LA-UR-17-24379
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Title: LAFD: TA-16 HE Facility Familiarization Tour, OJT 55258

Author(s): Rutherford, Victor Stephen

Intended for: Training

Issued: 2017-05-31

Handout

Los Alamos County Fire Department

LAFD: TA-16 HE Facility Familiarization Tour

OJT 55258

Revision 1.1

LA-UR-xx-xxxx (formerly 14-24919)

TITLE PAGE

Course Title	**LAFD: TA-16 HE Facility Familiarization Tour**
Course Number	**55258**
Computer File Name	**Student Handout, LAFD_Tour_TA16-HE_55258_HO,R1.0**
Course Length	**Estimated 2 Hours**
Authors and Contributors:	**Victor Rutherford, IRM Institutional Training Services** **Marvin Maestas, SEO-4 Emergency Planning and Preparedness**
Initial Date of Preparation	**February 4, 2011**
Date of Revision(s)	**June 2014, May 2017**
Date of Next Review	**March 2020**
Training Setting	**Facility Tour**
Target Audience	**All Los Alamos Fire Department Personnel**
Optimum Training Location	**Onsite**

Introduction

Los Alamos National Laboratory (LANL) will conduct familiarization tours for personnel of the Los Alamos County Fire Department (LAFD) at TA-16 high explosives (HE) facilities. These familiarization tours are official LANL business; the purpose of these tours is to orient LAFD firefighters to the facility so that they can respond efficiently and quickly to a variety of emergency situations. This orientation includes, among other topics, ingress and egress of the area and buildings, layout and organization of the facility, evacuation procedures and assembly points, and areas of concern within the various buildings at the facility. LAFD firefighters have the skills and abilities to perform firefighting operations and other emergency response tasks that cannot be provided by LANL personnel who have the required clearance.

This handout provides details of the information, along with maps and diagrams, to be presented during the familiarization tours. The handout will be distributed to the trainees at the time of the tour. A corresponding checklist will also be used as guidance during the familiarization tours to ensure that all required information is presented to LAFD personnel.

LAFD Familiarization Escorts and Training Coordinators

The escorts and training coordinators (trainers) for the LAFD familiarization tours of the TA-16 HE facilities may include subject matter experts from TA-16 Facility Safety & Health or Emergency Planning and Preparedness (SEO-4). The contact information for the trainer of course #55258 is

- Marvin Maestas, 667-6437, mmmaestas@lanl.gov

Elements of the Familiarization Tour

Introduction in the TA-16-0969 Main Lobby

1a. Fire Department personnel will meet at TA-16-969, Access Control Building, with the trainer conducting the tour. Firefighters will be provided with a tour handout and will sign the roster before the start of the tour.

1b. Check that none of the LAFD personnel are carrying prohibited or controlled articles. Prohibited articles are those not permitted on Laboratory property, including parking lots, unless approved in advance by Security Incidents & Occurrence Investigations (ADMASER-IP). If a prohibited article is found, LANL may treat it as a reportable incident.

Prohibited Articles:

- Dangerous weapons, explosives, or other dangerous instruments or material likely to cause substantial injury or damage to persons or property
- Alcoholic beverages including unopened bottles or cans
- Controlled substances (e.g., illegal drugs and associated paraphernalia, but not prescription medicine)
- Other items prohibited by law

Controlled Articles (require prior authorization from SEC-PSS5):

- Cell phones, two-way pagers, and personal electronic devices (e.g., iPODs and MP3 players)
- Recording equipment and data transfer devices (audio, video, optical, or data)
- Electronic equipment with a data exchange port capable of connecting to automatic information system equipment (personal computers and associated media, including palmtop computers)

Restricted Articles (permit required for entry into HE areas):

- Devices where the surface temperature may exceed 109°C or 228°F, including floodlights, portable lighting, heat guns, and drying equipment
- Lithium battery high-intensity flashlights (if taken into an explosives building) Note: DO NOT mix lithium with any other type of battery
- Spark- and flame-producing items (i.e., welding, cutting, or grinding equipment)
- Non-explosion-proof electric or battery-powered tools or equipment (in explosives building)
- Equipment powered by small engines
- Off-road equipment (earthmovers, ATVs, etc,)
- Any vehicle with the abovementioned equipment permanently attached
- Food
- Strike-anywhere matches (prohibited in HE areas)
- Microphones removed from two-way radios on commercial vehicles
- Cigarette lighters and other smoking materials

1c. Determine the clearance level of all the personnel who are present. Using the following criteria, provide an escort for those personnel who do not have the appropriate clearance:

- The escort must have the appropriate level of security clearance, be aware of facility-specific escort procedures, and be trained in Laboratory escort procedures.
- No more than five escorted individuals per qualified escort are permitted at any given time.
- The escort must maintain control of the escorted individuals at all times.
- Escorted individuals must be logged in as visitors to the TA-16, using the visitor log-in sheet in the main lobby of the Access Control Building, TA-16-0969.
- Escorted individuals will log out at the completion of the tour.

Safe Approach Route, Standoff Points, and Assembly Areas

1d. Because of the nature of the hazards in the HE area, TA-16, Fire Department personnel will respond to the Access Control Building, TA-16-0969, during an emergency situation. The facility will send a representative to TA-16-0969 to describe the circumstances of the emergency and to provide information necessary for safe response to the emergency. That representative will escort the Fire Department to the location and will provide the firefighters with information, such as the safe approach to the facility, standoff areas, and location of personnel assembly areas. It is important for the safety of the firefighters who are responding to the emergency to understand that unless they have been given other instructions by incident command (IC), they will respond to the TA-16 Access Control Building and await instructions before responding to the facility.

1e. Electrically operated vehicle access gates into the TA-16 HE area, which includes TAs-11, -16, and -37, are provided with local battery backup power that provides limited-duration power for badge reader and access gate operation. Keys for manual override of electrically operated vehicle access gates to TA-16 HE areas are available for checkout at the respective access control points during business hours. For after-hours access, a TA-16 HE gate key is located in the Knox box, located at TA-16, Bldg. 969. The key is NOT to be used to respond to a "hot" alarm. The LAFD will have to notify the WFO duty officer or the OM/SOM for the area and wait at 16-969. The duty officer, OM, or SOM will determine whether there is an HE hazard. If there is an HE hazard per the responsible line manager (RLM), all personnel will be held at the standoff until it is safe to proceed.

TA-16-260 Description

2a. Rest houses (TA-16-261, -263, -265, -267) provide storage for explosives at a safe distance from the building and in some cases have walk-in safes that contain classified articles and may contain up to 55 kg of depleted uranium.

2b. There is a fire sprinkler riser in each of the four rest houses by the west doorway from the outside.

2c. The rest houses and vaults have fire-protection sprinkler systems in the event of a fire. There is a fire alarm pull station and a telephone in each near the west door.

2d. The mission and scope of work at TA-16-260 is to support LANL HE operations. The building is normally occupied by up to 10 people, Monday through Thursday during normal working hours for personnel working four 10-hour shifts, with occasional work on Fridays. A duty officer is on call 24 hours a day in case of emergency during off-working hours. The duty officer does not necessarily live close by; however, that individual can call other individuals who can respond quickly if needed.

2e. Vehicle ingress for the Fire Department would be from K Site Road to the TA-260 access road. Parking is in the front of the facility on the west side. The facility is accessed by badge reader.

2f. The assembly area for the facility is at the junction of K Site Road and Anchor Ranch Road. The shelter-in-place location is the tool crib.

2g. TA-16-260 is 770 ft long and has 25 working bays for work on explosive materials. The bays are isolated from the main hallway that runs the length of the building and have remote operating stations outside the bays, which are also protected in case of a detonation. Each bay is equipped with blowout walls designed to blow out if the pressure inside the bay exceeds 1.5 psi due to an explosion. Exit doors are located on the west side of the main corridor at regular intervals for emergency egress.

TA-16-260 was designed specifically to isolate individual machining areas and thereby limit the effects of a detonation in the immediate vicinity of the point of origin. Double doors at the back of each bay, not accessible from the outside, may be used for emergency egress.

The principal activity in building TA-16-260 is the fabrication of explosive components. In conjunction with this activity, there are inspection capabilities, casting operations, and the mock explosive operations. The majority of the operations (12 of 25 bays) involve the machining of explosives. Four bays contain inspection capabilities, including coordinate measuring machines, density measurements, and radiographic examination. Two bays are devoted to inert preparation (mock explosives), and the remaining bays are used for explosives pressing purposes.

2h. In the event of an emergency requiring evacuation of the facility, personnel would leave the building by the nearest exit and proceed to the assembly area. Personnel accountability will be determined at the assembly area. If an event requires facility personnel to shelter-in-place, personnel report to the tool crib.

2i. The main office and tool crib are located just to the right of the main entrance to the facility, which is on the west side of the building.

2j. Located just outside the main office and tool crib area is the fire alarm panel and the four rest house fire alarm indicators.

2k. Located outside the main office are red flashing beacon lights that warn that potentially hazardous operations are being conducted in the facility; these lights also indicate that the drop arm gates located on the north and south sides of the building are lowered.

2l. There are two access ladders to the crawl space above the main corridor. This crawl space contains piping and ducting going through the building. A key must be obtained from the main office to access this area. There is no access to the roof from the inside the building.

2m. Located outside each work bay is a water hose station, which is not functional.

2n. On the west side of the main corridor at regular intervals, there are fire alarm pull stations.

2o. Three flammable material storage cabinets, located in the building, contain machine lubricating oils, kerosene, alcohol, and other materials needed for equipment operation.

TA-16-260 Outside

3a. Access to the utility rooms, one just south of the main entrance and one north of the main entrance, is located outside on the west side of the building.

3b. Inside the south utility room are the fire water valves.

3c. Just west of the main entrance is the steam supply building (TA-16-1480) for the heating, etc., of Building 260. On the north side of that building is the natural gas isolation for the building.

3d. Outside the main entrance, a red beacon light warns personnel of potentially hazardous operations being conducted inside.

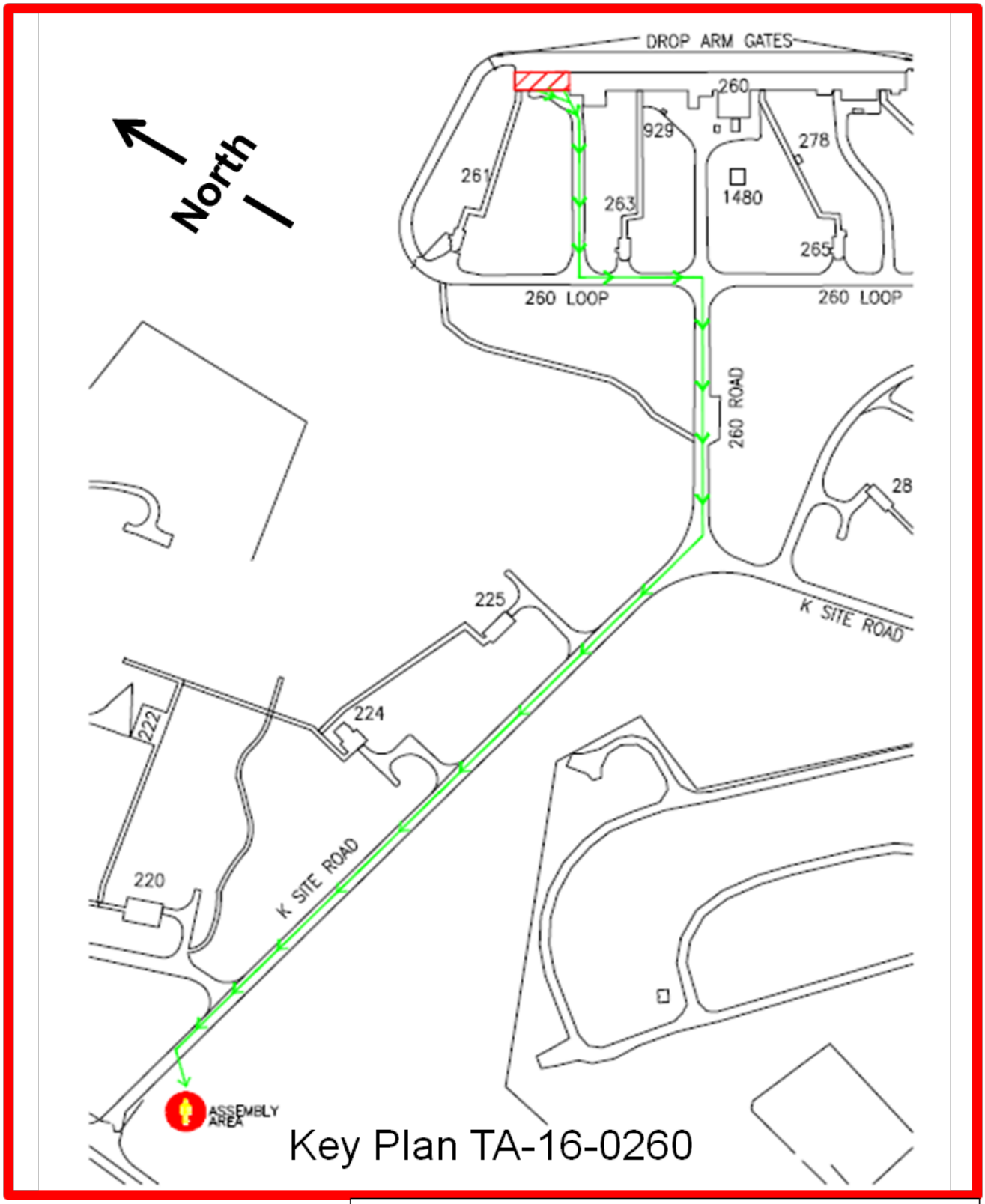
3e. A solvent storage shed (TA-16-929) located just to the northwest of the main entrance contains flammable solvents in 5-gal. containers.

3f. See the TA-16-260 Fire Protection Map for the post-indicator valve (PIV) location.

3g. See the TA-16-260 Fire Protection Map for the location of the fire hydrants.

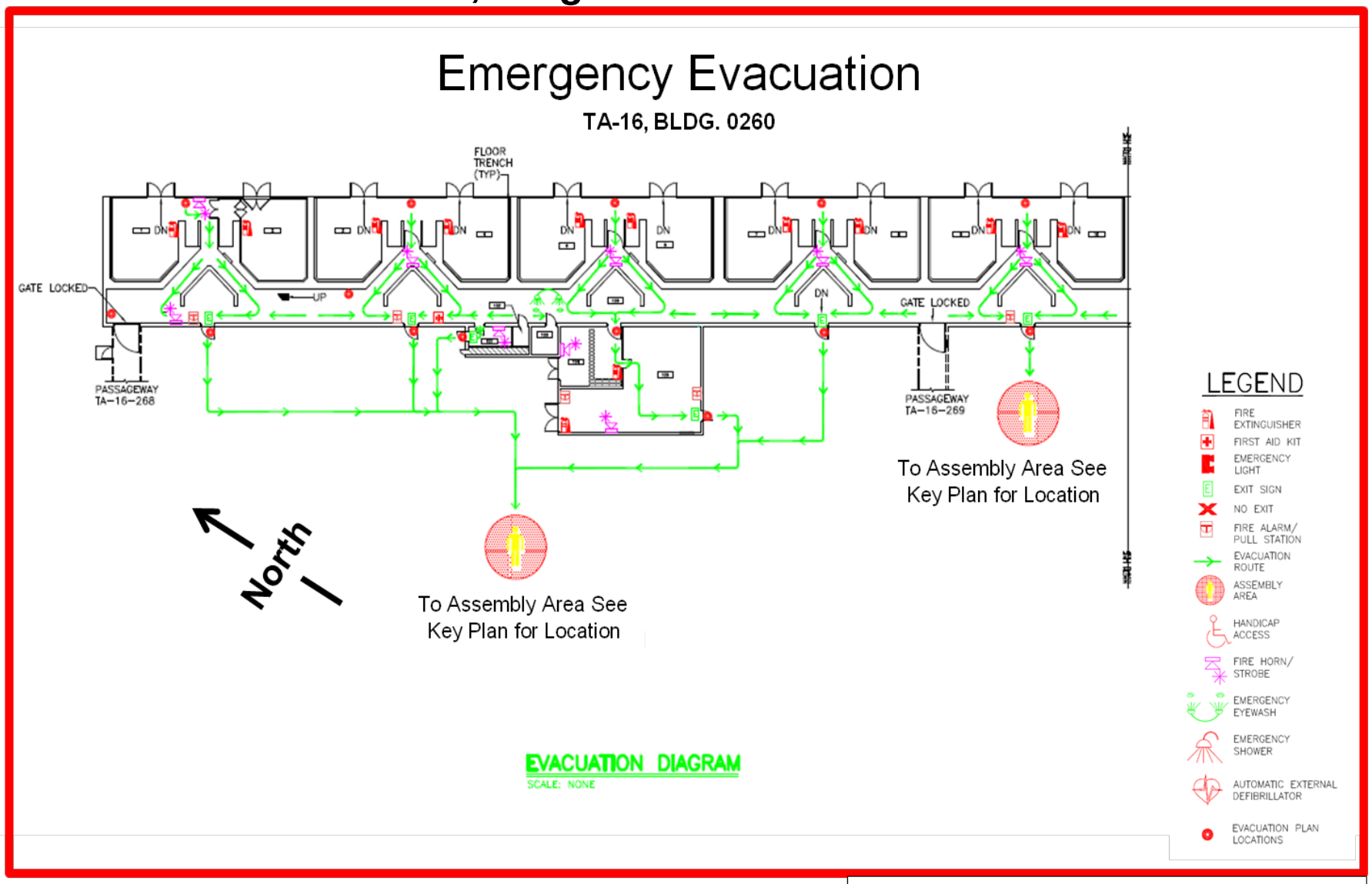
3h. See the TA-16-260 Fire Protection Map for the external fire department connection location for all five structures.

TA-16, Bldg. 260 Key Plan

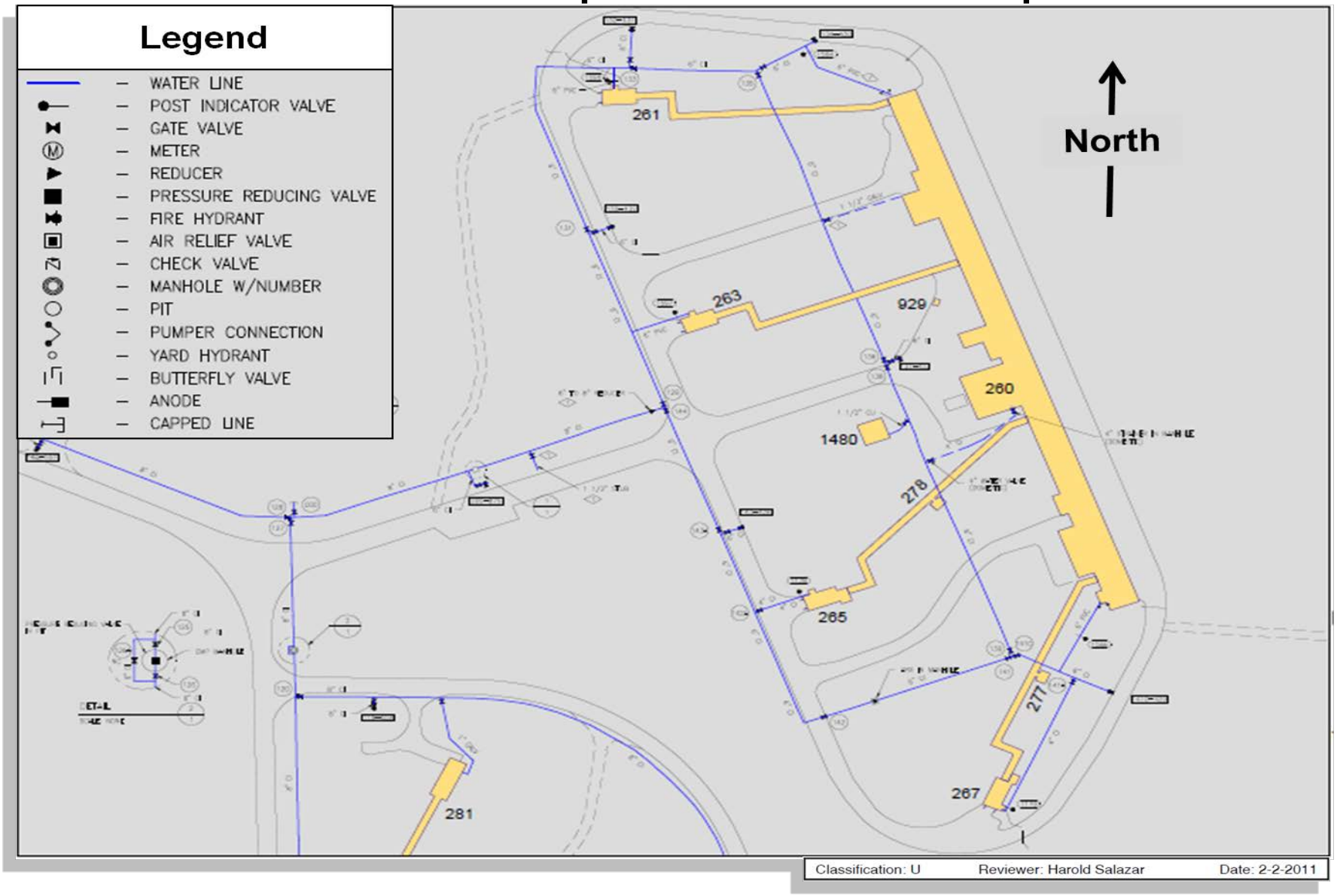


Classification: Unclassified Reviewer: Edward Seawalt Date: 09/22/2009

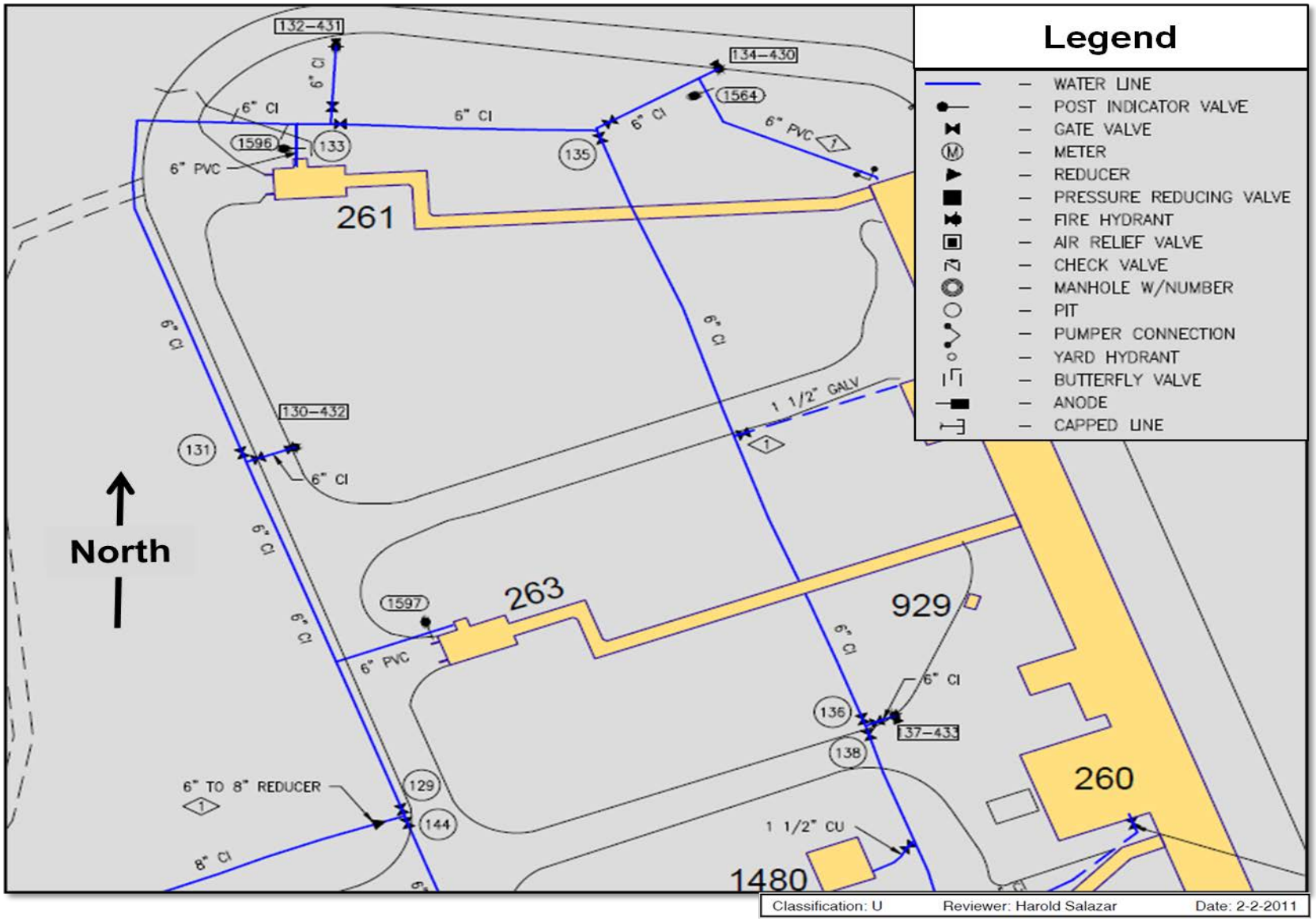
TA-16, Bldg. 260 Evacuation Routes



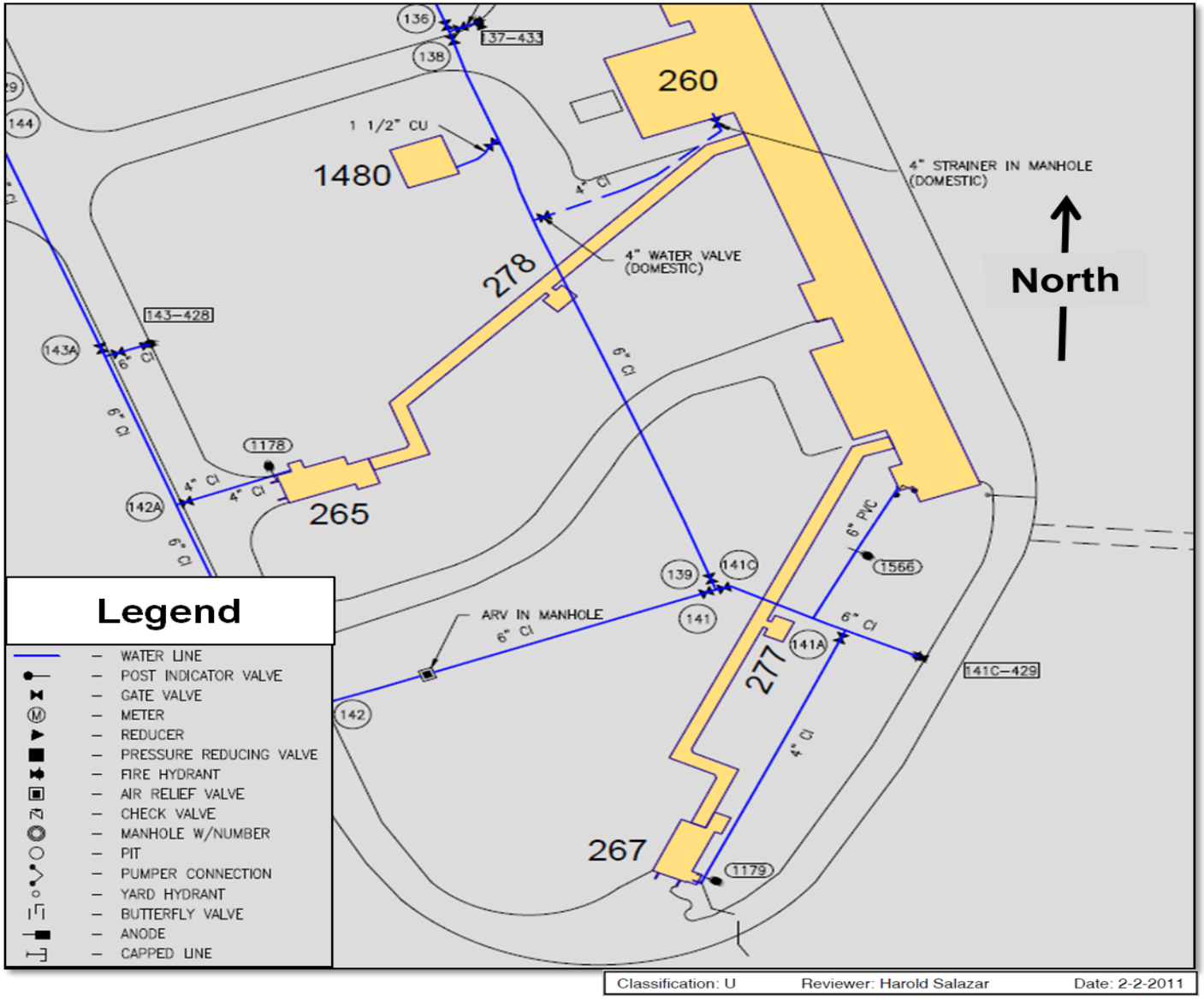
TA-16-260 Complex Fire Protection Map



TA-16-260 Fire Protection Map (View 1)



TA-16-260 Fire Protection Map (View 2)



TA-16-410 Description

4a. The mission and scope of work at TA-16-410 are the assembly and disassembly of test devices that contain depleted uranium, HE, and other hazardous materials, including lithium compounds, beryllium, and electrostatic-sensitive components. The building is normally occupied by up to 20 people, Monday through Friday, during normal working hours. A duty officer is on call 24 hours a day in case of emergency during off-working hours. The duty officer does not necessarily live close by; however, that individual can call other individuals who can respond quickly if needed. No remote automobile door operators, radios, or spark-producing equipment are allowed in the building. Steel-toed shoes and safety glasses are required for access. The hazards located within the building are HE and depleted uranium. The building has a fire sprinkler system.

4b. Vehicle ingress for the Fire Department would be from HE Road by way of the TA-410 access road. Parking is in the front of the facility on the west side. The facility is accessed by a badge reader with specific authorization only. A building representative will be required to access the building.

4c. The assembly area for the facility is north of the building on HE Road.

4d. The building is set up with a central high-bay room with various rooms and vaults located around the central room. A loading dock and a roll-up door are located on the south side of the building, and various exits from the building are located on the outer perimeter. The building attaches to Buildings 413 and 415, which are rest houses, and Building 414, which is used for storage.

4e. In the event of an emergency requiring evacuation of the facility, personnel would leave the building through one of the exits and go to the assembly area on HE Road. Personnel accountability will be determined at the assembly area.

4f. The fire sprinkler riser is located on the northeast side of the building.

4g. The building administrative area is located to the right of the main entrance, just off the central area of the building.

4h. The fire panel is located in Room 115.

4i. The flammable storage cabinets for the building are located in the high-bay loading dock area on the south side of the building.

TA-16-410 Outside

5a. The utility supply is located just north of the building.

5b. See the TA-16-410 Fire Protection Map for the PIV location.

5c. See the TA-16-410 Fire Protection Map for the location of the fire hydrants.

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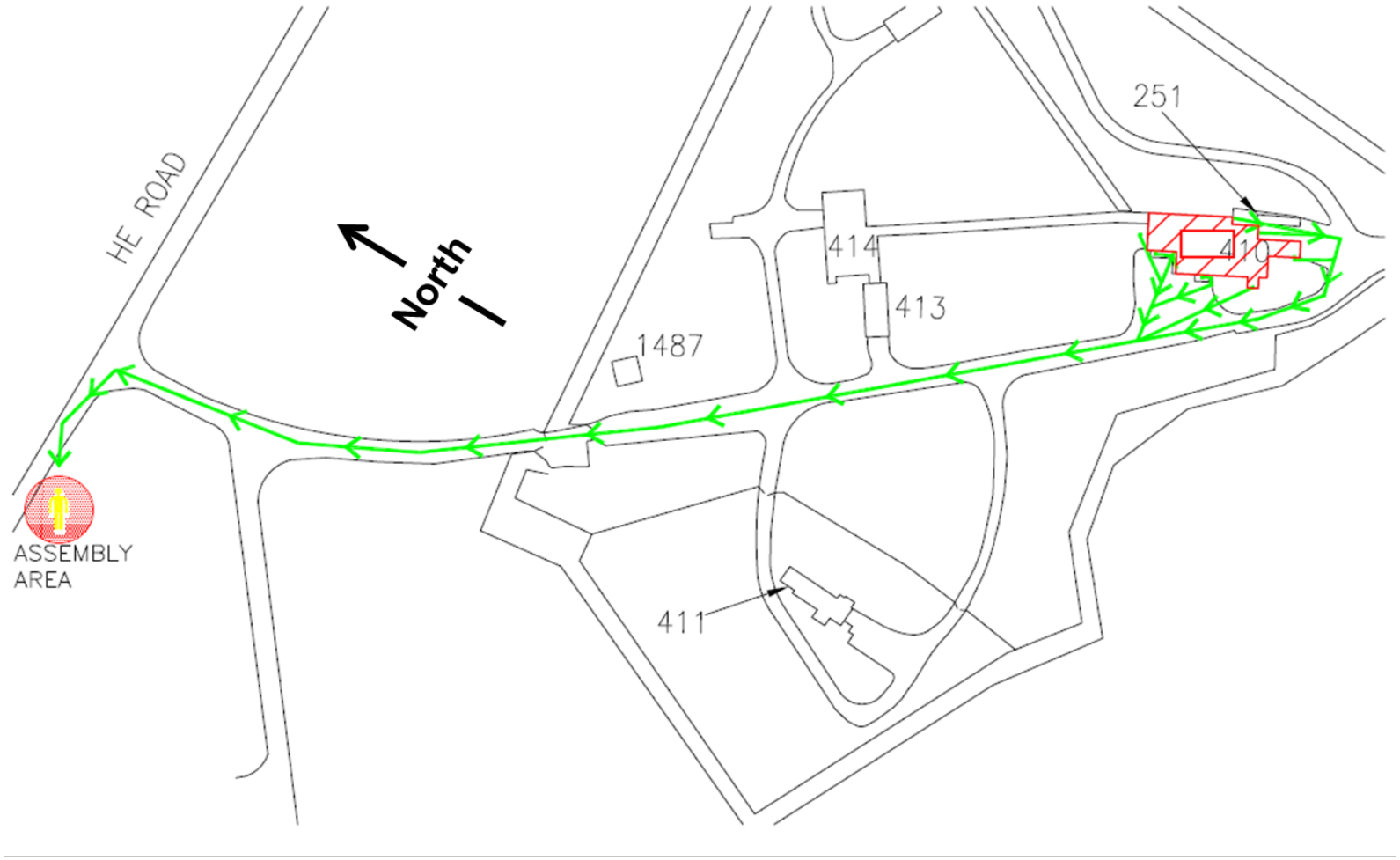
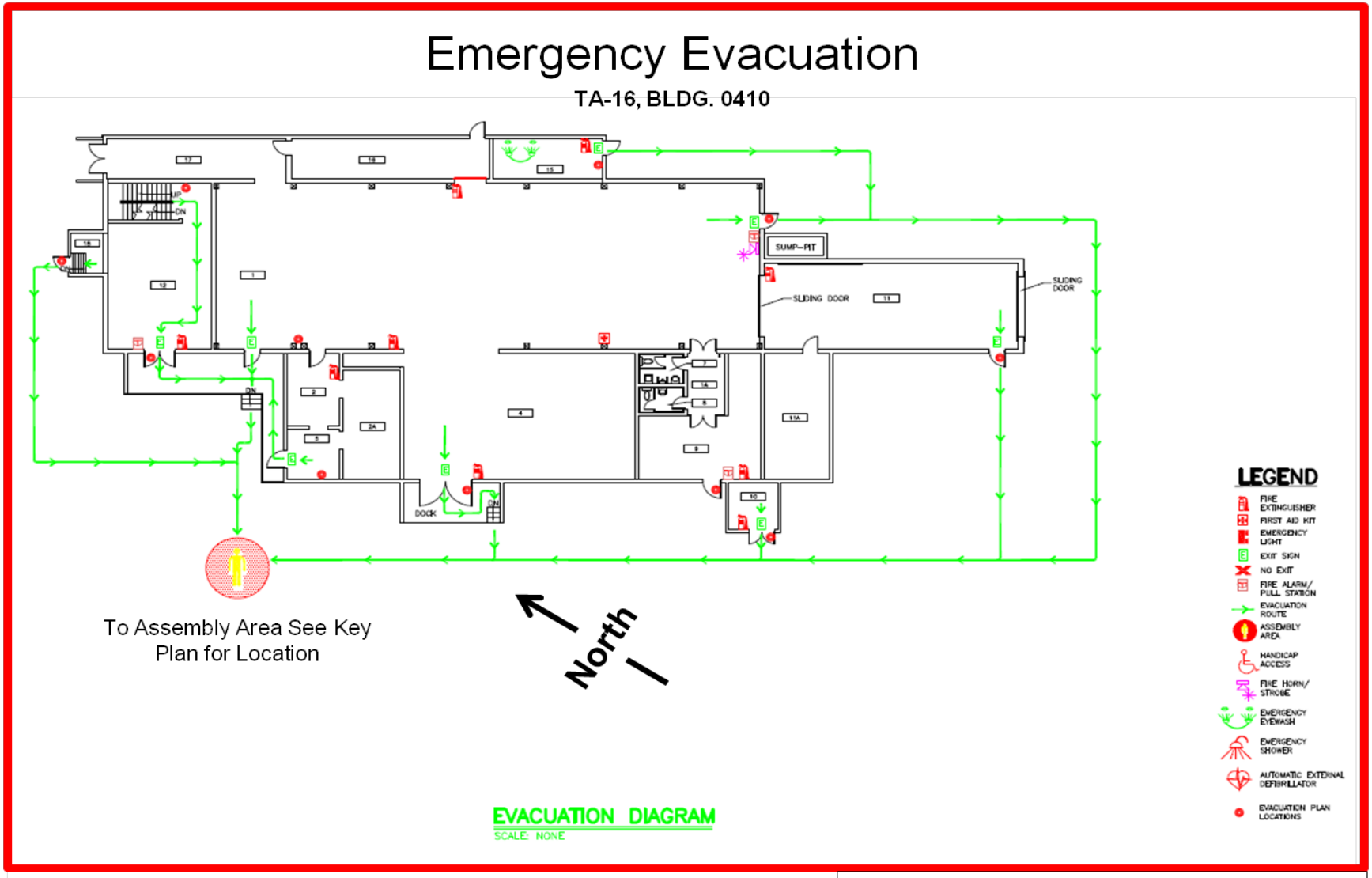
TA-16, Bldg. 410 Key Plan



Key Plan TA-16-0410

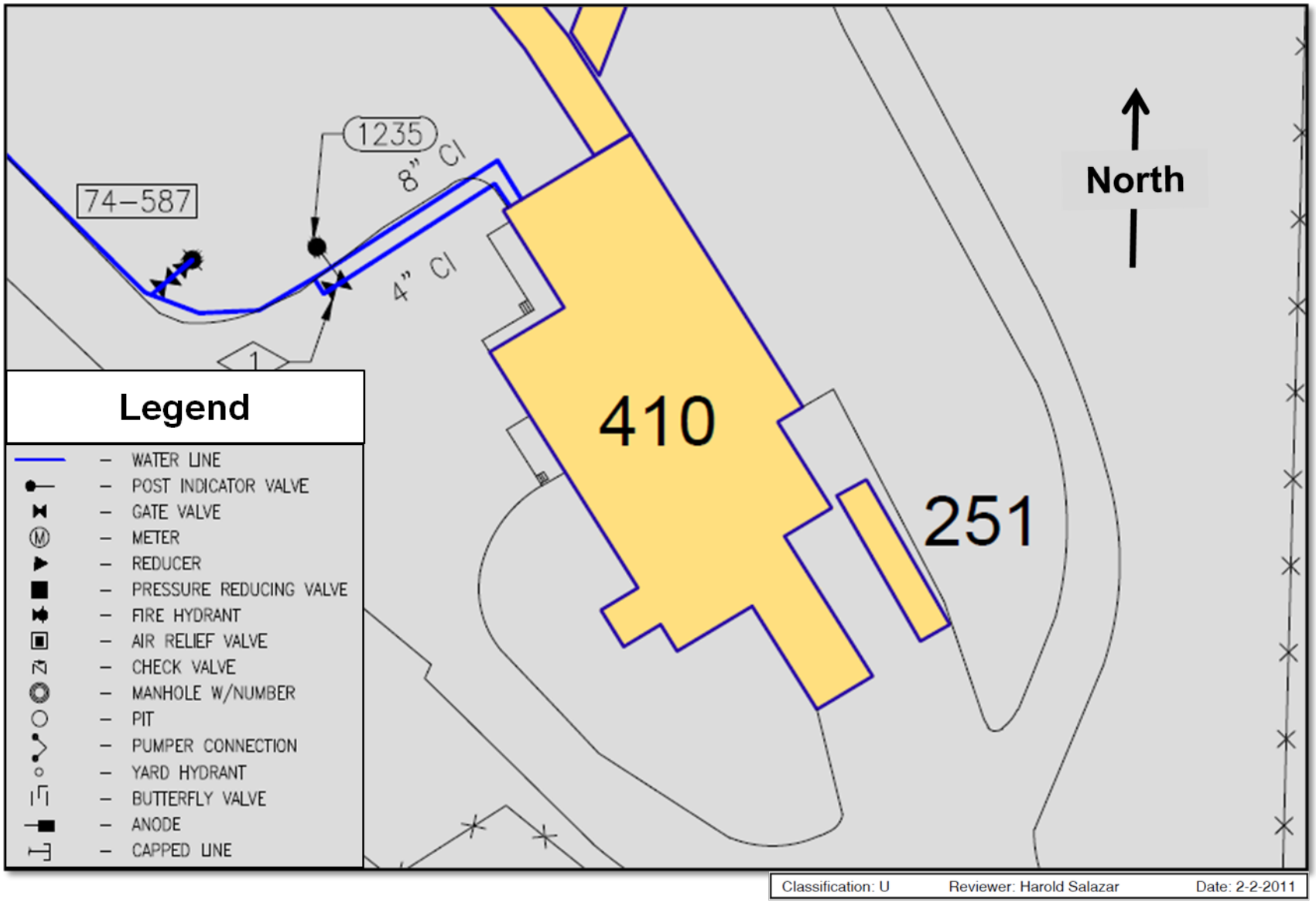
Classification: Unclassified Reviewer: Edward Seawalt Date: 08/24/2009

TA-16, Bldg. 410 Evacuation Routes



Classification: Unclassified Reviewer: Edward Seawalt Date: 08/24/2009

TA-16-410 Fire Protection Map



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TA-16-414 Description

6a. Building 414 is attached to Building 410 by a long corridor and is being used as a warehouse primarily to store fixtures and tools. The building has a fire water sprinkler system.

6b. The building is a large rectangular building, with storage units and various stored equipment.

6c. In the event of an emergency requiring evacuation of the facility, personnel would leave the building through one of the exits and go to the assembly area on the south side of TA-16-411. Personnel accountability will be determined at the assembly area.

TA-16-414 Outside

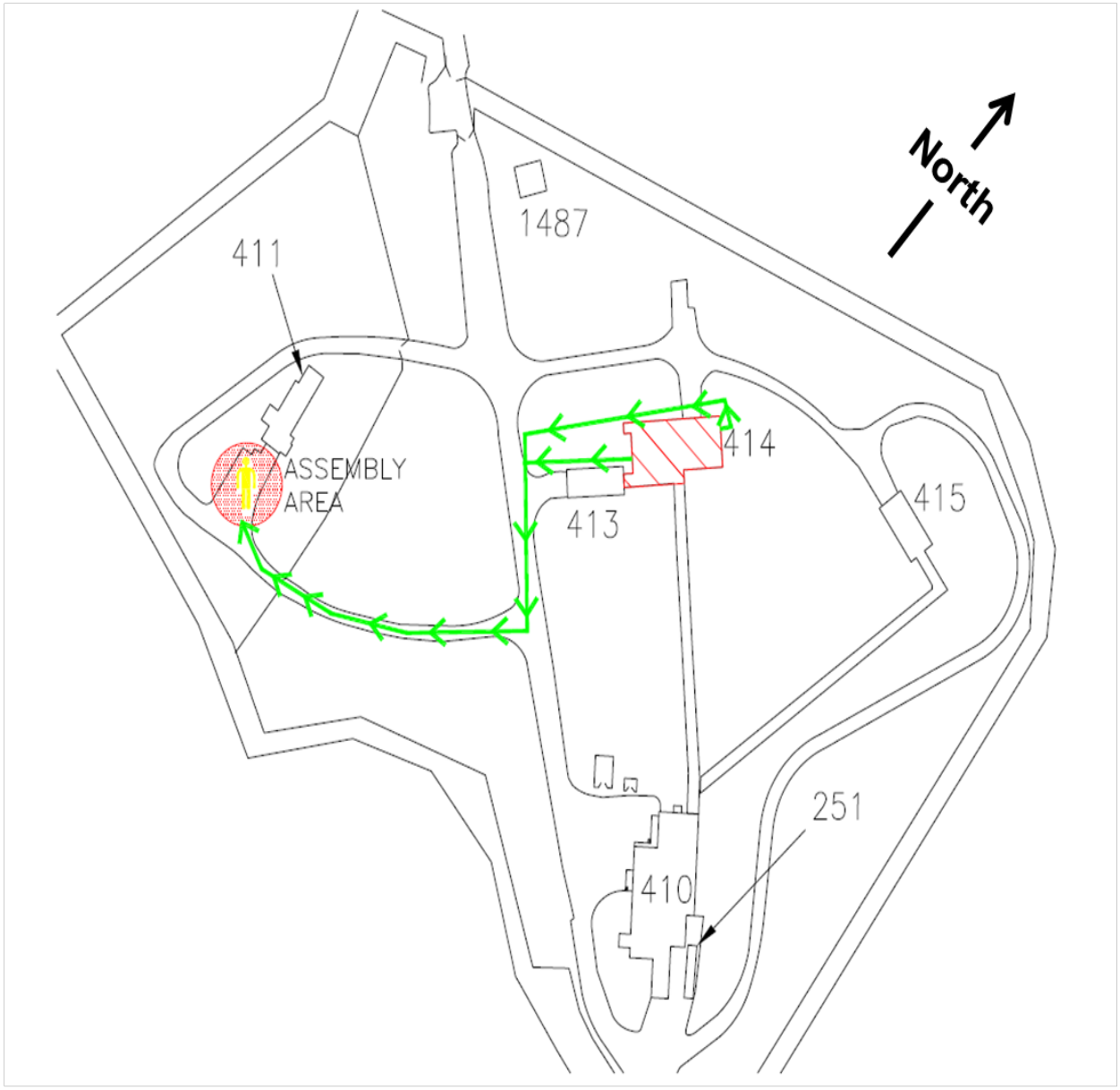
7a. The fire water riser is located in the northwest corner of the building.

7b. The Fire Department connection is located on the west side of the building.

7c. See the TA-16-414 Fire Protection Map for the PIV location.

7d. See the TA-16-414 Fire Protection Map for the location of the fire hydrants.

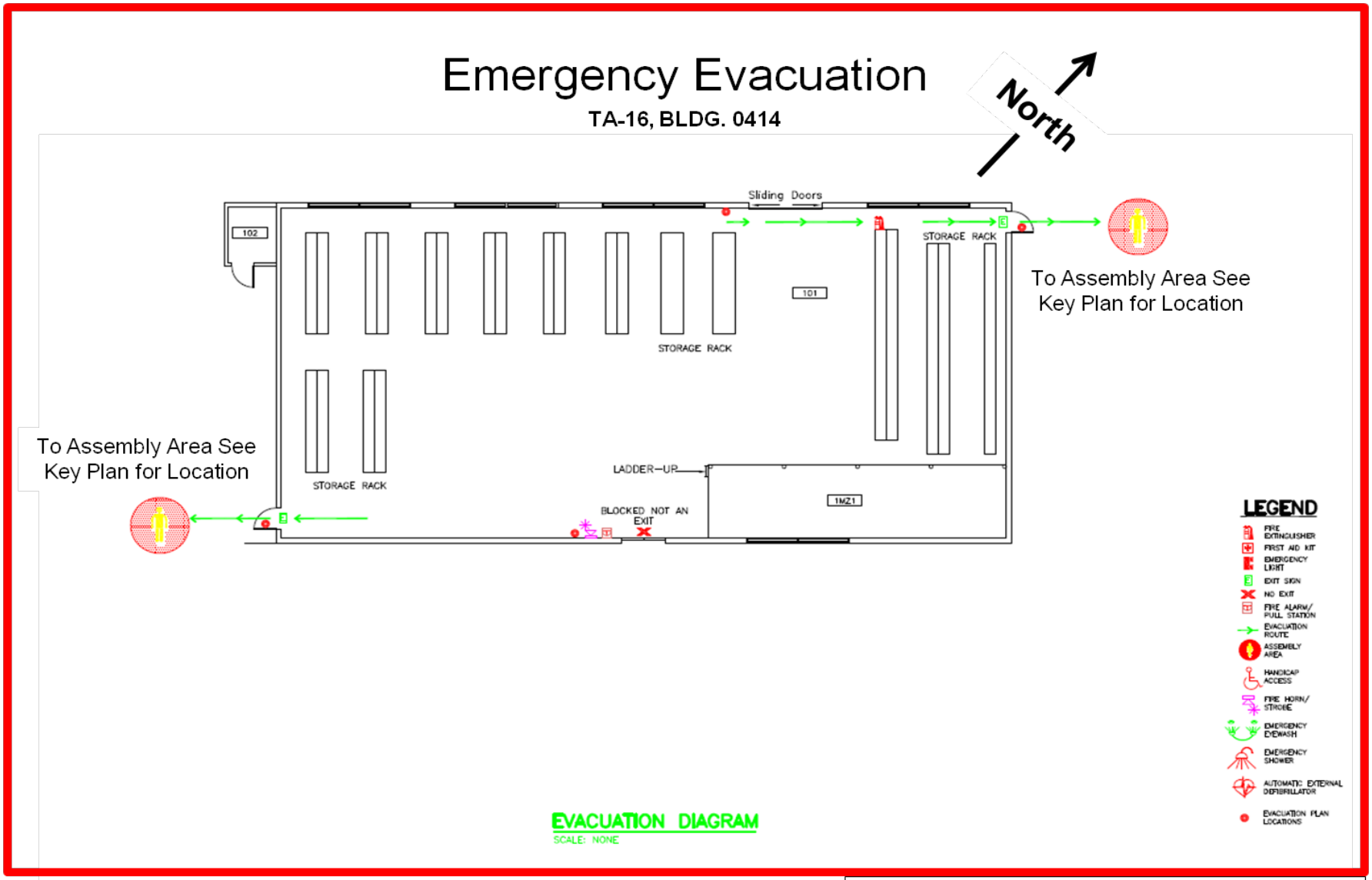
TA-16, Bldg. 414 Key Plan



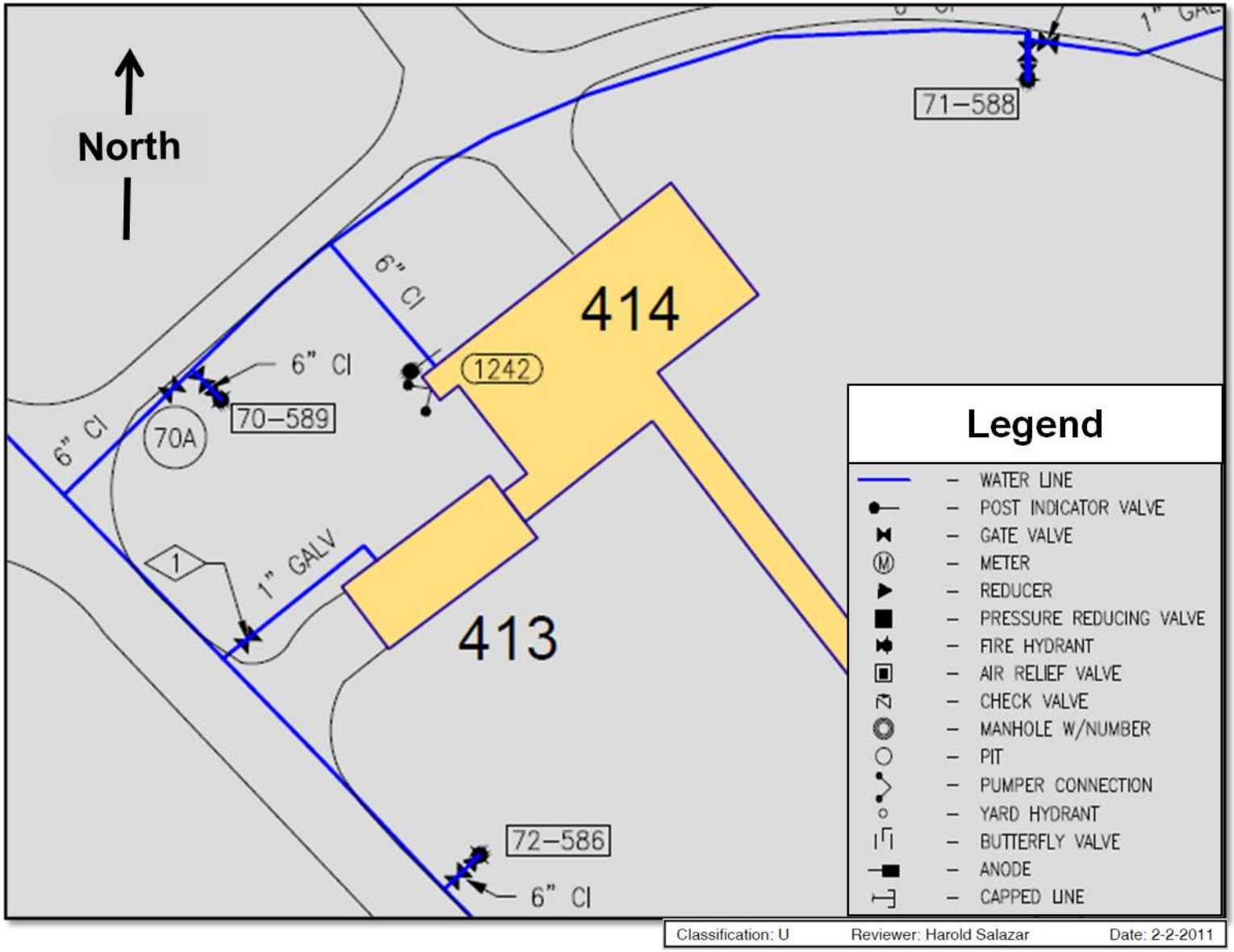
Key Plan TA-16-0414

Classification: Unclassified Reviewer: Edward Seawalt Date: 09/12/2008

TA-16, Bldg. 414 Evacuation Routes



TA-16-414 Fire Protection Map



TA-16-411 Description

8a. The mission and scope of work at TA-16-411 pertains to the assembly and disassembly of test devices that contain depleted uranium, HE, and other hazardous materials including lithium compounds, beryllium, and electrostatic-sensitive components. Building 411 is not normally occupied but is used for specific assembly operations, for overflow work from TA-16-410, or for work that needs to be separated due to need-to-know or other issues.

8b. Vehicle ingress for the Fire Department would be from HE Road by way of the TA-411 access road. Parking is in the front of the facility on the south side. Access is allowed by way of the locked door on the west side. The key for the building can be obtained by personnel in TA-16-410.

8c. The fire panel is located just inside the entrance door on the south side of the building.

8d. The assembly area for the building is in the main room of TA-16-410.

8e. The building is small, with a roll-up door on the south side and a vault room on the north side. The building has a fire water sprinkler system.

8f. In the event of an emergency requiring evacuation of the facility, personnel would leave the building through one of the exits and go to Building TA-16-410. Personnel accountability will be determined at the assembly area.

TA-16-411 Outside

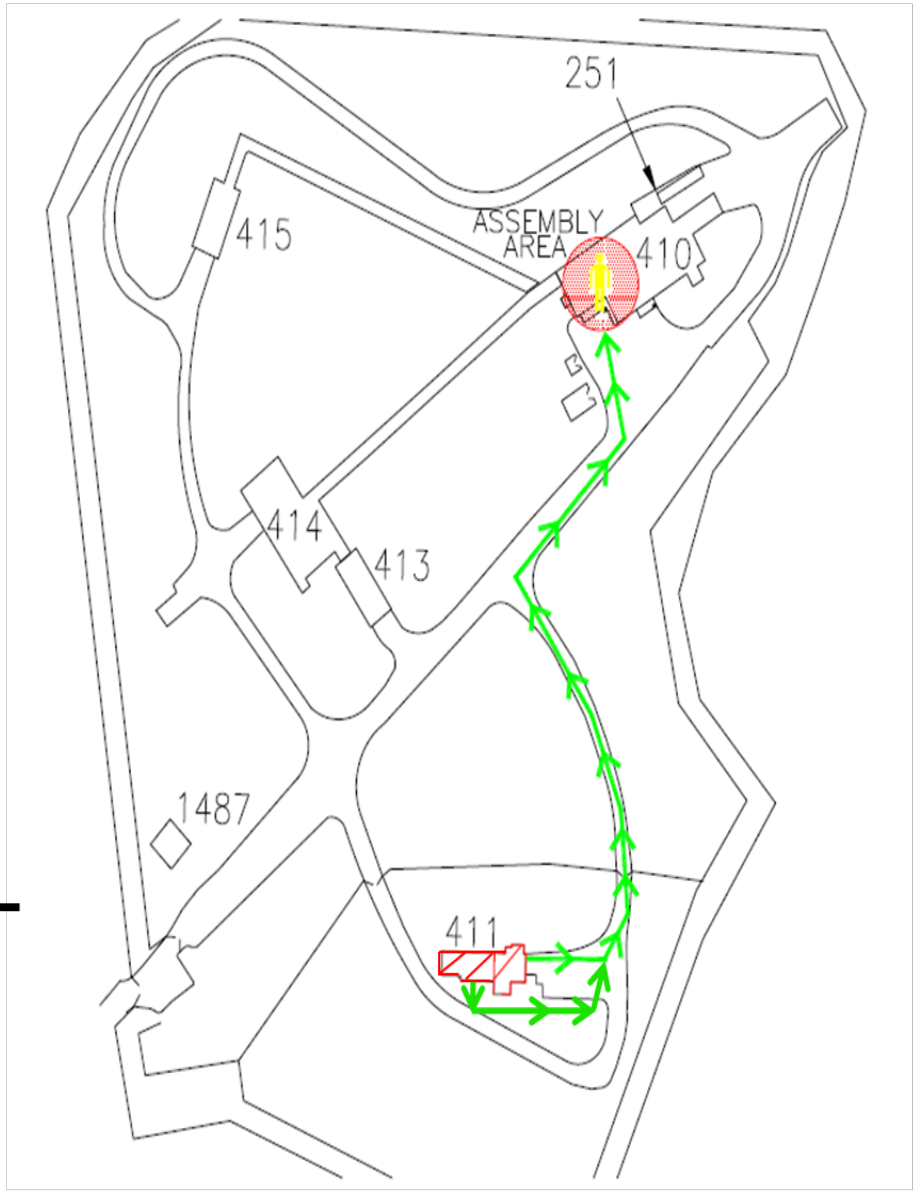
9a. The fire water riser is located in a room attached to the outside of the building on the north side.

9b. The Fire Department connection is located on the east side of the building, where the fire water riser room is located.

9c. See the TA-16-411 Fire Protection Map for the PIV location.

9d. See the TA-16-411 Fire Protection Map for the location of the fire hydrants.

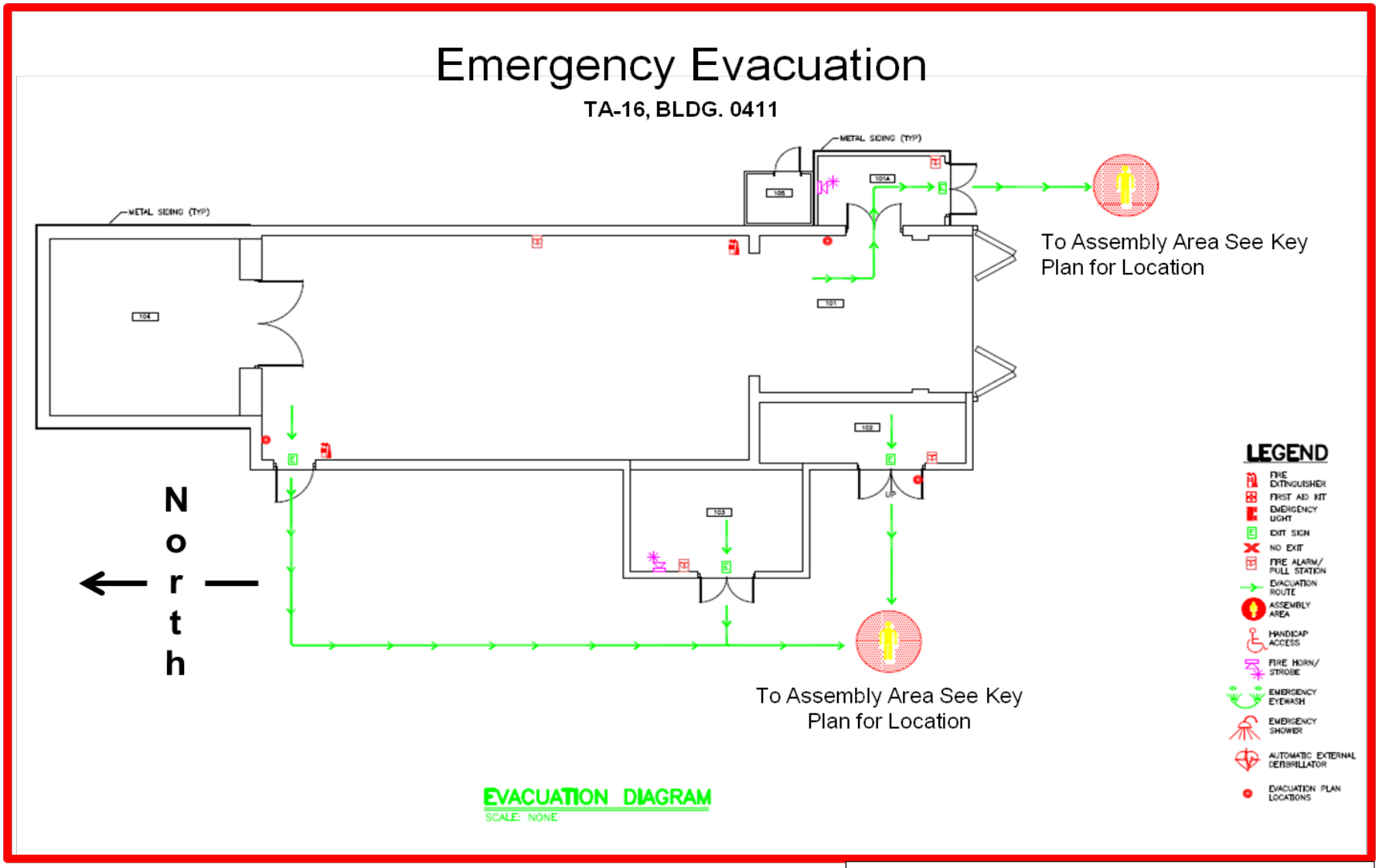
TA-16, Bldg. 411 Key Plan



Key Plan TA-16-0411

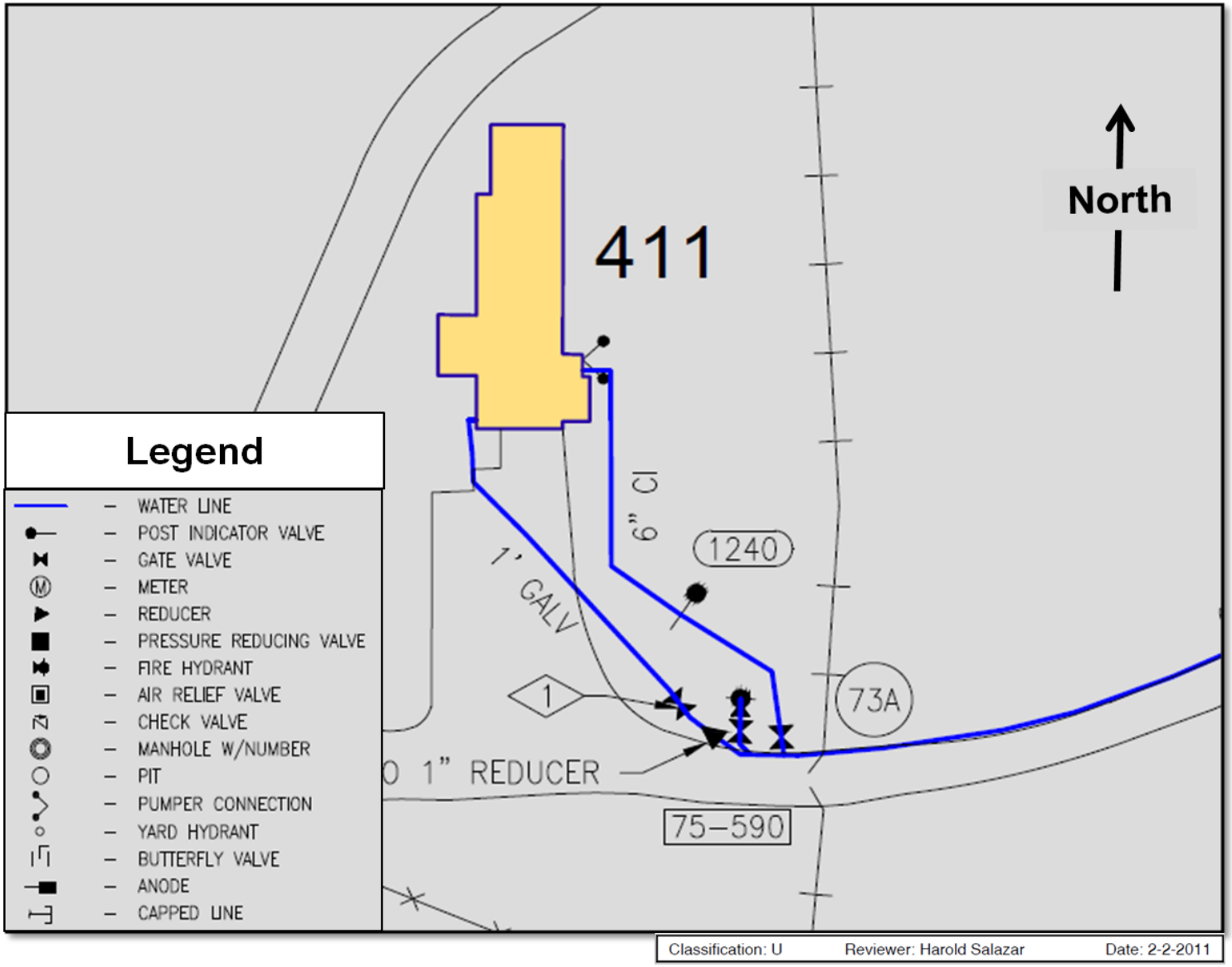
Classification: Unclassified Reviewer: Edward Seawalt Date: 01/18/2008

TA-16, Bldg. 411 Evacuation Routes

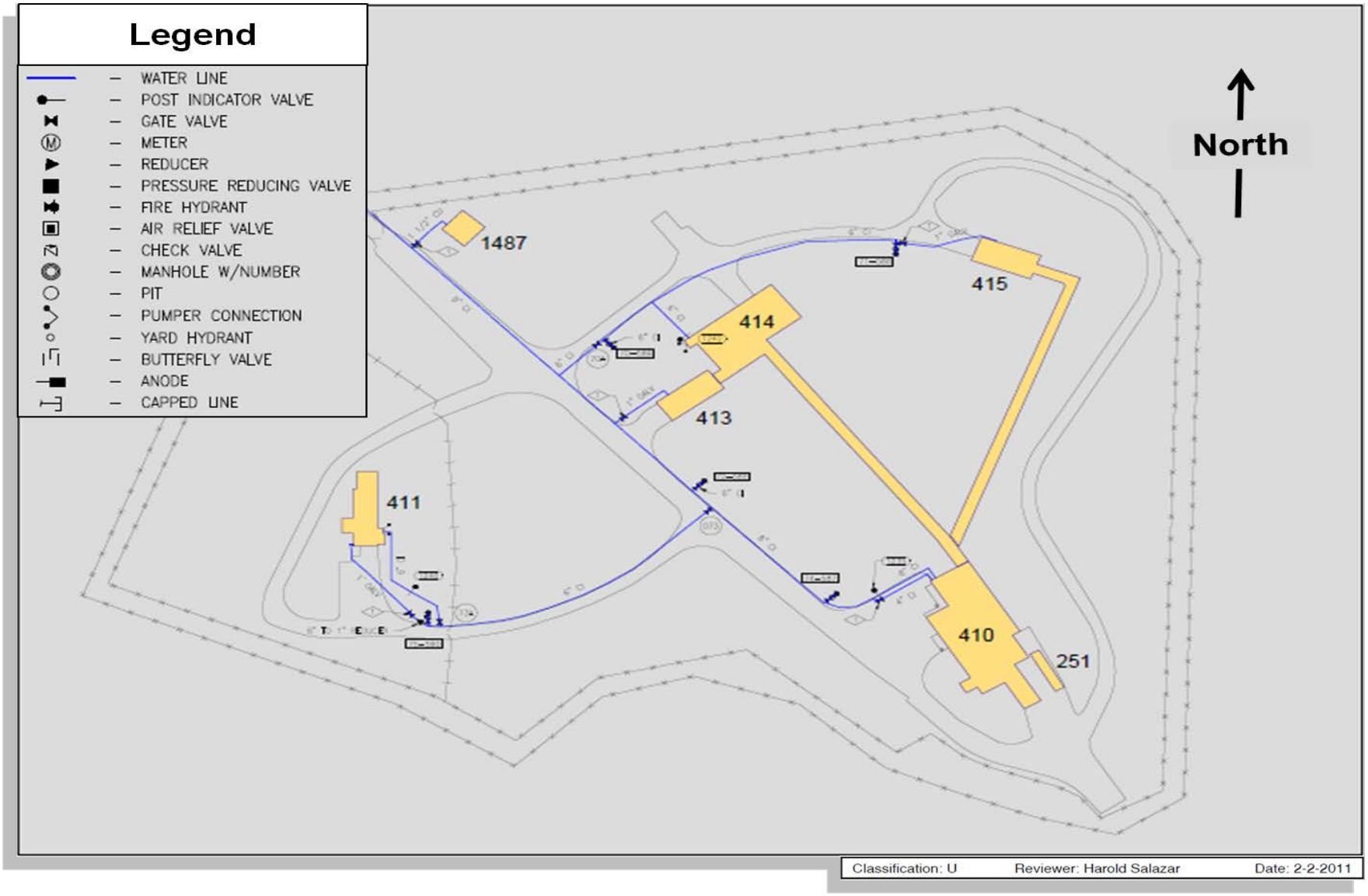


Classification: Unclassified Reviewer: Edward Seawalt Date: 01/18/2008

TA-16-411 Fire Protection Map



TA-16-410 Complex Fire Protection Map



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TA-16-202 Description

10a. The mission and scope of work at TA-16-202 include operations involving pinch welding, valve actuator testing, gas flow testing, leak testing, pressure vessel testing, and the storage of hazardous materials, such as tritium. Other activities include weapons and fixture development and the testing and disassembly of training units. The building is normally occupied Monday through Friday during normal working hours. A duty officer is on call 24 hours a day in case of emergency during off-working hours. The duty officer does not necessarily live close by; however, that individual can call other individuals who can respond quickly if needed.

The building has approximately 25,500 ft^2 of useable space, which includes office spaces as well as the aforementioned operations areas, and is completely covered by a wet-pipe sprinkler system.

10b. Vehicle access is determined by the event location; however, Fire Department personnel may park their vehicles in a suitable location near the area that will need to be accessed. Because of the nature of the work done and the access restrictions, an escort will be needed to enter some areas.

10c. The assembly area is located to the west side of the facility and across the access road.

10d. The facility is rectangular in shape, with offices on the east side and an equipment room on the north that can be accessed. There are also vault rooms to which that Fire Department personnel will need escorted access in case of emergency. There are three open front hoods (fume hoods), a glove box, and a flammable storage cabinet in Room 107 (the equipment room).

10e. The fire alarm panel is located by the offices on the north side of the building.

10f. Fire water risers are located on the north and south side of the building. The riser on the north side of the building is in the vault room, and access can be gained only with proper authority.

10g. In the event of an emergency requiring evacuation of the facility, personnel would leave the building through one of the exits and go to the assembly area on the west side. Personnel accountability will be determined at the assembly area.

TA-16-202 Outside

11a. Located on the dock area/building walkway at various locations around the building are pressurized gas cylinders that may be a hazard in the event that the Fire Department is responding to a fire.

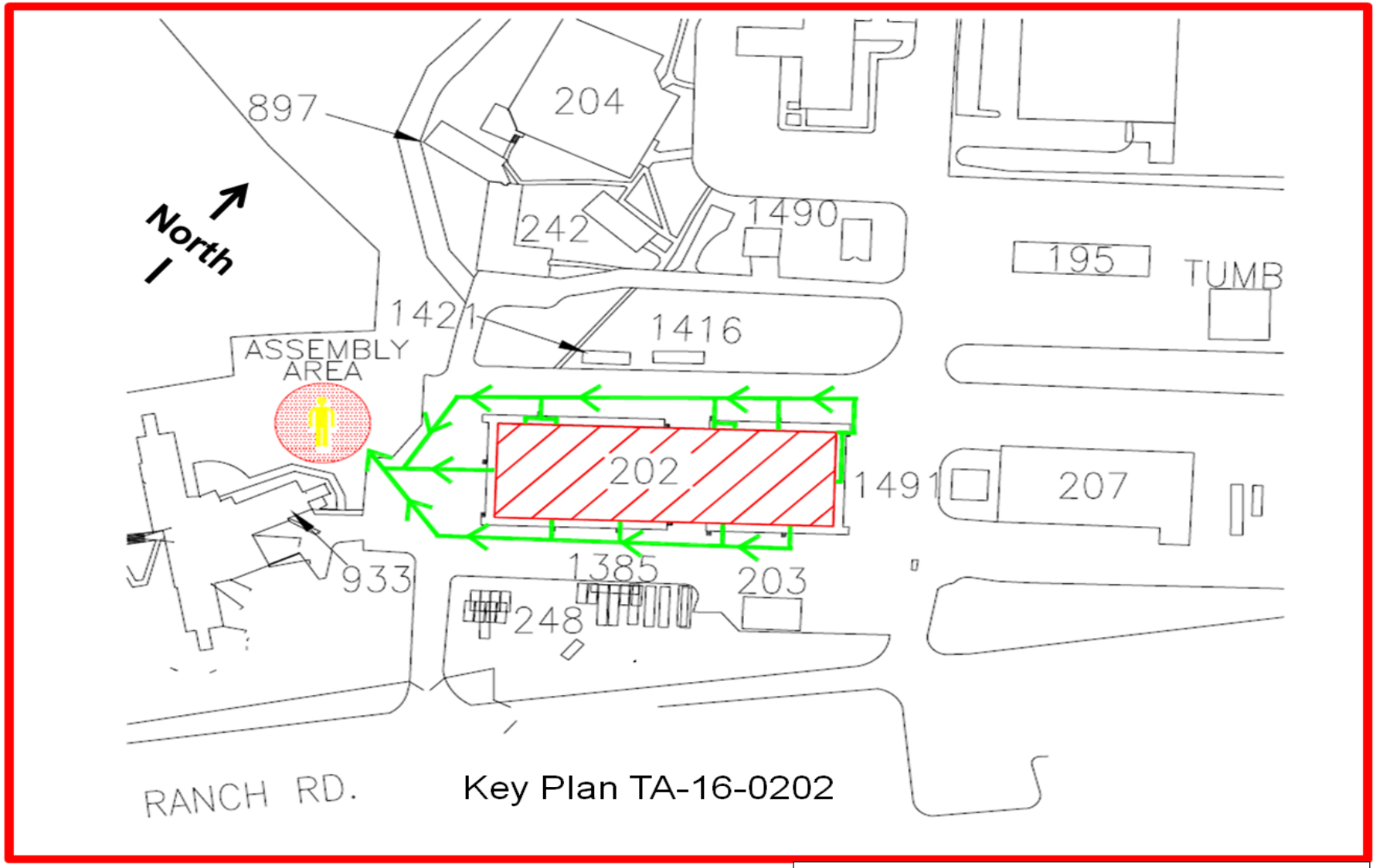
11b. Cryogenic Dewars are located on the east and south sides of the building, on the dock area/building walkway.

11c. See the TA-16-202 Fire Protection Map for the PIV location.

11d. See the TA-16-202 Fire Protection Map for the location of the fire hydrants.

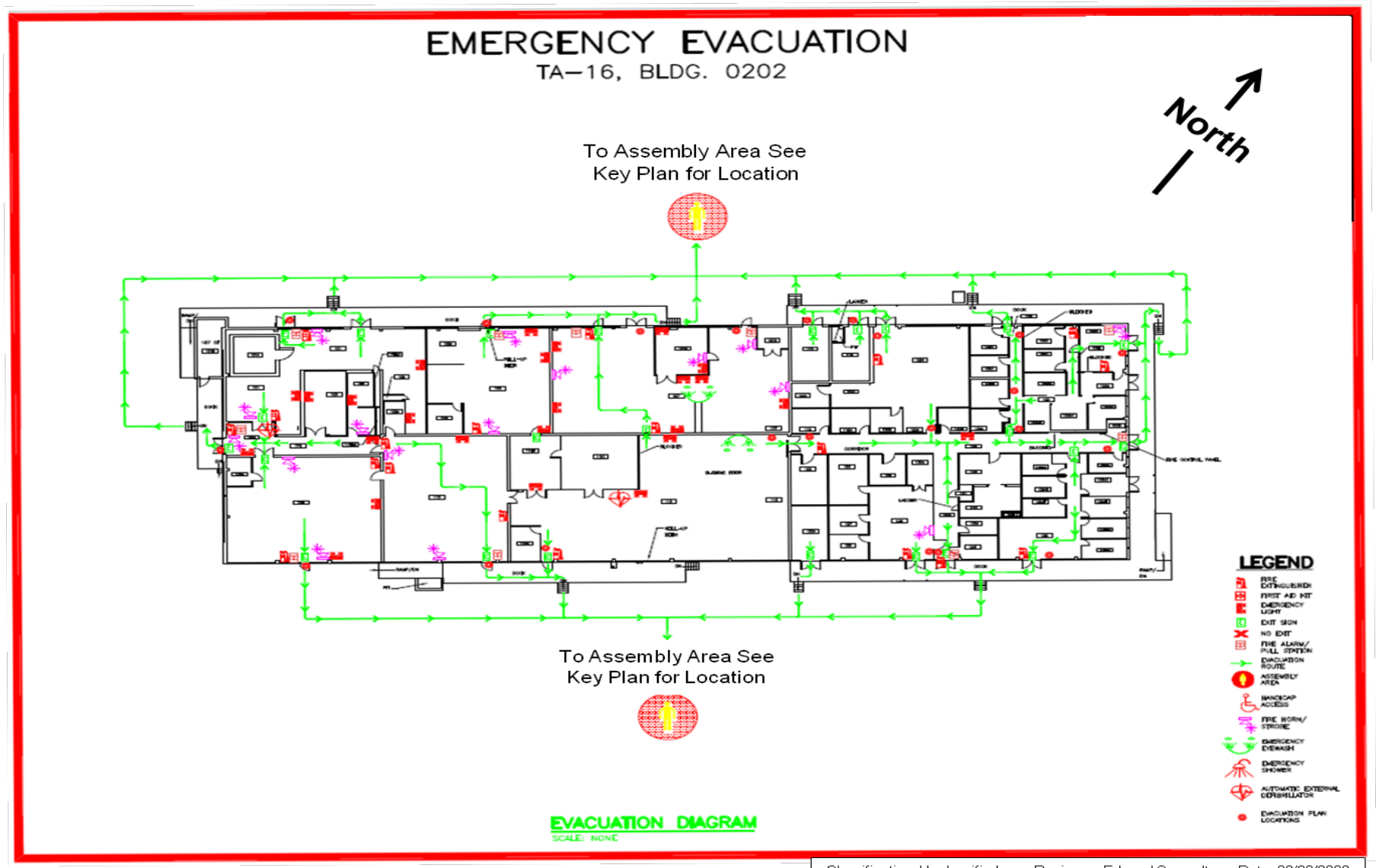
11e. A compressor room is located on the west side of the building.

TA-16, Bldg. 202 Key Plan



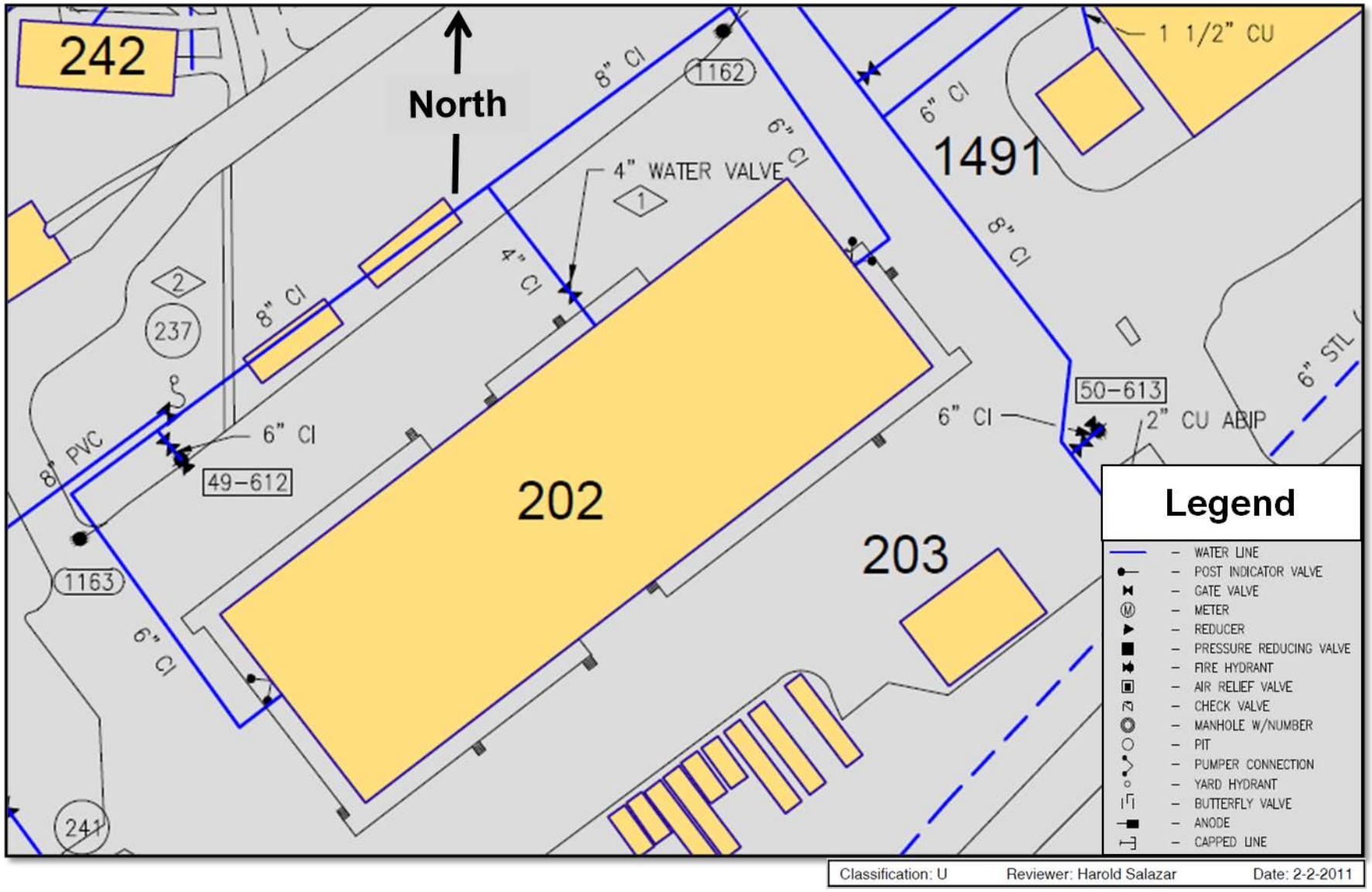
Classification: Unclassified Reviewer: Edward Seawalt Date: 06/23/2009

TA-16, Bldg. 202 Evacuation Routes

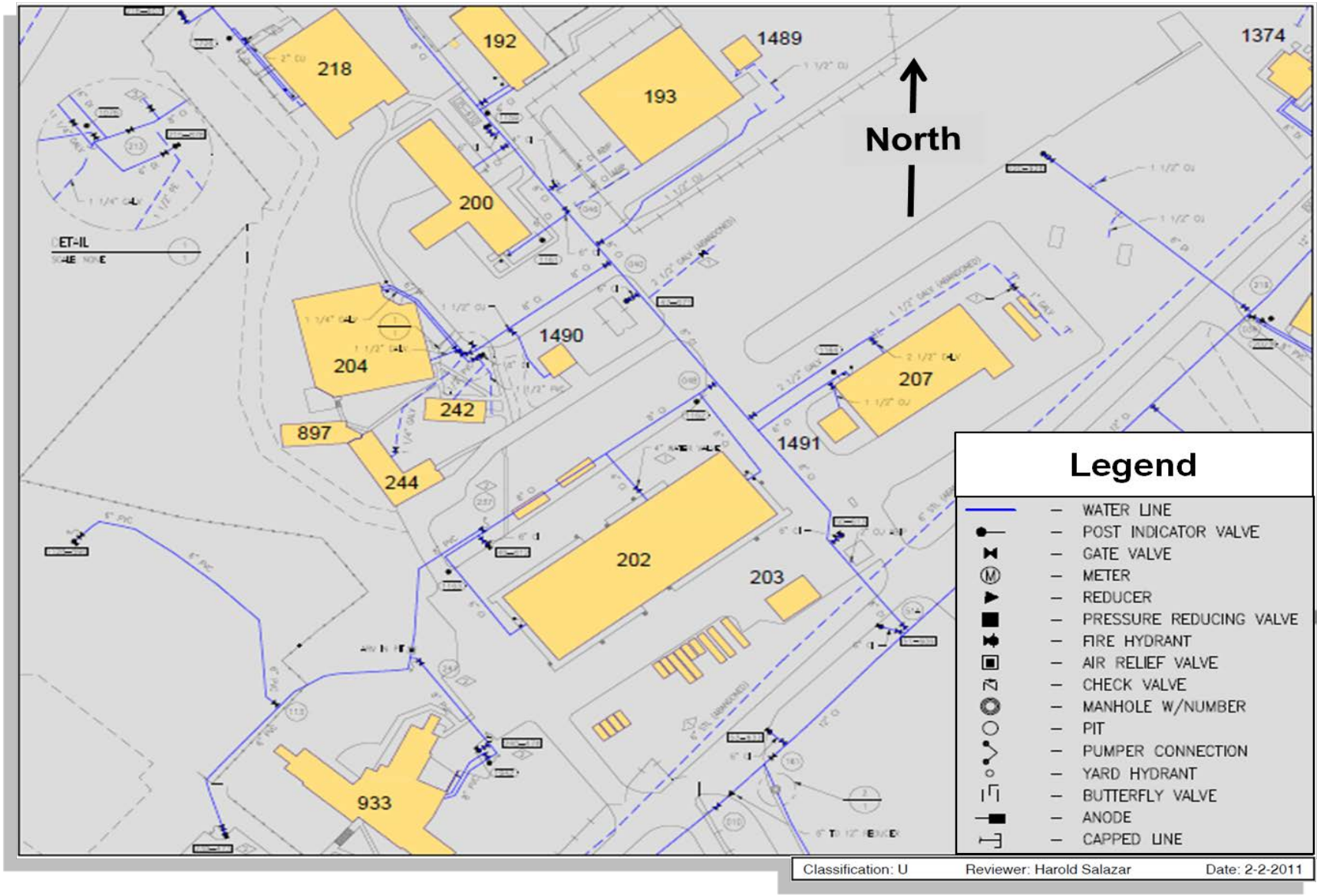


Classification: Unclassified Reviewer: Edward Seawalt Date: 06/23/2009

TA-16-202 Fire Protection Map



TA-16-202 Complex Fire Protection Map



Relative Risks

Radiological Hazards:

TA-16-202
Depleted uranium, thorium, and tritium hazards.

TA-16-260
None.

TA-16-410
Depleted uranium.

TA-16-411
Depleted uranium.

TA-16-414
Depleted uranium.

Explosive Hazards:

TA-16-202
There are no Class 1.1 HE in Building 202; however, there is storage and use of Class 1.4S explosives in the form of actuators (squibs), electro-explosive devices containing ball powder, primary explosives, secondary explosives, or mixes thereof sealed in metal housings.

TA-16-260
At TA-16-260, HE molding powders that are stored in rest house TA-16-265 are pressed into solid billets that are then stored in rest house TA-16-263. The billets are then machined in TA-16-260, and the finished products are stored temporarily in rest house TA-16-261. From here, they are shipped throughout the Laboratory. Most explosives are located in the rest houses (currently around 2500 lb), with only the explosives being pressed or machined located in TA-16-260 (usually no more than 200 lb).

TA-16-410
The principal activity conducted in Building TA-16-410 is the assembly and disassembly of explosive devices including radiography and potting preparation. The building can contain varying amounts of explosive materials, including HE, dependent on the assembly/disassembly operation.

TA-16-411
The principal activity conducted in Building TA-16-411 is the assembly and disassembly of explosive devices, including radiography and potting preparation. The building can contain varying amounts of explosive materials, including HE, dependent on the assembly/disassembly operation.

TA-16-414
None.

Pressurized Gas Cylinders:

Ta-16-202
Pressurized gas cylinders stored at various locations outside on the loading docks.

TA-16-260
The only pressurized gas cylinders used at the facility are located outside of TA-16-260, near bays 3 and 4.

TA-16-410
Not more than a couple of pressurized gas cylinders at one time in the building.

TA-16-411
Not more than a couple of pressurized gas cylinders at one time in the building.

TA-16-414
None.

Cryogenic Hazards:

TA-16-202
Dewars are located on the south and east sides of the building.

TA-16-260
None.

TA-16-410
Liquid nitrogen.

TA-16-411
Liquid nitrogen.

TA-16-414
None.

Controls

The following controls are in place to reduce the risk of accidents occurring that would cause personnel or responders to be exposed to biological hazards. In addition, numerous engineered and administrative controls are used in the processing systems to prevent accidents or limit the consequence should an accident occur:

- *Combustible Loading:* The facilities operate with levels of combustible materials that make the risk of an interior catastrophic fire very low. The combustible loading in the facility falls under the Light Hazard category of *The Standard for the Installation of Sprinkler Systems* [National Fire Protection Association (NFPA) 13].
- *Facility Structure–Firewalls:* The facility structure outer walls are of substantial construction and are firewalls that prevent the spread of the fire into the facility. The exception to this construction is the blowout walls of TA-16-260, which will blow out at 1.5 psi if a detonation occurs in one of the bays.

- *Pressure Safety Program:* This program mitigates specific hazards that pressure presents (e.g., explosions, release of contents, and mechanical injury).
- *Radioactive Inventory Control Program:* The radioactive inventory control program limits the amount of radioactive material in any location.
- *Quality Management Program–Training and Qualification Program:* Workers are trained and qualified on security, safety, containment, and sample transfer requirements for working with biological materials.
- *Fire Suppression System:* Minimizes the spread of fires and lowers temperatures.
- *Gas Cylinder Safety Program:* The gas cylinder safety program includes procedures for handling cylinders and the requirement to restrain gas cylinders used in the facility.
- *Postings:* Postings are as usual for LANL operating areas. All explosives areas are posted according to the appropriate explosives Fire Division from Fire Division 1 to Fire Division 4, with Division 1 being the greatest hazard and Division 4 being the lowest hazard.
- *PPE:* Personal protective equipment (PPE) is required as the last line of defense to further protect workers from hazards. In the spirit of the Occupational Safety and Health Administration (OSHA) Regulation 1910.132, *General Requirements for PPE,* guidelines for PPE will be determined during the Integrated Work Management process.
- *Integrated Work Management:* An integrated work document (IWD) is required for all moderate- or high-hazard work.