DEVENS ENTERPRISE COMMISSION

DEC NO. _____
DATE: _____
FEE: _____

DEVENS REGIONAL ENTERPRISE ZONE
PERMIT APPLICATION LEVEL 2

==========

ESTIMATED COST OF CONSTRUCTION / IMPROVEMENTS $7,845,250

OWNER Veranova, LP
ADDRESS 25 Patton Rd
CITY/STATE/ZIP Devens, MA 01434
PHONE (978)-784-5000
FAX _____

_____
SIGNATURE

_____
Type or print name and title

APPLICANT Veranova, LP
ADDRESS 25 Patton Rd
CITY/STATE/ZIP Devens, MA 9434
PHONE (774)-276-7122
FAX _____

_____, Agent for Veranova
SIGNATURE

Karmela Flynn, Project Engineer
Type or print name and title

If appropriate, attach a separate sheet with the name(s), address(es), and telephone/fax numbers for the project engineer, attorney, or other "development team" personnel.

SITE / LOCATION / STREET 25 Patton Road Devens, MA

LOT SIZE / TOTAL PARCEL / ZONING DISTRICT: _____

==========

STATEMENT OF PROPOSED WORK OR ACTIVITY: Interior Renovation of Lab Space

==========

SCOPE OF WORK (pick the actions that best fit your project or application)

___ Site Plan
___ Wetlands NOI
___ Minor amendment or modification of an approved plan
___ Historic District renovations/addition/alternations
X Other (Specify) Interior Renovation of existing Space

___ Reconsideration
___ Zoning Variance

Explain work to be performed: See Attached narrative

_____

Comments from Notifying Agencies: _____

LEVEL TWO UNIFIED PERMIT –
CHECKLIST FOR DETERMINATION OF COMPLETENESS
[Devens Enterprise Commission Rules and Regulations 2024]

Name of applicant and project: Veranova, LP Bioconjugation

Date of Issuance of this DOC: January 14th, 2026

List Regulatory Components of this Unified Permit: _____

Signature of LUA or Authorized Agent: [signature]

1. Submission Requirements

☒ (a) A completed Permit application form.

☐ (b) The required Administrative, Processing, and Peer Review Fee.

☒ (c) One (1) original and three (3) copies* of the application, supporting plans (no larger than 24"x36") and materials and one (1) digital (PDF) copy of the full submission. ***Copies shall not contain any plastic binders or covers.***

☒ (d) A List of Abutters, certified if abutters are not located in Devens and a sketch plan showing the proximity of the abutters to the site.

N/A ☐ (e) Drainage calculations prepared by an Engineer complying with 974 CMR 3.04(4).

N/A ☐ (f) Request for Determination of Applicability (RFD) or a Notice of Intent (NOI) shall be submitted in accordance with Article XII of the By-Laws and 974 CMR 4.06.

N/A ☐ (g) Copies of all existing easements, covenants, restrictions and Institutional Controls applying to the lot.

N/A ☐ (h) Soil suitability tests and analysis.

N/A ☐ (i) A list of Waivers requested by the applicant, identified as Waivers of Submission and Plan Form and Contents requirements or Design Standards, with the applicable section of the Regulations clearly identified or a statement that no waivers are being requested.

N/A ☐ (j) Copy of any variance applying to the land, granted or filed concurrently with the Site Plan.

N/A ☐ (k) A narrative demonstrating compliance with the Reuse Plan and By-Laws meeting the specifications of 974 CMR 1.02.

☒ (l) If proposed by the applicant, a plan for the phasing of the construction of the required improvements, including a description, schedule, and plan showing the location of each phase.

N/A ☐ (m) A written statement of compliance with the Devens Open Space and Recreation Plan (DOSRP) and the Devens Main Post Trails report dated July 2001, to determine the effects, if any, of proposed development on resource areas, proposed trail rights-of-way, active and passive recreation areas, and other amenities included in the DOSRP.

N/A ☐ (n) If an applicant proposes parking lot construction phasing, a written statement demonstrating that the portion to be constructed is sufficient for the needs of the users of the proposed structure, comparing the number of spaces required by the By-Laws to the number the applicant believes are adequate, written certification that no building or permanent accessory structure will be placed on the area reserved for additional parking spaces, and a draft covenant that the parking will be built when the DEC determines it is required.

N/A ☐ (o) An estimate of the number of vehicle trips daily and for the morning and evening peak periods (trip generation rates shall be based on the ITE "Trip Generation Manual" most recent edition, and if applicable, data about similar developments in Massachusetts) and a description of traffic mitigation measures proposed including traffic management plans, trip reduction methods, and car/vanpooling preferential parking, etc. Refer to the Devens Transportation Management Initiative Overview for full details and parking/trip reduction guidance.

N/A ☐ (p) An erosion and sedimentation plan.

N/A ☐ (q) A landscaping maintenance and water management plan.

☒ (r) A narrative demonstrating compliance with the Industrial Performance Standards.

☒ (s) A copy of the LEED Green Building Rating System Project Checklist with the Location and Transportation, Sustainable Sites, and Water Efficiency Categories completed: https://www.usgbc.org/resources/leed-v4-building-design-and-construction-checklist .

N/A ☐ (t) Building elevations or perspectives of those portions of the building visible from public ways and residential and open space zoning districts showing the general appearance, massing, building materials, proposed colors, and relationship to abutting premises and, prior to the public hearing, the design review letter from Mass Development.

In Progress ☐ (u) Building design review materials and if located within the Viewshed District, viewshed impact analysis.

N/A ☐ (v) All Slope Resource Areas as identified in 974 CMR 3.06 Appendix B Figures (13) Figure M within the proposed plan area shall be shown on the site plan.

N/A ☐ (w) Climate change mitigation, adaptation and greenhouse gas emissions mitigation measures in accordance with the requirements of 974 CMR 4.11.

☒ (x) A completed copy of the Devens Project Checklist for Reducing Embodied Carbon (highlighted rows only) – see Appendix 2. A final copy of this competed checklist (all rows) will be required prior to issuance of a Certificate of Occupancy.

☒ (y) All project submittals subject to DEC review shall require the stamp and signature of a registered Professional Engineer in the Commonwealth of Massachusetts certifying that the project complies with the requirements of 974 CMR 3.04(4), Stormwater Management Design Standards, and 974 CMR 4.08, General: Stormwater Management

2. Surveying and Drafting Plan Requirements

In progress ☐ (a) Site plans shall be 24"x36" and at a scale of 1" = 40' unless alternate size is approved by the Director. All Site Plans must also conform to the Registry of Deeds requirements for recording.

In progress ☐ (b) The names and addresses of the record owner of the land and the applicant and the name, seal, and address of the designer, Engineer, Surveyor, and Registered Landscape Architect who made the plan, all of which shall appear in the lower right-hand corner.

N/A ☐ (c) The name of the development, scale, date of plan, and legend.

N/A ☐ (d) A locus plan indicating the general location of the site in relation to all adjacent and nearby roads, railroads, and waterways.

N/A ☐ (e) Ties from the development site to the nearest town and county bounds if within 1000 feet of the site. Bearings and curve data/distances of all lot lines, names of all adjoining property owners as they appear in the most recent tax list, and the location of easements, rights-of-way, and public and private ways.

N/A ☐ (f) Devens Lot number of the site, if available.

N/A ☐ (g) Topography for the entire site in two-foot intervals with contours and principal elevations of significant existing and proposed features related to the National Geodetic Vertical Datum (NGVD) of 1929. Existing contours shall be shown as dashed lines and, along with all other existing features, shall be screened. Proposed contours are to be shown as solid lines.

N/A ☐ (h) A space for the DEC's endorsement of the Site Plan by a majority of the members of the DEC on the front sheet and space for the chairperson or designee to sign all other sheets.

N/A ☐ (i) Lines of existing abutting Streets and Roads showing drainage and driveway locations and curb cuts.

N/A ☐ (j) Surveyed property lines showing distances and monument locations, all existing and proposed Easements, Rights-of-Way, utilities and other encumbrances, the size of the entire parcel, and the delineation and number of square feet of the land area to be disturbed.

3. Administrative Plan Requirements

N/A ☐ (a) Zoning district(s) and any boundary of zoning districts within the site, along any existing or proposed lot line, or within 50 feet.

N/A ☐ (b) The location, dimensions (including height), and general use of all existing and proposed buildings and structures to remain, including ground coverage, gross floor area, open area uses, and other facilities and improvements. Location of buildings existing on the site to be developed and on adjacent land under the same ownership within 500 feet of the lot line, indicating whether existing buildings are to be retained, modified or removed. See Appendix 1 for table template.

N/A ☐ (c) A statement noting the area of the site, the percentage of the site to be covered by impervious surfaces (such as buildings and parking areas), the area to be devoted to open space, the area to be paved for parking, driveways, loading spaces, and sidewalks, the number of proposed parking spaces and the number required by the By-Laws, the number of employees expected per shift, and the gross floor area of each proposed (commercial, industrial, office, or other) use. This data shall be tabulated to show the relationship of the required versus the proposed quantities. See Appendix 1 table template.

N/A ☐ (d) Existing and proposed front, side, and rear setback dimensions.

N/A ☐ (e) Parking lots and loading docks, showing driveway entrances and exits designed for safe ingress and egress, curb cuts, layout of parking spaces, aisles, off-street loading facilities, pedestrian walks, bicycle racks or storage facilities, handicap ramps, and representative cross-sections of service and parking areas and driveways.

N/A ☐ (f) Existing and proposed landscape features such as fences, walls, planting areas, wooded areas, and walks. Scattered trees to be preserved shall also be shown as well as all "specimen trees" (trees exceeding a minimum caliper of twelve inches) within 100 feet of existing or proposed lot lines have been identified and indicated on the plan. All existing landscape features, especially existing trees and woodland to remain are shown on ALL site plan sheets. Planting details setback, screens, and other landscaped areas including quantities, species, and spacing of plantings, shown at sufficient scale to illustrate clearly the landscaping design. Plans for walks, walls, and fences including dimensions, materials, and finishes. Landscaping Plans, Irrigation Design plans, Planting Plans, Planting Detail sheets, and Planting Specifications shall be prepared by a Landscape Architect registered in the Commonwealth of Massachusetts and shall bear the seal and signature of the Registered Landscape Architect who prepared them.

N/A ☐ (g) Planting Plans shall indicate the locations of proposed Street, Road and site lighting, even if site lighting is shown elsewhere on a separate plan and designed by separate consultant. Planting plans shall also include details and locations for walks, walls, and fences including dimensions, materials, and finishes.

N/A ☐ (h) Quantities, species, and spacing of plantings in lot setback areas, screens, parking and loading areas, and other landscaped areas shall be shown at a minimum scale of 1"=40'. Detail plans for areas such as landscape treatments adjacent to buildings, tree clusters or shrub beds, landscaped islands in parking areas, or other densely landscaped areas shall be shown at a scale of 1"=20'.

N/A ☐ (i) If an irrigation system is proposed, the Submission shall include an irrigation plan complying with 974 CMR 8.09(11) showing the complete layout and of all components, complete schematic diagrams of all systems, a functional and sequential description of all systems, and irrigation details for installation of all components, including but not limited to piping, valves, valve boxes, sprinkler heads, backflow preventers, automatic control systems, pumps, meters, associated cabinets, and all appurtenances as needed.

☒ (j) Proposed means of fire equipment access.

N/A ☐ (k) Proposed traffic circulation systems, including the volume and proposed direction of traffic flows into, out of, and within the site for both vehicles and pedestrians for an average day and for peak hours.

N/A ☐ (l) Location and dimensions (including height) of all storage facilities for equipment, material, and other like items. Location of all underground and aboveground fuel, combustible, and flammable liquid storage tanks greater than 250 gallons.

N/A ☐ (m) Location and dimensions (including height) of facilities for garbage, rubbish, recycling, and other waste collection and disposal. Location and dimensions (including height) of facilities for garbage, rubbish, recycling, composting and other waste collection and disposal. **Note: Applicants should be aware of MA waste ban materials and plan for storage/reuse accordingly.** Info. on waste ban items can be found at http://goo.gl/Qrea5

N/A ☐ (n) Garage and pedestrian entrances and exits. NO CHANGE

N/A ☐ (o) Maximum size vehicle, including trailers, expected to use the site after construction, by length, width, height, and American Association of State Highway and Transportation Officials (AASHTO) designation. NO CHANGE

N/A ☐ (p) Location and dimensions (including height) of existing and/or proposed free-standing signs and the manner of illumination. All proposed signs shall conform with Article XIII of the By-Laws and 974 CMR 6.00: Sign Control as most recently amended.

N/A ☐ (q) Existing and proposed public and private utilities, above and below grade, along with their type, size, and class

N/A ☐ (r) If the project is to be phased, a plan for the phasing of the construction of the required improvements, including a description, schedule, and plan of affected areas

N/A ☐ (s) Any additional details that may be pertinent or required by the Director during the scoping or Pre-Permitting sessions

4. Industrial Performance Standards Plan Requirements.

N/A ☐ (a) The site lighting information shall be provided on the Site Plan, including types of fixtures, heights, wattage, foot candle output directly under the light source, foot

candle output at the lot line, and a photometric layout/diagram showing direction and intensity of outdoor lighting.

N/A ☐ (b) Notes shall be provided on the Site Plan stating:
(1) Existing or proposed use will not generate electromagnetic interference to any sensitive receptor. Interference with the Harvard-Smithsonian radio telescope (1400-1720 MHz) is specifically prohibited.
(2) Proposed or existing use will not cause pronounced, multiple patterns of noise or vibration nuisance to, or interfere with, any sensitive receptor.
(3) Either "A Massachusetts Department of Environmental Protection (DEP) air quality permit application has been made" or "A DEP air quality permit is not required."

N/A ☐ (c) Locations or uses deemed by the Director to be sensitive receptors in any given area of impact may be subject to field identification of the receptor and/or special documentation or field data that helps to clarify the existence or absence of subject impacts. This documentation and data includes existing secondary data and studies, limited field testing by the applicant, or in the worst case scenario, retention of additional professional consultants to conduct further testing. Specifications for any additional information will be identified by the Director during the pre-permitting conference and shall be incorporated in the Site Plan.

N/A ☐ (d) A Copy of the completed Industrial Performance Standards Checklist shall be included: http://www.devensec.com/forms/Industrial_Performance_Standards_Checklist.pdf .

5. Wetlands/Water Resources/Flood Plain Plan Requirements.

N/A ☐ (a) All Resource Areas as defined by 974 CMR 4.06, including existing natural features (ponds, brooks, wetlands, etc.), Federal Emergency Management Agency (FEMA) flood plain elevations on and/or adjacent to the lot, Flood Insurance Rate Map (FIRM) panel number, zone designation, and base flood elevation.

In progress ☐ (b) Erosion, siltation, and dust control measures before and during construction, in accordance with 974 CMR 3.02(3)(e).

N/A ☐ (c) Location of all private wells on or within 200 feet of the boundaries of the property, if any

N/A ☐ (d) Location of all public and community water supply wells on or within 1,000 feet of the boundaries of the property, if any.

N/A ☐ (e) Proposed conservation restrictions and easements.

☒ (f) For any site plan that stores fuel, combustible and flammable liquids, as defined by 42 U.S.C. section 6901-6922i, G.L. c. 148, and 527 CMR 9.00, compliance with 974 CMR 4.09 and an addendum to the DSPCC and the location of on-site materials and equipment for spill response in accordance with its specific DSPCC are required.

6. Schedule:

Transmitted to Nitsch and other consultants
Pre-Permitting conference
Date of Determination of Completeness
Mail to Towns (30-day comment period begins)
Advertisements
Notification of abutters
Public hearing
End of 30-day comment period
Tentative vote

7. Notes/Comments

Minimal exterior work to be completed as part of this project.
Viewshed analysis and civil site survey in progress for review & verification of minimal impact.

Appendix 1:

Zoning Conformance Summary

Address:	25 Patton Rd, Devens MA 01434
Parcel ID:	009.0-0004-0005-0
Primary Zoning District:	C-4, Innovation and Tech Business
Overlay District(s):	
Use:	981

Dimensional Requirements

Criteria	Required		Existing	Proposed	Change	Zoning Compliance
Lot Area (AC)		(Min.)	19.12	19.12	0	
Total Land Area Disturbed (SF)				1500		
Total Impervious Cover (SF)		(Max.)	267,000	267,000		
Total Impervious Cover (% of Parcel)		(Max.)	32%	32%	0	
Building Impervious (SF)			80,000	80,000	0	
Building Impervious (% of Lot)			9.6%	9.6%	0	
Pervious Pavement/Pavers (SF)			0	0	0	
Total Hardscape (Impervious + Pervious)(SF)			267,000	267,000	0	
Percent of Hardscape in Pervious Pavement/Pavers (SF)			0	0	0	
Open Space (SF)			222,000	222,000	0	
Lot Frontage (FT)		(Min.)	315	315	0	
Front Yard Setback (FT)	25	(Min.)	280	280	0	
Side Yard Setback (FT)	10	(Min.)	350	350	0	
Rear Yard Setback (FT)	25	(Min.)	520	520	0	
Building Height (FT)		(Max.)	41	41	0	
FAR Coverage		(Max.)	0.55	0.55	0.0	

Parking and Traffic Summary

Criteria	Required		Existing	Proposed	Change	Zoning Compliance
Parking Spaces		(Max.)	250	250	0	
Reserve Parking Spaces (If applicable)			10	10	0	
Total Spaces		(Max.)	260	260	0	
Compact Spaces		(Max.)	0	0	0	
Electric Vehicle/Hybrid Plug-in Spaces	5%	(Min.)	0	0	0	
Electric Vehicle/Hybrid Preferred Spaces	5%	(Min.)	0	0	0	
Ride Share (Car/Vanpool) Spaces	5%	(Min.)	0	0	0	
Handicap Spaces		(Min.)	8	8	0	
ADT			225	225		
Total Employee Count			215	215		
Number of Employee Shifts			n/a	n/a	n/a	
Employee Count by Shift (###/###/###/etc)			n/a	n/a	n/a	

Building Area and Use

Criteria	Existing	Proposed	Change	FAR by Use	Zoning Compliance
Gross Floor Area:					
Total (SF)	118,680	118,680	0		
Commercial (SF)					
Industrial/Light Industrial/ Distribution (SF)					
Office (SF)					
Other (Specify) (SF)					

See drawing G-0010 for Code Summary

CONSTRUCTION CODE COMPLIANCE	
PROJECT INFORMATION	
CLIENT NAME AND ADDRESS	VERANOVA 25 PATTON ROAD DEVENS, MA 01434
CLIENT CONTANCT / PHONE	KARMELA FLYNN (744) 276-7122
PROJECT LOCATION	25 PATTON ROAD (BUILDING 2) DEVENS, MA 01434
TYPE OF PROJECT	LEVEL 2 ALTERATION TO EXISTING, MIXED-USE FACILITY (CH. 404.1, IEBC)
AREA OF WORK	**11,468 SF** *(LEVEL 01: 4,414 SF + LEVEL 02: 7,054 SF)*
TOTAL BUILDING AREA	39,712 SF *(LEVEL 01: 21,246 SF + LEVEL 02: 15,466 SF)*
PROJECT DESCRIPTION	VERANOVA IS EXPANDING ITS DEVENS, MA FACILITY TO SUPPORT CONTRACT DEVELOPMENT AND MANUFACTURING (CDMO) OF ANTIBODY DRUG CONJUGATES (ADCS). THE PROJECT WILL RENOVATE EXISTING MAINTENANCE AREAS AND UTILIZE EXISTING SHELL SPACE WITHIN THE HIGH-POTENT AND SMALL MOLECULE MANUFACTURING BUILDING TO INTEGRATE A PREFABRICATED MODULAR CLEANROOM POD (PROCURED AND DELIVERED UNDER SEPARATE CONTRACT). THE SCOPE OF THIS PROJECT INCLUDES DEMOLITION OF EXISTING AREAS, CONSTRUCTION OF ALL SUPPORT SPACES AROUND THE POD, AND UTILITY CONNECTIONS REQUIRED FOR OPERATION. THE POD ENABLES RAPID QUALIFICATION AND STARTUP OF A GRADE C BIOCONJUGATION MANUFACTURING CLEANROOM AND INCLUDES THE HANDLING OF HAZARDOUS MATERIALS. THE PROJECT ALSO INCLUDES CONSTRUCTION OF TWO UNISEX RESTROOMS, RELOCATION OF THE MAINTENANCE SHOP WITH ASSOCIATED OFFICE AND STORAGE SPACE, CRT STORAGE FOR BIOCONJUGATION COMPONENTS, AND AN ADC PROCESS RESEARCH AND DEVELOPMENT (PRD) LABORATORY.

DESIGN PROFESSIONAL			
NAME	COMPANY	DISCIPLINE	LICENSE NUMBER
ZACHARY HOLBERT	NOVEL ARCHITECTURE & ENGINEERING	ARCHITECT	954852

CODE AND REGULATORY REQUIREMENTS	
AUTHORITY HAVING JURISDICTION	COMMONWEALTH OF MASSACHUSETTS - THE BOARD OF BUILDING REGULATIONS AND STANDARDS (BBRS) ONE FEDERAL STREET, SUITE 600 BOSTON, MA 02110-2012 BBRS-MA@MASS.GOV / (617) 727-3200

APPLICABLE CODES

- COMMONWEALTH OF MASSACHUSETTS STATE BUILDING CODE, 10TH EDITION CMR 780:
  - 2021 INTERNATIONAL BUILDING CODE (IBC)
  - 2021 INTERNATIONAL RESIDENTIAL CODE (IRC)
  - 2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
  - 2021 INTERNATIONAL MECHANICAL CODE (IMC)
  - 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
  - 2021 INTERNATIONAL FIRE CODE (IFC)
- 527 CMR 12.00 MASSACHUSETTS ELECTRICAL CODE (2023 EDITION, NFPA 70 NATIONAL ELECTRICAL CODE)
- 248 CMR 10.00 UNIFORM STATE PLUMBING CODE
- 248 CMR 4.00 MASSACHUSETTS FUEL GAS CODE

REFERENCE STANDARDS

- 521 CMR: ARCHITECTURAL ACCESS BOARD (2010 ADA)
- OSHA WORKPLACE REQUIREMENTS
- 2017 ICC/ANSI 117.1
- ANSI Z358.1 EMERGENCY EYEWASHES AND SHOWER EQUIPMENT
- NFPA 400: HAZARD MATERIALS CODE

CMR 780: 2021 INTERNATIONAL BUILDING CODE - APPLICABLE SECTIONS

CHAPTER 3 - OCCUPANCY CLASSIFICATION AND USE	
SECTION 302.1	COMMENT
OCCUPANCY FOR AREA OF WORK	F-1 (FACTORY, MODERATE-HAZARD), S-1 (STORAGE, MODERATE-HAZARD), B (BUSINESS)
EXISTING OCCUPANCY FOR BUILDING	MIXED USE OCCUPANCIES (SEPARATED & NON-SEPARATED)
OCCUPANCIES	F-1 (FACTORY, MODERATE-HAZARD), S-1 (STORAGE, MODERATE-HAZARD), B (BUSINESS), H-2 (HIGH-HAZARD STORAGE)
NOTE	*EXISTING 4-HOUR RATED FIRE WALL SEPARATES EXISTING H-2 HAZORDOUS STORAGE AREA FROM REST OF OCCUPANCIES.*

CHAPTER 4 - SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY	
SECTION 414.2.2	COMMENT
PERCENTAGE OF MAXIMUM ALLOWABLE QUANTITIES PER CONTROL AREA	ALL HAZARDOUS MATERIAL NOT TO EXCEED MAXIMUM ALLOWABLE QUANTITY (MAQ) PER CONTROL AREA AS STATED IN IBC/IFC 2021. OWNER TO PROVIDE A COMPLETE TECHNICAL REPORT IDENTIFYING THE MAXIMUM EXPECTED QUANTITIES OF HAZARDOUS MATERIALS FOR THE ENTIRE BUILDING.

TABLE 414.2.2 — DESIGN AND NUMBER OF CONTROL AREAS (SEE DIAGRAM ON CODE SHEET)

STORY		% OF MAQ PER CONTROL AREA	# OF CONTROL AREAS PER STORY	FIRE-RATING OF CONTROL AREAS	PROVIDED CONTROL AREAS AND FIRE-RATINGS
ABOVE GRADE PLANE	2	75%	3	1-HOUR	CONTROL AREA 1 (1-HR, 2 STORIES) CONTROL AREA 3 (1-HR)
	1	100%	4	1-HOUR	CONTROL AREA 1 (1-HR, 2 STORIES) CONTROL AREA 2 (1-HR) *H-2 CONTROL AREA (4-HRS)

NOTE: *H-2 CONTROL AREA IS SEPARATED FROM REMAINDER OF BUILDING WITH 4-HOUR FIRE-RATED CONSTRUCTION AND IS THEREFORE PERMITTED TO CONTAIN UP TO 100% OF MAQ OF HAZARDOUS MATERIALS IN ITS DESIGNATED CONTROL AREA.

TABLE 5003.1.1(1) - IFC 2021	COMMENT
MAXIMUM ALLOWABLE QUANTITY (MAQ) OF HAZARDOUS MATERIALS WITH A PHYSICAL HAZARD PER CONTROL AREA	OWNER TO PROVIDE AHJ WITH COMPLETE HAZARDOUS MATERIAL CLASSIFICATION REPORT TO FOR ENTIRE BUILDING WITH UNDERSTANDING THAT THE HAZARDOUS MATERIAL WILL NOT EXCEED THE MAQ VALUES LISTED IN TABLE 5003.1.1(1).

TABLE 5003.1.1(1) EXCEPTIONS:

EXCEPTION D: MAQ SHALL BE INCREASED 100% IN BUILDINGS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM
*EXCEPTION E: MAQ SHALL BE INCREASED 100% WHERE STORED IN APPROVED STORAGE CABINETS, CONTAINERS, OR ROOMS***

*EXCEPTION D APPLIES SO MAQ IS INCREASED 100% IN A CLOSED SYSTEM.
**EXCEPTIONS D AND E APPLY SO MAQ IS INCREASED 200% IN A STORAGE SYSTEM.

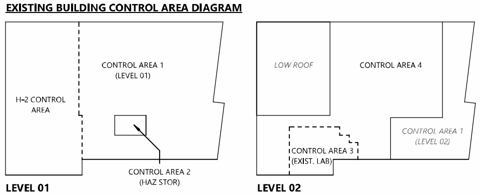
TABLE 5003.1.1(2) - IFC 2021	MAXIMUM ALLOWABLE QUANTITY OF HAZARDOUS MATERIALS PER CONTROL AREA
MAXIMUM ALLOWABLE QUANTITY (MAQ) OF HAZARDOUS MATERIALS WITH A HEALTH HAZARD PER CONTROL AREA	OWNER TO PROVIDE AHJ WITH COMPLETE HAZARDOUS MATERIAL CLASSIFICATION REPORT TO FOR ENTIRE BUILDING WITH UNDERSTANDING THAT THE HAZARDOUS MATERIAL WILL NOT EXCEED THE MAQ VALUES LISTED IN TABLE 5003.1.1(2).

TABLE 5003.1.1(2) EXCEPTIONS:

EXCEPTION D: MAQ SHALL BE INCREASED 100% IN BUILDINGS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM.
EXCEPTION E: MAQ SHALL BE INCREASED 100% WHERE STORED IN APPROVED STORAGE CABINETS, CONTAINERS, OR ROOMS.

*EXCEPTION D APPLIES SO MAQ IS INCREASED 100% IN A CLOSED SYSTEM.
**EXCEPTIONS D AND E APPLY SO MAQ IS INCREASED 200% IN A STORAGE SYSTEM.

EXISTING BUILDING CONTROL AREA DIAGRAM



CHAPTER 5 - GENERAL BUILDING HEIGHT AND AREA			
TABLE 504.3 & 504.4	COMMENT		
ALLOWABLE BUILDING HEIGHT	55 FT (TYPE II-B CONSTRUCTION, SPRINKLERED, ALL OCCUPANCIES)		
ACTUAL BUILDING HEIGHT	*34'-0" ABOVE FINISHED FLOOR*		
ALLOWABLE NUMBER OF STORIES	3 STORIES (TYPE II-B CONSTRUCTION, SPRINKLERED)		
ACTUAL NUMBEROF STORIES	*2 STORIES (H-2 OCCUPANCY IS 1 STORY)*		
TABLE 506.2	ALLOWABLE AREA IS BASED ON MOST RESTRICTIVE OCCUPANCY (IBC 508.3.2)		
ALLOWABLE BUILDING AREA	46,500 SF (TYPE II-B CONSTRUCTION, SPRINKLERED, MULTI-STORY, RESTRICTIVE OCC. B)		
NOTE	7,000 SF (H-2 OCCUPANCY SEPARATE FROM OTHER OCCUPANCIES)		
ACTUAL BUILDING AREA	*34,859 SF (F-1, S-1, B OCCUPANCIES)*		
NOTE	*4,853 SF (H-2 OCCUPANCY)* *39,712 SF (ALL OCCUPANCIES)*		
SECTION 505	COMMENT		
MEZZANINE/EQUIPMENT PLATFORMS	(NONE IN PROJECT)		
SECTION 508.2	COMMENT		
ACCESSORY OCCUPANY (NON-RATED)	(NONE) SHALL NOT OCCUPY MORE THAN 10% OF STORY IN WHICH LOCATED.		
TABLE 508.4	**OCCUPANCY**	**F-1, S-1, B**	**COMMENT**
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)		*S*	*S = SPRINKLERED*
	F-1, S-1, B	N	*N = NO SEPARATION REQ.*
NOTE	*EXISTING 4-HOUR RATED FIRE WALL SEPARATES EXISTING H-2 HAZORDOUS STORAGE AREA FROM REST OF OCCUPANCIES.*		
SECTION 509	COMMENT		
INCIDENTAL USES (RATED)	(NONE) SHALL NOT OCCUPY MORE THAN 10% OF STORY IN WHICH LOCATED.		

CHAPTER 6 - TYPE OF CONSTRUCTION			
TABLE 601	**BUILDING ELEMENT**	**TYPE II B**	**COMMENT**
FIRE-RESISTANCE RATING FOR BUILDING ELEMENTS (HOURS)	PRIMARY STRUCTURAL FRAME	0	*PER TABLE 602:
	BEARING WALLS: EXERIOR	0	FIRE SEPARATION DISTANCE: X < 30
	BEARING WALLS: INTERIOR	0	CONSTRUCTION TYPE: II-B
	NONBEARING WALLS: EXTERIOR	0*	OCCUPANCIES: F-1, S-1, B
	NONBEARING WALLS: INTERIOR	0	THEREFORE -
	FLOOR CONSTRUCTION	0	NONBEARING WALLS: EXTERIOR = *0
	ROOF CONSTRUCTION	0	
NOTE	*EXISTING NORTH WALL AT PEDESTRIAN BRIDGE HAS A 4-HR FIRE-RESISTANCE RATING. EXISTING EAST WALL AT PEDESTRIAN BRIDGE HAS A 2-HR FIRE-RESISTANCE RATING. EXISTING LEVEL 02 FLOOR SLAB HAS A 2-HR FIRE-RESISTANCE RATING. H-2 OCCUPANCY HAS 4-HR RATED WALLS AND ROOF CONSTRUCTION WHICH SEPARATES THE OCCUPANCY FROM THE REST OF THE BUILDING.*		
SECTION 602.2	COMMENT		
TYPE II-B CONSTRUCTION	NONCOMBUSTIBLE MATERIALS EXCEPT AS PERMITTED IN SECTION 603, UNPROTECTED		

CHAPTER 7 - FIRE AND SMOKE PROTECTION FEATURES			
SECTION 701.1	COMMENT		
GENERAL SCOPE	ALL MATERIALS, SYSTEMS AND ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF THIS CHAPTER.		
SECTION 706.2	COMMENT		
FIRE WALL STRUCTURAL STABILITY	ALLOW COLLAPSE OF STRUCTURE ON EITHER SIDE WITHOUT COLLAPSE OF FIRE WALL IN ACCORDANCE WITH NFPA 221.		
TABLE 706.4	**GROUP**	**FIRE-RESISTANCE RATING**	**PROVIDED**
FIRE WALL FIRE-RESISTANCEE RATINGS (HOURS)	H-2	4 HOURS	4-HOUR FIRE WALLS SEPARATE H-2 FIRE AREA FROM REST OF BUILDING
SECTION 706.5	COMMENT		
FIRE WALL HORIZONTAL CONTINUITY *EXCEPTION 3*	*FIRE WALLS SHALL BE PERMITTED TO TERMINATE AT THE INTERIOR SURFACE OF NONCOMBUSTIBLE EXTERIOR SHEATHING OR SIDING PROVIDED THAT THE BUILDING IS PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM ON EACH SIDE OF FIRE WALL.*		
SECTION 706.6	COMMENT		
FIRE WALL VERTICAL CONTINUITY *EXCEPTION 2*	*FIRE WALLS SHALL BE PERMITTED TO TERMINATE AT UNDERSIDE OF NONCOMBSTIBLE ROOF SHEATHING, DECK OR SLABS THAT ARE NOT LESS THAN A CLASS B ROOF COVERING AND HAS A FIRE RESISTANCE RATING NOT LESS THAN 1-HOUR.*		
SECTION 706.8	COMMENT		
FIRE WALL OPENINGS	EACH OPENING THROUGH A FIRE WALL SHALL BE PROTECTED & SHALL NOT EXCEED 156 SF. THE AGGREGATE WIDTH OF OPENINGS AT ANY FLOOR LEVEL SHALL NOT EXCEED 25% OF THE LENGTH OF THE WALL.		
SECTION 706.11	COMMENT		
DUCTS AND AIR TRANSFER OPENINGS IN FIRE WALLS *(EXCEPTION)*	*PENETRATIONS BY DUCTS AND AIR TRANSFER OPENINGS OF FIRE WALLS THAT ARE NOT ON A LOT LINE SHALL BE ALLOWED PROVIDED THAT THE SIZE AND AGGREGATE WIDTH OF ALL OPENINGS SHALL NOT EXCEED THE LIMITATIONS OF SECTION 706.8.*		
NOTE	*NEW WORK DOES NOT INCLUDE ANY PENETRATIONS OR ALTERATIONS TO EXISTING FIRE WALLS OR RATED ROOF ASSEMBLY FOR H-2 OCCUPANCY.*		
SECTION 707	COMMENT		
FIRE BARRIERS	FIRE BARRIERS APPLY TO SHAFTS, EXIT STAIRS, EXIT PASSAGEWAYS, HORIZONTAL EXITS, ATRIUMS, INCIDENTAL USES, CONTROL AREAS, AND SEPARATED OCCUPANCIES.		
SECTION 708.4	COMMENT		
SHAFT ENCLOSURES - FIRE RESISTANCE RATING	SHAFT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING NO LESS THAN 1 HOUR WHERE CONNECTING LESS THAN FOUR STORIES (INCLUDES BASEMENTS, BUT EXCLUDES MEZZANINES). EXISTING BUILDING SHAFT HAS 2-HOUR FIRE-RESISTANCE RATING.		
SECTION 711.2.4	COMMENT		
HORIZONTAL ASSEMBLIES - FIRE RESISTANCE RATING	THE FIRE-RESISTANCE RATING OF THE HORIZONTAL ASSEMBLY SHALL NOT BE LESS THAN REQUIRED BY THE BUILDING TYPE OF CONSTRUCTION.		
TABLE 716.1(2)	COMMENT		
FIRE DOOR AND FIRE SHUTTER FIRE PROTECTION RATINGS	1-HOUR RATED FIRE BARRIER/PARTITIONS OTHER THAN STAIR WALLS REQUIRE 45-MINUTE RATED FIRE DOORS; 1-HOUR RATED STAIR WALLS REQUIRE 1-HOUR RATED FIRE DOORS; 2-HOUR FIRE BARRIER/PARTITIONS REQUIRE 90-MINUTE RATED FIRE DOORS; 3-HOUR RATED FIRE WALLS REQUIRE 3-HOUR RATED FIRE DOORS.		
TABLE 716.1(3)	COMMENT		
FIRE WINDOW ASSEMBLY FIRE PROTECTION RATINGS	1-HOUR RATED INTERIOR WALL REQUIRES A 45-MINUTES RATED WINDOW ASSEMBLY. WINDOW ASSEMBLY FIRE RATING SHALL BE EQUAL TO THE FIRE-RESISTANCE RATING REQUIRED FOR FIRE WALLS AND FIRE BARRIERS AND MUST BE TESTED IN ACCORDANCE WITH ASTM E119 OR UL263. FIRE-RESISTANCE-RATED GLAZING ASSEMBLIES TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263 SHALL NOT BE SUBJECT TO THE LIMITATIONS OF SECTION 715.5.8.2 (WHICH LIMITS THE GLAZING AREA TO BE LESS THAN 25% OF THE AREA OF A WALL)		
TABLE 717.3.2	**TYPE OF PENETRATION**	**MIN. DAMPER RATING**	
FIRE DAMPER RATING	LESS THAN 3-HR RATED ASSEMBLY	1.5 HOURS	
	MORE THAN 3-HR RATED ASSEMBLY	3 HOURS	

CHAPTER 8 - INTERIOR FINISHES				
SECTION 803.1.1	COMMENT			
INTERIOR WALL AND CEILING FINISHES	INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE CLASSIFIED IN ACCORDANCE WITH NFPA 286 AND TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723.			
SECTION 803.1.2	FINISH CLASSIFICATIONS			
INTERIOR WALL AND CEILING FINISH MATERIALS TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723	CLASS A = FLAME SPREAD INDEX 0-25; SMOKE-DEVELOPED INDEX 0-450 CLASS B = FLAME SPREAD INDEX 26-75; SMOKE-DEVELOPED INDEX 0-450 CLASS C = FLAME SPREAD INDEX 76-200; SMOKE-DEVELOPED INDEX 0-450			
TABLE 803.13		**SPRINKLERED**		
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY	**USE GROUP**	**EXIT ENCLOSURES**	**CORRIDORS**	**ROOMS/ENCLOSED SPACES**
	F-1	C	C	C
	S-1	C	C	C
	B	B	C	C
SECTION 804	COMMENT			
INTERIOR FLOOR FINISH REQUIREMENTS	THE MINIMUM CRITICAL RADIANT FLUX SHALL BE NO LESS THAN CLASS II MATERIALS IN ACCORDANCE WITH NFPA 253: CLASS II, 0.22 WATTS/CM2 OR GREATER. INTERIOR FLOOR COVERING MATERIALS SHALL COMPLY WITH THE DOCFF-1 "PILL TEST" (CPSC 16 CFR, PART 1630).			
SECTION 805	COMMENT			
COMBUSTIBLE MATERIALS IN TYPE II CONSTRUCTION	COMBUSTIBLE MATERIALS INSTALLED OR EMBEDDED IN FLOORS OF TYPE II CONSTRUCTION SHALL COMPLY WITH THIS SECTION.			
SECTION 806.1 -806.2	COMMENT			
COMBUSTIBLE DECORATIVE MATERIALS	COMBUSTIBLE DECORATIVE MATERIALS SHALL NOT EXCEED 10% OF SPECIFIC WALL OR CEILING AREA TO WHICH IT IS ATTACHED AND SHALL COMPLY WITH NFPA 701. FIXED OR MOVEABLE WALLS AND PARTITIONS AND PANELING ARE CONSIDERED AN INTERIOR FINISH IF THEY COVER MORE THAN 10% OF WALL OR CEILING AREA AND SHALL NOT BE CONSIDERED A DECORATIVE MATERIAL. DRAPERIES AND HANGINGS TO COMPLY WITH NFPA 701.			
SECTION 806.7	COMMENT			
INTERIOR TRIM	INTERIOR TRIM SHALL HAVE A MINIMUM CLASS C FLAME SPREAD AND SMOKE-DEVELOPED INDEX IN ACCORDANCE WITH ASTM E 84 OR UL 723. COMBUSTIBLE TRIM SHALL NOT EXCEED 10 PERCENT OF WALL OR CEILING AREA, EXCLUDING HANDRAILS AND GUARDRAILS.			
SECTION 806.6	COMMENT			
INTERIOR FLOOR-WALL BASE	INTERIOR FLOOR-WALL BASE SHALL BE LESS THAN 6 INCHES TALL AND MEET CLASS II REQUIREMENTS OR REQUIREMENTS OF SECTION 806.7.			
SECTION 807	COMMENT			
INSULATION	CONCEALED INSULATING MATERIALS SHALL HAVE A FLAME SPREAD INDEX OF NO MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NO MORE THAN 450 PER SECTION 719.2.			
SECTION 808.1.1.1	COMMENT			
SUSPENDED ACOUSTICAL CEILINGS	ACOUSTICAL CEILING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C635 AND ASTM C636.			

CHAPTER 9 - FIRE PROTECTION AND LIFE SAFETY SYSTEMS			
SECTION 901.5	COMMENT		
ACCEPTANCE TESTS	FIRE PROTECTION SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CODE AND THE INTERNATIONAL FIRE CODE. WHERE REQUIRED, THE TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE BUILDING OFFICIAL. TESTS REQUIRED BY THIS CODE, THE INTERNATIONAL FIRE CODE AND THE STANDARDS LISTED IN THIS CODE SHALL BE CONDUCTED AT THE EXPENSE OF THE OWNER OR THE OWNER'S AUTHORIZED AGENT. IT SHALL BE UNLAWFUL TO OCCUPY PORTIONS OF A STRUCTURE UNTIL THE REQUIRED FIRE PROTECTION SYSTEMS WITHIN THAT PORTION OF THE STRUCTURE HAVE BEEN TESTED AND APPROVED.		
SECTION 903	COMMENT		
AUTOMATIC SPRINKLER SYSTEMS	EXISTING BUILDING CONTAINS AN AUTOMATIC SPRINKLER SYSTEM WHICH SHALL BE MODIFIED AS NECESSARY FOR NEW CONSTRUCTION IN ACCORDANCE WITH NFPA 13.		
SECTION 906	COMMENT		
PORTABLE FIRE EXTINGUISHERS	VERIFY EXISTING FIRE EXTINGUISHER LOCATIONS AND PROVIDE ADDITIONAL IF REQUIRED IN ACCORDNACE WITH NFPA 10.		
TABLE 906.3(1)	**EXTINGUISHER RATING - MODERATE HAZARD OCCUPANCY (2-A)**		
FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS	**MAX FLOOR AREA PER UNIT OF A**	**MAX FLOOR AREA FOR EXTINGUISHER**	**MAX TRAVEL DISTANCE TO EXTINGUISHER**
	1,500 SF	11,250 SF	75 FEET
SECTION 907	COMMENT		
FIRE ALARM AND DETECTION SYSTEMS	EXISTING BUILDING HAS FIRE ALARM SYSTEM IN PLACE. MODIFY EXISTING SYSTEM AS REQUIRED PER SECTION 907. RE: FIRE ALARM DRAWINGS.		
SECTION 907.2	COMMENT		
MANUAL FIRE ALARM SYSTEM	EXISTING BUILDING HAS AUTOMATIC SPRINKLER SYSTEM, THEREFORE A MANUAL FIRE ALARM BOX IS NOT REQUIRED. RE: FIRE ALARM DRAWINGS.		
SECTION 909	COMMENT		
SMOKE CONTROL SYSTEMS	EXISTING BUILDING HAS SMOKE CONTROL SYSTEM IN PLACE. MODIFY EXISTING SYSTEM AS REQUIRED PER SECTION 909. RE: FIRE ALARM DRAWINGS		
SECTION 913.2.1	COMMENT		
PROTECTION OF FIRE PUMP ROOMS	FIRE PUMPS SHALL BE LOCATED IN ROOMS THAT ARE SEPARATED FROM ALL OTHER AREAS OF BUILDING BY 2-HOUR FIRE BARRIER.		

CHAPTER 10 - MEANS OF EGRESS - EXISTING BUILDING			
SECTION 1003.2-1003.3.1	COMMENT		
CEILINGS AND HEADHEIGHT	CEILINGS SHALL BE NO LESS THAN 7'-6" A.F.F. ALONG THE MEANS OF EGRESS. POTRUDING OBJECTS MAY EXTEND BELOW MIN. CEILING HEIGHT AS LONG AS A MIN. HEADROOM HEIGHT OF 80" IS MAINTAINED.		
TABLE 1004.5	**OCCUPANT LOAD PER OCCUPANCY PER FLOOR**		
FUNCTION OF SPACE	**AREA**	**CODE-MANDATED OCCUPANCY LOAD/AREA**	**CODE-MANDATED OCCUPANCY LOAD TOTAL**
LEVEL 01			
INDUSTRIAL AREA (F-1)	3,073 SF	3,073 / 100 = 31 OCC.	63 OCCUPANTS
ACCESSORY STORAGE (F-1)	3,250 SF	3,250 / 300 = 11 OCC.	
ACCESSORY MECH (F-1)	2,826 SF	2,826 / 300 = 9 OCC.	
ACCESSORY LOCKER (F-1)	189 SF	189 / 50 = 4 OCC.	
WAREHOUSE AREA (S-1)	3,893 SF	3,893 / 500 = 8 OCC.	
ACCESSORY STORAGE (H-2)	7,972 SF	7,972 / 500 = 16 OCC.	16 OCCUPANTS
LEVEL 02			
INDUSTRIAL AREA (F-1)	3,651 SF	3,651 / 100 = 37 OCC.	91 OCCUPANTS
ACCESSORY STORAGE (F-1)	288 SF	258 / 300 = 1 OCC.	
WAREHOUSE AREA (S-1)	3,027 SF	3,027 / 500 = 6 OCC.	
BUSINESS AREA (B)	5,327 SF	5,327 / 150 = 36 OCC.	
ACCESSORY STORAGE (B)	1,408 SF	1,408 / 300 = 5 OCC.	
ACCESSORY MECH (B)	1,795 SF	1,795 / 300 = 6 OCC.	
EXISTING BUILDING TOTAL	211 OCCUPANTS	**NEW BUILDING TOTAL**	**170 OCCUPANTS**

NOTE: NO CHANGE TO THE OCCUPANCY TYPES OF THE EXISTING FACILITY. THE NEW WORK INCLUDES FINISHING EXISTING SHELL SPACE AND RENOVATING OTHER EXISTING AREAS WITHIN BUILDING. THIS CHANGES THE AREAS OF THE EXISTING OCCUPANCIES, HOWEVER NO CHANGE TO OVERALL BUILDING AREA. NO CHANGES TO THE EXISTING H-2 OCCUPANCY.

SECTION 1005	COMMENT	
MEANS OF EGRESS SIZING *SPRINKLERED	THE TOTAL WIDTH OF MEANS OF EGRESS IN INCHES SHALL NOT BE LESS THAN THE TOTAL OCCUPANT LOAD SEVED BY THE MEANS OF EGRESS MULTIPLIED BY 0.2* INCHES PER OCCUPANT FOR STAIRWAYS AND BY 0.15* INCHES PER OCCUPANT FOR OTHER EGRESS COMPONENTS.	
SECTION 1005.7	**PROJECTILE**	**MAXIMUM ENCROACHMENT**
EGRESS ENCROACHMENT	DOORS	7 INCHES MAX, DOES NOT REDUCE REQ. WIDTH BY 1/2
	HANDRAILS	4 1/2 INCHES MAXIMUM (SECTION 1014.8)
	OTHER OBJECTS	4 INCHES MAXIMUM (SECTION 1003.3)

TABLE 1006.2.1 — NUMBER OF EXITS AND MAXIMUM COMMON PATH OF TRAVEL

OCCUPANCY	REQUIRED NUMBER OF EXITS BASED ON MAXIMUM OCCUPANT LOAD	MAX. COMMON PATH OF TRAVEL W/ SPRINKLER SYSTEM
LEVEL 01: 95 OCCUPANTS > 49 => 2 EXITS REQUIRED		
INDUSTRIAL AREA (F-1)	55 OCC > 49 => 2 EXITS REQUIRED	100 FEET
WAREHOUSE AREA (S-1)	8 OCC < 29 => 1 EXIT REQUIRED	100 FEET
LEVEL 02: 91 OCCUPANTS > 49 => 2 EXITS REQUIRED		
INDUSTRIAL AREA (F-1)	38 OCC < 49 => 1 EXIT REQUIRED	100 FEET
WAREHOUSE AREA (S-1)	6 OCC < 29 => 1 EXIT REQUIRED	100 FEET
BUSINESS AREA (B)	47 OCC < 49 => 1 EXIT REQUIRED	100 FEET

NOTE: TWO EXITS SHALL BE PROVIDED FROM ANY SPACE WITH AN OCCUPANT LOAD THAT EXCEEDS VALUES IN TABLE 1015.1. THREE EXITS IF OCCUPANT LOAD IS BETWEEN 501-1000; FOUR EXITS IF OCCUPANT LOAD IS GREATER THAN 1,000 (TABLE 1006.3.3)

TABLE 1006.3.4(2) — EGRESS FROM STORIES OR OCCUPIED ROOFS WITH ONE EXIT

STORY	OCCUPANCY	MAX OL PER STORY	COMMON PATH OF TRAVEL
SECOND STORY ABOVE GRADE	F-1, B, S-1	29	75 FEET
THIRD STORY AND ABOVE	NOT PERMITTED	NOT PERMITTED	NOT PERMITTED

SECTION 1007.1.1	COMMENT
SEPARATION OF EXITS *SPRINKLERED	WHERE TWO EXITS ARE REQUIRED, THEY SHALL BE SEPARATED BY ONE-THIRD THE LENGTH OF THE OVERALL DIAGONAL DIMENSION OF THE AREA SERVED MEASURED IN A STRAIGHT LINE BETWEEN THEM.
SECTION 1009.1	COMMENT
ACCESSIBLE MEANS OF EGRESS	AT LEAST ONE STAIR (BUT NO MORE THAN TWO) SHALL BE AT LEAST 48" WIDE AND CORRIDORS SHALL BE AT LEAST 36" WIDE FOR AN ACCESSIBLE MEANS OF EGRESS IN A NON-SPRINKLERED BUILDING (ANSI/ICC A117.1)
SECTION 1010.1.1	COMMENT
SIZE OF DOORS	32" CLEAR WIDTH REQUIRED FOR DOOR OPENING, 80" MIN. DOOR HEIGHT

EXIT ACCESS DOORWAYS

OCCUPANCY	OCC. LOAD	CODE-MANDATED EXIT ACCESS DOOR WIDTH	REQ. # EXITS	REQUIRED EXIT ACCESS DOOR WIDTH PER EXIT
LEVEL 01: 63 OCCUPANTS x 0.15 = 10 INCHES /2 REQ. EXITS = 5 IN (32 IN MIN.)				
INDUSTRIAL AREA (F-1)	55 OCC.	55 x 0.15 = 9 INCHES	2	9 IN / 2 = 5 IN (32 IN MIN.)
WAREHOUSE AREA (S-1)	8 OCC.	8 x 0.15 = 2 INCHES	1	2 IN / 1 = 2 IN (32 IN MIN.)
LEVEL 02: 91 OCCUPANTS x 0.15 = 14 INCHES /2 REQ. EXITS = 7 IN (32 IN MIN.)				
INDUSTRIAL AREA (F-1)	38 OCC.	38 x 0.15 = 6 INCHES	1	6 IN / 1 = 6 IN (32 IN MIN.)
WAREHOUSE AREA (S-1)	6 OCC.	6 x 0.15 = 1 INCHES	1	1 IN / 1 = 1 IN (32 IN MIN.)
BUSINESS AREA (B)	47 OCC.	47 x 0.15 = 8 INCHES	1	8 IN / 1 = 8 IN (32 IN MIN.)

SECTION 1010.1.2.1	COMMENT
DIRECTION OF DOOR SWING	DOORS TO SWING IN THE DIRECTION OF EGRESS TRAVEL WHERE SERVING AN AREA WITH AN OCCUPANT LOAD GREATER THAN 50 OR IN H OCCUPANCIES.
SECTION 1010.2.9	COMMENT
PANIC AND FIRE EXIT HARDWARE	PANIC OR FIRE EXIT HARDWARE IS REQUIRED FOR DOORS SERVING A AND E OCCUPANCIES WITH AN OCCUPANT LOAD GREATER THAN 50, AND FOR ALL H OCCUPANCIES. ELECTRICAL ROOMS WITH EQUIPMENT RATED 1,200 AMPERES OR MORE AND OVER 6 FEET WIDE THAT CONTAIN OVERCURRENT DEVICES, SWITCHING DEVICES OR CONTROL DEVICES WITH EXIT DOORS, SHALL BE EQUIPPED WITH PANIC OR FIRE EXIT HARDWARE.
SECTION 1011	COMMENT
STAIRWAYS	36" CLEAR WIDTH REQUIRED FOR STAIRS SERVING OL LESS THAN 50. 44" CLEAR WIDTH REQUIRED FOR STAIRS SERVING OL GREATER THAN 50. 4-7 INCH RISERS, 11 INCH MINIMUM TREADS. 80 INCH MINIMUM HEADROOM. STAIRS SHALL NOT HAVE A VERTICAL RISE > 12' BETWEEN LANDINGS. LANDINGS SHALL MATCH WIDTH OF STAIR (48" DEEP IF IN LINE LANDING) *RISERS SHALL BE SOLID (STAIRS NOT REQUIRED FOR EGRESS MAY HAVE OPEN RISERS PROVIDED THE OPENING BETWEEN TREADS DOES NOT EXCEED 4")

*SOLID RISERS ARE NOT REQUIRED IN F, H, AND S OCCUPANCIES PROVIDED THAT THE STAIR IS NOT REQUIRED FOR EGRESS; SIZE OF OPENING BETWEEN TREADS IS NOT RESTRICTED (SECTION 1009.4.5, EXCEPTION 2).

EXIT ACCESS STAIRWAYS

OCCUPANCY	OCC. LOAD	CODE-MANDATED EXIT ACCESS STAIR WIDTH	REQ. # EXITS	REQUIRED EXIT ACCESS DOOR WIDTH PER EXIT
*LEVEL 02: 91 OCCUPANTS x 0.2 = 19 INCHES /2 REQ. EXITS = 10 IN (*44 IN MIN.)*				
INDUSTRIAL AREA (F-1)	38 OCC.	38 x 0.2 = 8 INCHES	1	8 IN / 1 = 8 IN (*36 IN MIN.)
WAREHOUSE AREA (S-1)	6 OCC.	6 x 0.2 = 2 INCHES	1	2 IN / 1 = 2 IN (*36 IN MIN.)
BUSINESS AREA (B)	47 OCC.	47 x 0.2 = 10 INCHES	1	10 IN / 1 = 8 IN (*36 IN MIN.)

*THE MIN. REQUIRED WIDTH BETWEEN HANDRAILS FOR EXIT ACCESS STAIR IS 48" PER SECTION 1009 (NOT REQ'D IF SPRINKLERED.

SECTION 1013	COMMENT
EXIT SIGNS	EXIT SIGNS SHALL BE LOCATED WITHIN 100 FEET OF VIEWING DISTANCE AND READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL. EXIT SIGNS ARE NOT REQUIRED FOR ANY SPACE WITH ONLY ONE REQUIRED EXIT OR AT MAIN EXTERIOR DOORS THAT ARE CLEARLY IDENTIFIABLE AS EXITS.

CHAPTER 10 - MEANS OF EGRESS - EXISTING BUILDING - CONTINUED		
SECTION 1014	COMMENT	
HANDRAILS	34"-38" TALL FOR STAIR/RAMP HANDRAILS; 30-34" TALL FOR SHIP'S LADDERS. EXTEND 12" BEYOND TOP RISER AND SLOPE THE DEPTH OF BOTTOM RISER.	
NOTE	*HANDRAILS ARE NOT REQUIRED FOR RAMPS WITH A RISE OF 6 IN OR LESS (PER 2017 ICC A117.1, SECTION 405.8)*	
SECTION 1015	COMMENT	
GUARDS	REQUIRED ALONG OPEN-SIDED WALKING SURFACES MORE THAN 30" ABOVE ADJACENT FLOOR. 42" TALL MIN. (34" TALL FOR F OCCUPANCY IF < 3 STORIES) A 21 INCH SPHERE CANNOT PASS THROUG ANY GUARD OPENINGS SERVING MECHANICAL MEZZANIES AND EQUIPMENT PLATFORMS (SECTION 1013.3)	
SECTION 1016.2	COMMENT	
EXIT ACCESS - EGRESS THROUGH INTERVENING SPACES *EXCEPTION*	EGRESS THROUGH ADJOINING ROOMS OR AREAS IS PROHIBITED, EXCEPT WHERE SUCH ADJOINING ROOMS OR AREAS ARE ACCESSORY TO ONE OR THE OTHER, ARE NOT A GROUP H-OCCUPANCY AND PROVIDE A DISCERNIBLE PATH OF EGRESS TRAVEL TO AN EXIT. *EXCEPTION: EGRESS IS NOT PROHIBITED THROUGH ADJOINING ROOMS OR AREAS IN GROUP H, S, OR F OCCUPANCIES WHEN THE ADJOINING ROOMS OR AREAS ARE THE SAME OR LESSER HAZARD OCCUPANCY.*	
TABLE 1017.2	**OCCUPANCY**	**TRAVEL DISTANCE (SPRINKLERED)**
EXIT ACCESS TRAVEL DISTANCE	F-1, S-1	250 FEET
	B	300 FEET
SECTION 1018	COMMENT	
AISLES *EXCEPTION*	THE MINIMUM CLEAR AISLE SHALL BE DETERMINED BY SECTION 1005.1/1020.3. *EXCEPTION: NONPUBLIC AISLES SERVING AN OCCUPANT LOAD < 50 AND NOT REQUIRED TO BE ACCESSIBLE NEED NOT EXCEED 28 INCHES IN WIDTH.*	
TABLE 1020.2	COMMENT	
CORRIDOR FIRE-RESISTANCE RATING *SPRINKLERED	OCCUPANT LOAD OF OCCUPANCIES AND STORIES ARE GREATER THAN 30, HOWEVER CORRIDORS ARE NOT REQUIRED TO BE RATED SINCE EXISTING BUILDING HAS AN AUTOMATIC SPRINKLER SYSTEM.	

SECTION 1020.3 — MINIMUM CORRIDOR WIDTH AND CAPACITY

FUNCTION OF SPACE	AREA	CODE-MANDATED CORRIDOR WIDTH	TABLE 1020.2 MIN. CORRIDOR WIDTH
LEVEL 01			
INDUSTRIAL AREA (F-1)	55 OCC.	55 x 0.15 = 9 INCHES	44 INCHES (OL>50)
WAREHOUSE AREA (S-1)	8 OCC.	8 x 0.15 = 2 INCHES	36 INCHES (OL<50)
LEVEL 02			
INDUSTRIAL AREA (F-1)	38 OCC.	38 x 0.15 = 6 INCHES	36 INCHES (OL<50)
WAREHOUSE AREA (S-1)	6 OCC.	6 x 0.15 = 1 INCHES	36 INCHES (OL<50)
BUSINESS AREA (B)	47 OCC.	47 x 0.15 = 8 INCHES	36 INCHES (OL<50)

NOTE: CORRIDORS SHALL BE AT LEAST 36" WIDE FOR AN ACCESSIBLE MEANS OF EGRESS (ANSI/ICC A117.1). ACCESS TO MEP SYSTEMS AND EQUIPMENT SHALL BE AT LEAST 24" WIDE (TABLE 1020.3).

SECTION 1020.5	COMMENT
DEAD END *SPRINKLERED	WHERE MORE THAN ONE EXIT IS REQUIRED, A DEAD-END CORRIDOR SHALL NOT EXCEED 50 FEET. *EXCEPTION: DEAD-END CORRIDOR IS NOT LIMITED IF LENGTH IS LESS THAN 2.5 TIMES THE LEAST WIDTH OF THE DEAD-END CORRIDOR.*
SECTION 1023.2	COMMENT
EXIT ENCLOSURES	2 HOUR RATED WHEN CONNECTING FOUR OR MORE STORIES, NO LESS THAN 1 HOUR WHEN CONNECTING LESS THAN 4 STORIES.
SECTION 1023.9	COMMENT
FLOOR IDENTIFICATION SIGNS	FOR BUILDINGS MORE THAN THREE STORIES, SIGNAGE WILL BE PROVIDED AT EACH FLOOR LANDING PER THIS SECTION.
SECTION 1028.1	COMMENT
EXIT DISCHARGE *EXCEPTION 1*	EXITS SHALL DISCHARGE DIRECTLY TO EXTERIOR OF BUILDING. *ONE EXIT STAIRWAY IS ALLOWED TO EXIT THROUGH LOBBY IF SPRINKLERED.*
SECTION 1030	COMMENT
ASSEMBLY SPACES	(NONE) ASSEMBLY SPACES SHALL COMPLY WTH THIS SECTION.

CHAPTER 11 - ACCESSIBILITY	
SECTION 1105	COMMENT
ACCESSIBLE ENTRANCES *EXCEPTIONS*	60% OF ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE. *EXCEPTION: LOADING/SERVICE ENTRANCES THAT ARE NOT ONLY ENTRANCE TO TENANT SPACE AND ENTRANCES NOT REQUIRED TO BE ACCESSIBLE.*
SECTION 1110.2	COMMENT
TOILET AND BATHING FACILITIES *EXCEPTION*	TOILET ROOMS SHALL BE ACCESSIBLE. *EXCEPTION: ONLY 50% OF SINGLE-USER TOILET ROOMS (NO LESS THAN ONE) THAT ARE CLUSTERED AT SINGLE LOCATION SHALL BE ACCESSIBLE.*
SECTION 1110.3	COMMENT
SINKS *EXCEPTION*	AT LEAST 5% OF SINKS (NO LESS THAN ONE) SHALL BE ACCESSIBLE, WHERE PROVIDED IN AN ACCESSIBLE SPACE. *EXCEPTION: MOP OR SERVICE SINKS ARE NOT REQUIRED TO BE ACCESSIBLE.*
SECTION 1110.10	COMMENT
STORAGE	AT LEAST ONE OF EACH TYPE OF BUILT-IN STORAGE, CABINETS, COAT HOOKS, SHELVES, LOCKERS, CLOSETS & DRAWERS SHALL BE ACCESSIBLE IN ACCESSIBLE SPACES.
SECTION 1110.12	COMMENT
SEATING AT TABLES, COUNTERS AND WORK SURFACES	AT LEAST 5% OF SEATING AND STANDING SPACES, BUT NOT LESS THAN ONE, SHALL BE ACCESSIBLE IN ACCESSIBLE SPACES.

CHAPTER 12 - INTERIOR ENVIRONMENT	
SECTION 1209	COMMENT
ACCESS TO UNOCCUPIED SPACES - ATTIC SPACES	PROVIDE AN OPENING NO LESS THAN 20"x30" TO ATTIC AREA HAVING A CLEAR HEIGHT GREATER THAN 30". PROVIDE 30" HEADROOM ABOVE THE ACCESS OPENING.

CHAPTER 13 - ENERGY EFFICIENCY	
SECTION 1301	COMMENT
GENERAL SCOPE	PROJECT TO COMPLY WITH 2009 INTERNATIONAL ENERGY CODE (IECC 2021).

CHAPTER 29 - PLUMBING SYSTEM - EXISTING BUILDING	
TABLE 2902.1	COMMENT
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES	NEW F-1 OCCUPANCY DOES NOT CREATE ADDITIONAL SF TO THE OVERALL BUILDING AREA OR REQUIRE ADDITIONAL NUMBER OF PLUMBING FIXTURES.

OCC. GROUP	OCC. LOAD/2	CODE-MANDATED WATER CLOSETS MALE		CODE-MANDATED WATER CLOSETS FEMALE		CODE-MANDATED LAVATORIES MALE		CODE-MANDATED LAVATORIES FEMALE		DRINKING FOUNTAINS / SERVICE SINKS	
B	24 M/F	24 OCC/25=0.96 WC		24 OCC/25=0.96 WC		24 OCC/40=0.6 WC		24 OCC/40=0.6 WC		1 DF PER 100 OCC / 1 SS	
F-1	47 M/F	47 OCC/100=0.47 WC		47 OCC/100=0.47 WC		47 OCC/100=0.47 WC		47 OCC/100=0.47 WC		1 DF PER 400 OCC / 1 SS	
S-1	7 M/F	7 OCC/100=0.07 WC		7 OCC/100=0.07 WC		7 OCC/100=0.07 WC		7 OCC/100=0.07 WC		1 DF PER 1,000 OCC / 1 SS	
H-2	8 M/F	8 OCC/100=0.08 WC		8 OCC/100=0.08 WC		8 OCC/100=0.08 WC		8 OCC/100=0.08 WC		1 DF PER 1,000 OCC / 1 SS	
		REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*
BUILDING TOTAL		1 WC, 1 UR*	***1 WC****	2 WC	***1 WC****	2 LAV	***1 LAV****	2 LAV	***1 LAV****	1 DF / 1 SS**	***0 DF / 1 SS****
		REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*	REQ.	*PROV.*
CAMPUS TOTAL		5 WC, 2 UR*	***7 WC, 12 UR****	7 WC	***19 WC***	6 LAV	***17 LAV***	6 LAV	***17 LAV***	4 DF / 3 SS**	***4 DF / 5 SS***

*PER IPC 419.2: URINALS MAY BE SUBSTITUTED FOR NO MORE THAN 67% OF WC IN A/E OCCUPANCIES, 50% IN OTHERS
**PER IPC 403.5-6: DRINKING FOUNTAINS SHALL NOT BE REQUIRED IN INDIVIDUAL OCCUPANCIES IF LOCATED WITHIN 500 FT TRAVEL DISTANCE AND NO MORE THAN ONE STORY ABOVE OR BELOW. SERVICE SINKS SHALL NOT BE REQUIRED IN INDIVIDUAL OCCUPANCIES IF LOCATED WITHIN 300 FT TRAVEL DISTANCE AND NO MORE THAN ONE STORY ABOVE OR BELOW.
***EXCEPTION FOR PLUMBING FIXTURE COUNT: PER SECTION 10.10 (15)(C)(10) OF THE 248 CMR 10.00 MASSACHUSETTS UNIFORM PLUMBING STATE PLUMBING CODE, THE MINIMUM NUMBER OF PLUMBING FIXTURES IN AN INDUSTRIAL/MANUFACTURING OCCUPANCY SHALL BE DETERMINED BY THE MAXIMUM NUMBER OF EMPLOYEES ON DUTY AT ANY ONE TIME - WHICH DECREASES THE TYPICAL CODE MANDATED NUMBER OF FIXTURES.

SECTION 2902.3.3	COMMENT
LOCATION OF TOILET FACILITIES	THE REQUIRED TOILET FACILITES SHALL BE LOCATED NOT MORE THAN ONE STORY ABOVE OR BELOW AND THE PATH OF TRAVEL SHALL NOT EXCEED 500 FEET. EXCEPTION - TRAVEL DISTANCE MAY EXCEED 500 FEET IN INDUSTRIAL OCCUPANCIES PROVIDED APPROVAL BY AUTHORITY HAVING JURISDICTION.

CHAPTER 30 - ELEVATORS AND CONVEYING SYSTEMS	
SECTION 3002.2	COMMENT
NUMBER OF ELV. CARS IN HOISTWAY	NO MORE THAN 4 ELV. CARS PERMITTED IN SINGLE HOISTWAY.
SECTION 3002.4	COMMENT
ELEVATOR - STRETCHER	ELV. SHALL ACCOMMODATE STRETCHER WHEN SERVING 4 OR MORE STORIES.
SECTION 3003.1	COMMENT
STANDBY POWER	ELEVATORS SHALL AUTOMATICALLY TRANSFER TO STANDBY POWER AND RETURN TO LEVEL OF EGRESS. AFTER ALL ELEVATORS HAVE RETURNED TO LEVEL OF EGRESS, ONLY ONE SHALL REMAIN OPERABLE ON STANDBY POWER.
SECTION 3005.4	COMMENT
MACHINE ROOMS - FIRE RATING	ELV. MACHINE ROOMS SHALL HAVE SAME RATING REQUIRED BY HOISTWAY.
SECTION 3007.2.1	COMMENT
PROHIBITED LOCATION OF SPRINKLER	PLUMBING SYSTEMS SHALL NOT BE LOCATED IN ELEVATOR MACHINE ROOMS.

2021 INTERNATIONAL EXISTING BUILDING CODE - APPLICABLE SECTIONS

CHAPTER 8 - ALTERATIONS - LEVEL 2	
SECTION 801.1	COMMENT
GENERAL SCOPE	LEVEL 2 ALTERATIONS TO ANY BUILDING OR STRUCTURE SHALL COMPLY WITH THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE FOR NEW CONSTRUCTION. ALTERATIONS SHALL BE SUCH THAT THE EXISTING BUILDING OR STRUCTURE IS NOT LESS COMPLYING WITH THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE THAN THE EXISTING BUILDING OR STRUCTURE WAS PRIOR TO THE ALTERATION.

cGMPnow

NOVEL
ARCHITECTURE & ENGINEERING

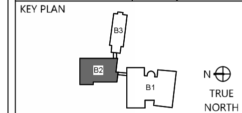
VERANOVA™

BIOCONJUGATION PROJECT
25 PATTON ROAD
DEVENS, MA 01434

N
PROJECT NORTH

REGISTERED ARCHITECT
ZACHARY HOLBERT
No. 954852
TOPEKA, KS.
COMMONWEALTH OF MASSACHUSETTS

KEY PLAN



CONFIDENTIAL

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
A	20AUG2025	30% DESIGN ISSUE
B	25SEP2025	60% DESIGN ISSUE
C	21NOV2025	90% DESIGN ISSUE
D	12DEC2025	ISSUED FOR PERMIT

CODE SHEET

PROJECT NUMBER	CG24014
ORIGINAL ISSUED DATE	12/12/2025
DESIGNED BY	ZJH
CHECKED BY	SEB

G-0010

Project Checklist for Reducing Embodied Carbon in Devens

A Worksheet for Project Teams

Embodied Carbon Reduction Strategy	Checklist for Schematic Design			Checklist Based on As-Builts		Get Started on Learning More (More to be added in v2!)
0 Process and Tools	*Already included*	*Will pursue?*		*Achieved?*		
0 **Identify Embodied Carbon as a Priority** Communicate early in the design process that reducing embodied carbon is a design and procurement priority for the whole team (e.g., structural engineer, architect, contractor, sustainability consultants, mechanical engineers, etc.)	YES	YES	At project kickoff, the project team clearly establishes embodied carbon reduction as a project priority at the outset and communicates this clearly to the entire project team so it informs early design and procurement decisions.	SELECT	*Add a brief explanation as to whether and how the project incorporated this strategy. If the team intended to pursue this strategy but was not able to, provide insight as to why.*	WGBC Bringing Embodied Carbon Upfront
0 **Set a Project Embodied Carbon Reduction Target** Align the design and construction team around an embodied carbon reduction target. Consider targets from organizations around the globe (e.g., C40, Architecture 2030, WGBC, LETI) to understand what reductions we need now to reach 2030 and 2050 goals. Use life cycle assessment tools (see Sections 0.3 and 0.4 below) to track progress towards reduction goals. See Section "4.1 Integrate Carbon Intensity Limits into Specifications" for information about setting targets for multiple building products.	NO	NO	-	SELECT		C40 Cities Clean Construction Declaration LETI Embodied Carbon Primer: Best Practice Targets Architecture 2030 2030 Challenge for Embodied Carbon
0 **Commit to Using Whole Building (Whole Project) Life Cycle Assessment** Perform a whole building life cycle assessment (WBLCA) early in design development to identify the largest opportunities ("hot spots") for emissions reductions. Use the results from WBLCA(s) done throughout design to compare design choices and identify which reduction strategies will have the largest impact. WBLCA can be used to analyze the whole building, tenant improvement projects, or portions of a building.	NO	NO	-	SELECT		Carbon Leadership Forum LCA Practice Guide AIA-CLF Embodied Carbon Toolkit for Architects (particularly Part 2: Measuring Embodied Carbon)
0 **Use Environmental Product Declarations (EPDs) During Procurement** Once a product type has been selected, ask manufacturers (via specifications and the bidding and procurement processes) to provide environmental product declarations (EPDs) of their products to help select the lowest-carbon option.	YES	YES	Requested that manufacturers send specs and EPDs on their' products to assist in picking low-carbon options.	SELECT		Embodied Carbon in Construction Calculator (EC3) AIA-CLF Embodied Carbon Toolkit for Architects (particularly Part 2: Measuring Embodied Carbon)
0 **Discuss Whether to Integrate Carbon into the Bid Process** Carbon can be evaluated alongside cost, schedule, and other criteria when selecting bids for materials to be used in construction. Alternatively, performance incentives can be provided to contractors who deliver low-embodied-carbon projects or suppliers that deliver materials below a certain carbon threshold. These strategies all require discussion early in the process between the owner, design team, and contractor.	YES	YES	This was discussed internally between the owner, design team, and contractor.	SELECT		Steps to Develop a Low Carbon Procurement Policy (Incentives) OwnersCAN Embodied Carbon Action Plan Microsoft Case Study
1 Build Less, Reuse More	*Already included*	*Will pursue?*		*Achieved?*		**Learn More**
1 **Reuse/Retrofit Existing Buildings** Re-use or retrofit existing buildings instead of constructing a completely new building. Reductions in new square footage or new structure will translate directly to reductions in embodied carbon.	YES	YES	The project involves retrofitting an existing building as opposed to building a new facility.	SELECT	*Add a brief explanation as to whether and how the project incorporated this strategy. If the team intended to pursue this strategy but was not able to, provide insight as to why.*	
1 **Design for Disassembly and Reuse** Maximize the reuse potential of building components by detailing connections that can be easily disassembled and reused in future buildings. Avoid lamination and adhesion in assemblies (such as composite decks or hybrid mass timber/concrete assemblies) that prevent deconstruction and reuse. Avoid materials that are difficult to recycle, and avoid coatings that could prevent recycling.	YES	YES	Provided cleanroom POD that can be disassembled and reused in future if needed. Also provided option to owner to bid out cleanroom airlocks to a modular cleanroom vendor that would be able to provide pre-manufactured cleanroom wall panels that could easily be installed, removed, and relocated for future use as required.	SELECT		Zero Net Carbon Collaboration Resources AIA's Retrofitting Existing Buildings Guide
1 **Select Salvaged or Refurbished Materials** Reuse materials, such as those onsite or from other city properties, or purchase salvaged materials rather than new ones. Consider refurbishing items, such as furniture, instead of throwing them out and re-purchasing them.	YES	YES	Project is utilizing an existing cleanroom POD to be relocated within existing building as opposed to building all new construction. Existing plumbing fixtures, equipment, furniture, and doors designated to be removed will be salvaged and reused per owner's direction.	SELECT		Where feasible, take advantage of past EC 'investments' by making use of previously-used building materials rather than newly-produced materials. (AIA, 2019; Carbon Leadership Forum Webinar Series, 2018)
2 Design Lighter and Smarter	*Already included*	*Will pursue?*		*Achieved?*		**Learn More**
2 **Reduce [New] Floor Area** Identify opportunities for design and programmatic flexibility to minimize the amount of new floor area. Similar to material and building reuse, reducing new floor area translates to material savings (as well as cost savings) and reduces embodied carbon.	YES	YES	The project involves retrofitting an existing building as opposed to building a new facility.	SELECT	*Add a brief explanation as to whether and how the project incorporated this strategy. If the team intended to pursue this strategy but was not able to, provide insight as to why.*	

2	**Reduce Below-Grade Construction** Reduce or eliminate below-grade parking or interior spaces. Subgrade construction requires a large amount of concrete (a carbon-intensive material) and releases soil carbon during excavation.	NO	NO	Not applicable.	SELECT		Canadian Architect, 2021
2	**Select Lighter Materials and Assemblies** When possible, selecting lighter materials and assemblies for the structure and envelope systems can reduce the load on structural components (and therefore their size and embodied carbon). Consider lightening slabs through use of void systems, or using lighter structural materials like timber. In some cases, lighter structural loads may be decreased enough to allow for the preservation of an existing structure, unlocking additional carbon savings from building reuse.	YES	YES	New materials and assemblies will not require additional resizing of existing structural elements.	SELECT		
2	**Design Structure for Material Efficiency** Using less of a material to do the same work results in large carbon and cost savings. Structural design choices -- such as bay sizing, column and beam spacing, and member cross sections, as well as avoiding structural gymnastics (like cantilevers and transfer beams) -- can all reduce carbon.	YES	YES	New materials and assemblies will not affect existing structural system.	SELECT		SE2050 Structural Engineering Commitment case studies Additional strategies may include using braced frames instead of moment-resisting frames, using lighter shapes like joists/trusses, lightening concrete slabs by using void systems, and "right-sizing" each steel member.
3	**Choose Finishes Carefully** The total impact of interior finishes adds up significantly over time. Consider the expected turnover of the space you are designing and whether that matches up with the selected products. Architects and interior designers can collaborate to use salvaged materials and minimize the need for additional finishes where not required for functional performance, particularly in spaces with high occupant turnover and frequent interior fit-outs. These considerations should be included alongside toxicity, cost, and performance requirements when choosing finishes.	YES	YES	Finish materials will match existing finishes, incorporate salvaged material where possible, and place existing systems back in place after being temporarily removed.	SELECT		Metropolis Magazine's Climate Toolkit for Interior Design CLF LCA of MEP Systems and Tenant Improvement
3	**Minimize Construction and Demolition Waste (Waste Prevention)** Before construction, design in modules to minimize waste. During construction, adopt sorting and waste diversion practices on-site to minimize construction waste.	YES	YES	Waste shall be minimized through reuse of existing cleanroom POD and fitting out of existing shell scpaces as opposed to demolishing large areas of the existing building.	SELECT		AIA 10 Steps to Reducing Embodied Carbon

	Use Low-Carbon Alternatives: Substitute Low-Carbon Materials/Systems for High-Carbon Ones	*Already included*	*Will pursue?*		*Achieved?*		**Learn More**
3	**Consider Total Carbon when Selecting Envelope Systems** Use WBLCA (alongside energy modeling) to help assess the trade-offs in embodied and operational carbon for different envelope options. Typically, lightweight envelope systems are likely to have the lowest embodied carbon (in addition to reducing the embodied carbon of the supporting structure).	NO	NO	*Add a brief explanation here about how the project may incorporate this strategy into the project and any special considerations necessary*	SELECT	*Add a brief explanation as to whether and how the project incorporated this strategy. If the team intended to pursue this strategy but was not able to, provide insight as to why.*	
3	**Select Carbon-Storing Structural, Envelope, and Finish Materials** Bio-based materials typically have lower upfront carbon than non-bio-based products, with the added potential to store carbon over the life of the building. The availability of bio-based alternatives to conventional materials -- such as mass timber, laminated bamboo, wood fiberboard, straw, clay-straw, hempcrete, cork, wool, linoleum, cork, and more -- is increasing. Bio-based materials are also often significantly lighter than their alternatives, reducing the load and size of supporting structural members (and therefore reducing carbon).	NO	NO		SELECT		Builders for Climate Action's Zero Carbon Resources Buildings as Global Carbon Sinks WoodWorks Carbon Smart Materials Palette
3	**Select Lower-Carbon Refrigerants** Refrigerant leakage is one of the biggest contributors to climate change within the building industry. Architects can collaborate with engineers to use passive design strategies, select systems that use low-carbon refrigerants, and encourage clients to adopt building management practices to mitigate refrigerant leakage and ensure 100% refrigerant recovery.	YES	YES	The refrigerant systems for all new equipment were selected to be low-carbon refrigerants less than 750 GWP. The final rooftop units have not been ordered yet, but the two manufacturer's being considered are Daikin (R-32) and Trane (R-454B). Both units have been specified to be provided with manufacturer's controls which include refrigerant monitoring sensor packages which include refrigerant temperature and pressure monitoring and alarms.	SELECT		Integral Group's Refrigerants & Environmental Impacts: A Best Practice Guide
3	**Eliminate HFC-Containing Insulation and Select Lower-Carbon Insulation** Selecting an insulation that balances operational and embodied carbon trade-offs is key to achieving a total carbon balance for building. Generally, plastic- and chemical-based insulation will have a much higher embodied carbon than bio-based materials. In particular, avoid specifying HFC-containing rigid polyurethane spray foam, sealants, and XPS products that are being banned or significantly restricted in Canada and a growing number of states in the US (including California).	YES	YES	The insulation specifications specify the use of products without HFC.	SELECT		HFC bans by region and end-use product (including foams and refrigerants) US EPA Substitutes in Foam Blowing Agents Building Enclosure: "New Climate Regulations Spell Changes for Building Products" (2020)

	Procure Low(er)-Carbon Products: Specify and Source the Lowest Carbon Product Available	*Already included*	*Will pursue?*		*Achieved?*		**Learn More**
4	**Integrate Carbon Intensity Limits into Specifications** At a minimum, architects can use template language to incorporate requests for EPDs into their specifications as a part of bid proposal submittals. For products where EPDs are more widely available, architects can integrate carbon intensity limits into performance requirements, requiring an EPD to document compliance with a global warming potential limit (e.g. XX kg CO2e / unit of material).	YES	YES	Some specifications will request EDPs to be submitted for product submittals.	SELECT	*Add a brief explanation as to whether and how the project incorporated this strategy. If the team intended to pursue this strategy but was not able to, provide insight as to why.*	Carbon Leadership Forum Material Baselines ownersCAN Embodied Carbon Action Plan ownersCAN ECAP Specification Matrix and Language

4	**Use Performance-Based Concrete Specifications** Use performance-based (rather than prescriptive) requirements for concrete design that is appropriate for each component/mix. If CMU is used in construction, use a specified compressive stress method instead of a prescriptive method to proportion grout mix.	NO	NO	Concrete modifications shall be infilled with concrete mixtures that will match existing mixtures. No CMU in scope of work.	SELECT		
4	**Optimize Concrete Mix Design** Work with structural engineers to optimize concrete design with strategies such as reducing cement volume, allowing for longer cure times by specifying strength at 56 days instead of 28 days to allow more time for strength gain, looking at carbon implications of higher-quality aggregate, or reducing strength requirements where feasible/appropriate. Minimizing portland cement and/or replacing portland cement with other materials -- such as Type 1L Cement or supplemental cementitious materials (fly ash, slag, etc.) -- also reduces embodied carbon.	NO	NO	Concrete modifications shall be infilled with concrete mixtures that will match existing mixtures. No CMU in scope of work.	SELECT		RMI Concrete Solutions GuideNRMCA Guide to Specifying S
4	**Source from Lower-Carbon Facilities and Products** Manufacturers vary in the sustainability of their facilities and sourcing practices. Two materials with the same performance may differ in their embodied carbon as a result of energy source (fuel type/electricity grid mix), plant energy efficiency, product design and material efficiency, or lower-carbon ingredient sourcing (through using recycled, bio-based, or local ingredients). Due to how products are specificed and selected, EPDs are typically the best or only option for a project team to differentiate the carbon intensity of products from different facilities and manufacturers.	YES	YES	Contractor is aware of embodied-carbon requirements and will source lower-carbon products and materials from lower-carbon facilities when possible.	SELECT		Embodied Carbon in Construction Calculator (EC3) Energy Star Industrial Plant Efficiency Program Carbon Smart Materials Palette
5	**Source Climate-Smart Wood** The full life cycle embodied carbon impacts and benefits of wood are difficult to quantify (and therefore difficult to optimize) because of complex supply chains and differing methods for calculating carbon benefits. Current strategies for optimizing wood sourcing include using reclaimed/salvaged wood, asking for chain-of-custody certificates or other supply chain transparency information, asking for sustainable forest management certifications (such as FSC or SFI), and specifying wood that is locally-harvested or harvested from working (not primary) forests. *(Note: An agreed-upon definition for climate-smart wood that can be used in procurement is still in development and should be included once available).*	YES	YES	Contractor is aware of embodied-carbon requirements and will source lower-carbon products and materials from lower-carbon facilities when possible.	SELECT		Carbon Leadership Forum's Wood Carbon Seminars Climate-Smart Forestry.org
5	**Integrate Carbon into the Bid Process** Evaluate carbon -- in addition to cost, schedule, and other criteria -- as an awarding criteria when selecting bids for materials to be used in construction. If points are used to differentiate bids, award points for low-carbon procurement. When possible, provide performance incentives to contractors who deliver low-embodied-carbon projects.	YES	YES	Bids and product submittals will be reviewed for their embodied-carbon qualities.	SELECT		Steps to Develop a Low Carbon Procurement Policy (Incentives) OwnersCAN Embodied Carbon Action Plan Microsoft Case Study

25 Patton Rd
Devens, MA, 01434
U.S.A
T +1 (774) 276 - 7122
Karmela.flynn@veranova.com

Neil Angus, FAICP, CEP, LFA, LEED AP
Director / Land Use Administrator
Devens Enterprise Commission
33 Andrews Parkway
Devens, MA 01434

January 13th, 2026

Re: 25 Patton Road, Devens MA Level 2 Permit Submission
Narrative of Construction

Dear Mr. Angus,

Veranova, LP (Veranova) is submitting this application for review of the Unified Permit for a Level 2 project as determined in our pre-permitting meetings. We are submitting the applicable elements of the Level 2 Submission and have included the list of chemicals that are being proposed as a part of this project. A revision of the Veranova Chemical Storage permits is required as part of this proposed interior renovation project.

The proposed scope of services is to fit out space in one of the three buildings that are on the Veranova campus. Building Two is the building in which work will occur. The work area in Building 2 is going to be approximately 6944 s.f.
In Building 2, we will perform the following:

- Revise existing shell space to a new Maintenance Area and a new Research and Development laboratory.
- Revise the existing Maintenance Area into a new Manufacturing Suite

Building 2 will require the installation of a code compliant storage vessel to contain flammable, combustible, and/or cytotoxic waste from the Manufacturing suite. This storage vessel is to be located in the existing Material Control Hazardous Waste Storage area. This work does involve a small area of sitework to install a new transformer and transformer pad outside of Building 2.

Veranova has stated that this project does not require any DEP Air Quality permitting. The engineering team will update the Spill Prevention, Control, and Countermeasure Plan prior to the installation of the new transformer.

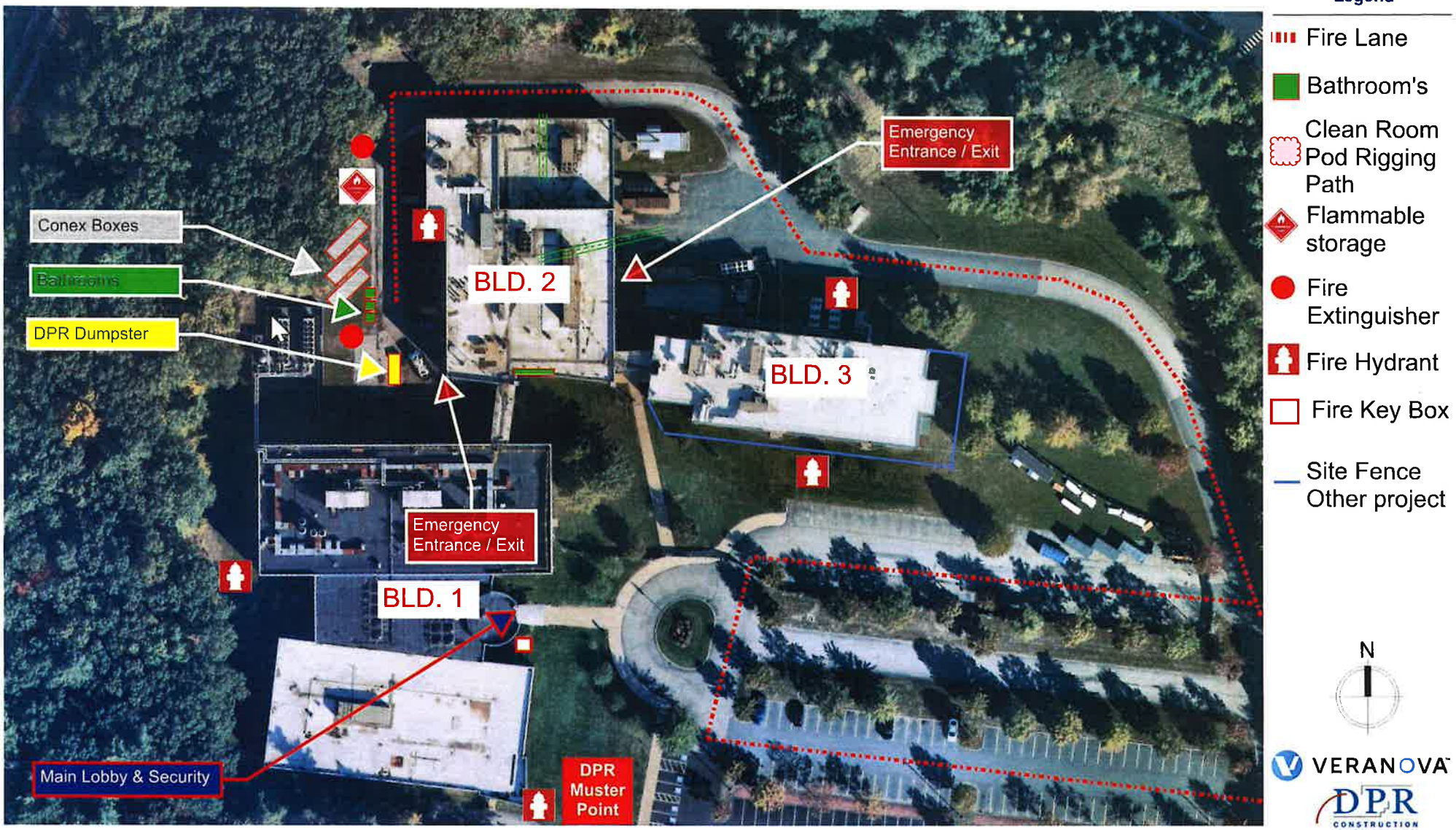
We feel that we have provided the required elements of the Level 2 unified permit application and look forward to your response to our request.

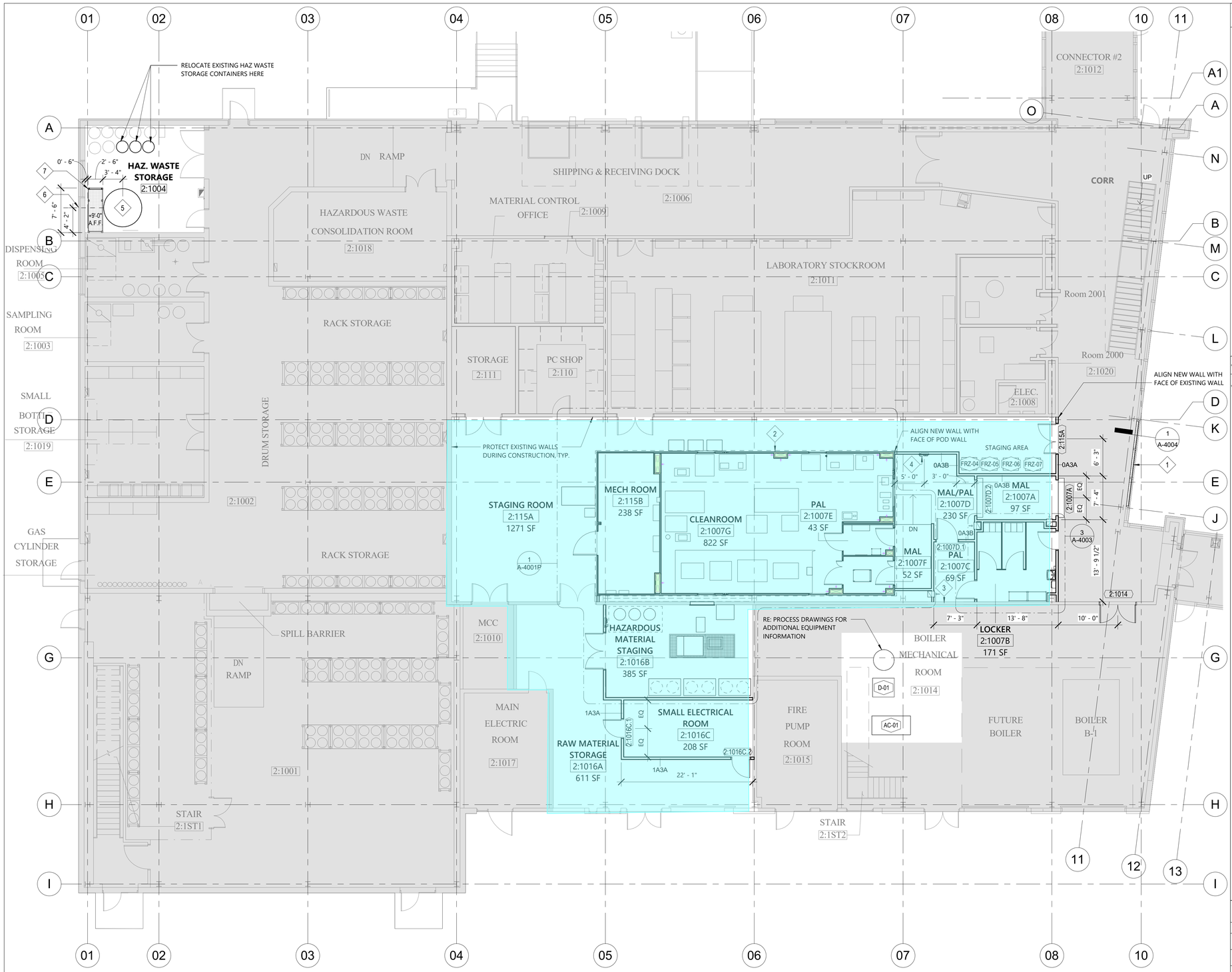
Best Regards,

Karmela Flynn

Bioconjugation Project Exterior Fire Access

25 Patton Rd Devens Massachusetts





1 FLOOR PLAN - LEVEL 01 - B2
1/8" = 1'-0"

PHASE #3

GENERAL PLAN NOTES

1. BUILDING COLUMN GRID IS TO THE CENTERLINE OF STRUCTURAL COLUMNS, U.N.O.
2. REFER TO ENLARGED PLANS FOR ADDITIONAL DIMENSIONS & PARTITION TYPES NOT SHOWN.
3. PARTITION TYPES & INTERIOR DETAILS - REFER TO A-5001.
4. ALL PARTITIONS ARE 0A3B U.N.O.
5. INSTALL RELOCATED CLEANROOM POD SYSTEM PER MANUFACTURER'S RECOMMENDATIONS. GENERAL CONTRACTOR SHALL PERFORM ALL REQUIRED SITE PREPARATION FOR INSTALLATION AND IS RESPONSIBLE FOR INSTALLATION OF NEW UTILITY CONNECTIONS TO POD.
6. DOOR SCHEDULE, DOOR TYPES, WINDOW FRAME DETAILS, AND FINISH SCHEDULE - REFER TO A-6001.
7. MOUNTING HEIGHTS & CLEARANCES - REFER TO A-0002.
8. SEE PROJECT MANUAL SECTION 090000 FOR FINISH SPECS.
9. EQUIPMENT & FURNITURE BY OTHERS SHOWN DASHED FOR REFERENCE ONLY (NOT IN CONTRACT). ALL PORTABLE ITEMS (TABLES, CARTS, CHAIRS, ETC.) TO BE SPECIFIED AND PROVIDED BY OWNER.
10. PLACE GYP. BD. CONTROL JOINTS EVERY 30' MAX.
11. ALL DIMENSIONS FOR NEW CONSTRUCTION ARE FROM THE FINISH FACE OF PARTITIONS, U.N.O.
12. DOORS TO BE LOCATED 6" (MIN) FROM ADJACENT WALL.
13. PROVIDE TRANSITION STRIPS AT ALL FLOOR FINISH CHANGES; PLACE TRANSITIONS UNDER CLOSED DOORS UNLESS NOTED OTHERWISE.
14. ALL MATERIALS AND METHODS SHALL COMPLY WITH THE HIGHEST APPLICABLE REGULATORY REQUIREMENTS. CONTRACT DOCUMENTS SHALL NOT BE INTERPRETED TO PERMIT WORK THAT CONFLICTS WITH ANY GOVERNING REGULATION.
15. THE ARCHITECTURAL DRAWINGS FORM ONLY ONE COMPONENT OF THE FULL CONTRACT DOCUMENTS, WHICH MUST BE REVIEWED IN TOTAL WITH ALL DISCIPLINES. PARTIAL DRAWING SETS ARE NOT COMPLETE AND SHALL NOT BE USED.
16. DRAWINGS ARE NOT TO BE SCALED FOR MEASUREMENTS; ALL REQUIRED DIMENSIONS ARE PROVIDED OR CAN BE OBTAINED FROM THE ACCOMPANYING DOCUMENTS.

KEYED NOTES

1. CAREFULLY REMOVE, STORE, AND PROTECT DESIGNATED PORTION OF EXTERIOR WINDOW WALL AT LEVEL 01 FOR CLEAN ROOM POD RELOCATION. REINSTALL IN ORIGINAL LOCATION PER MANUFACTURER'S REQUIREMENTS, PATCH AND REPAIR AFFECTED WALL SURFACES, AND SEAL ALL PENETRATIONS FOR A WEATHER-TIGHT BARRIER. GENERAL CONTRACTOR RESPONSIBLE FOR MEANS AND METHODS.
2. RELOCATE EXISTING CLEAN ROOM POD TO NEW LOCATION IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. GENERAL CONTRACTOR SHALL PERFORM ALL REQUIRED SITE PREPARATION FOR INSTALLATION. EXISTING POD CONFIGURATION TO REMAIN UNCHANGED. CONNECT NEW UTILITY LINES TO POD PER MEP DRAWINGS. COORDINATE INSTALLATION WITH STRUCTURAL ENGINEER PRIOR TO WORK. PATCH AND REPAIR POD SURFACES AND ADJACENT BUILDING FINISHES AFFECTED BY RELOCATION.
3. CONTRACTOR SHALL VERIFY EXISTING WALL CONSTRUCTION IN FIELD PRIOR TO STARTING WORK. AT EXISTING WALLS TO REMAIN, REMOVE FINISHES DOWN TO STUDS AND PREPARE STUD FRAMING FOR INSTALLATION OF NEW GYPSUM BOARD FINISHES TO MATCH ADJACENT NEW CONSTRUCTION IN LOCKER AND PAL ROOMS (REFER TO FINISH SCHEDULE ON A-6001). MAINTAIN REQUIRED 2-HOUR FIRE-RESISTANCE RATING OF WALL ASSEMBLY AND SEAL ALL PENETRATIONS AND JOINTS TO PRESERVE 2-HOUR FIRE RATING.
4. INSTALL NEW RECESSED EMERGENCY EYEWASH STATION IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING DRAWINGS FOR CONNECTIONS AND INSTALLATION DETAILS.
5. PROVIDE NEW HAZARDOUS WASTE STORAGE TANK IN EXISTING HAZARDOUS WASTE STORAGE ROOM 2:1004. INSTALL PER MANUFACTURER'S REQUIREMENTS. PATCH AND REPAIR FLOOR FINISH TO MATCH ADJACENT CONSTRUCTION AS REQUIRED. SEAL ALL JOINTS WITH APPROVED WATERPROOF SEALANT. HAZARDOUS MATERIAL QUANTITIES SHALL NOT EXCEED THE MAQ FOR THE H-2 OCCUPANCY. REFER TO PROCESS/MEP DRAWINGS FOR ADDITIONAL INFORMATION.
6. NEW HAZARDOUS WASTE STORAGE TANK PIPING OUTLET TO PENETRATE EXISTING EXTERIOR WALL. CUT WALL AS REQUIRED FOR PENETRATION AND PROVIDE SEALANT TO MAINTAIN AIR- AND MOISTURE-TIGHT BARRIER. PATCH AND REPAIR WALL TO MATCH ADJACENT EXISTING CONSTRUCTION. REFER TO PROCESS AND MEP DRAWINGS FOR ADDITIONAL PIPING INFORMATION.
7. PROVIDE NEW MODULAR, PREFABRICATED VERTICAL ACCESS LADDER AND ELEVATED WORK PLATFORM SERVING NEW HAZARDOUS WASTE STORAGE TANK IN EXISTING HAZARDOUS WASTE STORAGE ROOM. PROVIDE COMPLETE PREMANUFACTURED LADDER AND PLATFORM SYSTEM INCLUDING GUARDRAILS, TOE BOARDS, AND ANCHORAGE. INSTALL SYSTEM ON EXISTING CONCRETE SLAB IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND APPLICABLE OSHA, IBC 2021, AND 780 CMR REQUIREMENTS. COORDINATE FINAL LOCATION, CONFIGURATION, AND CLEARANCES WITH TANK, PIPING, AND ADJACENT EQUIPMENT.

EQUIPMENT LEGEND

TAG	COUNT	DESCRIPTION	COMMENTS
AC-01	1	AIR COMPRESSOR	1
D-01	1	DRYER	1
FRZ-04	1	FREEZER, -20	1
FRZ-05	1	FREEZER, -80	1
FRZ-06	1	FREEZER, -80	1
FRZ-07	1	FREEZER, -80	1

COMMENT LEGEND:
1: FURNISHED BY OWNER & INSTALLED BY CONTRACTOR

cGMPnow

NOVEL ARCHITECTURE & ENGINEERING

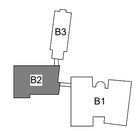
VERANOVA™

BIOCONJUGATION PROJECT
25 PATTON ROAD
DEVENS, MA 01434

N
PROJECT NORTH

REGISTERED ARCHITECT ZACHARY HOLBERT STATE No. 954852 TOPEKA, KS. COMMONWEALTH OF MASSACHUSETTS
12.12.25

KEY PLAN



CONFIDENTIAL

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
A	20AUG2025	30% DESIGN ISSUE
B	25SEP2025	60% DESIGN ISSUE
C	21NOV2025	90% DESIGN ISSUE
D	12DEC2025	ISSUED FOR PERMIT

ARCHITECTURAL FLOOR PLAN - LEVEL 01 - B2

PROJECT NUMBER	CG24014
ORIGINAL ISSUED DATE	12/12/2025
DESIGNED BY	ZJH
CHECKED BY	SEB

A-1201B2

1 FLOOR PLAN - LEVEL 02 - B2
1/8" = 1'-0"

PHASE #1

PHASE #2

GENERAL PLAN NOTES

1. BUILDING COLUMN GRID IS TO THE CENTERLINE OF STRUCTURAL COLUMNS, U.N.O.
2. REFER TO ENLARGED PLANS FOR ADDITIONAL DIMENSIONS & PARTITION TYPES NOT SHOWN.
3. PARTITION TYPES & INTERIOR DETAILS - REFER TO A-5001.
4. ALL PARTITIONS ARE 0A3B U.N.O.
5. INSTALL RELOCATED CLEANROOM POD SYSTEM PER MANUFACTURER'S RECOMMENDATIONS. GENERAL CONTRACTOR SHALL PERFORM ALL REQUIRED SITE PREPARATION FOR INSTALLATION AND IS RESPONSIBLE FOR INSTALLATION OF NEW UTILITY CONNECTIONS TO POD.
6. DOOR SCHEDULE, DOOR TYPES, WINDOW FRAME DETAILS, AND FINISH SCHEDULE - REFER TO A-6001.
7. MOUNTING HEIGHTS & CLEARANCES - REFER TO A-0002.
8. SEE PROJECT MANUAL SECTION 090000 FOR FINISH SPECS.
9. EQUIPMENT & FURNITURE BY OTHERS SHOWN DASHED FOR REFERENCE ONLY (NOT IN CONTRACT). ALL PORTABLE ITEMS (TABLES, CARTS, CHAIRS, ETC.) TO BE SPECIFIED AND PROVIDED BY OWNER.
10. PLACE GYP. BD. CONTROL JOINTS EVERY 30' MAX.
11. ALL DIMENSIONS FOR NEW CONSTRUCTION ARE FROM THE FINISH FACE OF PARTITIONS, U.N.O.
12. DOORS TO BE LOCATED 6" (MIN) FROM ADJACENT WALL.
13. PROVIDE TRANSITION STRIPS AT ALL FLOOR FINISH CHANGES; PLACE TRANSITIONS UNDER CLOSED DOORS UNLESS NOTED OTHERWISE.
14. ALL MATERIALS AND METHODS SHALL COMPLY WITH THE HIGHEST APPLICABLE REGULATORY REQUIREMENTS. CONTRACT DOCUMENTS SHALL NOT BE INTERPRETED TO PERMIT WORK THAT CONFLICTS WITH ANY GOVERNING REGULATION.
15. THE ARCHITECTURAL DRAWINGS FORM ONLY ONE COMPONENT OF THE FULL CONTRACT DOCUMENTS, WHICH MUST BE REVIEWED IN TOTAL WITH ALL DISCIPLINES. PARTIAL DRAWING SETS ARE NOT COMPLETE AND SHALL NOT BE USED.
16. DRAWINGS ARE NOT TO BE SCALED FOR MEASUREMENTS; ALL REQUIRED DIMENSIONS ARE PROVIDED OR CAN BE OBTAINED FROM THE ACCOMPANYING DOCUMENTS.

KEYED NOTES

1. VERIFY EXISTING WALL CONSTRUCTION IN FIELD PRIOR TO START OF WORK. AT EXISTING WALLS TO REMAIN, REMOVE FINISHES TO STUDS AND PREPARE FRAMING FOR NEW GYP BD FINISHES MATCHING ADJACENT NEW CONSTRUCTION IN PRD LAB AND CRT STORAGE/UTILITY ROOM. PROVIDE TYPE X, 1-HR FIRE-RATED GYP BD ON BOTH SIDES OF STUDS ALONG WALL AT CORRIDOR 2:2000. REFER TO FINISH SCHEDULE ON A-6001.
2. INSTALL NEW JANITOR SINK IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING DRAWINGS FOR CONNECTIONS AND ADDITIONAL INSTALLATION DETAILS.
3. FUR OUT WALL AT EXISTING PIPING AND CONTROL PANEL. PROVIDE TEMPORARY DISCONNECT/RECONNECT OF CONTROL PANEL AS REQUIRED. VERIFY FIELD CONDITIONS AND MAINTAIN ALL REQUIRED CLEARANCES. COORDINATE WITH ELECTRICAL DRAWINGS AND EXTEND FURRING TO SIMILAR UNSHOWN CONDITIONS.
4. INSTALL NEW ROOFTOP MECHANICAL UNIT ON PREFABRICATED SUPPORT RAIL SYSTEM. MODIFY EXISTING EXTERIOR WALL AS REQUIRED FOR NEW DUCT PENETRATION; PROVIDE FLASHING AND SEALANT TO MAINTAIN A CONTINUOUS AIR- AND MOISTURE-TIGHT BARRIER AND PATCH TO MATCH ADJACENT CONSTRUCTION. REMOVE PORTION OF EXISTING FLOOR SLAB FOR DUCT ROUTING; SEAL ALL PENETRATIONS WITH FLEXIBLE, SUBSTRATE-COMPATIBLE SEALANT APPLIED PER MANUFACTURER'S REQUIREMENTS TO ACHIEVE WATERTIGHT AND AIRTIGHT CONDITIONS. PATCH FLOOR SLAB TO MATCH EXISTING. FUR INTERIOR WALLS AT DUCT PENETRATIONS AS INDICATED. COORDINATE ALL WALL AND FLOOR OPENINGS WITH STRUCTURAL ENGINEER PRIOR TO START OF WORK. REFER TO A-5002 AND STRUCTURAL/MECHANICAL DRAWINGS FOR ADDITIONAL DETAILS.
5. STORAGE RACKS, BY OTHERS. SHOWN FOR REFERENCE ONLY. COORDINATE FINAL LOCATIONS WITH OWNER AND OVERHEAD STRUCTURE/MEP SYSTEMS.
6. INSTALL WALL-MOUNTED PLASTIC LAMINATE COUNTERTOP 30" A.F.F. FULL LENGTH OF WALL. COORDINATE WITH OWNER-PROVIDED OVERHEAD STORAGE, DIVIDERS, MOBILE BASE CABINETS, AND CHAIRS.

EQUIPMENT LEGEND

TAG	COUNT	DESCRIPTION	COMMENTS
C-01	1	CABINET (3' X 2')	1
C-02	1	CABINET (3' X 1'-6")	1
FC-01	1	FILL CABINETS (8' X 2'-6")	1
RH-01	1	RELOCATE HOOD (4' X 8')	1
WB-01	1	WORK BENCH (6' X 2')	1
L-01	1	LOCKERS	1

COMMENT LEGEND:
1: FURNISHED BY OWNER & INSTALLED BY CONTRACTOR

cGMPnow

NOVEL ARCHITECTURE & ENGINEERING

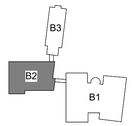
VERANOVA™

BIOCONJUGATION PROJECT
25 PATTON ROAD
DEVENS, MA 01434

N
PROJECT NORTH

REGISTERED ARCHITECT
ZACHARY HOLBERT
No. 954852
TOPEKA, KS.
COMMONWEALTH OF MASSACHUSETTS
12.12.25

KEY PLAN



CONFIDENTIAL

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION
A	20AUG2025	30% DESIGN ISSUE
B	25SEP2025	60% DESIGN ISSUE
C	21NOV2025	90% DESIGN ISSUE
D	12DEC2025	ISSUED FOR PERMIT

ARCHITECTURAL FLOOR PLAN - LEVEL 02 - B2

PROJECT NUMBER	CG24014
ORIGINAL ISSUED DATE	12/12/2025
DESIGNED BY	ZJH
CHECKED BY	SEB

A-1202B2

VERANOVA®

25 Patton Road
Devens, MA 01434
USA
T +1 (978) 784-5000
veranova.com

December 23rd, 2025

Mr. Neil Angus
Devens Enterprise Commission
MassDevelopment
33 Andrews Parkway
Devens, MA 01434

2025 Amended Flammables License Application Narrative

Dear Mr. Angus:

Enclosed is the application for an Amended License for storage of flammable and combustible materials for Veranova at 25 Patton Road, Devens, MA 01434. This is part of the unified permit process for the new spaces that will be constructed. Veranova is requesting an increase in the amended license from 42,000 gallons to 46,000 gallons of flammable liquids storage and the addition of 4,000 gallons of combustible liquids storage.

The license amendment includes Class IIIA combustible liquids (Dimethylacetamide and Dimethyl sulfoxide) and a Class II Combustible liquid (Dimethylformamide (DMF)) to be used in the new Construction area. It is expected that either combustible or flammable liquids will be used for the process but for the permit we will estimate the storage of both combustible and flammable liquids at the same time.
The following Class 1B flammable solvents are also expected to increase for usage in the new construction:

- Isopropanol (IPA)
- Acetonitrile (ACN)
- Ethanol

The amounts of each chemical stored onsite will vary but the total amount of flammable liquids and combustible liquids is estimated to increase based on 1) the assumption that there will be up to two pallets of drums (four 55-gallon drums per pallet) for staging and loading/unloading (of either combustible or flammable liquids); 2) full equipment loaded (approximately 200 liters), plus a waste tank for flammable/combustible liquids that will hold up to 10,000 L in the hazardous waste material area (note aqueous waste in the flammable/combustible liquid waste tank will contain significantly diluted organic solvent concentrations from a starting point of 15% v/v.); and 3) an additional 809 gallons to provide operational flexibility. That rounds to roughly 4,000 gallons of Class 1B flammable liquids (in addition to the current estimated 32,900 already permitted) , and roughly 4,000 gallons of Class IIIA or II combustible liquids, and the remaining amounts of Class II (1,100 gallons), Class 1A (3,000 gallons) and Class 1C (5,000

gallons) that are expected to remain the same – estimate is 46,000 gallons total flammable liquids and 4,000 gallons total combustible liquids.

Please don't hesitate to reach out if you require any additional information.

Sincerely,

Randall Goyette
EHS Senior Manager
Veranova, L.P

FP-002A
(Rev. 6/23)

The Commonwealth of Massachusetts

City/Town of Devens

Application For License

Massachusetts General Law, Chapter 148 §13

☐ New License ☒ Amended License

GIS Coordinates
42.529348
LAT.
-71.629502
LONG.
D10-071
License Number

Application is hereby made in accordance with the provisions of Chapter 148 of the General Laws of Massachusetts for a license to store flammables, combustibles or explosives on land in buildings or structures herein described.

Location of Land: 25 Patton Rd., Parcel 14
Number, Street and Assessor's Map and Parcel ID

Attach a plot plan of the property indicating the location of property lines and all buildings or structures.

Owner of Land: Veranova, L.P.

Address of Land Owner: 25 Patton Rd, Devens, MA

Use and Occupancy of Buildings and Structures: Manufacturing

If this is an application for amendment of an existing license, indicate date of original license and any subsequent amendments
original - 12/9/2010, Amendment 1 - 04/29/2015, Amendment 2 - 04/24/2025
Attach a copy of the current license

Flammable and Combustible Liquids, Flammable Gases and Solids

Complete this section for the storage of flammable and combustible liquids, solids, and gases; see 527 CMR 1.00 Table 1.12.8.50; Attach additional pages if needed. All tanks and containers are considered full for the purposes of licensing and permitting.

PRODUCT NAME	CLASS	MAXIMUM QUANTITY	UNITS gal., lbs, cubic feet	CONTAINER UST, AST, IBC, drums
See Attached sheet "Attachment 1: Flammable and Combustible Liquids, Flammable Gases and Solids"				

Total quantity of all flammable liquids to be stored: 46,000 gal

Total quantity of all combustible liquids to be stored: 4,000 gal

Total quantity of all flammable gases to be stored: 3,000 cu. ft

Total quantity of all flammable solids to be stored: 1,000 lbs

LP-gas *(Complete this section for the storage of LP-gas or propane)* N/A

Indicate the maximum quantity of LP-gas to be stored and the sizes and capacities of all storage containers. *(See 527 CMR 1.00 Table 1.12.8.50)*

- ❖ Maximum quantity (*in gallons)* of LP-gas to be stored in aboveground containers: _____

  List sizes and capacities of all aboveground containers used for storage: _____

  _____

- ❖ Maximum quantity (*in gallons)* of LP-gas to be stored in underground containers: _____

  List sizes and capacities of all underground containers used for storage: _____

  _____

Total aggregate quantity of all LP-gas to be stored: _____

Fireworks (*Complete this section for the storage of fireworks)* N/A

Indicate classes of fireworks to be stored and maximum quantity of each class. *(See 527 CMR 1.00 Table 1.12.8.50)*

- ❖ Maximum amount (*in pounds*) of Class **1.3G**: _____ Type/class of magazine used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.4G**: _____ Type/class of magazine used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.4**: _____ Type/class of magazine used for storage: _____

Total aggregate quantity of all classes of fireworks to be stored: _____

Explosives *(Complete this section for the storage of explosives)* N/A

Indicate classes of explosive to be stored and maximum quantity of each class. *(See 527 CMR 1.00 Table 1.12.8.50)*

- ❖ Maximum amount (*in pounds*) of Class **1.1**: _____ Number of magazines used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.2**: _____ Number of magazines used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.3**: _____ Number of magazines used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.4**: _____ Number of magazines used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.5**: _____ Number of magazines used for storage: _____
- ❖ Maximum amount (*in pounds*) of Class **1.6**: _____ Number of magazines used for storage: _____

I, _____, hereby attest that I am authorized to make this application. I acknowledge that the information contained herein is accurate and complete to the best of my knowledge and belief. I acknowledge that all materials stored pursuant to any license granted hereunder must be stored or kept in accordance with all applicable laws, codes, rules and regulations, including but not limited to Massachusetts Chapter 148, and the Massachusetts Fire Code (527 CMR 1.00). I further acknowledge that the storage of any material specified in any license granted hereunder may not exceed the maximum quantity specified by the license.

Signature Randall Goyette Date 23 Dec 25 Name Randall Goyette

PLEASE NOTE THAT ONLY APPLICATIONS WITH ORIGINAL WET SIGNATURES WILL BE ACCEPTED. PHOTOCOPIES OF APPLICATIONS WILL NOT BE PROCESSED.

Fire Department Use Only

I, _____, Head of the _____ Fire Department endorse this application with my

❑ Approval ❑ Disapproval

_____

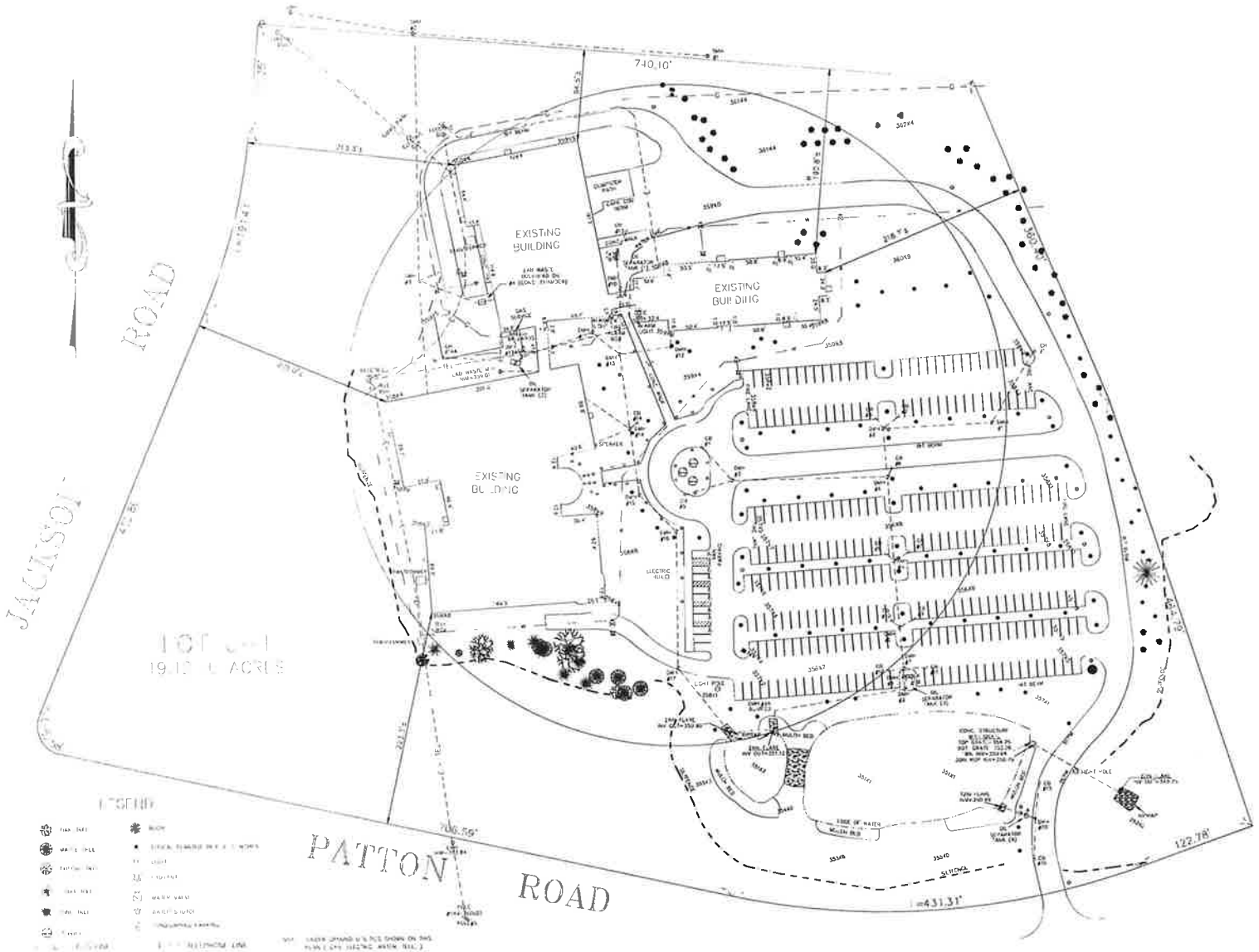
Signature of Head of the Fire Department Date

Recommendations: _____

Attachment 1: Flammable and Combustible Liquids, Flammable Gases and Solids

Product Name	Class	Maximum Quantity	Units	Container
Flammable Liquids	1A	3,000	gal.	Drums
Flammable Liquids	1B	36,900	gal.	Drums
Flammable Liquids	1C	5,000	gal.	Drums
Flammable Liquids	II	1,100	gal.	Drums
Combustible Liquids*	IIIA	4,000*	gal.	Drums
Combustible Liquids*	II	4,000*	gal.	Drums
Flammable Gases		3,000	cu. Ft,	Cylinders
Flammable Solids		1,000	lbs.	Drums

*note one type of combustible liquid will be stored at a time



DMH #1
RIM=358.46
12" INV (IN)=354.0
12" INV (OU)=353.86

DMH #2
RIM=358.55
12" INV=353.24 (IN FROM DMH #1)
12" INV=353.76 (IN FROM CB #3)
12" INV=351.96 (IN FROM CB #2)
15" INV 353.07 (OUT)

DMH #3
RIM=358.45
12" INV=353.30 (IN FROM CB #1)
12" INV 353.63 (IN FROM CB #5)
12" INV=353.55 (OUT)

DMH #4
RIM=357.65
12" INV=352.60 (IN FROM DMH #3)
12" INV=353.68 (IN FROM CB #6)
15" INV=352.57 (IN FROM DMH #2)
18" INV=352.57 (OUT)

DMH #5
RIM=357.68
18" INV=352.85 (IN FROM DMH #4)
12" INV=352.19 (IN FROM CB #8)
12" INV=352.25 (IN FROM CB #7)
18" INV=352.04 (OU)

DMH #6
RIM=357.28
24" INV=351.76 (IN FROM DMH #5)
12" INV=351.72 (IN FROM CB #10)
12" INV=352.0 (IN FROM CB #9)
24" INV=351.76 (OUT)

DMH #7
RIM=355.87
24" INV=351.66 (IN FROM DMH #6)
12" INV=351.5 (IN FROM CB #11)
12" INV=351.5 (IN FROM CB #12)
24" INV=351.05 (OUT)

DMH #8
RIM=356.64
24" INV=351.30 (IN FROM DMH #7)
24" INV=351.14 (OUT)
TOP OF OVER FLOW 351.27

DMH #9
RIM=356.42
24" INV=351.17 (IN FROM DMH #8)
12" INV=354.47 (IN FROM OIL SEPARATOR)
24" INV=351.27 (OUT)

OIL SEPARATOR TANK (1)
RIM(A)=360.18
RIM(B)=360.1
15" CI INV= 354.46(IN FROM CB#13)
15" CI INV= 354.56(OUT TO DMH#10)

OIL SEPARATOR TANK (2)
RIM =359.41
12" CONC INV= 355.2 (IN FROM CB# 4A)
12" CONC INV= 355.0 (OUT TO DMH#12A)

OIL SEPERATOR TANK (3)
RIM(A)=356.84
RIM(B)=356.67

OIL SEPERATOR TANK (4)
RIM(A)=355.80
RIM(B)=355.69
12" CONC INV= 350.9 (IN FROM DMH #20
12" CONC INV= 350.7 (OUT)

CB #1
RIM=358.87
12" INV 354.57 (OUT)

CB #2
RIM=357.28
12" INV=353.49 (OUT)

CB #3
RIM=357.27
12" INV=353.46 (OUT)

CB #4
RIM=358.14
12" INV=353.64 (OUT)

CB #5
RIM=357.86
12" INV=354.05 (OUT)

CB #6
RIM=358.94
12" INV=353.38 (OUT)

CB #7
RIM=356.53
12" INV=352.90 (OUT)

CB #8
RIM=356.44
12" INV=352.45 (OUT)

CB #9
RIM=356.30
12" INV=351.83 (OUT)

CB #10
RIM= 356.21
12" INV=352.23 (OUT)

CB #11
RIM=355.96
12" INV=351.41 (OUT)

CB #12
RIM=355.73
12" INV=351.67 (OUT)

CB #13
RIM=356.40
15" INV=353.90 (OUT)

CB #14
RIM=358.18
12" INV=353.28 (OUT)

CB #14A
RIM 358.62
12" INV=355.7 (OUT)

CB #15
RIM=359.43
12" INV=351.48 (OUT)

CB #16
RIM=354.00
12" INV 351.46 (OU")

DMH #10
RIM=360.07
12" INV=354.76 (IN FROM OIL SEPARATOR)
12" INV=354.73 (OUT)

DMH #11
RIM=359.08
12" INV=354.27 (IN FROM BLDG)
6" INV 355.66 (IN FROM BLDG)
12" INV=354.27 (IN FROM DMH #13A)
12" INV=354.19 (OUT)

DMH #12
RIM=359.76
8" INV=354.36 (IN FROM BLDG)
6" INV=355.54 (IN FROM BLDG)
12" INV=354.32 (OUT TO DMH 13A)

DMH #13
RIM=359.58
12" INV 354.10 (IN FROM DMH #10)
12" INV=354.10 (IN FROM DMH #11)
12" INV=354.10 (IN FROM DMH #12)
18" INV=354.00 (OUT)

DMH #13A
RIM=358.51
12" INV=354.01 (IN FROM OIL SEPARATOR)
6" INV=354.86 (IN FROM BUILDING)
12" INV=354.81 (OUT)

DMH #14
RIM 358.37
18" INV=353.11 (IN FROM DMH #13)
12" INV=352.98 (IN FROM CB#14)
12" INV=353.2 (IN)
8" INV 353.5 (IN FROM HDC)
24" INV=352.98 (OUT)

DMH #15
RIM=358.60
24" INV=352.78 (IN FROM DMH #14)
24" INV=352.8 (OUT)

DMH #16
RIM=358.59
24" INV=352.22 (IN FROM DMH #15)
12" INV=352.16 (IN FROM 9 DC)
24" INV=352.05 (OUT)

DMH #17
RIM=357.58
24" INV=351.28 (IN - FROM DMH #16)
6" INV=351.48 (IN)
24" INV=351.18 (OUT)

DMH #18
RIM=356.84
12" INV=351.01 (IN FROM CB#17)
12" INV=351.01 (IN FROM CB#15)
12" INV=350.91 (OUT)

SMH #1
RIM=368.72
8" PVC INV=358.18 (IN)
8" PVC INV=353.93 (OUT TO SMH#2)

SMH #2
RIM 367.87
8" PVC INV= 351.87 (IN FROM SMH #1)
8" PVC INV 351.37 (IN FROM SMH #3)
6" PVC INV=350.59 (OUT)

SMH #3
RIM=367.06
8" PVC INV=360.08(N FROM BUILDING)
8" PVC INV=360.11(IN)
6" PVC INV=360.15(N)
8" PVC INV=359.95(OUT TO SMH #2)

MH #4 (DRAIN TANK)
RIM=360.13
8" PVC INV=350.45 (IN FROM MANHOLE)
8" PVC INV=352.63 (IN)
2" PVC INV=356.73 (IN)

SMH (LAB WASTE)
RIM=360.07
6" PVC INV 354.21
CLEAN OUT INV=358.01

GRAPHIC SCALE

No	DATE	REVISIONS DESCRIPTION	ULS. CKD.	FIELD: C.N.DMD
7	4/24/02	DET. POND & WATER LINE		DESIGN BY:
6	3/01/02	DRAIN ASBUILT		
5	2/20/02	DETAILED ASBUILT		DRAWN BY:
4	6/4/01	ADDED GAS,WATER ELECTRIC		RMC
3	5/23/01	ADDED OIL & SILT TANKS		CHECKED BY:
2	4/30/01	WORK BUILDING OFFSETS		

CLM ENGINEERING CONSULTANTS, INC.
1750 WASHINGTON STREET
HOLLISTON, MASSACHUSETTS 01746
(508)429 1100 fax.(508)429 7180

I CERTIFY THAT THE BUILDINGS ON THIS PROPERTY ARE LOCATED AS SHOWN ABOVE

APRIL 19, 2002
PROFESSIONAL LAND SURVEYOR DATE

PLOT PLAN OF LAND

JOHNSON MATTHEY PHARMA SERVICES
DEVENS, MA 01434
PREPARED FOR
INTEGRATED BUILDERS
1515 WASHINGTON ST.
BRAINTREE, MA 02184

JOB NO. 10158BB
SCALE: 1" = 60'
DATE: JULY 20, 1999
PLAN NO. 25,409

COMMONWEALTH OF MASSACHUSETTS

STATE BUILDING CODE

780 CMR, 10TH EDITION

CHAPTER 9

FIRE PROTECTION SYSTEMS

NARRATIVE REPORT

780 CMR – 901.2.1

PROJECT NAME:	Veranova Bioconjugation Renovation
ADDRESS:	25 Patton Road, Devens, MA 01434
NV5 PROJECT #:	25-0014112
DATE OF ISSUE:	1/9/2026

01/08/2026

NV5

Ryan LaFalam

780 CMR 901.2.1
Fire Protection Systems Narrative Report – 1/9/2026
Project Name: Veranova Bioconjugation Renovation
NV5 Project Number: 25-0014112

As required by 780 CMR §901.2.1, this narrative report is a written description of the proposed fire protection system features to be installed as part of the Veranova Bioconjugation Renovation project located at 25 Patton Road in Devens, Massachusetts, 01434.

901.2.1 (1-a-i) – BASIS (METHODOLOGY) OF DESIGN

Section 1 - Building Description

A. "Use" Group(s) within Scope of Renovation: "F-1" Factory, "S-1" Storage, "H-2", "B" Business (office).

B. Location & Area of Renovation: 4,414 sqft on Level 1, 7,054 sqft on Level 2.

C. Existing Building Height & Area

1. Height: 2 stories / ~34'-0"-ft above grade; 0 stories / 0-ft below grade.

2. Area: Building 2 only

Level 1 ~21,246-sqft	Level 1 Scope ~4,414-sqft.
Level 2 ~15,466-sqft	Level 2 Scope ~7,054-sqft.

D. Type(s) of Construction:

1. Type II-B Existing unprotected non-combustible.

E. Hazardous Material Usage and Storage:

1. Level 1 F-1 Occupancies. Palletized or stacked storage of Class 1B liquids, in 60 gal max containers; max storage height 5 ft.

2. Level 1 H-2 Occupancies. Storage of Class 1B liquids on open racks; max storage height 25 ft.

F. High-pile Storage (over 12 ft.) of Commodities: Level 1 H-2 Occupancies. Storage of Class 1B liquids on open racks; max storage height 25 ft.

G. Site Access Arrangement for Emergency Response Vehicles: Existing features to remain; not affected by scope of renovation.

Section 2 - Applicable Laws, Regulations & Standards

A. Massachusetts State General Laws (MGL), Chapter 148

1. MGL §148, sections as applicable.

B. 780 CMR – Massachusetts State Building Code, 10th Edition (amended IBC-2021)

1. Chapter 9 "Fire Protection Systems"

2. Chapter 34 "Existing Structures"

C. Existing Building Code of Massachusetts (amended IEBC-2021)

1. Chapter 8 "Alterations – Level 2"

D. 527 CMR – Massachusetts State Fire Prevention Regulations

1. Chapter 1 "Massachusetts Comprehensive Fire Safety Code"

2. Chapter 12 "2023 Massachusetts Electrical Code Amendments"

E. 521 CMR – Massachusetts Architectural Access Board

1. Section 40 "Visual Alarms"

F. National Fire Protection Association (NFPA) Standards:

1. NFPA 10 (2018) – "Portable Fire Extinguishers"

2. NFPA 13 (2019) – "Installation of Sprinkler Systems"

3. NFPA 70 (2023) – "National Electric Code" as amended by 527 CMR Chapter 12 "Massachusetts State Electrical Code"

4. NFPA 72 (2019) – "National Fire Alarm and Signaling Code"

G. Federal Regulations (significant requirements thereof to the extent applicable to NV5 scope)

1. 28 CFR Part 36, ADA Standards for Accessible Design

2. 29 CFR Part 1910, Occupational Safety & Health Standards

Section 3 - Design Responsibility for Fire Protection Systems

A. Fire Protection (Sprinkler) Engineer of Record: NV5 has engineered and specified the fire protection systems to be installed. For each fire protection system designed by NV5, NV5 shall review the installing contractor's Tier II shop drawings for conformance to the approved construction documents and be present at the site at intervals appropriate to become generally familiar with the progress and quality of work and to determine if the work is being performed in manner consistent with the construction documents and 780 CMR. NV5 shall certify each fire protection system installation to the extent required by 780 CMR §901.5.1(1).

B. Architect of Record: Novel Architecture & Engineering, has designed and specified the architectural features to be constructed, including means of egress, fire resistance construction and interior finish. Novel Architecture & Engineering shall review the installing contractor's Tier II shop drawings for conformance to the approved construction documents and be present at the site at intervals appropriate to become generally familiar with the progress and quality of work and to determine if the work is being performed in manner consistent with the construction documents and 780 CMR.

Section 4 - Fire Protection Systems to be Installed

A. Fire Mains & Hydrants: Existing features to remain; not affected by scope of renovation.

B. Automatic Sprinkler System: Existing sprinkler system service equipment, pumps, zoning, mains, alarm devices, etc. to remain and are not affected by the scope of renovation.

1. Level 1 - Existing wet-pipe fire sprinkler system to be modified to accommodate new partition layout and the installation of a new clean room. Modifications shall predominantly include new upright and pendent sprinklers, sprinkler main and branchline piping. All existing mains, branchlines, and related components will be rerouted above or around the new clean room as required to provide proper clearance.

2. Level 2 - Existing wet-pipe fire sprinkler system to be modified to accommodate new partition layout. Modifications shall predominantly include new upright and pendent sprinklers, sprinkler main and branchline piping.

C. Standpipe System: Not applicable. Existing features to remain; not affected by scope of renovation.

D. Fire Alarm System: Refer to fire alarm narrative report.

E. Emergency Power: Refer to fire alarm narrative report.

F. Smoke Control Systems: Existing features to remain; not affected by scope of renovation.

G. Commercial Cooking: Not applicable to the proposed renovation.

H. Hazardous Materials Monitoring: Not applicable to the proposed renovation.

Section 5 - Features Used in the Design Methodology

A. Occupant Notification Procedures: Existing occupant notification via the fire alarm system and subsequent building management personnel procedures shall remain and are not affected by the scope of renovation.

1. The existing fire alarm system treats the building as a single evacuation zone.

B. Emergency Response Features: Existing features to remain; not affected by scope of renovation.

C. Safeguards: Existing fire protection systems shall be maintained throughout the construction as required by the Authority Having Jurisdiction (AHJ). Impairment to existing fire protection systems shall be approved by the AHJ and Owner prior to commencing work. A fire watch shall be provided during impairments to the fire suppression or fire alarm system in accordance with AHJ requirements.

D. Future Testing & Maintenance: Modifications performed as part of the scope of renovation shall be warranted by the installing contractors for a period of one year covering defects in materials and workmanship. NFPA required inspection, maintenance and testing activities associated with the building fire protection system are the responsibility of the owner and are to be conducted under existing and/or future maintenance contracts held by the Building Management Company.

Section 6 - Special Consideration and Description

A. Unless otherwise noted, the design of the fire protection systems does not utilize alternative compliance design methods and is not intended to deviate from the prescriptive requirements of 780 CMR or other applicable codes and standards.

901.2.1 (1-a-ii) – SEQUENCE OF OPERATION

A. The existing "base building" coordinated fire protection system basis of design and sequence of operation shall remain unchanged and shall not be modified under the scope of renovation. The general arrangement of the existing sequence of operation is described below and is subject to confirmation by the installing contractor and fire alarm system control unit technical representative.

B. Activation of an existing or new manual pull station, smoke detector, heat detector or sprinkler system waterflow switch shall initiate the predefined fire alarm system "alarm condition" sequence:

1. Display alarm condition at fire alarm control unit and remote annunciator(s).
2. Broadcast recorded emergency voice evacuation instructions throughout the building.
3. Energize audible (temporal-3 pattern) and visual (UL 1971 synchronized strobe) occupant notification circuits within evacuation zone(s) as designated by pre-established control unit sequence of operations.
4. Perform auxiliary fire safety functions as designated by pre-established control unit sequence of operations such as elevator recall, damper activation, door closure, AHU shutdown, pressurization systems, etc.
5. Transmit alarm condition to central / supervising station and/or local fire department via municipal alarm system.
6. In addition, the operation of an existing or new in-duct smoke detector shall initiate the following:
    a. Operation of an existing or new in-duct smoke detector provided at air handling units (AHUs) shall shut-down the corresponding AHU.
    b. Operation of an existing or new in-duct smoke detector provided for control of a smoke damper shall close the corresponding damper.
7. In addition, the operation of an existing waterflow switch and/or an existing or new smoke detector shall initiate building smoke control systems.

C. The operation of an existing or new sprinkler tamper switch shall initiate the predefined fire alarm system "supervisory" sequence:

1. Display supervisory condition at fire alarm control unit and remote annunciator(s).
2. Transmit supervisory condition to central / remote supervising station.

D. Normal power failure to fire alarm system remote power supplies, ground faults, short circuits and open circuit conditions shall initiate the predefined fire alarm system "trouble" sequence.

1. Display supervisory condition at fire alarm control unit and remote annunciator(s).
2. Transmit trouble condition to central / supervising station.

901.2.1 (1-a-iii) – TESTING CRITERIA

Section 1 - Testing Criteria

A. Fire Protection System testing shall be scheduled, administered, conducted and overseen by the general contractor, subcontractors and manufacturer's technical representatives.

B. The following fire sprinkler system inspections and testing shall be performed:

1. Visually inspect system installation for completeness, presence of defects or damage, and confirm system is placed into "all normal" operational service.

2. Hydrostatically test system piping for a period of 2-hours. Piping shall be tested to normal system operating pressure where new installed piping cannot be isolated from the existing piping.

3. Functionally operate any new sprinkler waterflow or valve supervisory switches as part the fire alarm testing.

C. The following fire alarm system inspections and testing shall be performed:

1. Confirm integrity of new or modified circuits (free of grounds, shorts, opens) prior to the installation of devices, appliances or equipment.

2. Visually inspect system installation for completeness, presence of defects or damage, and confirm system is placed into "all normal" operational service.

3. Confirm correct system supervision of wiring faults, missing devices and status of normal and standby power supplies (for new equipment installed as part of the work).

4. Functionally operate new devices installed as part of the work and confirm correct sequence of operation and address/zone identification at the fire alarm control unit.

5. Confirm audibility / intelligibility and visual synchronization of notification appliances.

6. Where fire alarm control unit software is updated as part of the work, functionally operate 10% of existing devices not affected by the work and confirm correct sequence of operation and address/zone identification at the fire alarm control unit.

7. Confirm correct operation of circuits under fault conditions in accordance with installed circuit style and class.

D. Documentation, to be submitted to the Engineer of Record and AHJ:

1. Sprinkler System: NFPA 13 "Contractor's Material and Test Certificate", accurately completed and endorsed by installing contractor's signature.

2. Fire Alarm System: NFPA 72 "Fire Alarm System Record of Completion", accurately completed and endorsed by installing contractor's signature.

E. Upon completion of the work, and receipt of the appropriate close-out documentation, the Engineer of Record shall certify completion for each fire protection system to the extent required by 780 CMR §901.5.1

F. The general contractor shall then schedule final acceptance demonstration testing with the AHJ in order to obtain approval for a Certificate of Occupancy.

Section 2 - Equipment and Tools

A. The contractor shall provide all required tools and equipment necessary to perform full functional testing as outlined. As a minimum these items shall include:

1. NFPA Forms
2. Manufacturer's Instructions
3. Fire Protection Systems Narrative Report
4. UL smoke candles or aerosol spray
5. Sound meters
6. Voltage Meters
7. Gauges
8. Communication Radios
9. Printer or data transfer device for recording each FACP event

Section 3 - Approval Requirements

A. The contractor shall obtain written acceptance of the installed system from the AHJ prior to the owner request for a Certificate of Occupancy.

B. The contractor shall replace and/or repair each system or component of a system that fails to pass the Final Acceptance Test satisfactorily. Preliminary and Final Testing shall be rescheduled and testing shall be conducted until compliance is fully demonstrated. The contractor shall be liable for all additional charges as a result of retesting.

C. Final certification shall be provided from the contractors that the installation is in accordance with the approved construction documents and applicable codes. The Engineer shall certify that the installation complies with the approved construction documents per 780 CMR 901.5.1.

D. Operations Manuals and Record as-built drawings shall be submitted with any modifications as a resultant of changes that were dictated from the Final Testing process.

E. The Owner shall provide an emergency contact list for use by the AHJ in the event of an emergency at the protected property.

END OF NARRATIVE

1 Executive Summary

1.1 Objective

This summary evaluates the impact of hazardous materials, including flammable/combustible liquids and toxic materials in the proposed FDA-regulated sterile Bioconjugation suite in the Veranova manufacturing facility, located in Devens, Massachusetts. The objective of this document is to identify the design characteristics necessary to mitigate risks of hazards associated with the Clinic and Commercial Bioconjugation operations. Considerations for this report include compliance with applicable building, fire, explosion, electrical, and toxic material safety codes while maintaining GMP requirements for handling various hazardous substances.

1.2 Scope

The new Bioconjugation processes will include:

- One (1) Bioconjugation cleanroom suite for clinical and commercial scale production
- One (1) Hazardous Material Staging Room adjacent to the bioconjugation cleanroom
- One (1) Analytical Research and Development (ARD) Lab for small scale analytical testing
- One (1) Hazardous Storage Warehouse Area for installation of new bulk waste tank
- One (1) Process Research and Development (PRD) Lab for small scale process development

All powder handling will be done in existing labs at the Veranova site already intended for Highly Potent API material handling and are outside the scope of this review.

1.3 Applicable Codes & Standards

The following applicable codes and standards were considered:

- NFPA 497 (2024) – Classification of Flammable Liquids, Gases, or Vapors and of Hazardous Classified Locations
- NFPA 68 (2023) & NFPA 69 (2024) – Explosion Venting and Prevention
- NFPA 70 (NEC 2023, Articles 500-506) – Electrical Code for Hazardous Locations
- NFPA 30 (2024) – Flammable and Combustible Liquids Code
- NFPA 400 (2025) – Hazardous Materials Code (covers toxic and highly toxic materials)
- 527 CMR – Massachusetts Board of Fire Prevention Regulations
- 780 CMR – Massachusetts Amendments to the International Building Code 2021
- International Mechanical Code (IMC 2021) Chapter 5 – Hazardous Exhaust Requirements
- International Building Code (IBC 2021) – Local building code requirements
- International Fire Code (IFC 2021) Chapters 22, 50, 57, and 60 – Hazardous Material Storage & Handling
- Biosafety in Microbiological and Biomedical Laboratories (BMBL) 6th edition – Biosafety requirements
- ISPE Good Practice Guide: Containment for Potent Compounds (2022) - Potent compound containment control

1.4 Conclusions

The following sections outline high level conclusions for electrical hazard area classification and hazard mitigation strategies based on operational conditions, vapor hazards, and applicable NFPA guidelines. Table 1.4.2.1 outlines specific equipment and rooms for reference.

This Hazard Summary Report has been prepared utilizing critical data and operational inputs supplied by Veranova. The findings, conclusions, and recommendations contained herein are based on the accuracy and

completeness of that information. It remains the sole responsibility of the site to ensure that both current and future facility operations are conducted in a manner that fully complies with all applicable federal, state, and local codes, laws, and safety standards. The authors of this report disclaim any liability arising from changes in operational conditions, future modifications, or noncompliance by the site with relevant regulatory requirements.

1.4.1 Maximum Allowable Quantity of Hazardous Materials

The facility shall continue to operate in a manner that will not exceed the maximum allowable quantity (MAQ) of materials allowed for closed storage, closed use and open use within a single control area per NFPA and IBC. Specifically for this project, the first-floor control area includes the entirety of the first floor except for the Hazardous Storage Staging Room and the H-2 Hazardous Storage Warehouse (Rooms 1002-1005, 1018-1019). The second floor has two control areas. The first is an existing lab (Rooms 2003-2006). The second is the remainder of the second floor including the new PRD lab. Facility operations must maintain these MAQs, which include coordinating the sum of stored and open materials within concurrent operations throughout each of the first and second floor control areas of Building 2. For example, the control area is allowed to have a cumulative volume of up to 30 gallons of open container usage at any point in time for solvents categorized as Class IA, IB, and IC flammable liquids. Hazardous waste from the Bioconjugation cleanroom will be pumped to a holding tank within the existing H-2 Storage Warehouse which does not have an MAQ requirement. Refer to the attached Hazardous Material Inventory for materials in each Control Area.

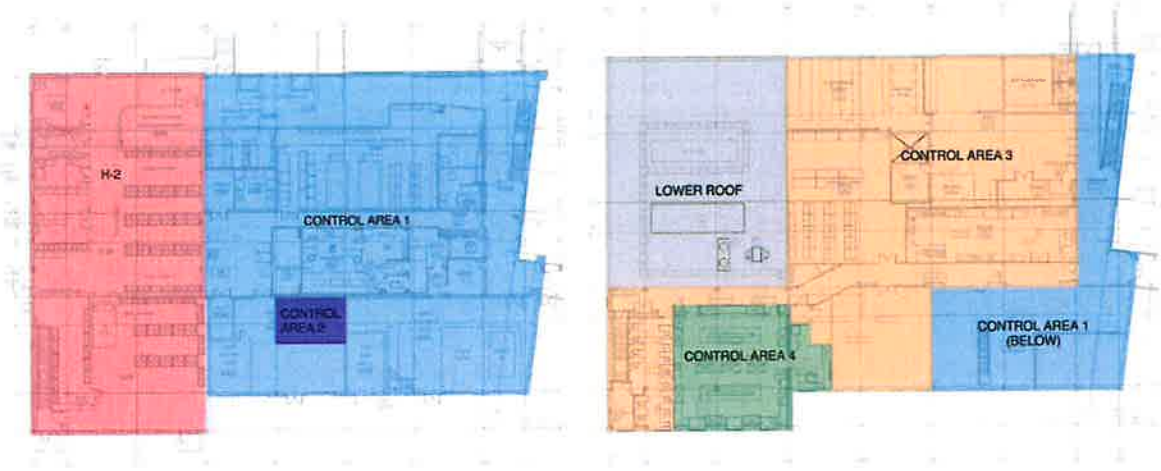


Figure 1: *1st Floor Control Areas* *2nd Floor Control Areas*

1.4.2 Electrical Hazard Classification

Ventilated Enclosures – Class I, Division 2: Due to the inability to get bioconjugation process equipment that is rated intrinsically safe/explosion proof, the site has implemented a strategy using fixed, calibrated, monitored LEL (Lower Flammability Limit) sensors to immediately disconnect power to all equipment within the ventilated enclosure upon detecting a solvent vapor concentration setpoint lower than 25% of the LEL for each solvent. The ventilated enclosures are fully exhausted, negatively pressurized to the surrounding room, and have moveable panels, glove ports, and secondary containment to prevent the egress of hazardous material into the surrounding room in the case of an accidental release of material from the closed production equipment.

Bioconjugation Clean Room Suite – Electrically Unclassified Area: Any joints or devices in closed piping systems containing flammable/combustible liquids will be limited to either the Hazardous Material Staging Room or within the Class I, Division 2 ventilated enclosure allowing the Bioconjugation Room to be electrically unclassified. Due to the potent materials in the product as discussed in a later section, the room is fully exhausted to building exterior with all exhaust equipment on backup power. Although not required, receptacles are approximately 42" above room finished floor. Due to the use of single use tubing all equipment will be grounded and static dissipative flooring will be used throughout the room. LEL sensors and monitoring will be provided for the room that alert operators of an upset condition upon detecting a solvent vapor concentration setpoint lower than 25% of the LEL for each solvent.

Hazardous Staging Room – Class I, Division 2: Flammable liquid transfer will be performed via closed transfer to and from bulk drums to process equipment in the Bioconjugation cleanroom ventilated enclosure. Diluted process waste containing hazardous material will be collected through closed piping from the closed process equipment in the ventilated enclosure to a closed tank within the Hazardous Staging Room. The hazardous material drums and process waste tank will vent to the building exterior. There will be no open dispensing into smaller containers. Due to the presence of flammable/combustible liquids in closed piping systems, tanks and storage containers, Class I, Division 2 electrical hazard boundaries will be applied around potential leak points per NFPA 479. For example, a 5' Class I, Division 2 sphere around potential leak points of concentrated solvent, and a 3' high 25' radius zone below potential leak points. The recessed slab/pit will be considered a Class I, Division 1 area.

The Hazardous Staging Room will have adequate ventilation per NFPA 497, be negatively pressurized to adjacent spaces limiting the boundaries of the electrical classification to the Hazardous Staging Room, all equipment will be grounded and static dissipative flooring used throughout the room, and will have a local exhaust capture immediately above the drum during operations and when opening it to connect it to the transfer piping. HVAC returns are fully exhausted to building exterior which minimizes the opportunity for accumulation of solvent vapor concentrations. Fixed LEL monitors will be installed in the room to alarm if vapor concentrations accumulate to a low-level alarm set point, at which point, solvent supply pumps will be interlocked to stop and all containers are closed procedurally. All scales, pumps instrumentation, etc. within the room will be rated intrinsically safe/explosion proof.

ARD Lab – non-classified: The ARD lab does not require classification due to the very small volumes of hazardous materials present. Hazardous materials will be present in slurry or liquid form within a fully exhausted fume hood.

PRD Lab – Non-Classified: The PRD lab will not be designed with any electrical hazard classification. No closed or piped material transfers exist which removes the risk of leak points. Manual closed processing of flammable/combustible solvents will be performed in a ventilated enclosure that is fully exhausted, negatively pressurized to the surrounding room, and have moveable panels, glove ports, and secondary containment to prevent the egress of hazardous material into the surrounding room in the case of an accidental release of material from the closed production equipment.

Hazardous Storage Warehouse: The hazardous storage warehouse is an existing H-2 occupancy, Class I, Div 2 space. It is anticipated the warehouse is fully compliant with all reference standards and the hazardous waste tank will be segregated from non-compatible materials in secondary containment.

Table1.4.2.1: Summary of Room Electrical Hazard Classifications

Room/Equipment Name	Toxic/Highly Toxic/ Cytotoxic in slurry	Flammable/Combustible Liquid	NFPA Area Classification
Ventilated Enclosures in PRD Lab	Y (Closed handling)	Y (Secondary Containment)	Class I, Div 2. Fixed LEL monitoring to disconnect power within enclosure upon exposure to vapor.
Ventilated Enclosures in Bioconjugation	Y (Closed handling)	Y (Secondary Containment)	Class I, Div 2. Fixed LEL monitoring to disconnect power within enclosure upon exposure to vapor.
Bioconjugation Cleanroom	Y (Secondary Containment)	Y (Secondary Containment)	Non-classified.
Hazardous Material Staging Room	Y (Secondary Containment)	Y (Secondary Containment)	Class I, Div 2 in area around valves and 36" AFF and below.
PRD Lab	Y (Secondary Containment)	Y (Secondary Containment)	Non-Classified
ARD Lab	Y (Secondary Containment)	Y (Secondary Containment)	Non-Classified
H-2 Storage Warehouse	N	Y (Secondary Containment)	Class I, Div 2

1.4.3 Hazard Mitigation Outline

The following table outlines a high-level summary of planned infrastructure, engineering, and procedural controls related to hazards present in specific areas.

Table 1.4.1 – Hazardous Material Design Features

Design Feature	cGMP	Cross - Contamination	Cytotoxic	Flammable/ Combustible Liquid	Other
Closed processes as primary containment	X		X		
Single use systems	X		X		
Cytotoxic material in slurry at all times			X		
Closed transfer of hazardous materials	X		X	X	
Equipment grounding				X	Static with single use tubing
Enclosure as secondary containment	X		X	X	
Enclosure negative pressurization to surrounding room			X	X	
HEPA filtered exhaust			X		
100% single-pass air	X	X	X		
AHU and exhaust fans on emergency power	X		X		
Glove ports	X	X	X		
Spill containment	X	X	X	X	
Equipment grounding				X	Static with single use tubing
Risk assessment			X	X	
LEL monitoring to disconnect power to equipment				X	
Enclosure cleaning	X	X	X	X	
Electrical classification: Class I, Div 2				X	
GMP Bioconjugation Cleanroom as secondary containment	X	X	X	X	
ISO 8 (Grade C) cleanroom classification	X				
Controlled access	X		X		
Airlock	X	X			
Door interlocks	X	X			
Bubble pressurization	X	X	X		
Personnel wear full PPE during normal operation (PAPR)			X		
Static dissipating floor					Static with single use tubing
Means of grounding for equipment					Static with single use tubing
Fully sprinklered				X	IBC
HEPA filtered exhaust			X		
100% single-pass air from AHU	X	X	X		
AHU and exhaust fans on emergency power	X		X		
O2 monitoring to local alarm due to N2 use					X
Risk assessment			X	X	
LEL monitoring to disconnect power to equipment				X	

Design Feature	cGMP	Cross - Contamination	Cytotoxic	Flammable/	Design Feature
PRD Lab as secondary containment			X	X	
Controlled access			X		
Personnel wear full PPE during normal operation (PAPR)			X		
Means of grounding for equipment					Static with single use tubing
Fully sprinklered				X	
Room negatively pressurized to surrounding spaces			X		
HEPA filtered exhaust			X		
100% single-pass air			X		
AHU and exhaust fans on emergency power			X		
Flammable storage cabinets to increase MAQ				X	
ARD Lab as secondary containment			X	X	
Controlled access			X		
Personnel wear full PPE during normal operation (PAPR)			X		
Fully sprinklered				X	IBC
Room negatively pressurized to surrounding spaces			X		
100% single-pass air from AHU		X	X		Existing
AHU and exhaust fans on emergency power					
Flammable storage cabinets to increase MAQ				X	
Local Exhaust Ventilation (Nederman Arm)					X
O2 monitoring to local alarm due to N2 use					X
Hazardous Material Staging					
Controlled access			X	X	
Negative pressurization to surrounding room			X	X	
Local Exhaust Ventilation (Nederman Arm) above floor scale with drum connected for closed transfer				X	
O2 monitoring to local alarm due to N2 use					X
HEPA filtered exhaust			X		
100% single-pass air from AHU	X	X	X		
AHU and exhaust fans on emergency power			X		
Spill containment			X	X	
Equipment grounding				X	
Flammable storage cabinets to increase MAQ				X	
Electrical classification: Class I, Div 2, 5' radius around leak points and 36" AFF and below for 25' radius.				X	

2 Hazard Identification & Classification

2.1 Material Characterization & Testing

Due to the unknown flammable/combustible liquids, and toxic material properties, testing is recommended for each material type, including process waste, to confirm hazard classification per the International Building Code, 527 CMR and NFPA. Once the hazard classification is known, confirm volumes will remain below the MAQ for open in-use, closed in-use and storage volumes.

2.1.1 Flammable & Combustible Liquids

Class IA liquids have the most restrictive limits on allowable volume: 20 gallons in open use systems, 60 gallons in closed use systems, and 120 gallons maximum volume for all uses if remainder of liquid is stored in a flammable storage cabinet. For example, if a 50-gallon drum of class IA liquid is in the Hazardous Staging Room, only 70 additional gallons can be stored in the room inside a flammable storage cabinet. An additional 360 gallons of Class IB liquids could also be stored in flammable storage cabinets in the room for a maximum of 480 gallons of Class IA, IB and IC liquids. These volumes are based on the building being equipped throughout with an automatic sprinkler system.

TABLE 307.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD[a, i, m, n, p]

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
			Solid pounds(cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds(cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds(cubic feet)	Liquid gallons (pounds)
Combustible liquid[c, l]	II	H-2 or H-3	NA	120[c, e]	NA	NA	120[d]	NA	NA	30[d]
	IIIA	H-2 or H-3		330[d, e]			330[d]			80[d]
	IIIB	NA		13,200[e, f]			13,200[f]			3,300[f]
Flammable liquid[c]	IA	H-2 or H-3	NA	30[d, e]	NA	NA	30[d]	NA	NA	10[d]
	IB and IC			120[d, e]			120[d]			30[d]
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120[d, e, h]	NA	NA	120[d, h]	NA	NA	30[d, h]

- Classification: The materials to be used in the facility are classified under NFPA 30 as Class IB flammable liquids and Class IIIA combustible liquids, with a smaller number falling under Class II. Concentrated organic solvent additions from the chemical dosing system are performed during the conjugation step and during mixing of elution buffers. No further additions of concentrated organic solvent will be required in subsequent processing steps. Purification steps downstream of conjugation are meant to remove organic solvents. The effluent from purification steps will include aqueous waste with significantly diluted organic solvent concentrations from a starting point of 15% v/v. The process waste stream will be directly diverted to the process waste lift station located in the Hazardous Material Staging Room then pumped to the Hazardous Waste Bulk Storage tank located in the H-2 occupancy warehouse.

- Use Locations: Flammable and combustible liquids will be stored in the H-2 warehouse or staged in the Hazardous Material Staging room. All flammable and combustible liquids will be "use – closed" either in closed containers vented to the exterior, closed piping, or closed process equipment vented into a fully exhausted ventilated enclosure with additional safety controls.
    - Chemical Dosing System will be located in the hazardous material staging room. It consists of an air operated diaphragm pump for transferring concentrated organic solvents (Example: ACN, DMA, and DMSO) to the single use bioreactor housed within the ventilated enclosure located within the Bioconjugation room. The drum will be temporarily open when changing chemicals or empty drums out. The drum will vent to the building exterior. Potential leak points will be considered where piping is not fully welded (ex. Tri-Clamp connections).
    - Conjugation reactor will hold 15% v/v organic solvent max in a 200L reactor. Future case considers a 500L future scale conjugation reactor. These cases estimate the usage of 30L solvent in current design and 75L in future case. The conjugation SUB will be considered closed as outlined with planned future risk assessment.
    - Process waste lift station is preliminary designed with a 20 gallon (75.7 liter) working volume collection tank. The lift station will include duplex lead-lag pumps for mechanical redundancy and will discharge solution to the bulk waste collection tank located in the H-2 occupancy area of the facility. The waste lift station tank will be vented to building exterior and considered closed use.
- MAQ Summary:
    - Organic solvent considered in this project: ACN, DMA, DMSO
    - ACN is used as the basis for design because it is classified as a Class IB Flammable Liquid which is the worst case and has the most significant limitations for allowable quantities.
    - Assumption for process waste based on 10% ACN in water is Class IB Flammable liquid. Testing required to confirm if dilution reduces flammability class of liquid waste.
    - See attach Material Classification and Hazardous Material Inventory spreadsheet.
    - Worst case scenarios indicated within the Hazardous Material Inventory include:
        a. Bioconjugation Room, Control Area 1:
            - Day 1: Elution Buffer Preparation
                - 1 x 500L Conjugation SUB with 15% ACN (closed use)
            - Day 8: Making Product, Conjugation
                - 1 x 500L Conjugation SUB with 15% ACN (closed use)
            - Day 9: Making Product, Chromatography
                - 1 x 500L Chromatography with 15% ACN (closed use)
        b. Hazardous Material Staging, Control Area 2: A maximum of two (2) bulk 55 gallon (208L) chemical drums can be open in the Hazardous Material Staging room at one time based on the following design criteria. If further storage of 15% ACN buffers are required above the MAQ, those volumes should be stored in the H-2 warehouse.
            - Day 1: Elution Buffer Preparation
                - 1 x 55 gallon (208L) drum of ACN (closed use)
                - 1 x 55 gallon (208L) drum of 15% ACN elution buffer (closed use)

    - 2 x 55 gallon (208L) drum of 15% ACN elution buffer (storage no cabinet)
    - 4 x 55 gallon (208L) drums of 15% ACN elution buffer in flammable storage cabinets
    - 1 x 55 gallon (208L) drum of ACN in flammable storage cabinet
- Day 8: Making Product, Conjugation
    - 1 x 55 gallon (208L) drum of ACN (closed use)
    - 1 x 10 gallon (38L) process lift station collection tank (closed use)
    - 6 x 55 gallon (208L) drums of 15% ACN elution buffer in flammable storage cabinets
    - 1 x 55 gallon (208L) drum of 15% ACN stored in room (no cabinet)
- Day 9: Making Product, Chromatography
    - 1 x 55 gallon (208L) drum of ACN in flammable storage cabinet
    - 1 x 10 gallon (38L) process lift station collection tank (closed use)
    - 1 x 55 gallon (208L) drum of elution buffer (closed use)
    - 5 x 55 gallon (208L) drums of elution buffer in flammable storage cabinets
    - 1 x 55 gallon (208L) drum of 15% ACN stored in room (no cabinet)

- Class 1 Division Combustible Material Group: Isopropanol and ethanol are considered Group D per NFPA 497.
    - Group D – Flammable gas, flammable liquid produced vapor, or combustible liquid produced vapor mixed with air that may burn or explode, having either a maximum experimental safe gap (MESG) value greater than 0.75 mm, or a minimum ignition current (MIC) ratio greater 0.80.

Characterization Overview:

- Tests Required: NFPA 30 compliance for flash point, boiling point.
- Purpose: Determines ignition risk, storage classification, and hazardous location electrical requirements.
- Mitigation Strategies: Proper storage, explosion-proof equipment, fire suppression, and ventilation.

2.1.2 Toxic Materials

Some organic solvents as outlined in section 3.1.1 are also toxic. Owner will ensure that the Maximum Allowable Quantity (NFPA 30) allowed in a non-hazard rated single control area will be always maintained for the existing building for Toxic materials.

Cytotoxic materials will be used in the process. Cytotoxic is not a building code definition. It falls under biosafety rules but does not contribute to the MAQ per the building codes. Refer to section 3.3.1.

TABLE 307.1(2) [F] TABLE 307.1(2)

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A HEALTH HAZARD[a, c, f, h, i]

MATERIAL	STORAGE[b]			USE-CLOSED SYSTEMS[b]			USE-OPEN SYSTEMS[b]	
	Solid pounds[d, e]	Liquid gallons (pounds)[d, e]	Gas cubic feet at NTP (pounds)[d]	Solid pounds[d]	Liquid gallons (pounds)[d]	Gas cubic feet at NTP (pounds)[d]	Solid pounds[d]	Liquid gallons (pounds)[d]
Corrosives	5,000	500	Gaseous 810[e] Liquefied (150)	5,000	500	Gaseous 810[e] Liquefied (150)	1,000	100
Highly Toxic	10	(10)	Gaseous 20[g] Liquefied (4)[g]	10	(10)	Gaseous 20[g] Liquefied (4)[g]	3	(3)
Toxic	500	(500)	Gaseous 810[e] Liquefied (150)[e]	500	(500)	Gaseous 810[e] Liquefied (150)[e]	125	(125)

Characterization Overview:

- Tests Required: NFPA 400 classification based on exposure limits and toxicity levels.
- Purpose: Evaluates risk to personnel and required safety measures for handling.
- Mitigation Strategies: Containment systems, local exhaust ventilation, emergency response planning.

2.2 Hazardous Area Classification Analysis (NFPA 497, NFPA 400, IFC)

2.2.1 NFPA Electrical Classification Definitions

(NFPA 497, Section 5.1.1.1) – A Class I, Division 1 location is a location:

- In which ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors can exist under normal operating conditions.
- In which ignitable concentrations of flammable gases, flammable liquid-produce vapors, or combustible liquids above their flash point might exist frequently because of repair or maintenance operations or because of leakage, or
- In which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors and might also cause simultaneous failure of electrical equipment in such a way as to directly cause the electrical equipment to become a source of ignition.

(NFPA 497, Section 5.1.1.2) – A Class I, Division 2 location is a location:

- In which ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors are normally prevented by positive mechanical ventilation and which might become hazardous through failure of abnormal operation of the ventilating equipment.

- That is adjacent to a Class I, Division 1 location, and to which ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors above their flash points might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided.

2.2.2 Flammable/Combustible Liquid in the Hazardous Material Staging Room with Local Exhaust Ventilation – Class I, Division 2

This room will be utilized for closed transfer and storage of flammable/combustible liquids. Classification selection based on the following considerations:

- Hazardous material containers are vented to exterior
- Possible spills or mishandling of dip tube install into raw material container done in a fixed location, on a floor scale, under local exhaust ventilation system (i.e. Nederman Arm).
- Accumulations of higher vapor concentrations are likely only under abnormal conditions (i.e. accidental spill within room during drum port opening). Site procedures include accidental spill rapid response.
- All containers are capped/sealed/closed prior to movement in the room.

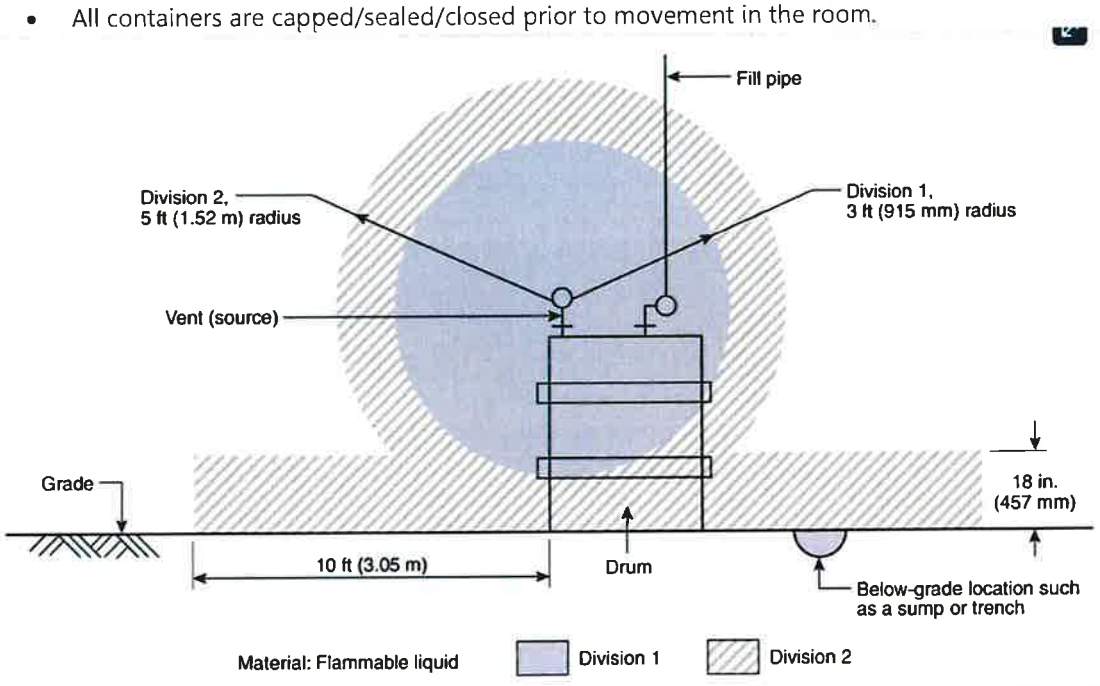


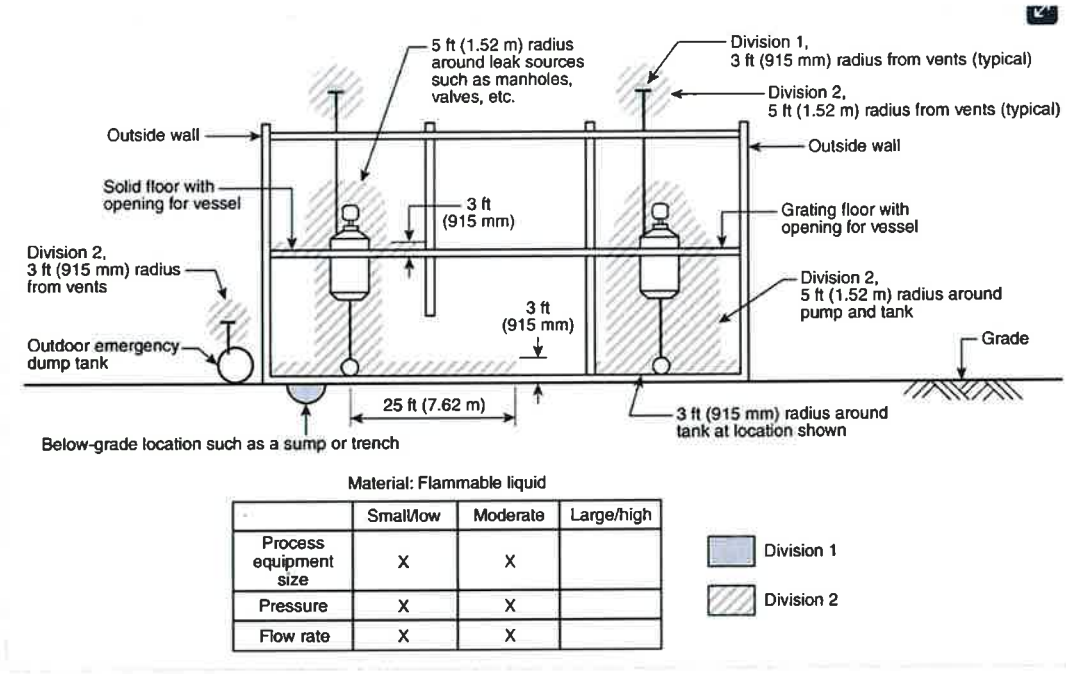
Figure 5.10.6 Drum Filling Station Located Either Outdoors or Indoors in an Adequately Ventilated Building. The material being handled is a flammable liquid.

Figure 5.10.6 is an example of the electrical hazard boundaries for open vents on flammable liquid containers located in the room.

Figure 5.10.6 is also an example for a process/hazardous waste sump tank located in the Hazardous Staging Room that vents to the exterior. The sump tank collects waste via closed piping from process equipment in the Bioconjugation Room and is fitted with explosion proof pumps to transfer the waste from the sump tank to the bulk hazardous waste tank in the H-2 Storage Warehouse. The

process/hazardous waste sump tank will sit on a recessed slab secondary containment that also serves as secondary containment for the drip tray within the ventilated enclosure. If the ventilated enclosure discharges spilled solutions into the pit, a liquid presence sensor will notify personnel for a spill response team to manually collect and clean the spilled solution.

The following Figure 5.10.1(n) is an example of the electrical classification around the pumps within the Hazardous Material Staging room.



	Small/low	Moderate	Large/high
Process equipment size	X	X	
Pressure	X	X	
Flow rate	X	X	

Figure 5.10.1(n) Multiple Sources of Leakage, Located Both at and Above Floor Level, in an Adequately Ventilated Building. The material being handled is a flammable liquid.

The design intent is for the room to be negatively pressurized (-0.06" wc) to surrounding rooms which are non-classified with all areas having adequate ventilation on backup power. The boundary of the electrically classified space will be within the walls of the Hazardous Material Staging area which extend to the bottom of deck of the second floor above. The supply and exhaust air from the room will be approximately 6 ACH or 1 cfm/sf, whichever is greater. The HVAC system will be designed to meet NFPA 30 Flammable and Combustible Liquids, Chapter 18 Dispensing, Handling, Transfer and Use of Liquids, Section 18.6 Ventilation for Dispensing Areas.

- Mechanical ventilation systems which provide at least 1 cfm of exhaust air for each square foot of floor area, but not less than 150 cfm.
    - Equipped with an airflow switch or other equally reliable method that is interlocked to sound an audible alarm upon failure of the ventilation system.
- Exhaust air taken from a point near a wall on one side of the room within 12 in. of the floor, with one or more make-up inlets located on the opposite side of the room within 12 in. of the floor.
- The location of both the exhaust and inlet air openings shall be arranged to provide air movement across all portions of the floor to prevent accumulation of flammable vapors.
- Hazardous exhaust system with exhaust ventilation discharge to a safe location outside the building.

- High plume dilution exhaust fan, Class B spark proof
- LEL monitoring within the room will be provided. If flammable vapors are sensed, local audible/visual alarm will notify a spill response team.

2.2.3 Flammable/Combustible Liquid in Ventilated Enclosure in Bioconjugation Cleanroom – Class I, Division 2

The ventilated enclosures will be utilized for closed transfer and use of flammable/combustible liquids. Classification selection based on the following considerations:

- All processes shall be closed using single use tubing assemblies regardless of presence of flammable or combustible liquids for each process step.
- The ventilated enclosure will be negatively pressurized to the surrounding Bioconjugation Room with both Bioconjugation and the ventilated enclosure make-up air and exhaust air systems on backup power.

Design features:

- Mechanical ventilation system which provides approximately 16 cfm of exhaust air for each square foot of floor area.
- Exhaust air taken both high and low, within 12 in. of the floor, within the ventilated enclosure, with makeup air inlets on the opposite side of the enclosure at both high and low points.
- The location of both the exhaust and inlet air openings shall be arranged to provide air movement across all portions of the floor to prevent accumulation of flammable vapors.
- Exhaust air manifolded to exhaust system in the Hazardous Material Staging Room.
- Personnel are physically separated from the interior of the enclosure using sliding doors with glove ports.
- Any leaks would be captured by an integral drain pan and gravity drained to the adjacent Class I, Div 2 Hazardous Material Staging Room.
- All equipment and the ventilated enclosure will be grounded.

Code risk point:

- LEL monitoring within the ventilated enclosure. If flammable vapors are sensed, all power to internal receptacles powering equipment within the ventilated enclosure will be shutoff. This feature is implemented due to the lack of process equipment that can be procured rated for electrically classified areas.

2.2.4 Flammable/Combustible Liquid in Bioconjugation Cleanroom – Electrically Un-classified

Piping systems will be utilized for closed transfer of flammable and combustible liquids. Classification selection based on the following considerations:

- All piping containing flammable or combustible liquids to or from the ventilated enclosure will be fully welded stainless steel tubing.
- The Bioconjugation Cleanroom will be negatively pressurized to the airlocks with a fully sealed room, floor and ceiling construction throughout. The Bioconjugation and the ventilated enclosure make-up air and exhaust air systems will be on backup power.
- No leak points will be located within the Bioconjugation Room. All pipe joints, valves and devices will be located within the ventilated enclosure.

Design features:

- Mechanical ventilation system which provides approximately 48 air changes per hour (ACH) of exhaust air to the Bioconjugation cleanroom.
- Exhaust air taken both at multiple elevations throughout the room including within 12 in. of the floor, with the bulk of the airflow toward the ventilated enclosure which is the primary location for hazardous materials being used.
- The location of both the exhaust and inlet air openings shall be arranged to provide air movement across all portions of the floor to prevent accumulation of flammable vapors.
- All equipment will be grounded.
- The tube welder will have additional requirements for grounding as outlined in the Master Equipment List.
- LEL monitoring within the room

2.2.5 Flammable/Combustible Liquid in Ventilated Enclosure in PRD Lab – Class I, Division 2

The ventilated enclosures will be utilized for closed transfer and use of flammable/combustible liquids from small portable containers within the enclosure. Classification selection based on the following considerations:

- All processes shall be closed using single use tubing assemblies regardless of presence of flammable or combustible liquids for each process step.
- The ventilated enclosure will be negatively pressurized to the surrounding PRD lab with both PRD Lab and the ventilated enclosure make-up air and exhaust air systems on backup power.

Design features:

- Mechanical ventilation system which provides approximately 16 cfm of exhaust air for each square foot of floor area.
- Exhaust air taken both high and low, within 12 in. of the floor, within the ventilated enclosure, with makeup air inlets on the opposite side of the enclosure at both high and low points.
- The location of both the exhaust and inlet air openings shall be arranged to provide air movement across all portions of the floor to prevent accumulation of flammable vapors.
- Personnel are physically separated from the interior of the enclosure using sliding doors with glove ports.
- Any leaks would be captured by an integral drain pan and manually cleaned up with a spill kit.
- All equipment and the ventilated enclosure will be grounded.

Code risk point:

- LEL monitoring within the ventilated enclosure. If flammable vapors are sensed, all power to internal receptacles powering equipment within the ventilated enclosure will be shutoff. This feature is implemented due to the lack of process equipment that can be procured rated for electrically classified areas.

2.3 cGMP and Biosafety

2.3.1 Cytotoxic materials

The potential cytotoxic materials that will be used in this process are assumed to be OEL <1ng/m3 payload in solvent. The materials will be liquid form (0.5-200kg) and transferred to the conjugation reactor (mAb/aqueous solution; 200L) in single use closed processing. Cytotoxic materials will only be present in the areas of work in a liquid slurry, in closed processed, within ventilated enclosures to protect personnel from possible exposure. Personnel should be protected from cytotoxic materials with all powders handled outside this scope of work in a Highly Potent API Lab. Cytotoxic materials do not meet the building code definition of toxic and do not contribute to the MAQ. Handling and containment of materials such as these have been established using the ISPE Guide: Containment for Potent Compounds:

- Table 3.6, Spread potential: High, all materials with OEL<10 µg/m3
- Table 3.7, Carryover potential: High, MP 4, medium amount of material (0.5-200 kg)
- Table 3.8, Secondary containment strategy: High, SCS4
- Table 3.2, Secondary containment strategy:
    - primary barrier is closed single use equipment
    - secondary barriers include ducting to BIBO HEPA exhaust prior to discharge to atmosphere, ventilated enclosure to separate personnel and surrounding room from process, process waste collection and off-site treatment

Areas using cytotoxic materials include the following characteristics:

- Cytotoxic materials are only present in a pre-mixed liquid slurry state and contained in closed processing equipment housed within ventilated enclosures.
- No cytotoxic materials shall go to the sanitary sewer.
- Eyewash & safety shower adjacent to rooms where used.
- Personnel shall be in full PPE during normal operation (PAPR).
- Rooms shall have access control.
- Rooms shall be negatively pressurized.
- Rooms and ventilated enclosures will be fully exhausted with bag-in/bag-out HEPA filtration prior to discharge to a safe location outside the building.

Area using toxic or cytoxic materials include

- PRD Lab
- Bioconjugation

2.3.2 Nitrogen

Nitrogen gas will be used for the process. O2 monitoring shall be included in the following rooms to sound a local audible and visual alarm should a lack of oxygen be sensed indicating a nitrogen leak.

- ARD Lab HPLCs
- PRD Lab
- Bioconjugation

Additional local exhaust extraction arms shall be used near the source of connection.

- ARD Lab HPLCs
- Hazardous Material Staging floor scale

3 Facility Impact & Regulatory Compliance

3.1 Fire Rated Construction (IBC and IFC)

Control areas shall be separated by 1 hour fire barriers. For Type IIB construction, second floor control areas shall be supported by 2 hour rated construction. Ductwork and piping penetrations through fire barriers and existing fire rated walls will be sealed as required by code. Refer to the code sheet in the project drawings, G-0010, for the code review and control areas.

Approved flammable storage cabinets will be used to increase maximum allowable quantities of stored hazardous materials.

3.2 Electrical & Equipment Clarifications (NFPA 70 – NEC 502/506)

3.2.1 Class I Electrical Equipment: Areas handling flammable/combustible liquids must use explosion-proof lighting, motors, and control panels to prevent ignition of vapors.

3.2.2 Intrinsically Safe Equipment: Recommended for toxic material handling areas to prevent sparking hazards, including intrinsically safe scales, monitoring equipment, and ventilation controls.

3.2.3 Static Control: Proper grounding and bonding for liquid handling systems to prevent electrostatic discharge. This includes:

- Use of conductive flooring.
- Grounding and bonding straps on personnel and equipment.
- Antistatic additives where appropriate.

3.2.4 Ventilation Interlocks: Ventilation systems must be interlocked with electrical systems in classified areas to prevent operation if ventilation fails.

3.3 Access Control (IFC)

Rooms with hazardous material use points will be access controlled via card readers or door locks to restrict usage to trained personnel.

3.4 Hazardous Exhaust (IMC), not required:

After review of the potential raw materials to be used in the Bioconjugation process, none were identified to have a health-hazard rating of 4. Therefore, exhaust from the PRD Lab, Bioconjugation and Hazardous Material Staging does not meet the requirements for "hazardous exhaust." However, the exhaust system has been routed to allow for upgrade with some modifications to hazardous exhaust in future if a different raw material is required.

Hazardous exhaust is required when, in the absence of an exhaust system and under normal operating conditions, there is the potential to create one of the following conditions.

- A flammable vapor, gas, fume, mist or dust is present in concentrations exceeding 25 percent of the lower flammability limit of the substance for the expected room temperature. *Refer to electrical classification sections of this document for rooms where flammable liquids are in closed use with venting to exterior of building.*
- A vapor, gas, fume, mist or dust with a health-hazard rating of 4 is present in any concentration. *No materials with a health-hazard rating of 4 have been identified for potential use in the process.*

- A vapor, gas, fume, mist or dust with a health-hazard rating of 1, 2 or 3 is present in concentrations exceeding 1 percent of the median lethal concentration of the substance for acute inhalation toxicity. *Acetonitrile and DMSO have a health-hazard rating of 2. A risk assessment will be performed for any activities required upon loss of exhaust to ensure workers or fire fighters could not be exposed to the stated concentration or that typical fire fighter PPE would be adequate for protection.*

Hazardous exhaust must be designed as follows per the 2021 IMC Chapter 5:

- Included in current design:
  - Direct exhaust to the exterior
  - Redundant exhaust fans
  - Fire resistant construction for duct penetrations
  - Make-up air supplied in proportion to exhaust to maintain airflow balance
  - Safe dispersion of exhaust air
  - Dilution of exhaust air below 25% LEL
  - Dampers with securely locked positions
  - Cannot penetrate through a fire wall (okay through fire barrier)
  - Cannot be in a common shaft with other duct systems
- Require system modification:
  - All connections to manifold must be in the same fire area
  - Fire-resistant-rated shaft between penetration of floor assembly to termination outdoors
  - Integrated fire suppression system
  - Cannot have fire dampers or smoke dampers

3.5 Ventilation & Exhaust (cGMP 21CFR & ISPE Guidelines, NFPA 400, OSHA 1910.272)

3.5.1 Local Exhaust Ventilation (LEV): Required for solvent fume mitigation, removal of nitrogen release at use points, and secondary containment for cytotoxic materials. A Nederman flexible arm will be installed to remove fumes from open containers of flammable or combustible liquids. Ventilated enclosures will be used in rooms with hazardous materials for secondary containment at use points. The LEV system should maintain sufficient capture velocities based on particle size and material properties.

3.5.2 Dilution Ventilation: Additional ventilation measures may be required for handling flammable vapors to maintain concentrations below 25% of the lower flammable limit (LFL) per NFPA 30. The project includes 100% single pass air handling strategy for the areas that handle flammable or combustible liquids intended to ensure vapor concentrations do not accumulate.

3.5.3 Room Pressurization: Rooms containing hazardous materials will be negatively pressurized to surrounding occupied spaces. Cleanrooms used for Bioconjugation will have airlocks for improvement steps with door interlocks to ensure only one door is open at a time. The airlocks will be pressure bubbles to ensure Bioconjugation Room containment of hazardous materials and protect the Bioconjugation Room from microbial or particulate contamination from non-cleanroom spaces.

3.5.4 Cleanroom Filtration: Cleanrooms with cleanliness classifications shall have supply terminal HEPA filters at the room discharge in order to meet ISO particulate and microbial count requirements. Cleanrooms will also be designed at air changes rates typical for cleanroom classifications.

3.5.5 Exhaust: Rooms with hazardous materials will be 100% single pass air handling with 100% exhaust with HEPA filtration using bag-in/bag-out units prior to discharge to atmosphere.

3.5.6 Containment and Monitoring: It is recommended that areas handling flammable liquids should include continuous air monitoring, leak detection sensors, and alarm systems to detect leaks or airborne contamination. The project includes sensors to detect for flammable/combustible vapor accumulation and alarms to operators at levels <25% the solvent's lower flammability limit (LFL) or lower explosion limit (LEL).

3.6 Fire Protection (IFC)

Existing building is fully sprinklered and has a building wide fire alarm system. All new work areas shall be fully sprinklered for Ordinary Hazards.

3.7 Hazardous Material Piping (IFC)

Piping, tubing, valves and fittings shall be of welded stainless steel piping and tested in accordance with ASME B.31.9. Any joints shall be accessible for inspection and observations of potential leaks. Joints shall be kept to a minimum. Hazardous waste piping shall be fully welded double walled containment piping from the sump collection tank to the bulk hazardous waste tank due to the potential presence of cytotoxic materials within process waste streams to minimize risk of exposure by site personnel. All hazardous waste piping will be sloped 1% to drain location at a bulk container in the event of a fire or for system maintenance.

Manual valves or automatic remotely activated fail-safe emergency shutoff valves shall be installed on supply piping and tubing and provided with ready access at the point of us and the bulk source. Valves shall be clearly visible, accessible and identified. Backflow prevention or check valves shall be used to prevent backflow of materials which could result in unauthorized discharge.

3.8 Hazardous Waste Collection and Tanker Truck Filling (IFC, NFPA 30, OSHA 1910.106)

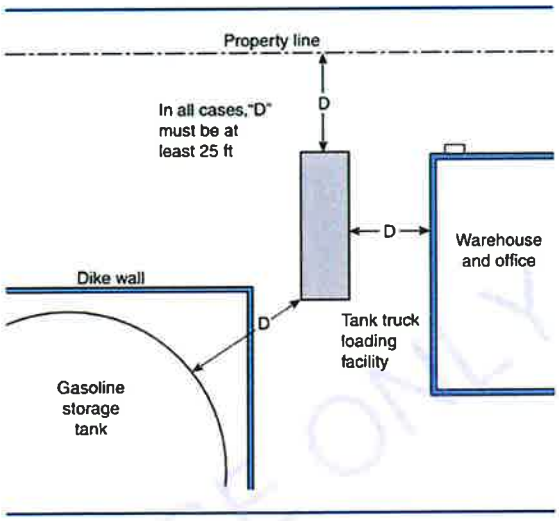
3.8.1 Tank Vehicle Loading Separation Distances:

3.8.1.1 OSHA 1910.106(5): Loading location shall be separated from aboveground tanks, warehouses, other plant buildings, or nearest property line which may be built upon by a distance of 25 feet for Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint at or above 100 deg F, and 15 feet for Category 3 flammable liquids with a flashpoint at or above 100 deg F and Category 4 flammable liquids measured from the nearest position of any fill stem.

3.8.1.2 NFPA 30 Section 28.4: Loading location shall be separated same as above but 25 feet for Class I liquids and for Class II and III liquids handled at temperatures at or above their flash points and at least 15 feet for Class II and Class III liquids handled at temperatures below their flash points, measured from nearest fill spout or transfer connection. The reason for the separation is to increase the change of controlling a fire originating at a tank vehicle before it spreads to the building, and due to the increased possibility of a spill at the making or breaking of a connection.

Per NFPA 28.4.2, these distances are permitted to be reduced if there is suitable protection for exposures such as fire protection systems, dikes, fire-rated barriers or a combination of these. The Authority Having Jurisdiction must approve reduced distances.

EXHIBIT I.28.2
Application of Separation Distances Required by 28.4.1.



3.8.2 Tank Vehicle Loading Design Requirements: The following items will be installed per NFPA 30.

- Bonding connection before loading tank vehicles through open domes. Bonding is not required if loading through closed connections.
    - Use of nonconductive materials in the fill pipe assembly should be avoided to prevent any electrical discontinuity in the piping of the system.
    - Metallic bond wire is permanently electrically connected to the fill pipe assembly or to some part of the rack structure that is in electrical contact with the fill pipe assembly. The free end of the wire provided with a clamp for attachment to metallic part of tank vehicle.

All part so the assembly shall form a continuous electrically conductive path directed to ground.

- Static electricity protection per NFPA 77
- Top loading a tanker with Class II or II liquids without a vapor control system: self-closing valve manually held open except where automatic means are provided for shutting off the flow when the vehicle is full.
- Automatic shutoff systems provided with manual shutoff valve located a safe distance from the loading nozzle to stop flow if the automatic system fails.
- When bottom loading a tank vehicle, a positive means shall be provided for loading a pre-determined quantity of liquid, together with a secondary automatic shutoff control to prevent overfill.
- The connection between the liquid loading hose or pipe and the tank vehicle piping shall be by means of a dry disconnect coupling.
- Bottom loading a tanker that is equipped for vapor control, but when vapor control is not used, the tank shall be vented to atmosphere at a height not lower than the top of the cargo tank of the vehicle to prevent pressurization of the tank.
- Connection to the facility's vapor control system shall be designed to prevent the escape of vapor to the atmosphere when the system is not connected to the tank vehicle.

3.8.3 Pumps, IFC 5705.2.1: where positive displacement pumps are used, they shall be provided with pressure relief discharging back to the tank, pump suction or other approved location, or shall be provided with interlocks to prevent over-pressure.

3.8.4 Pressured Systems, IFC 5705.2.2: where gases are introduced to provide for transfer of class 1 liquids...only inert gases shall be used. controls, including pressure relief devices, shall be provided to limit the pressure so that the maximum working pressure of tanks, containers and piping systems cannot be exceeded. where devices operating through pressure within a tank or container are used, the tank or container shall be a pressure vessel approved for intended use. Air or oxygen shall not be used for pressurization.

3.8.5 Bulk Hazardous Waste Tank, Indoors in existing H-2 Warehouse: the storage tank will be located in an existing H-2 warehouse. This project does not include review of the code compliance of the current H-2 occupancy beyond confirming spill containment required per code with the larger volume tank compared to currently stored vessels. It is assumed all other life safety systems are compliant.

3.8.5.1 IFC 415.9.1.2: Storage tanks shall be noncombustible and protected from physical damage. Tank vents for Class I, II, or IIIA liquids shall terminate to the building exterior. Explosion venting shall be per equipment and piping design, not an explosion panel in the building exterior wall.

3.8.5.2 Incompatible materials: Veranova shall perform a hazardous material inventory in the new tank location and within the spill control area to confirm adequate separation of incompatible materials.

3.9 Spill Containment and Separation of Hazardous Materials (IFC)

3.9.1 Separation of Incompatible Materials: Incompatible materials in storage and use shall be separated where containers have a capacity of more than 0.5 gallons (2L) or any amount of compressed gases by:

- Segregating incompatible materials in storage by a distance of not less than 20 feet.
- Isolating incompatible materials in storage by noncombustible partitions extending not less than 18 inches above and to the sides of the stored materials.
- Storing liquid and solid materials in hazardous material storage cabinets.
- Storing compressed gases in gas cabinets or exhausted enclosures.

3.9.2 Spill Control: Equipment or containers with hazardous materials in-use will include spill control.

- Bioconjugation ventilated enclosure with integral spill pan piped to hazardous waste sump.
- PRD ventilated enclosure with integral spill pan.
- Below grade hazardous waste sump pit for collection and pumping of process waste in water tight pit in Hazardous Material Staging Room.
- Floor drain under floor scale with discharge to hazardous waste sump in Hazardous Material Staging Room.
- Hazardous materials staged outside of flammable storage cabinets located on grating above hazardous waste sump pit with volume equal to largest container size.
- No new H-occupancy areas which require secondary containment sized for largest vessel plus fire water discharge. Existing H-2 warehouse has existing secondary containment adequately sized for new Bulk Hazardous Waste Tank.

NNOVEL

Hazardous Material Classification

Client: Veranova
Project No: CG24014

Hazardous Material	CAS No.	Flash point	Boiling point	Corrosive	LD50 (Oral)	LD50 (Dermal)	LC50 (Inhalation)	Oxidizer	Vapor Pressure	Upper Flammability Limit	Lower Flammability Limit	Classification	Bioconjugation Room (Liters) In-Use Closed	Bioconjugation Room (Liters) In-Use Open	Bioconjugation Room (Liters) Storage	Haz Storage (Liters) In-Use Closed	Haz Storage (Liters) In-Use Open	Haz Storage (Liters) Storage	PAD Lab In-Use Closed	PAD Lab In-Use Open	PAD Lab Storage
15% (v/v) organic solvent in Water (Conjugation)*,** NOTE: typically 10% (v/v) Only (1) organic solvent used, not a mix of all												likely a combustible liquid, need confirmation if this is a Class I, II or III liquid	2440L (366L of pure organic solvent)				-		244L (36.6L of pure organic solvent)		
Dimethylacetamide (DMA)	127-19-5	147 deg F (64 deg C)	322 deg F (161 deg C)		4300 mg/kg	1100 mg/kg	11.1 mg/L		2 hPa	11.5% UEL	1.8% LEL	Class IIIA Comb. Liq. Toxic (depends on SDS used)	2L (operational decision, total 20L may be used)			18L (operational decision, total 20L may be used)		5Lx5 = 25L (only 5L as it will be used for a specific step to disolve payload, buffer will be pre-ordered with solvent in buffer)			25Lx5=125L
Dimethylsulfoxide (DMSO)	67-68-5	188 deg F (87 deg C)	372 deg F (189 deg C)		28300 mg/kg	40000 mg/kg	5.33 mg/L		0.55 mbar	42% UEL	2.6% LEL	Class IIIA Comb. Liq. Toxic, NFPA Health Hazard Category 2									
Isopropanol (IPA)	67-63-0	53 deg F (12 deg C)	178 deg F (81 deg C)		5045 mg/kg	12800 mg/kg	72.6 mg/L		43 mmHg	12%	2%	Class IB Flam Liq									
Acetonitrile (ACN)	75 05 08	35.6 deg F (2 deg C)	179 deg F (81 deg C)	No	617 mg/kg	1500 mg/l	6022 mg/l (4 hr)	N/A		16%	4%	Class IB, NFPA Health Hazard Category 2									
Dimethylformamide (DMF)*	[illegible]	135 deg F (57 deg C)	307 deg F (153 deg C)		3010 mg/kg	1500 mg/kg	11.1 mg/L		3.77 hPa	16%	2%	Class II Comb. Liq. Toxic									
Misc. solvents for purification													10L		20L				2L		2L
Ethanol	64-17-5	48 deg F (9 deg C)	172 deg F (78 deg C)		2002 mg/kg	>5000 mg/kg	57.27 mg/L		59.5 hPa	25%	3%	Class IB Flam Liq									
Process liquid waste												Assumed % of solvent plus some potent compounds = hazardous material need confirmation if this is a Class I, II or III liquid	Pumped to day tank in Haz Storage then to large tank in Hazardous Warehouse					60L	244L		
Payload drug												Cytotoxic (governed by biosafety not code definitions of toxic)	2L						<1L		
Bioconjugation reagents													3L	1L				67L (22.2L per 200L conjugation (x3 rounded up))		2.2L	7L (2.2L per 20L conjugation (x3 rounded up))
TCEP HCl salt	51805-45-9			Yes								Corrosive									
N-acetyl-L-cysteine (NAC)	616-91-1																				
Dithiothreitol (DTT)	3483-12-3				2000 mg/kg	N/A	N/A														
Ethylenediaminetetraacetic acid (EDTA) disodium salt dihydrate	6381-92-6																				
1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide (EDC) HCl salt	25952-53-8																				
N-hydroxysuccinimide (NHS)	6066-82-6																				
2-Iminothiolane (2-IT)	4781-83-3																				
[illegible]	59-81-7																				
[illegible]	490-61-5																				
[illegible]	1599440-13-7																				
[illegible]	1593410-31-1																				
[illegible]	256411-[illegible]																				
endo-BCN-PEG4-PFP	[illegible]26-5																				

Hazardous Material	CAS No.	Flash point	Boiling point	Corrosive	LD50 (Oral)	LD50 (Dermal)	LC50 (Inhalation)	Oxidizer	Vapor Pressure	Upper Flammability Limit	Lower Flammability Limit	Classification	Bioconjugation Room (Liters) In-Use Closed	Bioconjugation Room (Liters) In-Use Open	Bioconjugation Room (Liters) Storage	Haz Storage (Liters) In-Use Closed	Haz Storage (Liters) In-Use Open	Haz Storage (Liters) Storage	PRD Lab In-Use Closed	PRD Lab In-Use Open	PRD Lab Storage
[illegible]													3L	1L				67L (22.2L per 200L conjugation (x3 (rounded up)		2.2L	7L (2.2L per 20L conjugation (x3 (rounded up)
Polysorbate 20 (Tween 20)	9005-64-5											N/A									
Polysorbate 80 (Tween 80)	9005-65-6											N/A									
Poloxamer 188	[illegible]											N/A									
Mannitol	[illegible]											N/A									
Sorbitol	[illegible]											N/A									
Sucrose	57-50-1											N/A									
Trehalose	[illegible]											N/A									
Dextrose	[illegible]											N/A									
Dextran 40	9004-54-0											N/A									
NaCl	7647-14-5											N/A									
Arginine	74-79-3											N/A									
Glycine	56-40-6											N/A									
Methionine	63-68-3											N/A									
Sodium acetate	127-09-3											N/A									
Sodium phosphate	7601-54-9											N/A									
sodium citrate	68-04-2											N/A									
Tris(hydroxymethyl)aminomethane (Tris)	77-86-1											N/A									
Succinic acid	110-15-6											N/A									
Histidine	71-00-1											N/A									
[illegible]	NA											N/A									
TOTAL													22L					1040	38.8		

[illegible]
*20L capacity conjugation assumes maximum 15% (v/v) organic solvent mixture of DMA and DMSO. Purification assumes maximum 15% (v/v) of 200L (10 Column Volume (CV), column size 20L)
**200L capacity conjugation assumes maximum 15% (v/v) organic solvent mixture of DMA and DMSO. Purification assumes maximum 15% (v/v) of 2,000L (10 Column Volume (CV), column size 200L)

NOVEL

Hazardous Material Classification

Client: Veranova
Project No: CG24014

Hazardous Material	CAS No.	Flash point	Boiling point	Corrosive	LD50 (Oral)	LD50 (Dermal)	LC50 (Inhalation)	Oxidizer	Vapor Pressure	Upper Flammability Limit	Lower Flammability Limit	Classification	Bioconjugation Room (Liters)			Haz Storage (Liters)			PBD Lab		
													In-Use Closed	In-Use Open	Storage	In-Use Closed	In-Use Open	Storage	In-Use Closed	In-Use Open	Storage
Combustible Liquid												liquid, closed cup flash point at or above 100 deg F (38 deg C)									
II												closed cup flash point at 100 deg F to below 140 deg F									
IIIA												closed cup flash point at 140 deg F to below 200 deg F									
IIIB												closed cup flash point at or above 200 deg F									
Corrosive												a chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the point of contact. A chemical shall be considered corrosive if, when tested on intact skin of albino rabbits by the method described in DOT 49 CFR, Part 173.137, such chemical destroys or changes irreversibly the structure of the tissue at the point of contact following an exposure period of 4 hours. This term does not refer to action on inanimate surfaces.										
Flammable Liquid												liquid, closed cup flash point below 100 deg F (38 deg C)									
IA												flash point below 73 deg F and boiling point below 100 deg F									
IB												flash point below 73 deg F and a boiling point at or above 100 deg F									
IC												flash point at or above 73 deg F to below 100 deg F. Does not include compressed gases or cryogenic fluids, or liquids that do not have a fire point when tested in accordance with ASTM D92									
Flammable Liquified Gas												liquified compressed gas which, under a charged pressure, is partially liquid at a temperature of 68 deg F and which is flammable.									
Highly Toxic												a material which produces a lethal dose of lethal concentration that falls within any of the following categories. Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation that is required for precise categorization of this type of material shall be performed by experienced, technically competent persons.										
1												a chemical that has a median lethal dose (LD50) of 50 mg or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each									
2												a chemical that has a median lethal dose (LD50) of 200 mg or less per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of albino rabbits weighing between 2 and 3 kg each									
3												a chemical that has a mean lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 mg per liter or less of mist, fume or dust, when administered by continuous inhalation for 1 hour to albino rats weighing between 200 and 300 grams each										
Toxic												a chemical falling within any of the following categories:									
1												a chemical that has a median lethal dose (LD50) of more than 50 mg per kilogram, but not more than 500 mg per kg of body weight when administered orally to albino rats weighing between 200 and 300 grams each									
2												a chemical that has a median lethal dose (LD50) of more than 200 mg per kilogram, but not more than 1,000 mg per kg of body weight when administered by continuous contact for 24 hours with the bare skin of albino rabbits weighing between 2 and 3 kg each										
3												a chemical that has a mean lethal concentration (LC50) in air of more than 200 parts per million, but not more than 2,000 parts per million by volume or less of gas or vapor, or more than 2 mg per liter, but not more than 20 mg per liter of mist, fume or dust, when administered by continuous inhalation for 1 hour to albino rats weighing between 200 and 300 grams each										
Oxidizer												a material that readily yields oxygen or other oxidizing gas, or that readily reacts to promote or initiate combustion of combustible materials and, if heated or contaminated, can result in vigorous self-sustained decomposition.									
4												an oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock and that causes a severe increase in burning rate of combustible material with which it comes into contact. Additionally, the oxidizer causes a severe increase in the burning rate and can cause spontaneous ignition of										
3												an oxidizer that causes severe increase in the burning rate of combustible materials with which it comes in contact									
2												an oxidizer that will cause a moderate increase in the burning rate of combustible materials with which it comes in contact									
1												an oxidizer that does not moderately increase the burning rate of combustible materials									
Unstable (Reactive)												a material, other than an explosive, which in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor, or in the presence of contaminants, or in contact with incompatible materials.										
4												materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. This class includes materials that are sensitive to mechanical or localized thermal shock at normal temperatures and pressures									
3												materials that in themselves are readily capable of detonation or explosive decomposition or explosive reaction but which require a strong initiating source or which must be heated under confinement before initiation. This class includes materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures									
2												materials that in themselves are normally unstable and readily undergo violent chemical change but do not detonate. This class includes materials that can undergo chemical change with rapid release of energy at normal temperatures and pressures, and that can undergo violent chemical change at elevated temperatures and pressures									
1												materials that in themselves are normally stable but which can become unstable at elevated temperatures and pressures									

VERANOVA HAZARDOUS MATERIAL INVENTORY - ELUTION BUFFER DAY 1

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	FLAMMABLE LIQUID (LITERS) IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	COMBUSTIBLE LIQUID (LITERS) IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HIGHLY TOXIC LIQUID (LITERS) IN-USE OPEN	IN-USE CLOSED	STORAGE IN CABINET	STORAGE NO CABINET	TOXIC LIQUID (LITERS) IN-USE OPEN	IN-USE CLOSED	STORAGE IN CABINET	STORAGE NO CABINET	COMMENTS
FIRST FLOOR CONTROL AREA 1																													
1	6	[illegible] Staging																											
			Mixed raw materials	organic solvents																2490									
			100% ACN							200	200																		
			Day tank	process fluid waste						4																			
			Staged reagents	Reagents																								670	
			Elution Buffer (35% ACN/IPA...)							200	600.0	400.0																	
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	604.0	1000.5	400.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2498.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	670	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	159.7	264.3	105.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	660.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	177	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	100*	660*	660***	660**	0.5*	2*	4***	2**	25*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) (CANNOT EXCEED STORAGE MAQ)					0.0				[illegible]				0.0				660.3				0.0				177				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	159.7	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	105.7	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	212.4	240
	STORAGE IN APPROVED CABINETS	264.3	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	1.4	264***

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HT IN-USE OPEN	HT IN-USE CLOSED	HT STORAGE IN CABINET	HT STORAGE NO CABINET	T IN-USE OPEN	T IN-USE CLOSED	T STORAGE IN CABINET	T STORAGE NO CABINET	COMMENTS
FIRST FLOOR CONTROL AREA 2																													
1	1	MAL																											1 HR RATED WALL
1	2	Locker																											
1	3	PAL																											
1	15	[illegible]																											
1	16	[illegible]																											
1	17	[illegible] Storage																											
1	105	[illegible]																											
			Payload slurry	payload slurry																		2.0							
			Payload in Ventilated Enclosure	15% (v/v) organic solvent in Water (either Class IB or II)						500																			
			Product outside Ventilated Encl.																										
			Buffer																										
			Reagents																										
			Mix solvents for washing [illegible]	organic solvent						10	20																		
1	116	[illegible]																											
1	111	Storage																											
1	1001	Warehouse																											
1	1002	Shipping & Receiving [illegible]																											
1	1005	Electrical																											
1	[illegible]	Material Control Office																											
1	[illegible]	[illegible]																											
1	[illegible]	Laboratory Stockroom																											
1	[illegible]	[illegible] Room																											
1	[illegible]	[illegible]																											
1	[illegible]	Corridor																											
1	2004																												
1	2001																												
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	510.0	20.0	0.0	0.0	0.0	0.0	0.0	[illegible]	0.0	0.0	2498.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	670	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	134.7	5.3	0.0	0.0	0.0	0.0	0.0	[illegible]	0.0	0.0	660.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	177	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	100*	660*	660***	660**	0.5*	2*	4***	2**	25*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) (CANNOT EXCEED STORAGE MAQ)					0.0				140.0				0.0				660.0				0.5				177				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	134.7	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	0.0	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	131.7	240
	STORAGE IN APPROVED CABINETS	5.3	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	140.0	345***

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HT IN-USE OPEN	HT IN-USE CLOSED	HT STORAGE IN CABINET	HT STORAGE NO CABINET	T IN-USE OPEN	T IN-USE CLOSED	T STORAGE IN CABINET	T STORAGE NO CABINET	COMMENTS
SECOND FLOOR CONTROL AREA 1																													
2	[illegible]	Lab																											1 HR RATED WALL or HR RATED FLOOR
2	[illegible]	[illegible]																											
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	100*	660*	660***	660**	200*	1,000*	1,000***	1,000**	250*	1,000*	1,000***	1,000**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) (CANNOT EXCEED STORAGE MAQ)					0.0				0.0				0.0				0.0				0.0				0.0				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	0.0	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	0.0	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	0.0	240
	STORAGE IN APPROVED CABINETS	0.0	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	480.0	480***

SECOND FLOOR CONTROL AREA 3

[illegible]	[illegible]	[illegible] Storage Facility																											
[illegible]	[illegible]	Office																											
[illegible]	8	Storage																											
[illegible]	9	Unisex Restroom																											
[illegible]	10	Unisex Restroom																											
[illegible]	11	Electrical Room																											
[illegible]	[illegible]	Maintenance Shop																											
[illegible]	12	Maintenance Storage																											
[illegible]	47	[illegible] Lab																											
			Polyol slurry	polyol slurry																		1.0							
			Product in Ventilated Enclosure	[illegible] organic solvent in Water (either Class IB or IB)														244											[illegible] HR RATED FLOOR
			Product outside Ventilated Encl																										
			Buffer																										
			Reagents																										
			Misc solvents for auxiliary use	organic solvent						2	2																		
			Staged raw materials	organic solvents							125																		
			Lab Waste	process liquid waste						5																			
			Staged reagents	reagents																									
[illegible]	2000	Corridor																											
[illegible]	2001	Corridor																											
[illegible]	2002	Closet																											
[illegible]	2003	Office																											
[illegible]	2004	Office																											
[illegible]	2007	Electrical Room																											
[illegible]	2008	Shaft Space																											
[illegible]	2010	Mech Room																											
[illegible]	2012	Telecom/Data																											
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	7.0	127.6	0.0	0.0	0.0	0.0	0.0	0.0	244.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	1.8	33.6	0.0	0.0	0.0	0.0	0.0	0.0	64.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	160*	160***	660**	200*	1,000*	1,000***	1,000**	200*	1,000*	1,000***	1,000**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) CANNOT EXCEED STORAGE MAQ					0.0				35.4				0.0				64.5				0.3				0.0				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
Note: maximum allowable quantity (MAQ)	USE - OPEN	0.0	60*
* increased for automatic sprinkler system	USE - CLOSED	1.8	240*
** increased for storage NOT in approved cabinets and automatic sprinkler system	STORAGE NOT IN APPROVED CABINETS	0.0	240**
*** increased for storage in approved cabinets and automatic sprinkler system	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	1.8	240
	STORAGE IN APPROVED CABINETS	33.6	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	444.6	478***

Hazardous Material Inventory

VERANOVA HAZARDOUS MATERIAL INVENTORY - ELUTION BUFFER DAY 8

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	FLAMMABLE LIQUID (LITERS) 1A IN-USE OPEN	1A IN-USE CLOSED	1A STORAGE IN CABINET	1A STORAGE NO CABINET	1B IN-USE OPEN	1B IN-USE CLOSED	1B STORAGE IN CABINET	1B STORAGE NO CABINET	1C IN-USE OPEN	1C IN-USE CLOSED	1C STORAGE IN CABINET	1C STORAGE NO CABINET	COMBUSTIBLE LIQUID (LITERS) IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HIGHLY TOXIC LIQUID (LITERS) IN-USE OPEN	HIGHLY TOXIC LIQUID (LITERS) IN-USE CLOSED	HIGHLY TOXIC LIQUID (LITERS) STORAGE IN CABINET	HIGHLY TOXIC LIQUID (LITERS) STORAGE NO CABINET	TOXIC LIQUID (LITERS) IN-USE OPEN	TOXIC LIQUID (LITERS) IN-USE CLOSED	TOXIC LIQUID (LITERS) STORAGE IN CABINET	TOXIC LIQUID (LITERS) STORAGE NO CABINET	COMMENTS
FIRST FLOOR CONTROL AREA 1																													
										200										2458									
										88																			670
											3248	2080																	
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	288.0	3248.0	2080.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2458.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	670	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	76.0	3247	549.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	649.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	177	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	40*	2*	4***	2**	20*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) - AMOUNT EXCEEDS STORAGE MAQ					0.0				449.0				0.0				649.0				0.0				177				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
	IA2 - OPEN	0.0	60*
	IA2 - CLOSED	65.0	240*
	STORAGE NOT IN APPROVED CABINETS	55.0	240**
	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	119.9	240
	STORAGE IN APPROVED CABINETS	329.7	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	304	240***

FIRST FLOOR CONTROL AREA 2

										500												20							
										10	20																		1 HR RATED WALL
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	510.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2498.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	670	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	134.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	660.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	177	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	40*	2*	4***	2**	20*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) - AMOUNT EXCEEDS STORAGE MAQ					0.0				140.0				0.0				660.0				0.5				177				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
	IA2 - OPEN	0.0	60*
	IA2 - CLOSED	134.7	240*
	STORAGE NOT IN APPROVED CABINETS	0.0	240**
	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	134.7	240
	STORAGE IN APPROVED CABINETS	5.3	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	340.0	240***

SECOND FLOOR CONTROL AREA 1

																													1 HR RATED WALL, 60 HR RATED FLOOR
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	240*	120*	1,000***	1,000**	200*	1,000*	1,000***	1,200**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) - AMOUNT EXCEEDS STORAGE MAQ					0.0				0.0				0.0				0.0				0.0				0.0				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
	IA2 - OPEN	0.0	60*
	IA2 - CLOSED	0.0	240*
	STORAGE NOT IN APPROVED CABINETS	0.0	240**
	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	0.0	240
	STORAGE IN APPROVED CABINETS	0.0	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	480.0	480***

SECOND FLOOR CONTROL AREA 3

Room	Room Name	Material	Description																									Notes
5	[illegible] Storage/Utility																											
6	Office																											
8	Storage																											
9	Unisex Restroom																											
10	Unisex Restroom																											
11	Electrical Room																											
[illegible]	Maintenance Shop																											
13	Maintenance Storage																											
47	[illegible] Lab																											
		Payload [illegible]	[illegible]																	1.0								
		Product in Exhibited Enclosures	[illegible] Water [illegible] Class III or III														244											
		Product outside [illegible]																										
		Reagents																										*** FIR RATED FLOOR
		Misc solvents for auxiliary [illegible]	organic solvent						2	2																		
		Staged raw materials	organic solvents							125																		
		Dig tank	process liquid waste						5																			
		Staged reagents	reagents																									
2000	Corridor																											
2001	Corridor																											
2002	Closet																											
2003	Office																											
2004	Office																											
2007	Electrical Room																											
2008	Shell Space																											
2009	Mech Room																											
2012	Telephone/Data																											
TOTAL (LITERS)				0.0	0.0	0.0	0.0	0.0	7.0	127.0	0.0	0.0	0.0	0.0	0.0	0.0	244.8	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL (GALLONS)				0.0	0.0	0.0	0.0	0.0	1.8	33.6	0.0	0.0	0.0	0.0	0.0	0.0	64.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)				20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	200*	1,000*	1,000***	1,000**	200*	1,000*	1,000***	1,000**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS)		(CANNOT EXCEED STORAGE MAQ)		0.0				35.4				0.0				64.5				0.3				0.0				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
Note: [illegible]	USE - OPEN	0.0	60*
* increased for automatic sprinkler system	USE - CLOSED	1.8	240*
** increased for storage NOT in approved cabinets and automatic sprinkler system	STORAGE NOT IN APPROVED CABINETS	0.5	240**
*** increased for storage in approved cabinets and automatic sprinkler system	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	1.6	240
	STORAGE IN APPROVED CABINETS	33.6	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	444.6	478***

VERANOVA HAZARDOUS MATERIAL INVENTORY - ELUTION BUFFER DAY 9

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	FLAMMABLE LIQUID (LITERS) IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	COMBUSTIBLE LIQUID (LITERS) IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HIGHLY TOXIC LIQUID (LITERS) IN-USE OPEN	IN-USE CLOSED	STORAGE IN CABINET	STORAGE NO CABINET	TOXIC LIQUID (LITERS) IN-USE OPEN	IN-USE CLOSED	STORAGE IN CABINET	STORAGE NO CABINET	COMMENTS
FIRST FLOOR CONTROL AREA 1																													
1	4	[illegible]																											
			[illegible]	[illegible]							208									2496									
			Day tank	[illegible]						38																			
			Staged reagents	[illegible]																								67.0	
			Elution Buffer [illegible]							208	1042	2040																	
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	246.0	1246.8	2040	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2496.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	65.0	329.7	55.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	660.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	0.6*	2*	4***	2**	25*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) [illegible]					0.0				449.7				0.0				660.5				0.0				17.7				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	65.0	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	55.0	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	119.9	240
	STORAGE IN APPROVED CABINETS	329.7	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	8.3	360***

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HT IN-USE OPEN	HT IN-USE CLOSED	HT STORAGE IN CABINET	HT STORAGE NO CABINET	T IN-USE OPEN	T IN-USE CLOSED	T STORAGE IN CABINET	T STORAGE NO CABINET	COMMENTS
FIRST FLOOR CONTROL AREA 4																													
1	[illegible]	[illegible]																											
			Payload drum	[illegible]																		2.0							
			Product in Ventilated Enclosure	[illegible]						500																			
			[illegible]																										
			Misc solvents for analyses	organic solvent						10	20																		1 HR RATED WALL
1	[illegible]	[illegible]																											
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	510.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2496.1	0.0	2.0	0.0	0.0	0.0	0.0	0.0	67.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	134.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	660.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	17.7	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	0.5*	2*	4***	2**	25*	100*	200***	100**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) [illegible]					0.0				140.0				0.0				660.0				0.5				17.7				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	134.7	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	0.0	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	134.7	240
	STORAGE IN APPROVED CABINETS	5.3	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	100.8	345***

FLOOR	ROOM #	ROOM	ITEM	MATERIAL	IA IN-USE OPEN	IA IN-USE CLOSED	IA STORAGE IN CABINET	IA STORAGE NO CABINET	IB IN-USE OPEN	IB IN-USE CLOSED	IB STORAGE IN CABINET	IB STORAGE NO CABINET	IC IN-USE OPEN	IC IN-USE CLOSED	IC STORAGE IN CABINET	IC STORAGE NO CABINET	IIIA IN-USE OPEN	IIIA IN-USE CLOSED	IIIA STORAGE IN CABINET	IIIA STORAGE NO CABINET	HT IN-USE OPEN	HT IN-USE CLOSED	HT STORAGE IN CABINET	HT STORAGE NO CABINET	T IN-USE OPEN	T IN-USE CLOSED	T STORAGE IN CABINET	T STORAGE NO CABINET	COMMENTS
SECOND FLOOR CONTROL AREA 1																													
2	[illegible]	Hall																											1 HR RATED WALL, 2 HR RATED FLOOR
2	[illegible]	STAGING ROOM																											
TOTAL (LITERS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL (GALLONS)					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)					20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	200*	1,000*	1,000***	1,000**	200*	1,000*	1,000***	1,000**	
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) [illegible]					0.0				0.0				0.0				0.0				0.0				0.0				

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
[illegible]	USE - OPEN	0.0	60*
[illegible]	USE - CLOSED	0.0	240*
[illegible]	STORAGE NOT IN APPROVED CABINETS	0.0	240**
[illegible]	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	0.0	240
	STORAGE IN APPROVED CABINETS	0.0	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	480.0	480***

SECOND FLOOR CONTROL AREA 2

1	FR1 Storage/Utility																										
8	Office																										
8	Storage																										
9	Unisex Restroom																										
10	Unisex Restroom																										
11	Electrical Room																										
L	Maintenance Shop																										
14	Maintenance Storage																										
87	R&D Lab																										
		Explosion slurry	explosion slurry																	1.0							
		Product in Ventilated Enclosure	15% (w/v) organic solvent in Water (either Class II or III)														244										
		Product outside Ventilated Encl.																									
		Buffer																									
		Reagents																									
		Misc solvents for various uses	organic solvent						2	2																	
		Striped [illegible] materials	organic solvents							125																	
		Day tank	process liquid waste						5																		
		Shared reagents	reagents																								
2504	Corridor																										
2501	[illegible]																										
2502	[illegible]																										
2503	Office																										
2504	Office																										
2507	Electrical Room																										
2509	Wall Space																										
2510	Mech Space																										
2511	[illegible]																										
TOTAL (ITEMS)				0.3	0.0	0.5	0.5	0.0	7.6	127.8	0.0	0.3	0.0	0.5	0.5	0.0	244.5	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.5	0.0	0.0
TOTAL (GALLONS)				0.3	0.0	0.2	0.0	0.0	1.8	33.6	0.0	0.0	0.0	0.2	0.0	0.0	64.5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ALLOWABLE QUANTITY BY HAZARDOUS MATERIAL (GALLONS)				20*	60*	60***	60**	60*	240*	240***	240**	60*	240*	240***	240**	160*	660*	660***	660**	200*	1000*	1000***	1000**	200*	1000*	1000***	1000**
TOTAL PER HAZARDOUS MATERIAL COMBINED STORAGE AND USE (GALLONS) (CANNOT EXCEED STORAGE MAQ)				0.5				35.4				0.0				64.5				0.3				0.0			

w/ HR RATED FLOOR

COMBINED FLAMMABLE LIQUID (IA, IB, IC)		ACTUAL (GALLONS)	MAXIMUM ALLOWABLE QUANTITY (GALLONS)
Note: [illegible]	USE - OPEN	0.3	60*
* increased for automatic sprinkler system	USE - CLOSED	1.5	240*
** increased for storage NOT in approved cabinets and automatic sprinkler system	STORAGE (NOT IN APPROVED CABINETS)	0.0	240**
*** increased for storage in approved cabinets and automatic sprinkler system	AGGREGATE CLOSED USE AND STORAGE NOT IN APPROVED CABINETS	1.5	240
	STORAGE IN APPROVED CABINETS	33.8	240***
	AVAILABLE CAPACITY FOR ADDITIONAL STORAGE IN APPROVED CABINETS ONLY	444.6	478***

Industrial Performance Standards Checklist for Newly Proposed Projects

All projects within the Devens Regional Enterprise Zone (DREZ) must comply with the Devens Enterprise Commission (DEC) Industrial Performance Standards (IPS) under 974 CMR 4.00. This checklist is intended to assist Applicants in determining at the time of submittal, or ideally before submittal, if their project may or may not involve development and/or activities that may impact sound, vibration, air quality, or lighting within the DREZ.

Site layout, building(s) design/orientation, traffic patterns, location of outdoor equipment and numerous other project components can impact sound, vibration, air quality, and lighting within the DREZ. By identifying any potential IPS concerns early on in the review process, Applicants can design their projects to ensure compliance with the IPS at all times and avoid potential future violations of the IPS and costly mitigation after the fact.

Please note, if a project requires an air permit from the Massachusetts Department of Environmental Protection (DEP), the Applicant will need to initiate permitting through the DEP office as well. Even if a project requires a DEP air permit, the proponent still must demonstrate compliance with the DEC IPS.

Please circle the correct answer to each question in this checklist. Please note that by circling "NO", the Applicant is not relieved of demonstrating compliance with the IPS requirements. If "NO" is circled and a potential concern is identified during the review process, it could temporarily suspend the approval process timeline until the concern is adequately addressed. If "YES" is answered, please explain and provide any supporting studies or information to aid the DEC in their evaluation of the project.

Project Name Veranova LP Bioconjugation

Does the proposed project and associated activities involve any potential increases in sound, vibration, air quality, odor, dust, lighting and/or electromagnetic interference that are covered under the DEC Industrial Performance Standards?

(YES)	NO

If you answered yes, will the Applicant demonstrate compliance directly or will the project proponent employ an expert to demonstrate compliance? Please provide pertinent contact information of the responsible official:

Yes. In discussions with Acentech (contact Michael Bantigian, email: mbantigian@acentech.com, phone: (617)-499-8058) to provide a proposal for a site sound study. Sound Study to be performed in 2026. Low noise/vibration exterior equipment will be specified for this project where applicable.

Industrial Performance Standards Checklist for Newly Proposed Projects cont...

Noise

Does the proposed project have the ability to increase sound?

* In Review

	YES	NO *
1. Will the increase in sound plus background sound exceed 974 CMR 4.05 (3)a?	YES	NO
2. Will the total sound plus background sound exceed 974 CMR 4.05 (3)b?	YES	NO
3. Will the increase in sound create pure tones that will exceed 974 CMR 4.05 (3)c and/or 974 CMR 4.05 (3)d7?	YES	NO
4. Will the increase in sound create impulsive sounds that will exceed 974 CMR 4.05 (3)d1-6 and/or 974 CMR 4.05 (3)d8?	YES	NO
5. Are there procedures and controls proposed to reduce sound during earth removal per 974 CMR 4.07(10)?	YES	NO
Checklist Options to Demonstrate Sound Compliance		
6. Have all of your potential sound sources been identified?	YES	NO
7. Will spreadsheet calculations of the potential increase in sound be provided?	YES	NO
8. Will sound modeling of the proposed project be provided?	YES	NO
9. Will the facility submit a protocol describing the potential sound monitoring, metrics, and modeling as required?	YES	NO
10. Does the project propose to collect background sound data (typically 7-days worth of valid data is sufficient)?	YES	NO
11. If the facility intends to collect background sound data will it include other qualifying weather data such as wind speed, wind direction, sky conditions, etc.?	YES	NO
12. Is mitigation to reduce the overall sound profile proposed?	YES	NO
13. Is sound mitigation to be assumed when calculations or modeling is performed?	YES	NO
14. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in sound?	YES	NO
15. Have increases in sound with respect to traffic been considered?	YES	NO

Industrial Performance Standards Checklist for Newly Proposed Projects cont...

Vibration

Does the proposed project have the ability to increase vibration?

	YES	NO
16. Will the increase in vibration exceed 974 CMR 4.05 (4)a??	YES	NO

Checklist Options to Demonstrate Vibration Compliance

17. Have all of the potential vibration sources been identified?	YES	NO
18. Will spreadsheet calculations of the potential increase in vibration be provided?	YES	NO
19. Will the proponent provide vibration modeling of the proposed project?	YES	NO
20. Does the project propose to collect background vibration data?	YES	NO
21. Is mitigation proposed to reduce the overall vibration profile?	YES	NO
22. Is vibration mitigation to be assumed when the calculations or modeling performed?	YES	NO
23. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in vibration as proposed?	YES	NO

Industrial Performance Standards Checklist for Newly Proposed Projects cont...

Air Quality

Does the proposed project have the ability to create air, visible, and/or odor emissions?	YES NO
24. Will the proposed project meet the air quality standards in 974 CMR 4.02(3)	YES NO
25. Are there procedures and controls proposed to minimize impacts during earth removal per 974 CMR 4.07(7)?	YES NO
26. Will the proposed project require a MassDEP air quality permit per 974 CMR 4.02 (1)	YES NO
If the project will require an air permit, then the proponent should set up a meeting with the regional MassDEP office to determine air permitting requirements, and answer the following:	
27. Will the proposed project submit a Limited Plan Approval application?	YES NO
28. Will the proposed project submit a Non-Major Comprehensive Plan Approval application?	YES NO
29. Will the proposed project submit a Major Comprehensive Plan Approval application?	YES NO
30. Will the proposed project be a Title V source?	YES NO
31. Will the proposed project be a PSD source?	YES NO
Checklist Options to Demonstrate Air Quality Compliance	
32. Have you identified all of your potential air, visible and/or odor sources?	YES NO
33. Will there be any visible emissions?	YES NO
34. Will there be any dust emissions?	YES NO
35. Will there be any odor emissions?	YES NO
36. Will there be any potential increases in air, odor or dust emissions within the DREZ that will impact any internal or external receptors?	YES NO
37. Will the project proponent provide spreadsheet calculations of the potential increase in air and/or odor emissions within the DREZ to demonstrate how the increase will not impact any internal or external receptors?	YES NO

Industrial Performance Standards Checklist for Newly Proposed Projects cont...

Checklist Options to Demonstrate Air Quality Compliance (cont.)

38. Will the project proponent provide air and/or odor modeling of the proposed project within the DEC or into the neighborhood surrounding the DEC??	YES NO
39. Is mitigation proposed to reduce the overall air and/or odor profile?	YES NO
40. Is air pollution and/or odor control to be assumed when the calculations or modeling is performed?	YES NO
41. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in air and/or odor as proposed?	YES NO

Lighting/Illumination

Does the proposed project have the ability to create additional Illumination?	YES (NO)
42. Will lighting meet the illumination standards set forth in 974 CMR 4.04(3)?	YES NO
43. Have all of the potential light sources been identified?	YES NO
44. Will spreadsheet calculations of the potential increase in light and how it will not affect the Observatory outlined in 974 CMR 4.04(1) or any external or internal receptors be provided?	YES NO
45. Is mitigation proposed to reduce the overall light profile?	YES NO

Electromagnetic Interference

Does the proposed project have the ability to create electromagnetic interference?	YES (NO)
46. Have you identified all your potential electromagnetic sources?	YES NO
47. Are you proposing to provide spreadsheet calculations of the potential increase in electromagnetic interference and how it will not affect any internal or external receptors as per 974 CMR 4.03(3)?	YES NO
48. Are you proposing any mitigation to reduce your overall electromagnetic profile?	YES NO
49. Will your project comply with all the electromagnetic requirements under 974 CMR 4.03?	YES NO

Spill Prevention, Control, and Countermeasure Plan

Veranova

Devens, Massachusetts

Prepared by:
GZA GeoEnvironmental, Inc.
5 Commerce Park N #201
Bedford, NH 03110
July 2024

Draft Edits Prepared by Karmela Flynn per CHA civil consulting meeting 29Dec25

VERANOVA
SPILL PREVENTION, CONTROL, AND COUNTERMEASURES
(40 CFR Part 112)

TABLE OF CONTENTS

APPENDICES

REFER TO SECTION 1.5.3 – RECORD OF PLAN REVIEW	
DATE OF REVIEW	**STATEMENT OF REVIEW**
April 2021	I have completed review and evaluation of the SPCC Plan and will ☒ will not ☐ amend the plan as a result. Name: Veranova Signature: On file
September 2021	I have completed review and evaluation of the SPCC Plan and will ☒ will not ☐ amend the plan as a result. Name: Veranova Signature: On file
July 2024	I have completed review and evaluation of the SPCC Plan and will ☒ will not ☐ amend the plan as a result. Name: Ana Celaya-Morgan Signature:
	I have completed review and evaluation of the SPCC Plan and will ☐ will not ☐ amend the plan as a result. Name: Signature:
	I have completed review and evaluation of the SPCC Plan and will ☐ will not ☐ amend the plan as a result. Name: Signature:
	I have completed review and evaluation of the SPCC Plan and will ☐ will not ☐ amend the plan as a result. Name: Signature:
	I have completed review and evaluation of the SPCC Plan and will ☐ will not ☐ amend the plan as a result. Name: Signature:

RECORD OF PLAN REVISIONS				
Date of Revision	**Description of Revision**	**Pages Affected**	**Checked By / Prepared By**	**PE Certification Required (Y/N)**
April 2021	Plan Revised and separated from ICP (under Johnson Matthey)	All	Veranova	Y
September 2021	Plan Updated for ICP (under Johnson Matthey)	All	Veranova	Y
July 2024	Complete Plan update to include updated contacts, certification, equipment update, addition of emergency response equipment	All	Veranova / GZA	Y

FACILITY CONTACT LIST	
INTERNAL CONTACTS	
SPCC Plan Coordinator / Facility Contact Ana Celaya-Morgan Environmental Lead	Office: (978) 757-2099
Alternate SPCC Plan Coordinator Erik Francis EHS Site Lead	Office: (978) 757-2521
Support Personnel Vicente Remien Maintenance & Facilities Manager	Cell: (617) 417-2938
Julie Summers Global EHS Director	Cell: (984) 204-09776
Lucas Sauer-Jones Vice President & General Manager-New England	Cell: (351) 226-9695
Security	Office: (978) 303-7674
SPILL RESPONSE CONTRACTOR	
Triumvirate Environmental	Office: (800) 966-9282 (24-hour)
TOWN / STATE AGENCIES	
Emergency Medical Service (Medical Emergency)	911
Devens Fire Department	911 or (978) 772-4600
Shirley Police Department	911 or (978) 425-2600
Massachusetts State Police (Devens)	911 or (978) 772-8800
Massachusetts Department of Environmental Protection (MassDEP)	(617) 292-5500 (Main office) (888) 304-1133 (24-hour)
FEDERAL AGENCIES	
National Response Center (NRC)	(800) 424-8802
EPA Region 1	(888) 372-7341

1.0 INTRODUCTION AND PLAN CERTIFICATION

1.1 Introduction

As required by the Clean Water Act, the United States Environmental Protection Agency (U.S. EPA) established oil pollution prevention regulations, which are codified in 40 CFR Part 112. These regulations establish procedures, methods, equipment, and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States (U.S.) or adjoining shorelines.

Facilities are subject to the federal oil pollution prevention regulations if:

1. The aggregate underground storage capacity of oil at the facility is 42,000 gallons or greater, or
2. The aggregate aboveground storage capacity of oil stored at the facility is 1,320 gallons or greater, excluding containers with a capacity of less than 55 gallons.

Veranova, located at 25 Patton Road in Devens, Massachusetts, is subject to these regulations based on the aboveground oil storage capacity and its potential to discharge oil to navigable waters of the U.S. Specifically, Veranova has approximately **23,499 gallons** of oil in containers, aboveground storage tanks (ASTs), oil-filled equipment (OFE), in the form of oil-filled operational equipment and oil-filled manufacturing equipment stored onsite. Accordingly, a Spill Prevention, Control, and Countermeasure (SPCC) Plan has been prepared and implemented.

1.2 Location of SPCC Plan (§112.3(e))

The SPCC Plan is maintained in the EHS Department and within the Integrated Contingency Plan (DE-SOP-EHS-0018) that is available on MasterControl and posted throughout the facility.

1.3 SPCC Plan Management Approval and Designated Person (§112.7)

Veranova is committed to preventing discharges of oil to navigable waters and the environment, and maintains the industry standards for spill prevention, control, and countermeasures through the implementation and regular review and amendment to this SPCC Plan. This SPCC Plan has the full approval of Veranova. Veranova has committed to necessary resources to implement the measures described in this SPCC Plan.

The Vice President & General Manager is the Designated Person Accountable for Oil Spill Prevention at the facility and has the authority to commit the necessary resources to implement this SPCC Plan.

Designated person accountable for oil spill prevention at the facility:

Name: Lucas Sauer-Jones

Title: Vice President & General Manager

Signature: _____

Date: _____

1.4 Professional Engineer Certification (§112.3(d))

I hereby certify that I or a designated agent have examined the facility, and being familiar with the provisions of federal regulations 40 CFR Part 112, Oil Pollution Prevention, attest that the SPCC elements of this SPCC Plan have been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of 40 CFR Part 112. I also attest that procedures for required inspections and testing have been established, and this SPCC Plan is adequate for Veranova.

This certification[1] shall in no way relieve the owner or operator of their duty to implement this SPCC Plan in accordance with 40 CFR Part 112. Further, this certification is no longer valid when any planned or unplanned change takes place at the Facility that can increase the potential for a discharge of oil to Waters of the United States or when the regulations imposing SPCC Plan requirements change or after the deadline to review the continued applicability of this SPCC Plan has passed.

Certain information was provided by Veranova. It is understood that Veranova also certifies that the information provided is true and accurate.

_____
Printed Name of Licensed Professional Engineer

_____
Signature of Licensed Professional Engineer

Date: _____ Registration No.: _____ State: _____

This certification shall be void unless this SPCC is endorsed and implemented by authorized management of the subject facility.

[1] Certification is the statement or declaration of a professional opinion based on observations made and data collected and reviewed.

1.5 Plan Review and Amendments (§112.4, 112.5(a)(b)(c))

1.5.1 Oil SPCC Plan Amendments Required by the U.S. EPA

In accordance with 40 CFR Part 112.4, the Regional Administrator (RA) of the U.S. EPA may require the amendment of this SPCC Plan if:

1) The facility has a discharge exceeding 1,000 gallons of oil in a single discharge, or

2) If more than 42 gallons of oil are discharged in each of two discharges occurring within any twelve-month period.

If either of these two events occurs, Veranova must submit information specified in 112.4(a) to the RA within 60 days.

1.5.2 Oil SPCC Plan Amendments Required in the Event of a Material Change

In accordance with 40 CFR Part 112.5(a) this SPCC Plan will be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge into or upon navigable waters of the United States. Changes that may require amendment of the Plan include, but are not limited to:

- Commissioning or decommissioning containers;
- Replacement, reconstruction, or movement of containers;
- Reconstruction, replacement, or installation of piping systems;
- Construction or demolition that might alter secondary containment structures;
- Changes of product or service; or
- Revision of standard operation or maintenance procedures.

Such amendments are considered technical amendments. Technical amendments made to this SPCC Plan shall only be effective, and satisfy the requirements of 40 CFR Part 112, if certified by a Licensed Professional Engineer. Administrative changes, such as a change of telephone numbers, do not require certification by a Licensed Professional Engineer.

Amendments to the plan will be prepared within six months and implemented as soon as possible, but not later than six months following preparation of the amendment.

1.5.3 Oil SPCC Plan Review & Evaluation

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan will be conducted by Veranova at least once every five years from the date the last review was required. As a result of this review, the SPCC Plan must be amended within six months of the review to include more effective prevention and control technology if the technology is field proven at the time of the review and will significantly reduce the likelihood of a discharge from the facility.

Any amendment made to this SPCC Plan must be implemented as soon as possible, but no later than six months from the date of the amendment.

All technical amendments will be certified by a registered Professional Engineer and documented in the **Record of Plan Review** and **Revision Log.**

1.6 Conformance with Regulatory Requirements (§112.7(a)(1)-(2))

Veranova has developed this SPCC Plan in accordance with the requirements of 40 CFR Part 112 as allowed by this regulation (112.7(a)(2)). There are no alternative equivalent environmental protection provisions which have been implemented where deviation from technical elements of the regulation have been necessary.

1.7 Cross-Reference with SPCC Provisions (§112.7)

This SPCC Plan does not follow the exact order presented in 40 CFR part 112. Section headings identify, where appropriate, the relevant section(s) of the SPCC rule. A cross-reference of Plan sections relative to applicable parts of 40 CFR part 112 is provided in **Appendix G.**

2.0 GENERAL SITE INFORMATION (§112.7(a)(3))

2.1 Facility Description

The Veranova facility located in Devens, Worcester County, Massachusetts is a provider of pharmaceutical chemistry outsourcing services for chemical development and manufacturing services. The main function of the Veranova, is to manufacture specialty intermediate pharmaceutical ingredients (IPIs) and active pharmaceutical ingredients (APIs) for the pharmaceutical industry. Manufacturing is conducted under Current Good Manufacturing Practices (cGMP) as required by the U.S. Food and Drug Administration (FDA) and standard industry practice in the pharmaceutical industry. The specific chemicals used in the manufacturing process are dependent upon FDA and client specifications.

The facility includes three buildings, a parking lot, and outdoor areas. Building 1 consists of research laboratories and office spaces. Building 2 contains Utilities, Central Accumulation Area (CAA), Material Control Warehouse, Maintenance Department, and a Research and Development Lab. The Pilot Plant Suites (also referred to as 'Plant Suites' or 'Production Suites') are housed in Building 3. Oil storage at the facility includes oil stored in ASTs, oil storage containers (55 gallons and greater), and OFE. The OFE located at the facility includes electrical transformers and hydraulic elevators. The facility location and site plan are provided in **Appendix A**. Facility-specific information is listed below:

Facility/Owner Name:	Veranova
Facility Address:	25 Patton Road
	Devens, MA 01434
Facility Contact:	SPCC Coordinator

2.2 Oil Storage (§112.7(a)(3)(i))

Oil storage at the Veranova facility subject to the requirements of this SPCC Plan includes ASTs, container storage, and OFE. The Facility Site Plan provided in **Appendix A** depicts the physical layout of the facility with oil storage locations. The table below identifies the types of oils and their storage and their approximate total volumes. All oil storage is indicated below are fixed.

Type of Storage	Product	Aboveground Storage (gallons)
OFE	n-Heptane / Mixed Heptane	6,934
AST	Diesel Fuel	2,892
OFE	Polydimethylsiloxane	1,500
OFE	Mineral Oil	1,413
OFE	Hydraulic Oil	400
OFE	Polyol Ester Oil	130
Containers	n-Heptane / Mixed Heptane	9,955
Containers	Maintenance Oil	165
Containers	Polydimethylsiloxane	55
Containers	Waste Oil	55
Total Oil Storage Capacity: 23,499 gallons		

There are multiple underground oil/water separators (OWSs) at the facility which are used to meet secondary containment requirements under 40 CFR part 112 and not intended for oil storage; therefore, the capacities of the OWSs are not counted towards the facility total oil storage capacity. The OWSs, which are located along the driveway and in parking areas, receive stormwater discharges from catch basins which are treated prior to discharge to the onsite retention ponds. There are two 1,000-gallon OWSs, one 8,000-gallon OWS, and one 100-gallon OWS, as further detailed in **Section 4.2**.

Oil storage locations, container sizes, and the predicted flow rate and direction of any releases are provided in **Appendix B**.

2.3 Certification of Substantial Harm Determination

The SPCC Rule mandates that if an owner/operator determines that the facility does not have the potential to cause "substantial harm," the owner/operator must complete the certification form contained in 40 CFR 112.20, Attachment C-II. This form must be maintained at the facility. Veranova has determined that the facility does not meet the "substantial harm" criteria. The executed certification and listing of self-selection criteria are provided in **Appendix C**.

2.4 Spill History and Response (§112.4(a))

There have been no discharges subject to the requirements found in §112.4 at this facility in the last five years.

2.5 Veranova Policy on Oil Storage, Spill Prevention, and Spill Containment (§112.7(a)(3)(ii))

Veranova's policy is to commit to managing activities throughout the Company to protect the environment and safeguard the health and safety of its employees, contractors, customers, the community, and all other stakeholders, including those located near Veranova operations.

3.0 POTENTIAL SPILLS – PREDICTION AND CONTROL (§112.7(b) & (c))

Subsection 112.7(b) of 40 CFR 112 requires that the plan include a prediction of the flow direction, rate of flow, and total quantity of oil that could be discharged from the facility as a result of each type of major equipment failure. Subsection 112.7(c) further states that containment and/or diversionary structures or equipment to prevent discharged oil from reaching a navigable watercourse should be provided.

3.1 Evaluation of Potential Discharge (§112.7(b))

Although oil storage at the Veranova facility is contained and managed, the facility has considered the potential environmental spill release scenarios associated with each storage location at the facility. As required by 40 CFR Part 112, this SPCC Plan includes a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure. Refer to **Appendix B** for specific information regarding individual oil storage locations.

The majority of the Veranova facility is characterized by a mix of impervious paved areas, landscaped areas, and vegetated areas. Stormwater at the facility is collected and conveyed by drainage swales and a series of catch basins and conveyance pipes. All collected stormwater enters the onsite stormwater conveyance system that flows and discharges to the onsite retention ponds.

Releases at the facility could occur from a variety of causes including human error and/or system malfunction/failure in various areas of the facility. Examples of such situations could include releases during loading/unloading activities, releases from leaking tanks, valves, or piping, or releases from oil-filled operational equipment. The following sections describe the activities which could result in major equipment failures likely to result in a release at the facility.

3.2 Containment and Diversionary Structures (§112.7(c))

Methods of secondary containment at this facility include a combination of structures (e.g., berm, spill pallets), drainage systems (e.g., OWS) to prevent oil from reaching navigable waters and adjoining shorelines, as provided below. For a list of spill response materials, see **Appendix D**.

3.2.1 Container Storage

Veranova stores oil in 55-gallon containers (i.e., drums) in several locations at the facility as identified below:

- Approximately four 55-gallon drums of hydraulic oil, vacuum pump oil, synthetic gear oil, and polydimethylsiloxane each (i.e., one drum for each material) in the Maintenance Department in Building 2. The drums are stored on spill pallets which provide containment for incidental spills during dispensing. Any significant releases would be contained within the area via a coated concrete floor.
- Up to one 55-gallon drum of waste oil in the consolidation Central Accumulation Area (CAA) room in Building 2. The drum is stored on a spill pallet which provides containment for incidental spills during addition of waste oil. Any significant releases would be contained within the room via a coated concrete floor, which is sloped away from the doorway.

- Up to ten 55-gallon drums of hazardous wastes containing n-heptane and/or mixed heptane in the drum CAA room in Building 2. Any significant releases would be contained within the room via a coated concrete floor, which is sloped away from the doorway.
- Up to one 55-gallon drum of n-heptane in Labs 113/114. Any significant releases would be contained within the area via impervious floors.
- Up to forty 55-gallon drums of n-heptane and up to 72 55-gallon drums of mixed heptane in the Material Control Warehouse in Building 2. Any significant releases would be contained within the warehouse via concrete walls and floor, which is sloped away from the remainder of the building, and an automatic berm in the back (northern) section of the warehouse.
- Up to eighteen 55-gallon drums of n-heptane in Suite C (1st, 2nd, and 3rd floors), 8 drums in Suite A (2nd floor), 8 drums in Suite B (2nd floor), and up to twenty-four 55-gallon drums of n-heptane and/or mixed heptane staged temporarily in the hallways (1st, 2nd, and 3rd floor) outside Suite C in Building 3 (aggregate count between the three floors). Any significant releases from drums would be directed away from doorways in the suite (via berms at points of entry) and contained within the building via sloped floors and coated concrete walls and floors. Floor drains within Suite C are capped/closed.

3.2.2 ASTs

The following ASTs are located in the exterior areas of the facility:

- One 392-gallon diesel AST for the Fire Pump Generator located west of Building 2. The AST is of double-wall construction including a rupture basin with an interstitial alarm, and a fuel gauge.
- One 2,500-gallon diesel AST for the Pilot Plant Generator located northeast of Building 2. The AST is of double-wall construction with leak detection alarms and a fuel gauge.

Specific information on each AST maintained at the facility is provided in **Appendix B**.

In the unlikely event of a catastrophic release from an AST, the spill would flow onto the ground and into the stormwater collection system which consists of catch basins, OWSs, and retention ponds (see **Section 4.2**).

3.2.3 Oil-Filled and FR3 Filled Equipment

The following OFEs are located inside the facility in Buildings 1 and 2:

- One 170-gallon hydraulic oil reservoir in the Building 1 elevator room.
- One 230-gallon hydraulic oil reservoir in the Building 2 elevator room.

The following OFEs are located inside the facility in Building 3:

- Two 1,000-gallon n-Heptane reactor holding vessels in Suite C.
- Three 550-gallon n-Heptane totes in Suite C.
- One 325-gallon n-Heptane tote in Suite C.
- Three 300-gallon n-Heptane / n-Heptane mixture totes in Suite C.
- Six 125-gallon n-Heptane totes in Suite C.

- Six 208-liter (approximately 55-gallon) filters, one 400-liter (approximately 106-gallon) filter, three 600-liter (approximately 159-gallon) filters, and one 1,500-liter (approximately 396-gallon) filter in Suites A, B and/or C. When in use, the filters contain varying amounts n-Heptane / mixed heptane mixtures (solvent and/or slurry) during the process. Seven of these filters are shared/transferred between the Devens and North Andover sites.

In the unlikely event of a significant release from any of the OFE or oil-filled manufacturing equipment in the Plant suites, spills would be directed away from doorways (via berms) and contained within the building via sloped floors and coated concrete walls and floors. Any spills from the hydraulic elevator reservoirs would be contained within the elevator rooms / buildings they reside in which have impervious floors and walls. Any floor drains located near these areas are capped/closed.

The following OFEs/FR3 filled equipment is located in the exterior areas of the facility:

- One 1,500-gallon polydimethylsiloxane (Syltherm) reservoir for the Syltherm cooling system. The reservoir is equipped with a containment dike with a capacity of approximately 982 gallons.
- Three 471-gallon oil-filled transformers each situated over a concrete pad. The three electrical transformers are owned by Morgan Stanley but are operated and maintained by Wellesley Municipal Light Plant.
- One 510-gallon FR3-filled transformer situated over a concrete pad. This transformer is not technically an OFE as it is filled with FR3 fluid, a highly biodegradable and non-toxic fluid. The transformer will be operated and maintained by Wellesley Municipal Light Plant.
- Two 65-gallon polyol ester oil reservoirs for the two chiller compressor oil reservoirs. The reservoirs are equipped with a containment dike with a capacity of approximately 1,675 gallons.

Should a significant release occur from the transformers, the spill would flow onto the ground and into the stormwater collection system which consists of catch basins, OWSs, and retention ponds (see **Section 4.2**). In the case of a significant release, an electrical shutdown would notify the facility of an issue and response time to the spill would be ≤ 1 hour. Veranova maintains spill response materials sufficient to contain oil from the most likely spill of approximately 10 gallons due to an incidental leak from OFE. An inventory of spill response materials is provided in **Appendix D**.

3.2.4 Contingency Plan (§112.7(d))

All oil/FR3 storage tanks, containers, and oil-filled operational equipment at the facility has appropriate containment and/or diversionary structures to prevent discharge, therefore 40 CFR 112.7(d) does not apply.

4.0 FACILITY DRAINAGE (§112.8(b))

Drainage from the oil storage areas at this facility is best discussed by differentiating indoor and outdoor drainage systems.

4.1 Indoor Drainage Systems

When practicable, Veranova makes every effort to store and handle oil within contained areas or within secondary containment. All indoor OFE and oil storage containers with a capacity of 55 gallons or more

are stored on impervious surfaces and the building serves as secondary containment. Physical containment and response procedures to potential oil releases will greatly reduce, if not completely prevent, oil from reaching the outside environment. Floor drains near oil storage areas (i.e., OFE) have been capped/closed.

4.2 Outdoor Drainage Systems

None of the oil storage locations and oil transfer/delivery areas are located adjacent to navigable waterways or storm drains.

During periods of precipitation, there is a possibility that oil spills to storm drains could reach a local surface water body and be considered a reportable spill incident by federal definition.

Spills from the outdoor ASTs and OFEs could flow into the stormwater collection system. As illustrated on the Facility Site Plan in **Appendix A**, the stormwater collection system in the exterior areas of this facility consists of 21 catch basins and four OWSs. The stormwater collection system discharges to two stormwater retention ponds that operate in series, as detailed below.

- The loading area outside of Material Control Warehouse is sloped towards a single catch basin which discharges to OWS #1 (1,000 gallons), which then discharges to Retention Pond #1.
- Two catch basins are located behind Buildings 1 and 2 and discharge to OWS #2 (1,000 gallons), which then discharges to Retention Pond #1.
- Twelve catch basins are located throughout the parking lot and discharge to OWS # 3 (8,000 gallons), which then discharges to Retention Pond #1.
- Four catch basins are located on the grassy landscape in front of Buildings 1, 2 and 3, and discharge to Retention Pond #1.
- Two catch basins discharge to OWS # 4 (100 gallons), which then discharges to Retention Pond #2.

5.0 BULK STORAGE TANKS/CONTAINERS (§ 112.8(c))

"Bulk storage container" is defined in the regulations as any container used to store oil except oil filled electrical, operating, or manufacturing equipment. Oil storage tank inventories for Veranova are provided in **Appendix B**. There are aboveground storage tanks and portable containers at the facility. Absorbent materials are stored in close proximity. None of the tanks are equipped with internal heating coils.

5.1 Tank Materials and Construction (§ 112.8(c)(1))

All of the ASTs are compatible with the material stored within them. Construction material for all the ASTs is listed in **Appendix B**.

5.2 Secondary Containment (§ 112.8(c)(2))

All of the ASTs have appropriately sized secondary containment as listed in **Appendix B**.

5.3 Buried or Partially Buried Metallic Tanks (§112.8(c)(4)&(5))

There are no buried or partially buried metallic storage tanks at Veranova.

5.4 Aboveground Storage Tank Integrity Testing Schedule (§112.8(c)(6))

40 CFR Part 112 requires regular visual inspections and integrity testing of aboveground oil storage tanks/containers. Industry standards have been considered when preparing this SPCC Plan, with attention to the development of inspection and testing frequencies.

Since all tanks at the facility are shop fabricated, Veranova has based its tank testing and inspection measures on the Steel Tank Institution (STI) Standard SP001, "*Standard for the Inspection of Aboveground Storage Tanks*".

Veranova currently stores oil in aboveground tanks and containers ranging in size from 55-gallons to 1,300 gallons. Tanks with less than 5,000 gallons shell capacity, or do not fall under "Category 3" tank specifications, are not subject to non-destructive shell testing under the STI Standard SP001.

55-Gallon Drums

In accordance with Table 5.5 "Table of Inspection Schedules" of the STI Standard SP001, "Portable Containers" are only subject to monthly visual inspections. No formal shell integrity testing is specified or required.

Small Storage Tanks (100 to 5,000-Gallon Capacity)

In accordance with STI Standard SP001, the small storage tanks at Veranova were evaluated for their risk of release to the environment based on the following conditions:

- the presence of a Continuous Release Detection Method (CRDM),
- the presence of spill control equipment,
- the tank size, and
- the tank type.

As a result, integrity testing is not required provided routine monthly and annual inspections are conducted in accordance with STI Standard SP001.

5.5 Container Installations – Good Engineering Practices (§112.8(c)(8))

All ASTs are equipped with a type of Overfill Protection Device (OPD) such as liquid level indicators, vent whistles, or fuel gauges.

The 55-gallon drums are not filled at the facility and do not require overfill protection.

5.6 Effluent Treatment Facilities (§ 112.8(c)(9))

There are no effluent treatment facilities at the Veranova facility.

5.7 Visible Oil Leaks (§112.8(c)(10))

Veranova routinely inspects for visible oil leaks from aboveground storage containers in accordance with **Section 8.0**. Upon discovery, visible discharges which result in a loss of oil from a container, including but not limited to seams, gaskets, rivets, piping, pumps, valves, and bolts are promptly corrected by the Facilities Department.

Both written and verbal reports are submitted to the EHS Department and/or designee. The individual who detects the leak initiates repairs or calls for a work order. Spill equipment is nearby in the event of a release.

5.8 Portable and Mobile Oil Storage Tanks (§112.8(c)(11))

Portable containers and OFE are stored indoors with secondary containment to provide 100% containment of the largest container volume.

There are no mobile storage tanks at the facility. In the event that a mobile oil storage tank is used by Veranova, either active or passive means of secondary containment would be provided. In accordance with the regulation, secondary containment would be required to provide 100% containment of the largest tank volume plus sufficient freeboard for precipitation.

6.0 TRANSFER OPERATIONS, PUMPING, AND IN-PLANT PROCESSES (§112.8(d))

The principal transfer operations taking place at Veranova involves the transfer of oil from delivery trucks to aboveground tanks and from containers to the point of use. In addition, Veranova transfers products from containers on an as-needed basis. Oil is pumped from the oil storage tanks by various pumping and pipeline systems to its point of final use. No aboveground oil pipes are located where vehicles could cause damage, therefore, no warning is provided to vehicle operators to avoid aboveground lines.

6.1 Buried Piping (§ 112.8(d)(1))

There is no buried oil-containing piping at Veranova.

6.2 Out-of-Service Pipelines (§112.8(d)(2) & 112.7(g)(4))

Veranova currently does not have any out-of-service pipes. However, when pipelines are not in service or are in standby mode for an extended period of time, the connection at the transfer point is capped and marked as to its origin.

6.3 Pipe Supports and Aboveground Pipelines and Valves (§112.8(d)(3) and (4))

Oil transfer pipeline supports have been designed and constructed to minimize abrasion and corrosion and allow for expansion and contraction. The EHS Department visually examines the aboveground pipelines, valves, and pipe supports in accordance with **Section 8.0**. These inspections are documented, and records kept on file.

7.0 TANK TRUCK UNLOADING (§112.8(d)(5) and (9) and 112.7(a)(3))

Tank truck unloading at Veranova consists primarily of bulk deliveries of fuel oil to ASTs. Contractors are required to follow Veranova's oil delivery procedures. No loading racks are present at Veranova.

7.1 Oil Delivery Procedures

Fuel delivery is permitted at this location during regular business hours, with prior notice of delivery to the Facility Department. An independent oil delivery contractor, under contract with Veranova, performs tank truck unloading. The unloading procedures implemented by the carriers meet the minimum requirements and regulations established by the Department of Transportation. (49 CFR 177.834 and 177.837).

The following oil delivery procedure is observed during the filling of all ASTs. This procedure is communicated to contractors selected by Veranova for fuel delivery service.

1. No smoking is allowed within 50 feet while unloading oil.
2. Signage instructs drivers of loading / unloading trucks to shut off their engines and employ wheel chocks during this truck loading operation.
3. The delivery truck driver is to remain with the vehicle at all times while unloading.
4. Each delivery of oil is supervised by the delivery truck driver and a trained Veranova employee. Throughout the process, each person must be alert, have unobstructed view of the delivery truck and the storage tank, as well as being within 25 feet of each. Unless the delivery truck's engine is to be used for operation of the pump, no oil shall be unloaded while the engine is running.
5. The facility representative will ensure that the wheels of the delivery truck are blocked/chocked, and that drip pans/buckets or oil absorbing pads are placed beneath all hose connections that might be prone to leakage.
6. Unloading operations are to be performed only in areas designated for that purpose.
7. Storage tank is vented prior to connecting unloading line.
8. The unloading operation is not to begin before the level in the tank is checked and it is verified that the tank has sufficient capacity to receive the volume of oil to be transferred.
9. Prior to unloading, locked valves and fill caps are unlocked.
10. The delivery of fuel is monitored, and the fuel directed to the proper tanks, while monitoring fueling rate and pressure. Overfill protection devices are used to prevent overfilling of tanks. During all other times, the fill ports shall be secured with a lock mechanism to prevent tampering by unauthorized persons.
11. The drain valve on the truck is to be closed, and the unloading line is to be drained back to the tank before disconnecting the unloading line.
12. Prior to departure of the delivery truck, the lower-most drain and all outlets are closely examined for leakage, and if necessary, tightened, adjusted or replaced to prevent any liquid leakage while in transit.
13. Any leakage or spillage must be immediately reported and including quantity, by dialing the EHS Department or Maintenance & Facilities Manager. Phone numbers are provided on the **Facility Contact List**.

These procedures shall be reviewed during all annual SPCC trainings for Veranova oil handling personnel.

8.0 INSPECTIONS AND RECORDS (§112.7(e))

ASTs, containers, OFE, piping, pumps, valves, and appurtenances are visually inspected on a monthly basis by the EHS Department to determine if there are any leaks, spills or other deficiencies. Deficiencies are reported to the EHS Department and/or designee and corrected in a timely manner.

Inspection records for all tanks, containers, secondary containment, and emergency response items are maintained and reviewed by the EHS Department and/or designee. Inspection checklists are provided in **Appendix E**. All records are signed by the appropriate supervisor and kept on file for three years.

Spills, leaks and/ or other problems discovered are reported and promptly corrected.

Incident logs for various types of spills are maintained in the EHS management software system. Veranova incident reports are completed for spills of oil to a storm drain or surface water, in the event they occur. A Release Notification Form is provided in **Appendix F**.

All SPCC records and the SPCC Plan are maintained by the EHS Department.

9.0 SECURITY (§112.7(g))

Veranova maintains a security staff that monitors access to the property. Site security is provided 24 hours per day, 7 days per week, 365 days per year. Security rounds are conducted on all shifts and security is augmented using surveillance cameras.

All ASTs and equipment related to initiating the flow of oil are located behind locked doors and not accessible to unauthorized personnel. Any unusual environmental conditions detected are immediately reported to the EHS Department and/or Facility Support Personnel. Lighting provided in and around the facilities is sufficient to provide for the observation of spills during hours of darkness and to deter acts of vandalism that could otherwise result in oil spills. Outdoor oil storage is not readily accessible to acts of vandalism.

To provide security and contingency management, all oil deliveries are monitored by a designated Veranova employee in accordance with the strict delivery procedures identified in **Section 7.1** of this plan.

10.0 PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES (§112.7(f))

The Veranova training program as described below has been implemented as part of this SPCC Plan.

Veranova provides training to new oil-handling personnel involved with the operation and maintenance of equipment to prevent the discharge of oil. Additionally, annual training is provided to all oil-handling personnel. Training elements include:

- Discharge procedure protocols;
- Applicable pollution control laws, rules, and regulations;
- General facility operations; and,
- Contents of the facility's SPCC Plan.

Veranova will include discharge prevention briefings for oil-handling personnel during the annual training to highlight and describe known discharges as described in 40 CFR 112.1(b), or failures, malfunctioning components, and recently developed precautionary procedures.

Veranova personnel responsible for overseeing and responding to oil spills at the facility are provided with appropriate hazardous materials spill response training and precautionary measures. Documentation of all such training will be maintained in MasterControl.

11.0 SPILL RESPONSE/NOTIFICATION PROCEDURES (§112.7(a)(4))

This section details the response and notification procedures that are to be implemented in the event of any oil spill from the Veranova campus that has the potential to reach navigable waters.

11.1 Immediate Response/Notification

Upon discovery of a spill or leak, personnel are instructed to stop the discharge to the extent practicable in consideration of the health and safety of themselves and others. Personnel discovering a spill or leak are instructed to take immediate measures (such as deploying spill containment pillows) to contain the spill in the immediate area and prevent the oil from reaching a floor drain or storm drain, or navigable waters.

After taking initial containment measures, the person discovering the spill must dial Security and communicate the following information to the Emergency Coordinator:

- Location, date, and time of release;
- An assessment of the potential for the release reaching a catch basin, floor drain, or release to the sewer, or discharge over land to a navigable waterway, wetland or other sensitive receptors;
- Type of oil released;
- Approximate quantity of oil released;
- Source of release;
- Description of release;
- Name and telephone number of the responsible person in the area where the release occurred;
- Description of immediate response actions taken; and
- Any other information, including potential environmental impacts, that is relevant to assessing the degree of the hazard posed by the release.

All contact information is provided in the **Facility Contact List**.

The EHS Department or their designee contacts the facilities Response Contractor as necessary. In the event of a spill where the Response Contractor is contacted, the Response Contractor will provide services for the containment, removal, and disposal of all contaminated material.

For spills that have reached or have the potential to reach a floor drain, catch basin, sanitary or storm sewer, or another sensitive receptor, notification of appropriate regulatory agencies will be made as soon as possible by the EHS Department or their designee as outlined below.

A record of all calls will be logged in the EHS management software system for compliance notification.

11.1.1 Disposal of Spill Clean-Up and Recovered Materials (§112.7(a)(3)(v))

Materials collected during spill response and clean-up will be managed and disposed of in accordance with applicable state and federal regulations.

11.2 Spill Notification and Reporting (§112.7(a)(3)(vi))

If a reportable quantity (as defined by federal and State regulations) has been released, the agency contacts listed under the respective scenarios will be notified by telephone. The below table contains a list of outside responders and agencies that may need to be notified of an oil spill to the environment.

Authority	Notify	Telephone
Devens Fire Department	To Report a Fire, Environmental Emergency	911
MA Department of Environmental Protection	Environmental Emergency	617-292-5500 888-304-1133 (24-hr)
National Response Center	Environmental Emergency	800-424-8802
US Environmental Protection Agency Regional Administrator (Region I)	Environmental Emergency	888-372-7341
Ambulance/Medical Emergency	Medical Emergency	911
Triumvirate Environmental	Oil Spill Clean-Up	800-966-9282

The personnel providing notification should be prepared to offer the following information:

- Identification of the caller;
- Contact phone number;
- Location of spill;
- Type of product spilled;
- Quantity spilled;
- Extent of actual and/or potential water pollution;
- Date and type of spill; and
- Cause of spill.

Following completion of initial response and notification activities the EHS Department personnel will restock emergency equipment, restore the impacted area and properly manage contaminated debris as necessary.

11.3 Federal Requirements for Oil Spill Reporting (§112.4(a))

In accordance with 40 CFR Part 110, the National Response Center (NRC) must be contacted immediately if a discharge of oil reaches waters of the United States. Discharges of oil must be reported if they "cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines."

Whenever a discharge of more than 1,000 gallons occurs in a single discharge, or more than 42 gallons in each of two discharges occur within any 12-month period, or if oil reaches a navigable waterway or adjoining shoreline, the following information is required to be submitted to the Regional Administrator of Region I within 60 days (40 CFR 112.4(a)):

1. Name of facility (Veranova);
2. Name(s) of the owner or operator of the facility (Veranova);
3. Location of the facility (25 Patton Road, Devens, MA 01434);
4. Maximum storage or handling capacity of the facility and normal daily throughput;
5. Corrective action and countermeasures that were taken, including a description of equipment repairs and replacements;

6. An adequate description of the facility, including maps, flow diagrams, and topographical maps as necessary (see Appendices A and B);
7. The cause(s) of such discharge, including a failure analysis of system or subsystem in which the failure occurred;
8. Additional preventive measures taken or contemplated to minimize the possibility of recurrence; and
9. Such other information as the Regional Administrator may reasonably require pertinent to the SPCC Plan or discharge.

A copy of the Release Notification Form is provided in **Appendix F**. Copies of this report should be sent to the following address:

U.S. EPA Region 1
U.S. Environmental Protection Agency
Region 1- New England
1 Congress Street Suite 1100
Boston, MA 02114

11.4 State Requirements for Oil Spill Reporting

The Massachusetts Department of Environmental Protection (MassDEP) requires notification in the event of:

1. A spill or release of oil that creates a sheen on a surface water, or
2. A release that exceeds the Massachusetts Contingency Plan (MCP), Oil and Hazardous Materials List (310 CMR 40.1600) reportable quantity (RQ) in a 24-hour period, and
3. Enters the environment, within designated time limits.

For spills or releases resulting in a sheen or exceeding the RQ in a 24-hour period, MassDEP notification must be made within 2 hours of spill/release discovery.

A Release Notification Form must be submitted to the MassDEP within 60 days of the release to the below address. A copy of the Release Notification Form is provided in **Appendix F**.

MassDEP
MassDEP Central Regional Office
8 New Bond Street
Worcester, Massachusetts 01606

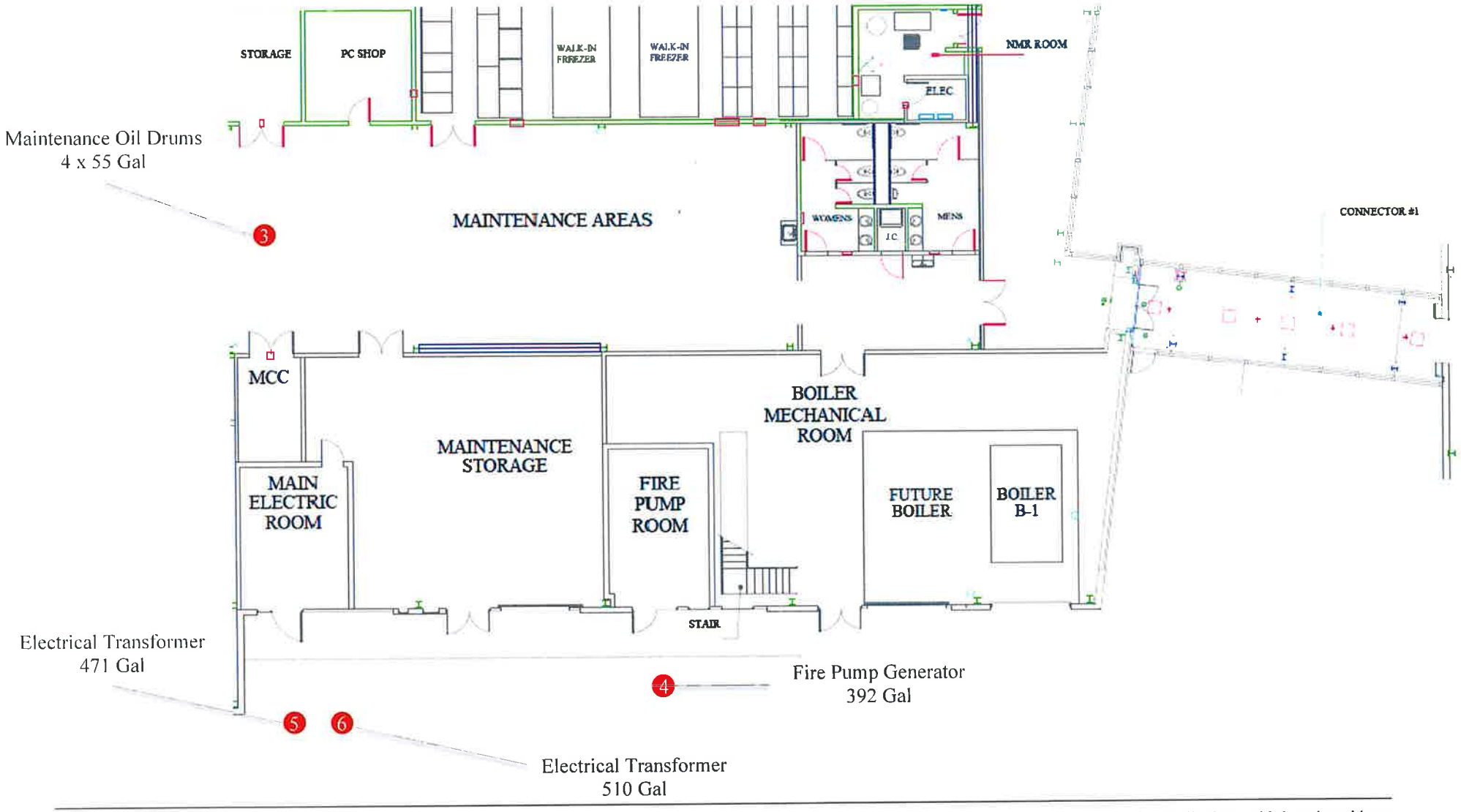
Appendix A

Facility Site Plan and Oil Storage

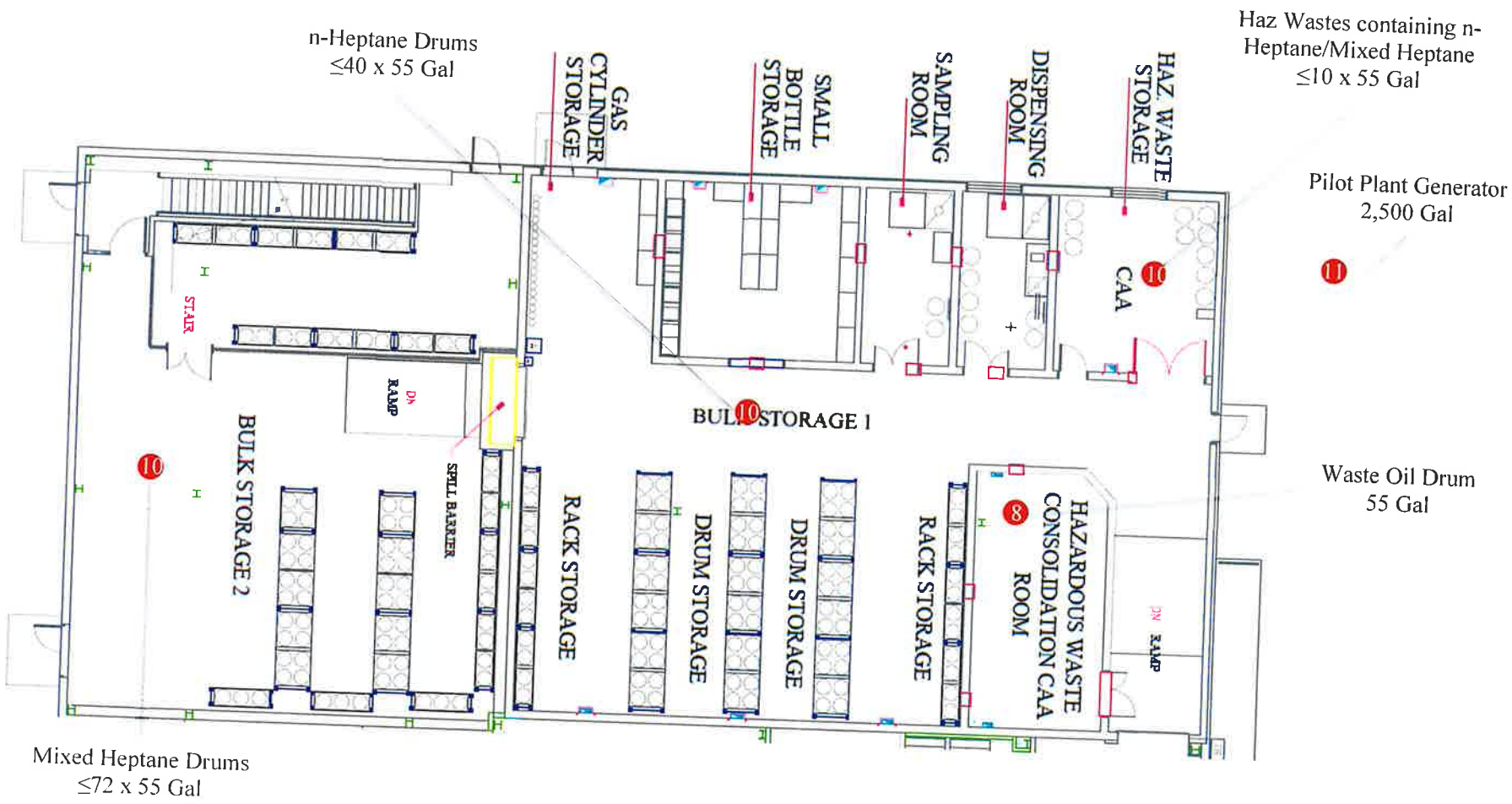
Building 1 Floor 1 (South Side) Layout – Oil Storage

Building 1 Floor 1 (North Side) Layout – Oil Storage

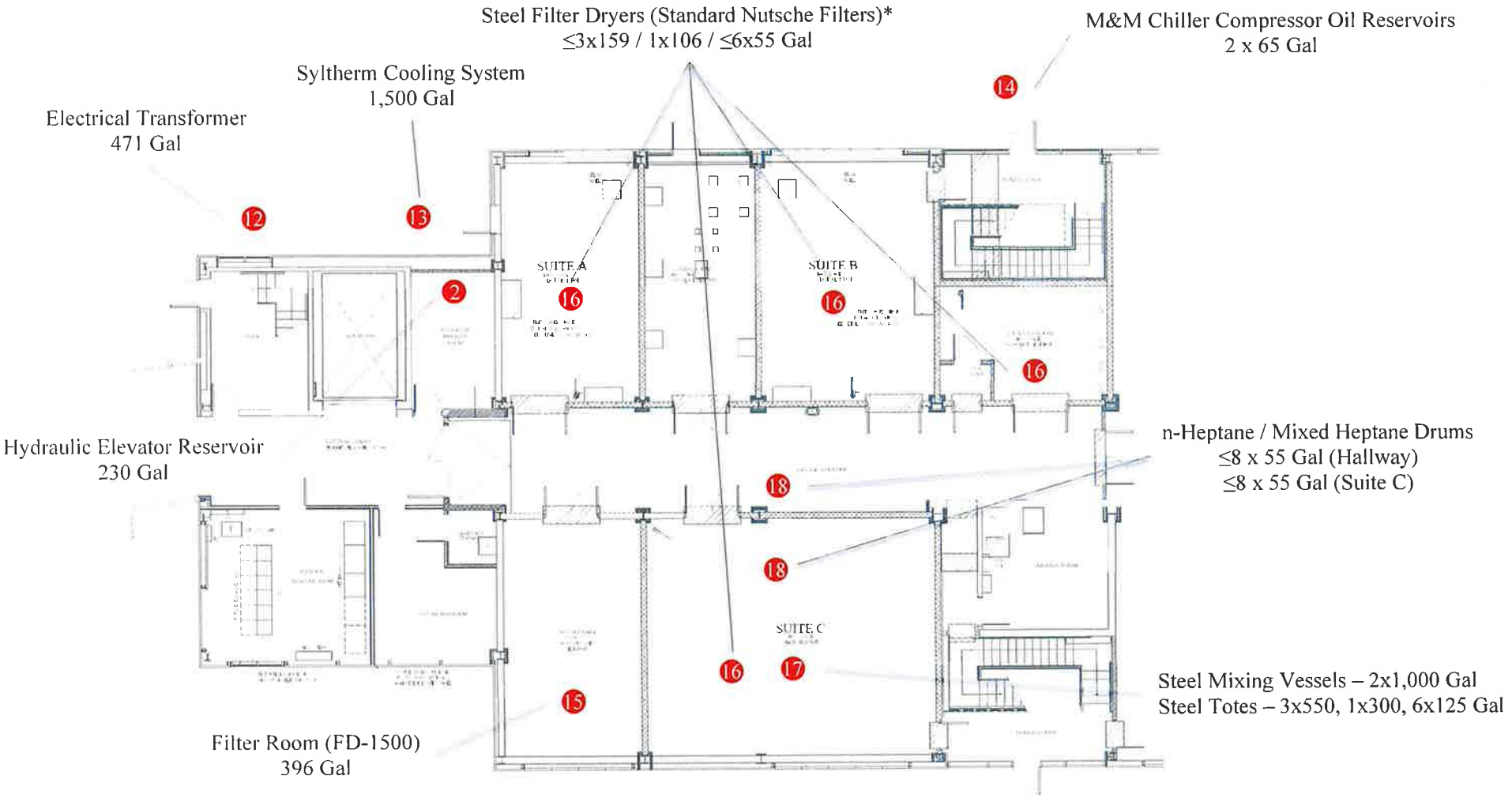
Building 2 Floor 1 Layout – Maintenance – Oil Storage



Building 2 Floor 1 Layout – Material Control – Oil Storage

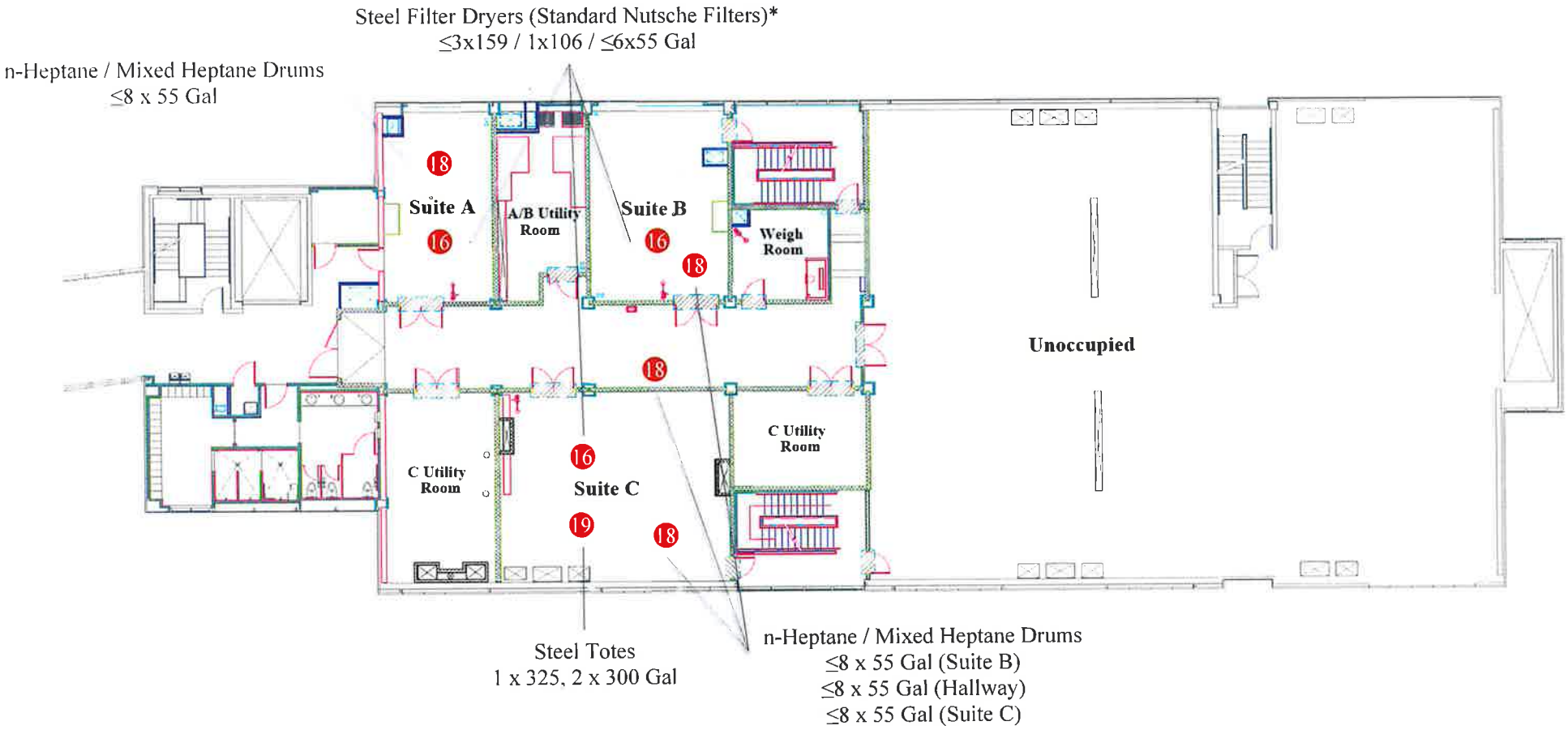


Building 3 Floor 1 Layout – Plant – Oil Storage



*Steel filter dryers location varies between Suites A, B, C, and/or Packout and Dryer Rooms, and between the Devens and North Andover sites. Note FD-875 (106-Gal Steel Filter Dryer) is used only in Suites A or B in Devens.

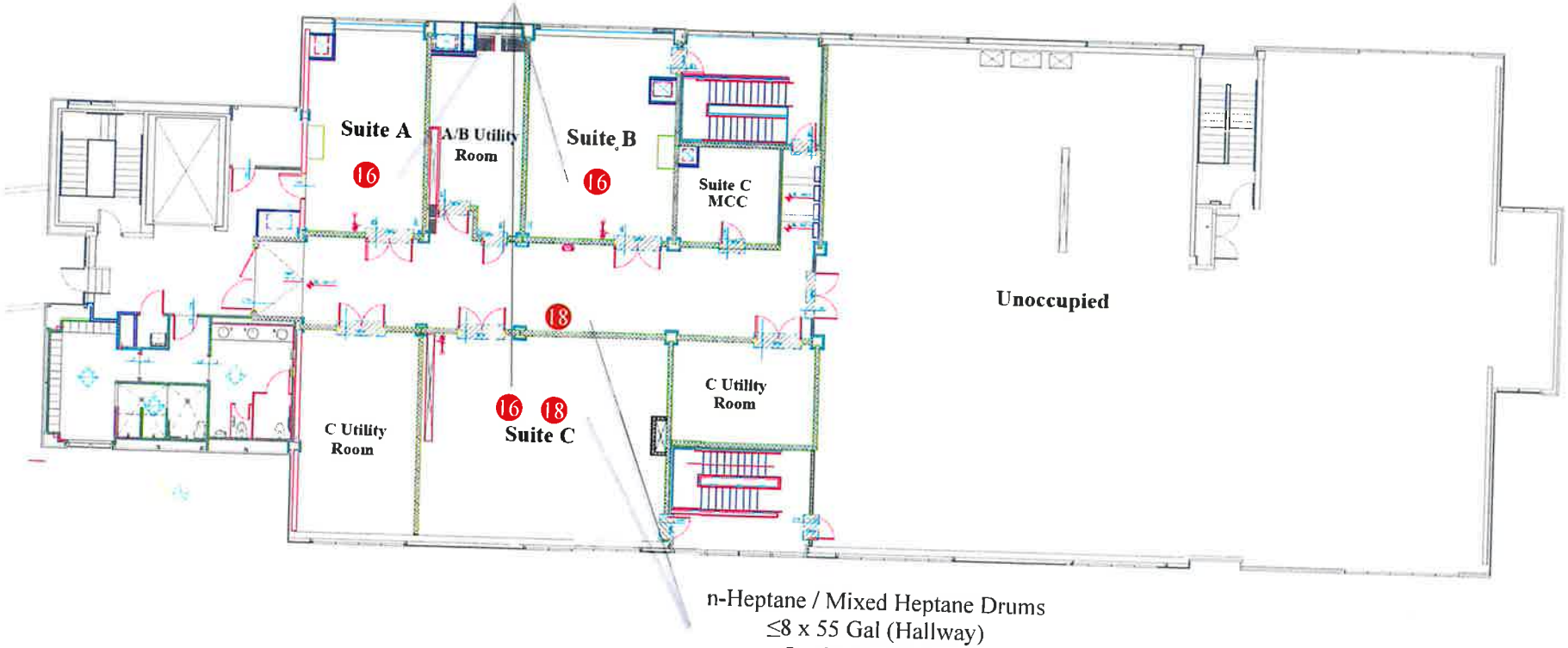
Building 3 Floor 2 Layout – Plant – Oil Storage



*Steel filter dryers location varies between Suites A, B, C, and/or Packout and Dryer Rooms, and between the Devens and North Andover sites. Note FD-875 (106-Gal Steel Filter Dryer) is used only in Suites A or B in Devens.

Building 3 Floor 3 Layout – Plant – Oil Storage

Steel Filter Dryers (Standard Nutsche Filters)*
≤3x159 / ≤6x55 Gal



n-Heptane / Mixed Heptane Drums
≤8 x 55 Gal (Hallway)
≤2 x 55 Gal (Suite C)

*Steel filter dryers location varies between Suites A, B, C, and/or Packout and Dryer Rooms, and between the Devens and North Andover sites.

Appendix B

Oil Storage Inventory, Spill Prediction, and Impacts Assessment

Area	Quantity	Size (gal)	Construction	Contents	Secondary Containment	Predicted Release: Direction & Rate of Flow	Environmental Receptor	Tank Installation Year (if known)
Hydraulic Elevator Reservoirs								
Bldg. #1 OFE	1	170	Steel	Hydraulic Oil	Interior room with impervious floor / walls	Contained within room / building (10 GPM)	None	1999
Bldg. #3 OFE	1	230	Steel	Hydraulic Oil	Interior room with impervious floor / walls	Contained within room / building (10 GPM)	None	1999
Electrical Transformers (Outside)								
Bldg. #1 OFE	1	471	Steel	Mineral Oil	Active (spill kits)	Into surrounding soil (10 GPM)	Surrounding soil	1999
Bldg. #2 OFE	1	471	Steel	Mineral Oil	Active (spill kits)	Into surrounding soil (10 GPM)	Surrounding soil	1999
Bldg. #2 FR3FE	1	510	Steel	FR3	Active (spill kits)	Into surrounding soil (10 GPM)	Surrounding soil	2026
Bldg. #3 OFE	1	471	Steel	Mineral Oil	Active (spill kits)	Into surrounding soil (10 GPM)	Surrounding soil	2003
Diesel-Fired Equipment (Outside)								
Bldg. #2 Fire Pump Generator AST	1	392	Steel	Diesel Fuel	Double-walled construction	Into interstitial space of double walled Tank (10 GPM)	Storm sewer - spill detected in retention pond	2000

Area	Quantity	Size (gal)	Construction	Contents	Secondary Containment	Predicted Release: Direction & Rate of Flow	Environmental Receptor	Tank Installation Year (if known)
Bldg. #2 Pilot Plant Generator AST	1	2,500	Steel	Diesel Fuel	Double-walled construction	Into interstitial space of double walled Tank (10 GPM)	Storm sewer - spill detected in retention pond	2003
Drum Storage Area – Maintenance								
Bldg. #2 Drum Storage	1	55	Steel Drum	Hydraulic Oil	Spill pallet. Interior room with impervious floor and walls.	Contained within room / building (10 GPM)	None	N/A
Bldg. #2 Drum Storage	1	55	Plastic Drum	Vacuum Pump Oil	Spill pallet. Interior room with impervious floor and walls.	Contained within room / building (10 GPM)	None	N/A
Bldg. #2 Drum Storage	1	55	Steel Drum	Synthetic Gear Oil	Spill pallet. Interior room with impervious floor and walls.	Contained within room / building (10 GPM)	None	N/A
Bldg. #2 Drum Storage	1	55	Plastic Drum	Polydimethylsiloxane	Spill pallet. Interior room with impervious floor and walls.	Contained within room / building (10 GPM)	None	N/A
Cooling System (Outside)								
Bldg. #3 Sylthern Cooling OFE	1	1,500	Steel	Polydimethylsiloxane	Dikes (Approx. 982 gallons)	Into secondary containment area (10 GPM)	Storm sewer - spill detected in retention	Unknown
Bldg. #3 M&M Chiller Compressor Oil Reservoir OFEs	2	65	Steel Reservoirs	Polyol Ester Oil	Dikes (Approx. 1,675 gallons)	Into secondary containment area (10 GPM)	Storm sewer - spill detected in retention	2018
Labs 113/114								

Area	Quantity	Size (gal)	Construction	Contents	Secondary Containment	Predicted Release: Direction & Rate of Flow	Environmental Receptor	Tank Installation Year (if known)
Bldg. #1 1st floor	1	55	Steel Drum	n-Heptane	Interior rooms with impervious walls and floors	Contained within room / building (10 GPM)	None	N/A
Production (n-Heptane and mixed heptane)								
Suite C, 1st floor (CS-1000-2)	1	1,000	Steel Mixing Vessel	100% Heptane	Interior rooms with impervious walls, capped/closed drains, and sloped floors to direct spills away from doorways.	Suite Monitoring Alarms	None	2013
Suite C, 1st floor (CS-1000-1)	1	1,000	Steel Mixing Vessel	30% n-Heptane in 70% MEK or MIBK		Suite	None	2013
Suite C, 1st floor (C-V-955, C-V-956)	2	550	Steel Totes	30% n-Heptane in 70% MEK or MIBK		Hose (50 GPM)	None	2014
Suite C, 1st floor (C-V-960)	1	550	Steel Tote	30% n-Heptane in 70% MEK		(50 GPM)	None	2022
Suite C, 2nd floor (C-V-972)	1	325	Steel Tote	100% Heptane		Hose (50 GPM)	None	2022
Suite C, 1st floor (C-V-954)	1	300	Steel Tote	100% n-Heptane		Hose (50 GPM)	None	2022
Suite C, 2nd floor (C-V-971)	1	300	Steel Tote	30% n-Heptane in 70% MEK		(50 GPM)	None	2022
Suite C, 2nd floor (C-V-974)	1	300	Steel Tote	27% n-Heptane in 73% MEK or MIBK		Hose (50 GPM)	None	2022
Suite C, 1st floor (C-V-957, C-V-958, C-V-959)	3	125	Steel Totes	40% n-Heptane, 60% MEK		(50 GPM)	None	2022

Area	Quantity	Size (gal)	Construction	Contents	Secondary Containment	Predicted Release: Direction & Rate of Flow	Environmental Receptor	Tank Installation Year (if known)
Suite C, 1st Floor (C-V-961, C-V-962, C-V-963)	3	125	Steel Totes	30% n-Heptane, 70% MEK		(50 GPM)	None	2022
Filter Room Adjacent Suite C (FD-1500)	1	396	Steel Filter Dryer	n-Heptane / mixed heptane (varying mixtures)		(50 GPM)	None	2017
Suites A, B and/or C, Packout and Dryer Rooms (BF-600A, BF-600B, BF-600C)	≤ 3	159	Steel Filter Dryer	n-Heptane / mixed heptane (varying mixtures)		(50 GPM)	None	2002
Suites A, B and/or C (FD-875)	≤ 1	106	Steel Filter Dryer	n-Heptane / mixed heptane (varying mixtures)		(50 GPM)	None	2010
Suites A, B and/or C, Packout and Dryer Rooms (Standard Nutsche Filters)	≤ 6	55	Steel Filter Dryer	n-Heptane / mixed heptane (varying mixtures)		(50 GPM)	None	2001/2002
Suite C 1st floor	≤ 8	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A
Suite C 2nd floor	≤ 8	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A
Suite C 3rd floor	≤ 2	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A
Suite A 2nd floor	≤ 8	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A
Suite B 2nd floor	≤ 8	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A

Area	Quantity	Size (gal)	Construction	Contents	Secondary Containment	Predicted Release: Direction & Rate of Flow	Environmental Receptor	Tank Installation Year (if known)
Building 3 Hallways	≤ 24	55	Steel Drum	n-Heptane and/or mixed heptane		(50 GPM)	None	N/A
Material Control (n-Heptane and mixed heptane Drums)								
Bldg. #2	≤ 40	55	Steel Drum	n-Heptane	Interior rooms with impervious walls, capped/closed drains, and sloped floors to direct spills away from doorways	Contained in bermed area (10 GPM)	None	N/A
Bldg. #2	≤ 72	55	Steel Drum	Mixed heptane		Contained in bermed area (10 GPM)	None	N/A
Central Accumulation Areas (Waste Oil, n-Heptane and Mixed Heptane Hazardous Waste Drums)								
Bldg. #2 CAA Drum Storage	≤ 1	55	Plastic Drum	Waste Oil	Interior rooms with impervious walls, capped/closed drains, and sloped floors to direct spills away from doorways	Contained in bermed area (10 GPM)	None	N/A
	≤ 10	55	Steel Drum	Hazardous wastes containing n-Heptane and/or mixed heptane		Contained in bermed area (10 GPM)	None	N/A

Appendix C

Applicability of Substantial Harm Criteria

CERTIFICATION OF SUBSTANTIAL HARM DETERMINATION

(40 CFR 112.20(e), 40 CFR 112.20(f)(1))

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes ☐ No ☒

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?

Yes ☐ No ☒

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

Yes ☐ No ☒

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility would shut down a public water intake?

Yes ☐ No ☒

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last five years?

Yes ☐ No ☒

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Authorized Facility Representative	Signature	Date

Appendix D

Inventory and Maps of Spill Response Materials and Emergency Equipment

The table below identifies the list of emergency response equipment and locations.

Emergency Equipment	Location
Emergency Shower	Building 1 Floors 1 & 2 – In hallways outside labs, and inside Labs 210 & 211
Emergency Shower	Building 2 Floor 1 – Boiler Room (1st floor), and Material Control near main door, outside office, outside CAA, near gas cylinder storage, and in Bulk Storage 2 warehouse storage
Emergency Shower	Building 2 Floor 2 – Inside Lab 2005
Emergency Shower	Building 3 Floors 1, 2 & 3 – Plant hallways outside Suites, inside Suites A, B, C, inside Packout room, inside Weigh Room, and inside 3rd floor utility room
Emergency Eyewash	One at each emergency shower station in Buildings 2 and 3, in Labs 210 & 211, and at sinks in all labs, and Material Control sampling room
PIG Spill Kit	Building 1 Floor 1 – Near elevator, Backwall of Lab Area (across Office 163), inside Lab 109 (QC Lab)
PIG Spill Kit	Building 1 Floor 2 – Near elevator, Backwall of Lab Area (across Office 263), and inside Labs 202, 209 (QC Lab), 210
PIG Spill Kit	Building 2 Floor 1 – Back of Maintenance, Material Control Cold Storage Area, outside Material Control office, loading dock, outside CAA, Bulk Storage 2, and connector outside Plant (Building 3)
PIG Spill Kit	Building 2 Floor 2 – Outside Lab 2005
PIG Spill Kit	Building 3 Floors 1, 2 & 3 – Plant hallways outside Suites
Lg Overpack Drum	Syltherm spill pad
First Aid Kit	Building 1 – Outside Labs 104/105 and outside Labs 204/205
First Aid Kit	Building 2 Floor 1 – Maintenance area bathrooms, Lab 2005
First Aid Kit	Building 3 Floors 1, 2 & 3 – Outside Plant entrance, near elevator
AED	Building 1 Floor 1 – Hallway between cafeteria and CR1
AED	Building 1 Floor 2 – Outside QA offices
AED	Building 2 Floor 1 – Outside Maintenance entrance
AED	Building 2 Floor 2 – Hallway above Floor 1 Maintenance entrance

The tables below identify the spill kit contents.

PIG Spill Kit Contents	Quantity
24.11" W x 23.5" D x 38.25" H PIG® Empty High-Visibility Caddy (PAK1968)	1
15" W x 90' L PIG® Absorbent Mat Roll (MAT12401)	1
3" x 48" L PIG® Blue Absorbent Sock (4048)	5
10" W x 15" L PIG® Absorbent Mat Pad	45
11.8" W x 13" L PIG® PR40 All-Purpose Wipers (WIP310)	1
PIG® Dri Loose Absorbent in Spill Pouch (PLP220)	3
7" L PIG® Multi-Purpose Epoxy Putty (2 year shelf life) (PTY201)	1
Dust pan and broom	1
Pair Neoprene Gloves (GLV213-XL)	1
Economy Goggle (GLS290-AF)	1
Apron PE Coated	1
Instructions	1
18" W x 30" H Disposal bags	5
Cut Resistant Gloves	1

Large Overpack Drum Spill Kit Contents	Quantity
Yellow overpack drum	1
3" x 95" White absorbent sock	5
3" x 45" White absorbent sock	3
1.5 cubic feet ENSORB Super Absorbent	3
15" W x 17" L White absorbent pad	50
18" W x 30" H Yellow "Hazardous Material" plastic disposable bags and zip ties	8
Small handle dustpan	1
Small handle brush	2
Long handle brush	1

The figures below depict the emergency response equipment locations.

Figure Key


Emergency Eye Wash Station

PPE Supplies Station


Emergency Shower Station


First Aid Kit Station

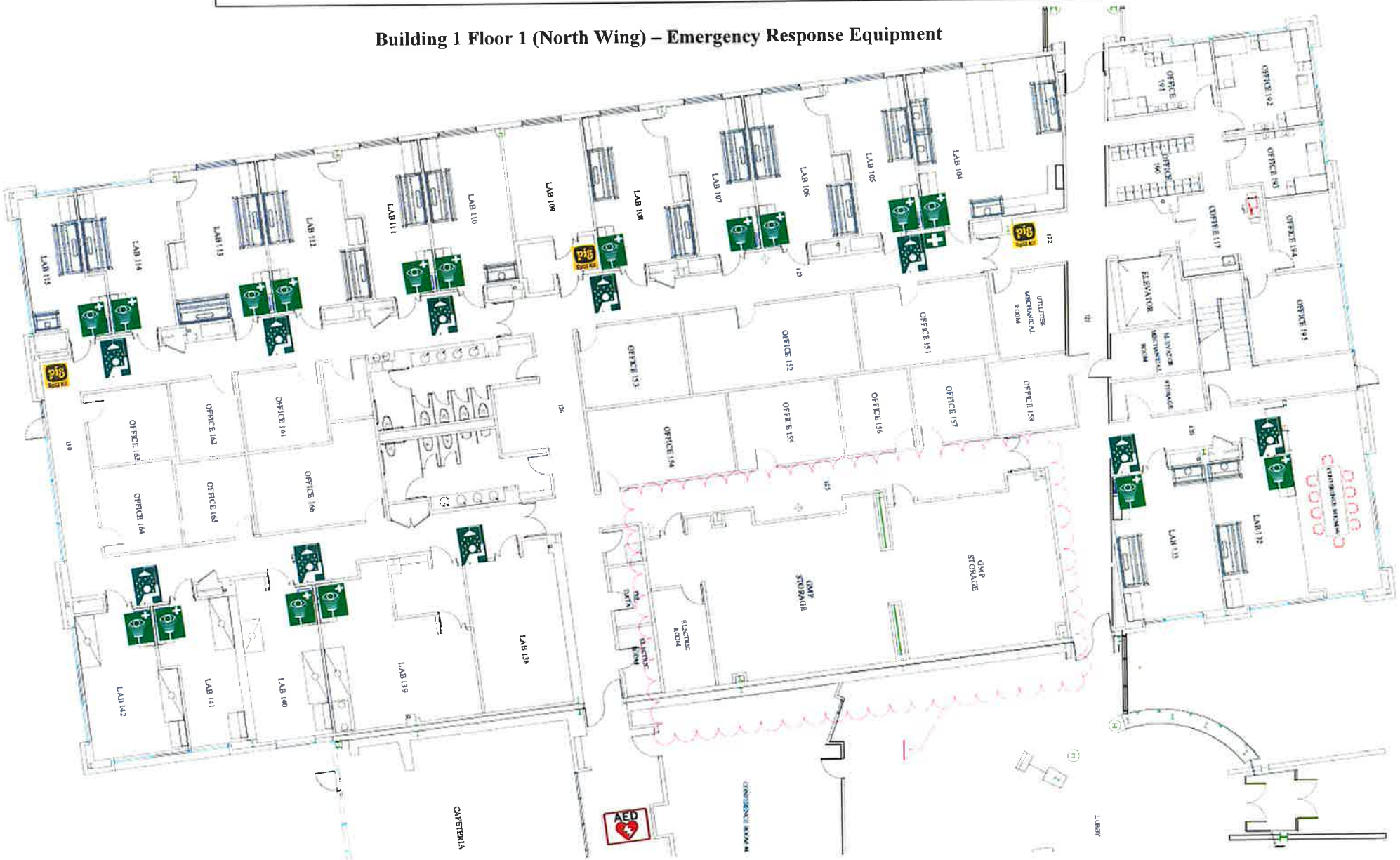

Emergency Eye Wash and Shower Station

AED/Defibrillator


PIG Spill Kit

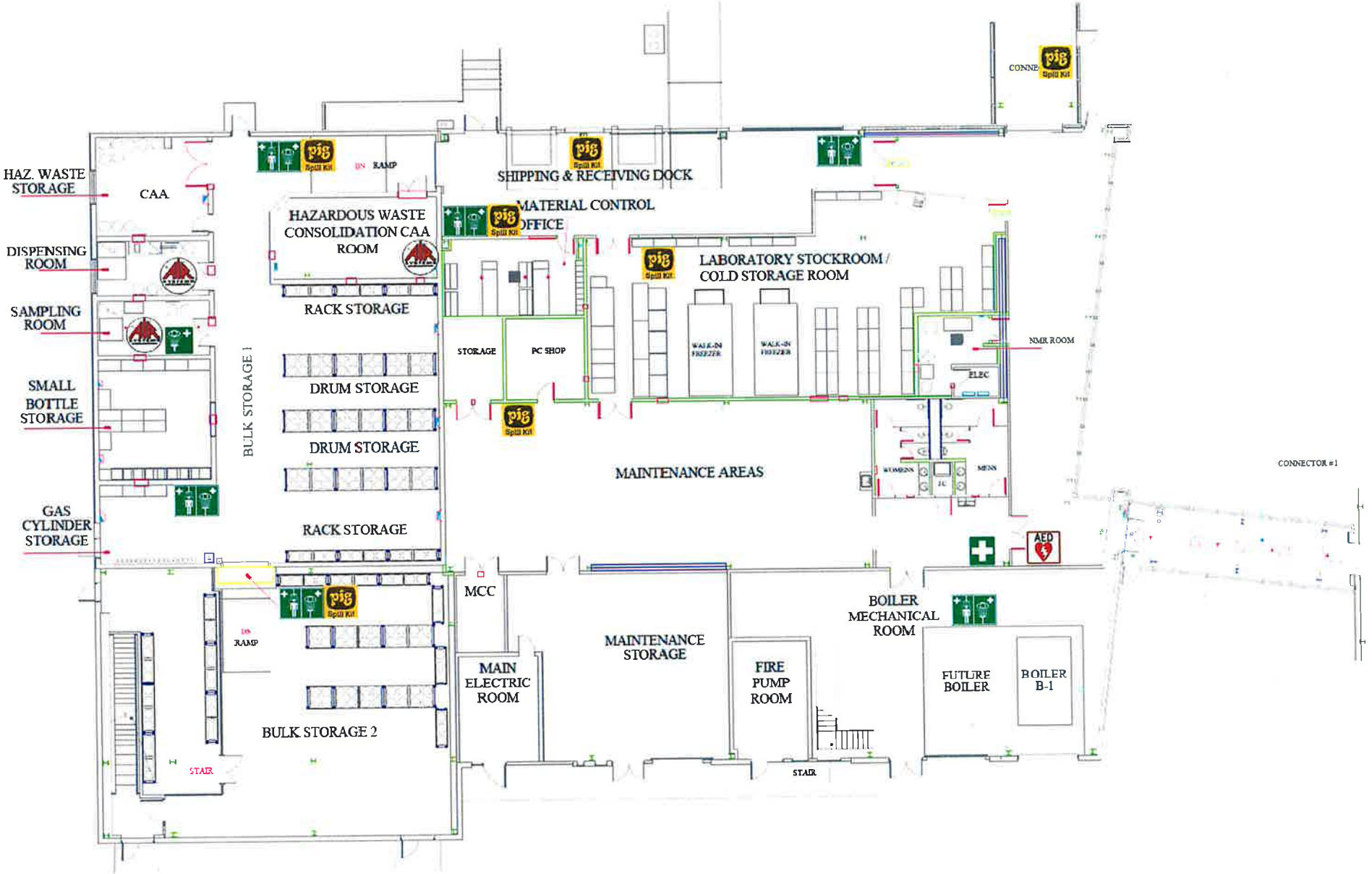

Air System

Building 1 Floor 1 (North Wing) – Emergency Response Equipment

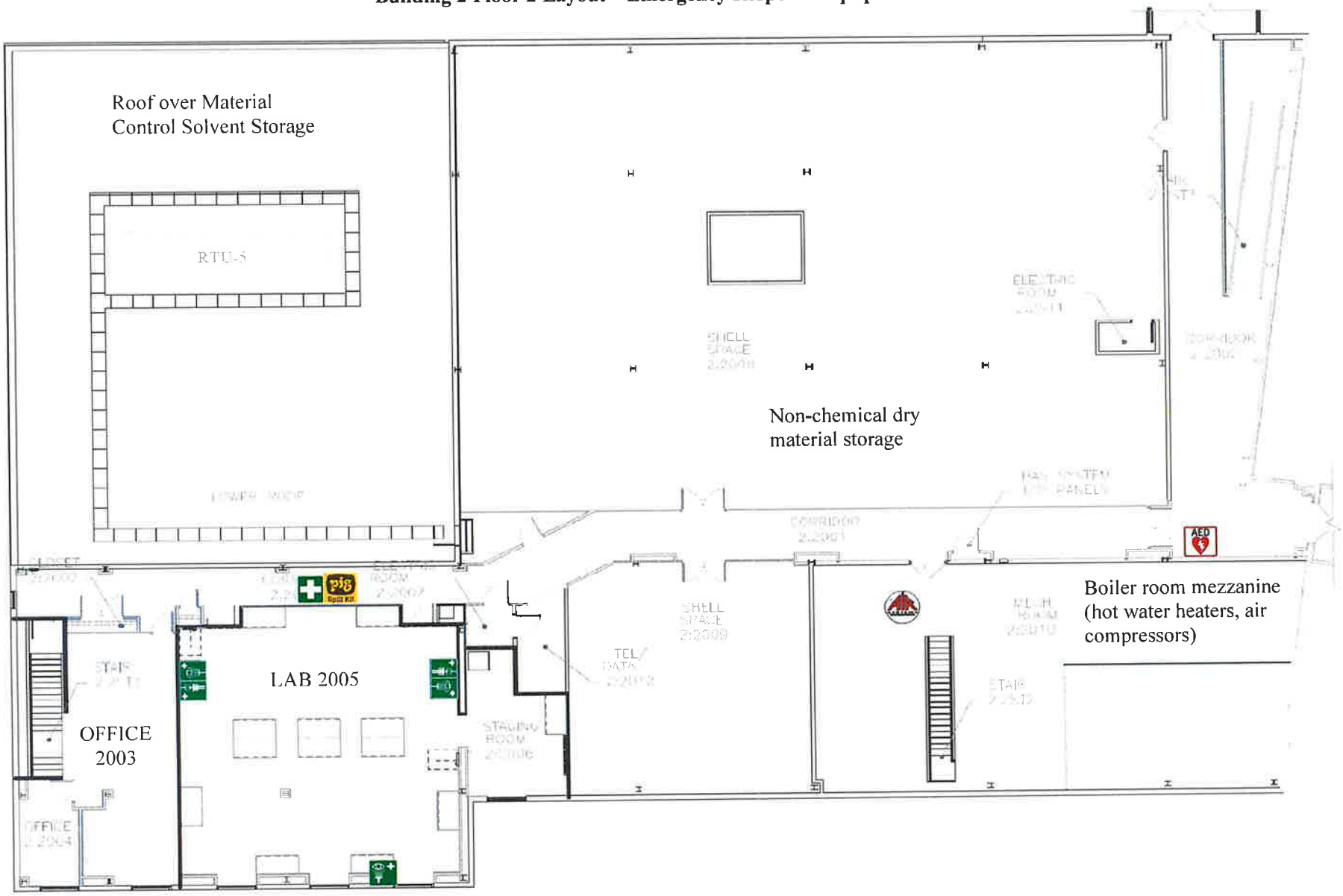


Building 1 Floor 2 (North Wing) – Emergency Response Equipment

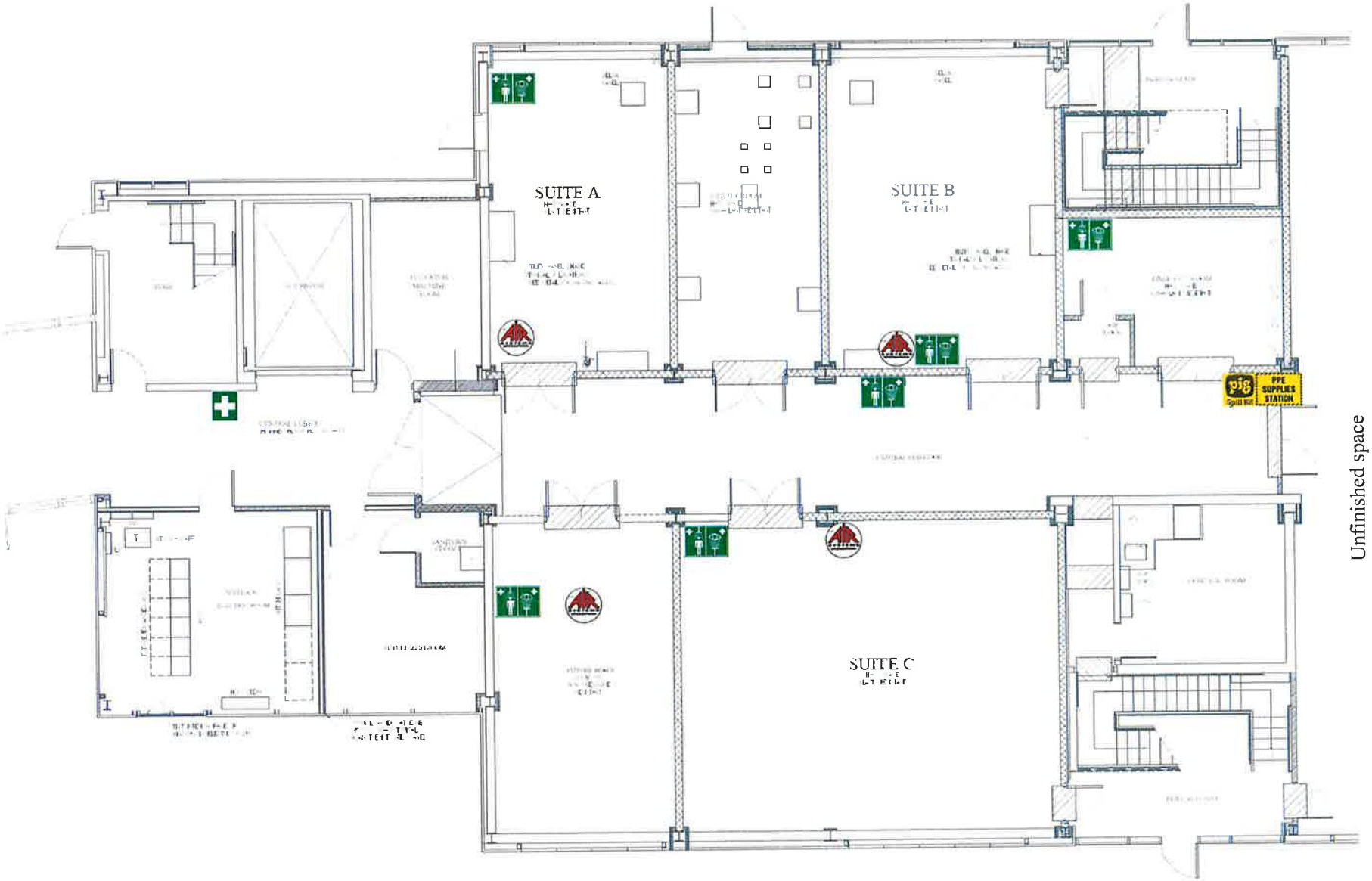
Building 2 Floor 1 – Emergency Response Equipment



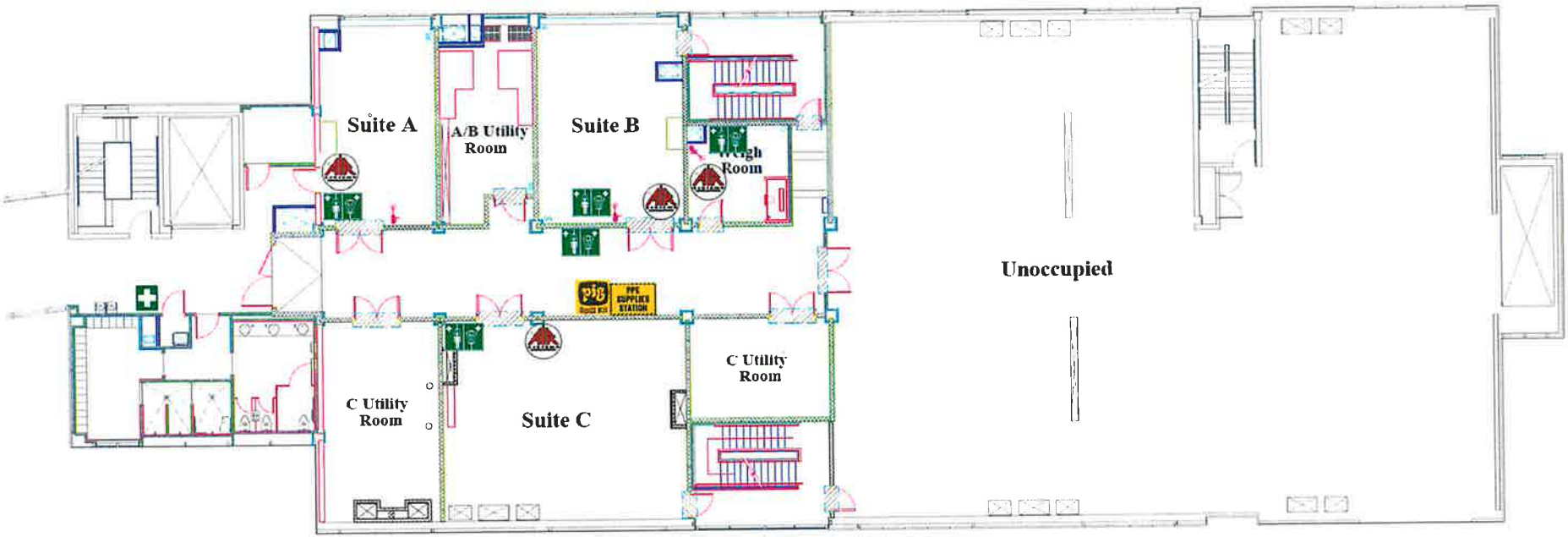
Building 2 Floor 2 Layout – Emergency Response Equipment



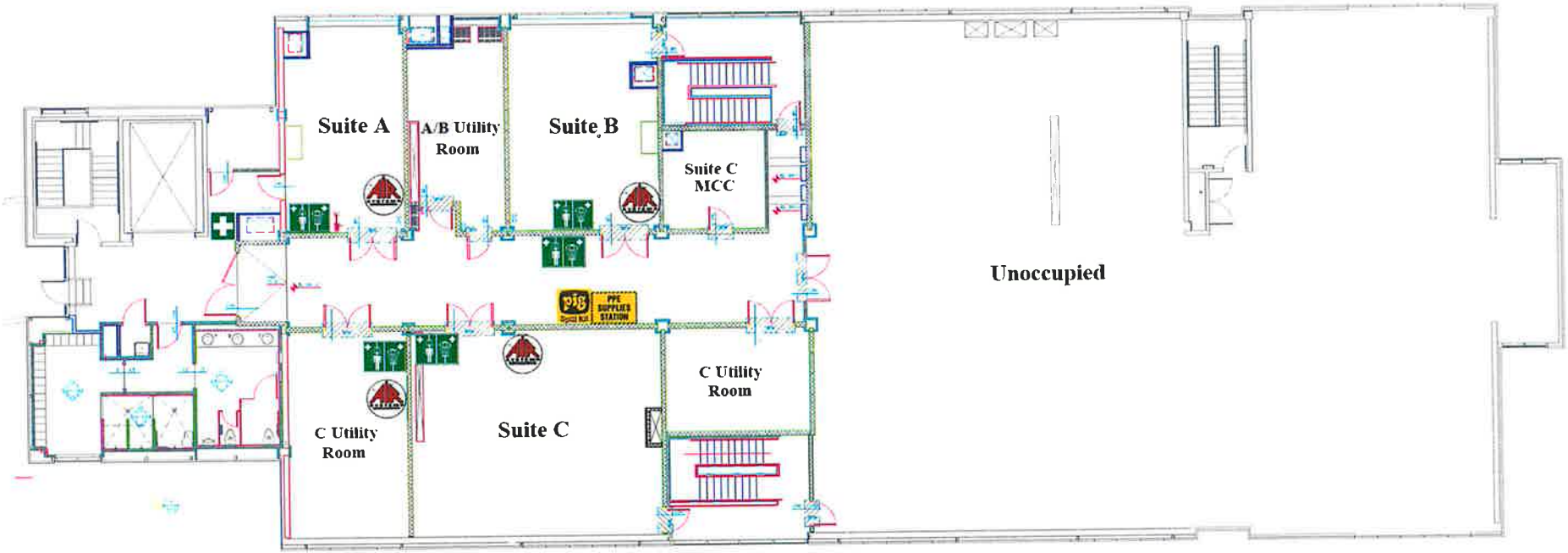
Building 3 Floor 1 Layout – Emergency Response Equipment



Building 3 Floor 2 Layout – Emergency Response Equipment



Building 3 Floor 3 Layout – Emergency Response Equipment



Appendix E

AST and Piping Inspection Checklist

SPCC INSPECTION LOG AND SCHEDULE

This log is intended to document compliance with §112.7(e) in establishing and documenting facility procedures for monthly SPCC inspections to detect equipment failure and/or a discharge of oil from tanks, containers, and equipment.			
INSPECTION CRITERIA			
Is containment or floor free of: • **Free of oil?** • **Free of water?** • **Free of cracks & vegetation growth?** • **Free of open drains or leaks?** **Are piping and supports free of visual structural damage?**		**Are storage tank level alarms working properly?** **Are tank supports and foundations free of visual structural damage?** **Has the monthly maintenance routine been completed?** **Are pumps, valves, flanges, and joints free of leaks?**	
SPCC No.	**Container / Equipment Location**	**Observations**	**Action Taken (Y/N)***
1	Hydraulic Elevator Reservoir - Bldg. #1 170-Gallon OFE Hydraulic Oil		
2	Hydraulic Elevator Reservoir - Bldg. #3 230-Gallon OFE Hydraulic Oil		
3	Drum Storage Area – Maintenance Bldg. #2 4 x 55-Gallon Drums Varies		
4	Fire Pump Generator – Outside Bldg. #2 392-Gallon AST Diesel		
5	Electrical Transformer – Outside Bldg. #2 471-Gallon OFE Mineral Oil		
6	Electrical Transformer – Outside Bldg. #2 510-Gallon FR3FE FR3		
7	Electrical Transformer – Outside Bldg. #1 471-Gallon OFE Mineral Oil		

This log is intended to document compliance with §112.7(e) in establishing and documenting facility procedures for monthly SPCC inspections to detect equipment failure and/or a discharge of oil from tanks, containers, and equipment.			
INSPECTION CRITERIA			
Is containment or floor free of: • **Free of oil?** • **Free of water?** • **Free of cracks & vegetation growth?** • **Free of open drains or leaks?** **Are piping and supports free of visual structural damage?**		**Are storage tank level alarms working properly?** **Are tank supports and foundations free of visual structural damage?** **Has the monthly maintenance routine been completed?** **Are pumps, valves, flanges, and joints free of leaks?**	
SPCC No.	**Container / Equipment Location**	**Observations**	**Action Taken (Y/N)***
8	Consolidation CAA, Bldg. #2 – Steel Drum 55 Gallons Waste Oil		
9	CAA Bldg. #2 – Steel Drums Up to 22 x 55 Gallons Hazardous Wastes Containing n-Heptane and/or Mixed Heptane		
10	Material Control Bldg. #2 – Steel Drums Up to 112 x 55 Gallons n-Heptane and Mixed Heptane		
11	Pilot Plant Generator – Outside Bldg. #2 2,500-Gallon AST Diesel		
12	Electrical Transformer – Outside Bldg. #3 471-Gallon OFE Mineral Oil		
13	Syltherm Cooling System – Outside Bldg. #3 1,500-Gallon OFE Polydimethylsiloxane		
14	M&M Chiller Compressor Oil Reservoirs, Outside Bldg. #3 2 x 65-Gallon OFEs Polyol Ester Oil		
15	Production – Filter Room (FD-1500) 1 x 396 Gallons n-Heptane / Mixed Heptane (varying mixtures)		
16	Production – Suites A / B / C / Packout / Dryer Rooms (Steel Filter Dryers) ≤3 x 159 / 1 x 106 / ≤6 x 55 Gallons n-Heptane / Mixed Heptane (varying mixtures)		

This log is intended to document compliance with §112.7(e) in establishing and documenting facility procedures for monthly SPCC inspections to detect equipment failure and/or a discharge of oil from tanks, containers, and equipment.			
INSPECTION CRITERIA			
Is containment or floor free of: • **Free of oil?** • **Free of water?** • **Free of cracks & vegetation growth?** • **Free of open drains or leaks?** **Are piping and supports free of visual structural damage?**		**Are storage tank level alarms working properly?** **Are tank supports and foundations free of visual structural damage?** **Has the monthly maintenance routine been completed?** **Are pumps, valves, flanges, and joints free of leaks?**	
SPCC No.	**Container / Equipment Location**	**Observations**	**Action Taken (Y/N)***
17	Production – Suite C 1st floor (Steel Mixing Vessels, Totes) 2 x 1,000 / 3 x 550 / 1 x 300 / 6 x 125 Gallons n-Heptane / Mixed Heptane Mixtures		
18	Production – Hallways / Suites (Drums) Up to 58 x 55 Gallons n-Heptane and/or Mixed Heptane		
19	Production – Suite C 2nd floor (Steel Totes) 1 x 325 Gallons, 2 x 300 Gallons n-Heptane / Mixed Heptane Mixtures		
20	Bldg. #1 1st floor – Labs 113/114 1 x 55-Gallon Drum n-Heptane		

***Environmental Health and Safety must be informed of any action taken to clean a leak and/or spill of oil**

Inspector information:

Name:_____ Signature:_____

Title:_____ Date:_____

Appendix F

Release Notification Report Form

NATIONAL RESPONSE CENTER (NRC) OIL SPILL REPORT FORM

WHEN TO REPORT AN OIL SPILL TO THE NRC:

When there is a discharge of **a harmful quantity of oil** to U.S. navigable waters, or which may affect natural resources. A harmful quantity is any quantity of discharged oil that violates state water quality standards, or causes a film or sheen upon, or a discoloration the surface of the water or adjoining shorelines; or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. Report these oil discharges immediately to the National Response Center (NRC) at 1-800-424-8802 or 1-202-426-2675. NRC will relay information to the Environmental Protection Agency (EPA).

NRC REPORTING REQUIREMENTS:

Name: _____

Organization: Veranova

Telephone Number: (978) 303-7674

Name and address of the party responsible for the incident: _____

Date and Time of Incident: _____

Location of Incident: Veranova, 25 Patton Rd., Devens, MA 01434

Source and cause of the discharge: _____

Types of material(s) discharged: _____

Danger or threat posed by the discharge: _____

Number and types of injuries (if any): _____

Weather conditions at the incident location: _____

Other information to help emergency personnel respond to the incident: _____

Attach additional sheets for documentation details, as necessary.

ENVIRONMENTAL PROTECTION AGENCY (EPA) OIL SPILL REPORT FORM

WHEN TO REPORT AN OIL SPILL TO THE EPA:

A discharge must be reported to the EPA Regional Administrator (RA) when there is a discharge of:

- More than 1,000 U.S. gallons of oil in a single discharge to navigable waters or adjoining shorelines; OR
- More than 42 U.S. gallons of oil in each of two discharges to navigable waters or adjoining shorelines occurring within any 12-month period.

When determining the applicability of this SPCC reporting requirement, the gallon amount(s) specified (either 1,000 or 42) refers to the amount of oil that actually reaches navigable waters or adjoining shorelines, not the total amount of oil spilled.

The other/operator must submit a written report of these oil discharges to the EPA within 60 days of the release. Mail report to: USEPA New England, Region 1, 5 Post Office Square – Suite 100, Boston, Massachusetts 02109-3912; and send a copy to: New Hampshire Department of Environmental Services, Waste Management Division, Oil Remediation and Compliance Bureau, 29 Hazen Drive, P.O. Box 95, Concord, New Hampshire 03302-0095.

EPA REPORTING REQUIREMENTS: The owner/operator must provide the following:

Name and Location of Facility: Veranova, 25 Patton Rd., Devens, MA 01434

Owner/Operator Name: Veranova

Maximum Storage/Handling Capacity of the Facility: _____

Normal Daily Throughput of the Facility: _____

Corrective actions and countermeasures taken, including descriptions of equipment repairs and replacements: _____

Adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary: _____

Cause of the discharge to navigable waters, including a failure analysis: _____

Failure analysis of the system where the discharge occurred: _____

Additional preventative measures taken or planned to take to minimize discharge reoccurrence: _____

Other information the RA may reasonably require: _____

Attach additional sheets for documentation details, as necessary.

Appendix G

Regulatory Cross Reference

Cross Reference between EPA SPCC regulatory requirements (40 CFR 112) and this ICP

Regulatory Reference	Description of Requirement	Location in SPCC	Comments
112.7	Prepare a written Plan in accordance with good engineering practices. The Plan must have the full approval of management at a level of authority to commit the necessary resources to fully implement the Plan. If you do not follow the sequence specified in this section for the Plan, you must prepare an equivalent Plan acceptable to the Regional Administrator that meets all of the applicable requirements listed in this part, and you must supplement it with a section cross-referencing the location of requirements listed in this part and the equivalent requirements in the other prevention plan.	Sections 1.0-11.0	None
112.7 (a)(1)	Include a discussion of your facility's conformance with the requirements listed in this part.	Section 1.4	
112.7 (a)(3)	Describe in your Plan the physical layout of the facility and include a facility diagram, which must mark the location and contents of each fixed oil storage container and the storage area where mobile or portable containers are located.	Sections 2.0 and 3.0 Appendix A	
112.7 (a)(3)(i)	The type of oil in each fixed container and its storage capacity. For mobile or portable containers, either provide the type of oil and storage capacity for each container or provide an estimate of the potential number of mobile or portable containers, the types of oil, and anticipated storage capacities.	Sections 2.2 and 3.0 Appendix B	
112.7 (a)(3)(ii)	Discharge prevention measures including procedures for routine handling of products (loading, unloading, and facility transfers, etc.);	Sections 2.4, 6.0, and 7.0 Appendix B	
112.7 (a)(3)(iii)	Discharge or drainage controls such as secondary containment around containers and other structures, equipment, and procedures for the control of a discharge;	Sections 3.0, 4.0, and 11.0 Appendix B	
112.7 (a)(3)(iv)	Countermeasures for discharge discovery, response, and cleanup (both the facility's capability and those that might be required of a contractor);	Section 11.0 Appendix E	
112.7 (a)(3)(v)	Methods of disposal of recovered materials in accordance with applicable legal requirements;	Section 11.0	
112.7 (a)(3)(vi)	Contact list and phone numbers for the facility response coordinator, National Response Center, cleanup contractors with whom you have an agreement for response, and all appropriate federal, state, and local agencies who must be contacted in case of a discharge as described in §112.1(b).	Section 11.0	
112.7 (a)(4)	Provide information and procedures to enable a person reporting a discharge as described in §112.1(b)	Section 11.0 Appendix B	

Regulatory Reference	Description of Requirement	Location in SPCC	Comments
	to relate information on the exact address or location and phone number of the facility; the date and time of the discharge, the type of material discharged; estimates of the total quantity discharged; estimates of the quantity discharged as described in §112.1(b); the source of the discharge; a description of all affected media; the cause of the discharge; any damages or injuries caused by the discharge; actions being used to stop, remove, and mitigate the effects of the discharge; whether an evacuation may be needed; and, the names of individuals and/or organizations who have also been contacted.	Appendix E	
112.7 (a)(5)	Describe procedures used when a discharge occurs in a way that will make them readily usable in an emergency, and include appropriate supporting material as appendices.	Section 11.0 Appendices A, B, E	
112.7 (b)	Where experience indicates a reasonable potential for equipment failure (such as loading or unloading equipment, tank overflow, rupture, or leakage, or any other equipment known to be a source of a discharge), include in your Plan a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure.	Section 3.0 Appendix B	
112.7 (c)	Provide appropriate containment and/or diversionary structures or equipment to prevent a discharge as described in §112.1(b). The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs. In determining the method, design, and capacity for secondary containment, you need only to address the typical failure mode, and the most likely quantity of oil that would be discharged. Secondary containment may be either active or passive in design. At a minimum, you must use one of the following prevention systems or its equivalent: (1) For onshore facilities: (i) Dikes, berms, or retaining walls sufficiently impervious to contain oil; (ii) Curbing or drip pans; (iii) Sumps and collection systems; (iv) Culverting, gutters, or other drainage systems; (v) Weirs, booms, or other barriers; (vi) Spill diversion ponds; (vii) Retention ponds; or (viii) Sorbent materials.	Sections 3.0, 4.0, 5.0, and 6.0 Appendix B	

Regulatory Reference	Description of Requirement	Location in SPCC	Comments
112.7 (e)	Inspections, tests, and records. Conduct inspections and tests required by this part in accordance with written procedures that you or the certifying engineer develop for the facility. You must keep these written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector, with the SPCC Plan for a period of three years. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph.	Section 8.0 Appendix D	

112.7 (f)(1)(2)(3)	Personnel, training, and discharge prevention procedures. (1) At a minimum, train your oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan. (2) Designate a person at each applicable facility who is accountable for discharge prevention and who reports to facility management. (3) Schedule and conduct discharge prevention briefings for your oil-handling personnel at least once a year to assure adequate understanding of the SPCC Plan for that facility. Such briefings must highlight and describe known discharges as described in §112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures.	(1 & 3) Personnel training is through Master Control (electronic document management system). Course-Veranova-SPCC. (2) Section 10.0	Assigned to EHS and Facilities – Maintenance required to be completed annually
112.7 (g)	Security (excluding oil production facilities). Describe how you secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; and address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges.	Sections 9.0	
112.7 (j)	In addition to the minimal prevention standards listed under this section, include in your Plan a complete discussion of conformance with the applicable requirements and other effective discharge prevention and containment procedures listed in this part or any applicable more stringent state rules, regulations, and guidelines.	Sections 1.0, 2.0, and 3.0	All tanks at Veranova are exempt from Massachusetts Fire Marshall permit requirements, since volume of each tank is less than 10,000 gallons.

112.7 (d)(1)(2), (h), (i), (k)	(d) Contingency planning. (h) Loading/unloading (excluding offshore facilities). (i) Brittle fracture evaluation requirements. (k) Qualified Oil-filled Operational Equipment.	(d & i) Not applicable. (h) This technically does not apply to Veranova since there are no "loading racks", per Don Grant, EPA New England. Loading/unloading at the Standby Generator for Pilot Plant meets the requirements of 112.7(h) when the oil water separator valve is closed. (k) Not applicable. There is no oil filled equipment at Veranova that exceeds 1,000 gallons.	Not applicable.
112.8 (b)(1-5)	Facility drainage (1) Restrain drainage, (2) Valve design, (3) Drainage system design, (4) Drainage diversion, (5) Drainage water treatment	Section 4.0 Appendix A	
112.8 (c)(1-11) 112.12 (a – d)	Bulk storage containers (1) Storage container design, (2) Bulk storage tank secondary containment, (3) Diked area drainage, (4) & (5) Buried storage tank protection, (6) Inspection of containers, (7) Leakage through defective internal heating coils, (8) Storage container level sensing, (9) Effluent treatment facilities, (10) Promptly correct visible discharges, (11) Containment for mobile/portable storage containers	Section 5.0	(4) & (5) Not applicable – no buried tanks. (6) Emergency Generator Tanks tested per STI SP001-00. (7) Not applicable – no internal heating coils. (8) Method (iv) (direct vision gauges and continuous monitoring of fuel gauges during delivery) used to comply with this requirement for the Emergency Generator Fuel Tanks. (9) Not applicable – no effluent treatment facilities. (10) Routine inspections require follow-up actions when loss of oil is observed.
112.8 (d)	Facility transfer operations, pumping, and facility process	Sections 6.0 and 7.0	(1) Not applicable – no buried

	(1) Protection for buried piping, (2) Cap or blank-flange terminal connection, (3) Pipe support design, (4) Inspection of above ground piping, (5) Vehicle notification		piping. (2) Not applicable – no blank flange terminations. (5) Not applicable – no exposed piping over/under roadways.
112.9 - 11	9 – Onshore oil production facility, 10 – Onshore oil drilling, 11 – Offshore oil drilling	Not applicable.	
112.20	Facility Response Plans	Section 11.0	
112.21	Response training, drills, exercises	Section 10.0	

End of document