ATTACHMENT A3

TRAFFIC PATTERNS

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A3-1 Traffic Information and Traffic Patterns

Access to the Waste Isolation Pilot Plant (**WIPP**) facility is provided via Louis Whitlock Road that connects with U.S. Highway 62/180, 13 miles (**mi**) (21 kilometers (**km**)) to the north, and NM State Highway 128 (Jal Highway), 4 mi (6.4 km) to the south (Figure M-57) via the South Access Road. These access roads were built for the Permittees to transport transuranic (**TRU**) mixed waste to the WIPP facility. Both access roads are owned and maintained by the Department of Energy (**DOE**). Signs and pavement markings are located in accordance with the Uniform Traffic Control Devices Manual. Access-road design designation parameters, such as traffic volume, were presented in the 2009 Amended Renewal Application, Chapter G, Table G-1 (DOE, 2009).

A3-2 Facility Access and Traffic

Access to the WIPP facility for personnel, visitors, and trucks carrying supplies and TRU mixed waste is provided through a security checkpoint (vehicle trap). After passing through the security checkpoint, TRU mixed waste transport trucks normally turn right (south) before reaching the Support Building and then left (east) to park in the Parking Area Container Storage Unit (**PAU**) just east of the air locks (Figure M-58). Outgoing trucks depart the same way they arrived, normally out of the west end of the PAU, north through the fence gate and out through the vehicle trap. An alternate inbound route is to continue straight ahead (east) from the security checkpoint to the second road and to turn south to enter the PAU. The alternate outbound route is also the reverse of this route. Salt transport trucks, which remove mined salt from the Salt Handling Shaft area, do not cross paths with TRU mixed waste transporters; instead, they proceed from the Salt Handling Shaft northward to the salt pile. After passing through security, access for large equipment may be provided through the east gate. Figures M-58 and M-59 show surface traffic flow at the WIPP facility.

The WIPP facility speed limit for motor vehicles is 10 miles per hour (**mph**) (16 kilometers per hour (**kph**)) and 5 mph (8 kph) for rail movements. Speed limits are clearly posted at the entrance to the facility and enforced by security officers. There are no traffic signals. Stop signs are located at the major intersections of roadways with the main east-west road. Safety requirements are communicated via General Employee Training which must be completed by site personnel within 30 days of their employment. Employee access to on-site facilities requires an annual refresher course to reinforce the safety requirements. Security officers monitor vehicular traffic for compliance with site restrictions and provide instructions to off-site delivery shipments. Vehicular traffic other than the waste transporters use the same roads, but there is no interference because there are two lanes available on the primary and alternate routes for waste shipments. Pedestrian traffic is limited to the sidewalks and prominently marked crosswalks. Traffic within the security fence is composed mostly of pickup trucks and electric carts with an approximate frequency of 10 per hour at peak periods. Emergency vehicles are exercised periodically for maintenance and personnel training, with an average frequency of one each per day. They are used for their intended purpose on an as-required basis.

The traffic circulation system is designed in accordance with American Association of State Highway and Transportation Officials (**AASHTO**) Site Planning Guides for lane widths, lateral clearance to fixed objects, minimum pavement edge radii, and other geometric features. Objects in or near the roadway are prominently marked.

On-site roads, sidewalks, and paved areas are used for the distribution and storage of vehicles and personnel and are designed to handle traffic generated by employees, visitors, TRU mixed waste shipments, and movements of operational and maintenance vehicles. The facility entrance and TRU mixed waste haul roads are designed for AASHTO H20-S16 wheel loading. Service roads are designed for AASHTO H10 wheel loading. Access and on-site paved roads are designed to bear the anticipated maximum load of 115,000 lb (52,163.1 kg), the maximum allowable weight of a truck/trailer carrying loaded contact-handled (**CH**) or remote-handled (**RH**) packages. The facility is designed to handle approximately eight truck trailers per day, each carrying one or more CH or RH packages. This is equivalent to 3,640 TRU mixed waste-carrying vehicles per year.

The calculations to support the anticipated maximum load of 115,000 lb were provided in the 2009 Amended Renewal Application, Chapter G (DOE, 2009).

A3-3 Waste Handling Building Traffic

Contact-handled TRU mixed waste arrives by tractor-trailer at the WIPP facility in sealed CH packages. Prior to unloading the packages from the trailer, security checks, radiological surveys, and shipping documentation reviews are performed. A forklift or Yard Transfer Vehicle removes the CH packages and transports them a short distance through an air lock that is designed to maintain differential pressure in the Waste Handling Building (**WHB**). The forklift or Yard Transfer Vehicle places the shipping containers at one of the two TRUPACT-II unloading docks (**TRUDOCKs**) inside the WHB or, in the case of the TRUPACT-III, at the bolting station in Room 108 in the WHB.

The TRUPACT-II may hold up to two 55-gallon (**gal**) drum seven-packs, two 85-gal drum four-packs, two 100-gal drum three-packs, two standard waste boxes (**SWBs**), or one ten-drum overpack (**TDOP**). A HalfPACT may hold seven 55-gal drums, one SWB, four 85-gal drums, or three shielded containers. The TRUPACT-III holds a single standard large box 2 (**SLB2**). A six-ton overhead bridge crane or Facility Transfer Vehicle with a transfer table is used to remove the contents of the CH package. Waste containers are surveyed for radioactive contamination and decontaminated or returned to the CH package, as necessary.

Each facility pallet accommodates four 55-gal drum seven-packs, four SWBs, four 85-gal drum four-packs, four 100-gal drum three-packs, two TDOPs, an SLB2, or two three-packs of shielded container assemblies. Waste containers are secured to the facility pallet prior to transfer. A forklift or facility transfer vehicle transports the loaded facility pallet into the air lock at the Waste Shaft (Figure M-60). The facility transfer vehicle is driven onto the waste shaft conveyance deck, where the loaded facility pallet is transferred to the waste shaft conveyance and downloaded for emplacement.

Remote-handled TRU mixed waste arrives at the WIPP facility in a payload container contained in a shielded cask loaded on a tractor-trailer. Prior to unloading the cask from the trailer, radiological surveys, security checks, and shipping documentation reviews are performed, and

the trailer carrying the cask is moved into the PAU or directly into the RH Bay of the Waste Handling Building Container Storage Unit.

The cask is unloaded from the trailer in the RH Bay and is placed on the Cask Transfer Car. The Cask Transfer Car is used to move the cask to the Cask Unloading Room. At this point, a crane moves the waste to the Hot Cell or the Transfer Cell. Some RH TRU mixed waste may be moved to the Hot Cell for overpacking before being moved to the Transfer Cell. Once in the Transfer Cell, the Transfer Cell Shuttle Car moves the waste to a location beneath the facility cask. A crane is used to move the waste from the Transfer Cell Shuttle Car into the facility cask. The Facility Cask Transfer Car then moves the facility cask to the underground. A more detailed description of waste handling in the WHB is included in Attachment A1. Figures M-13, M-15, and M-16 show RH TRU mixed waste transport routes.

A3-4 Underground Traffic

The Permittees designate the traffic routes of TRU mixed waste handling equipment and construction equipment and record this designation on a map that is posted in a location where it can be examined by personnel entering the underground. The map will be updated whenever the routes are changed. Maps will be available in facility files until facility closure. The ventilation and traffic flow path in the TRU mixed waste handling areas underground are restricted and separate from those used for mining and haulage (construction) equipment, except that during waste transport in W-30, ventilation need not be separated north of S-1600 (Figure M-43). In general, the Permittees restrict waste traffic to the intake ventilation drift to maximize isolation of this activity from personnel. Non-waste and non-construction traffic is generally comprised of escorted visitors only and is minimized during each of the respective operations.

Adequate clearances that exceed the mining regulations of Title 30 of the Code of Federal Regulations (**CFR**) Part 57 exist underground for safe passage of vehicles and pedestrians. Pedestrians/personnel are required to yield to vehicles in the WIPP underground facility. This condition is reinforced through the WIPP facility equipment operating procedures, the WIPP Safety Manual, the WIPP facility safety briefing required for underground visitors, the General Employee Training annual refresher course, and the underground annual refresher course that are mandated by 30 CFR Part 57, the New Mexico Mine Code, and DOE Order 5480.20A.

In addition, other physical means are utilized to safeguard pedestrians/personnel when underground such as:

- Equipment operators are required to sound the vehicle horn when approaching intersections.
- Airlock and bulkhead vehicle doors are equipped with warning bells or strobe lights to alert personnel when door movement (opening or closing) is imminent.
- Hemispherical mirrors are used at blind intersections so that persons can see around corners.
- Heavy equipment is required to have operational back-up alarms.
- Heavily used intersections are well lighted.

Typically, the traffic routes during waste disposal in Panels 1-8 use the same main access drifts, while traffic routes during waste disposal in Panels 11 and 12 will use the designated access drifts in the West Mains.

Traffic safety is regulated and enforced by the federal and state mine codes of regulations (30 CFR Part 57 and New Mexico State Mine Code). The agencies that administer these codes make regular inspection tours of the WIPP underground facilities for the purpose of enforcement.

Underground equipment is designed for off-road use since driving surfaces are excavated in salt.

References

DOE, 2009. WIPP Hazardous Waste Facility Permit Amended Renewal Application, Carlsbad, New Mexico, September 2009.