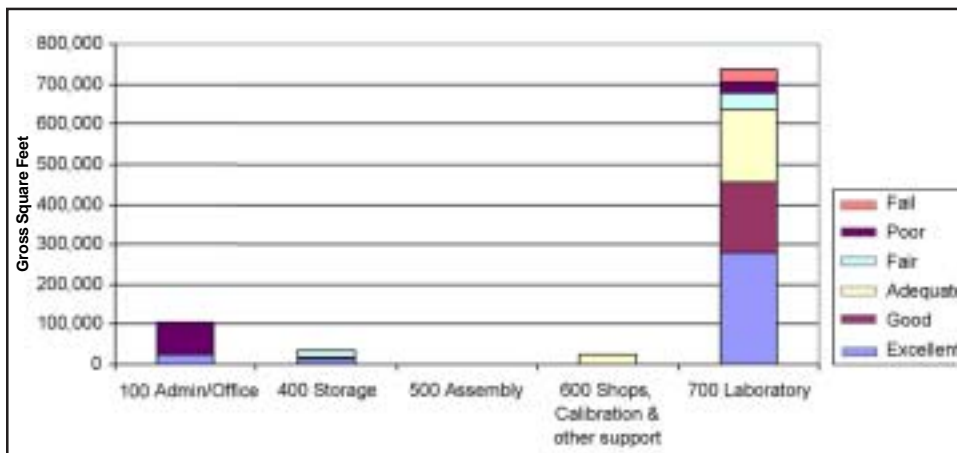
Deferred Maintenance and Replacement Plant Value by Program Secretarial Office

Active SC and EM Buildings	(\$ in millions) Deferred Maintenance	(\$ in millions) RPV	Deferred Maintenance Condition Index
100 Admin/Office	4	18	23%
400 Storage	1	9	9%
600 Shops & Other	0	5	9%
700 Laboratory	28	369	8%
Total	34	401	

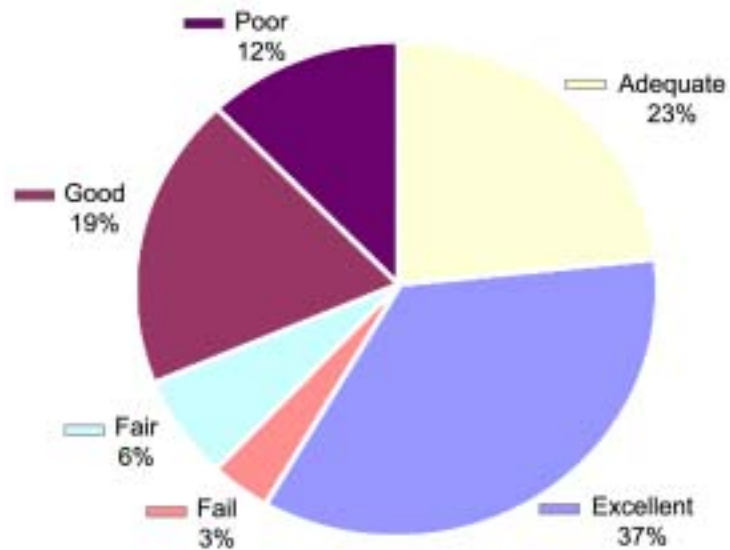
Deferred Maintenance Condition Index by Use Code



Active Facility Age Profile by Use Code



Use and Condition of Active DOE Owned Laboratory Space



Overall Condition of DOE Owned Space

Active Facility	Replacement Cost in Current Dollars
DOE Owned Total	401 Million
Battelle Owned Total	99 Million

Active Facilities Replacement Values

Major Construction Projects (\$ in Millions - BA)	TEC	2003	2004	2005	2006	2007	2008
<b>Proposed Construction</b>							
<b>Program Line Items Projects</b>							
DOE Genomics:GTL Whole Proteome Analysis Facility (BER)	175		1	5	20	60	70
WMD Proliferation Prevention (NNSA/DHS)	55			1	5	20	15
<b>GPF Line Items Projects (SLI)</b>							
Multipurpose CPBR Science Building	60			1	6	20	20
<b>TOTAL PROPOSED CONSTRUCTION</b>	<b>290</b>	<b>-</b>	<b>1</b>	<b>7</b>	<b>31</b>	<b>100</b>	<b>105</b>