
Late Filed Exhibit T-29

Data Request:

Provide noise projection report in decibels for pump stations and a map showing the closest residences/businesses.

Response:

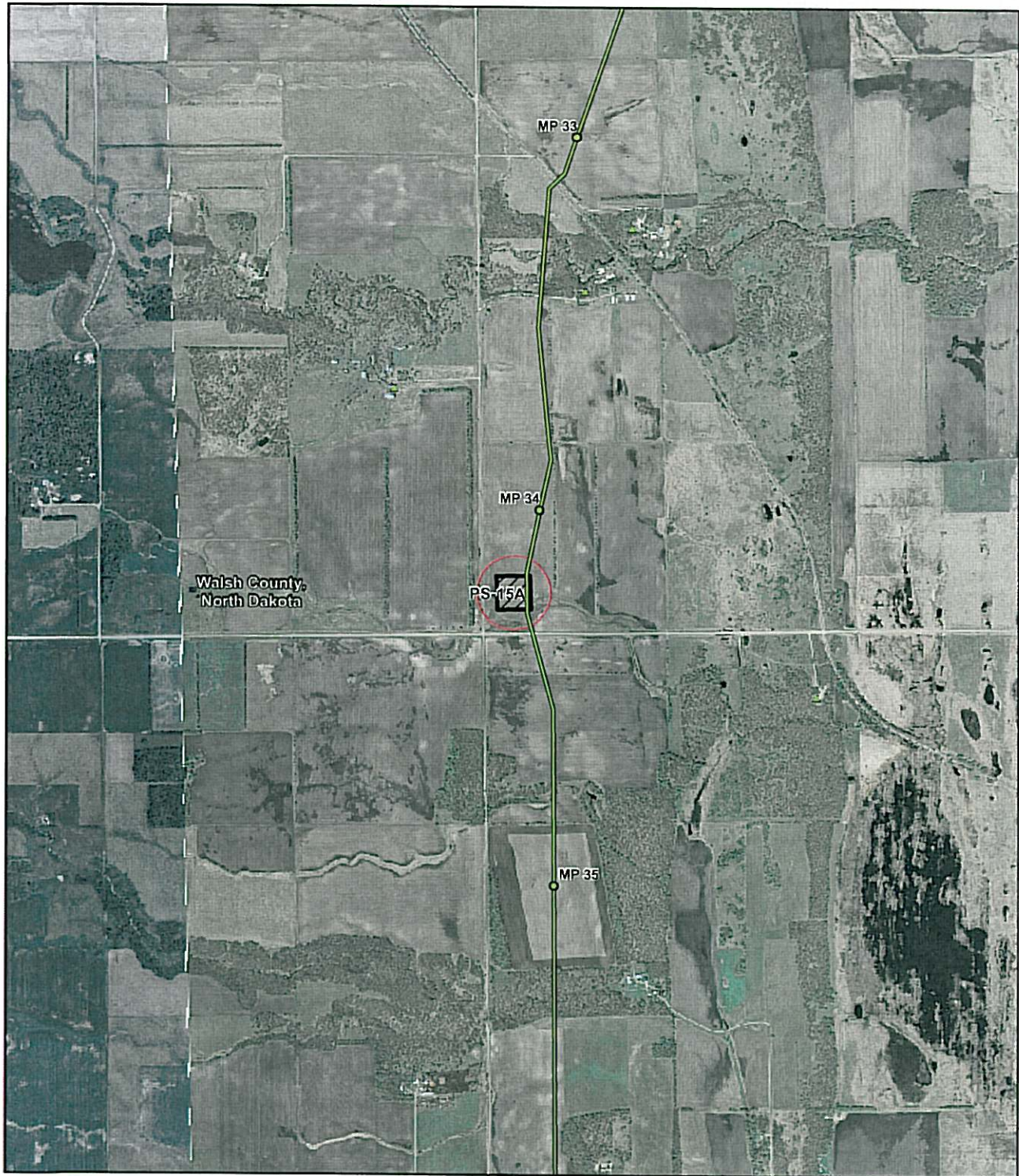
Table 1 below summarizes estimated sound pressure levels for each of the North Dakota pump stations, at various distances from the center of the pump station. The sound level from four- and five-pump configurations has been calculated based on manufacturer specifications. These specifications indicate that each pump will emit a sound pressure level of 90 dBa at a distance of 3.28 feet from the pump. For the calculations, each pump was assumed to be a point source located 10 feet off the ground and 32 feet and 10 inches apart.

Keystone will manage sound levels to the EPA guidelines of 55 dBa at the nearest noise sensitive area. The attached maps depict the closest residences and businesses to each pump station. The maps identify the area at which the sound level from the pump station is expected to be 55 dBa. For stations with four pumps, the 55 dBa is located at a distance of 460 feet from the centre of the pump station. For stations with five pumps, the 55 dBa is located at a distance of 510 feet from the centre of the pump station. No residences or businesses are located within the 55 dBa perimeters. Further, the residence shown in proximity of pump station 19 is not occupied.

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Table 1: Sound Pressure Level for North Dakota Pump Stations

Distance feet	Sound Level in dB(A)				
	Pump Station 15A MP 33.1 (5 Pumps)	Pump Station 16 MP 76.2 (5 Pumps)	Pump Station 17 MP 123.7 (4 Pumps)	Pump Station 18 MP 170.9 (4 Pumps)	Pump Station 19 MP 217.7 (4 Pumps)
500	55.3	55.3	54.3	54.3	54.3
1000	48.5	48.5	47.5	47.5	47.5
1500	44	44	43.1	43.1	43.1
2000	40.7	40.7	39.7	39.7	39.7
2500	38	38	37	37	37
3000	35.7	35.7	34.7	34.7	34.7
3500	33.6	33.6	32.7	32.7	32.7
4000	31.9	31.9	30.9	30.9	30.9
4500	30.2	30.2	29.3	29.3	29.3
5280	28	28	27	27	27



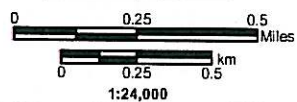
Legend

- ▲ Residence
- Businesses
- Milepost
- Proposed Keystone Pipeline
- 55 dB(A) Buffer (510 ft.)
- ▨ Pump Station

Proposed Keystone Pipeline

Residences/Businesses in Proximity to Pump Stations

Pump Station 15A





Legend

- ▲ Residence
- Businesses
- Milepost
- Proposed Keystone Pipeline
- 55 dB(A) Buffer (510 ft.)
- ▨ Pump Station

Proposed Keystone Pipeline

Residences/Businesses in Proximity to Pump Stations

Pump Station 16









1:24,000





Legend

-  Residence
-  Businesses
-  Milepost
-  Proposed Keystone Pipeline
-  55 dB(A) Buffer (460 ft.)
-  Pump Station

Proposed Keystone Pipeline

Residences/Businesses in Proximity to Pump Stations

Pump Station 17








1:24,000





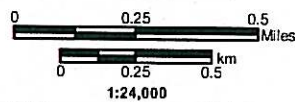
Legend

-  Residence
-  Businesses
-  Milepost
-  Proposed Keystone Pipeline
-  55 dB(A) Buffer (460 ft.)
-  Pump Station

Proposed Keystone Pipeline







Residences/Businesses in Proximity to Pump Stations

Pump Station 18





Legend

-  Residence
-  Businesses
-  Milepost
-  Proposed Keystone Pipeline
-  55 dB(A) Buffer (460 ft.)
-  Pump Station

Proposed Keystone Pipeline

Residences/Businesses in Proximity to Pump Stations

Pump Station 19

