March 20, 2019 Notes (Andrew Parker; R.T. Hicks Consultants):

Release occurred on March 12 and 13, 2019 during significant winds from 60 to 80 mph for approximately 18 hours.

The footprint of the oil spray and produced water extent are shown on Figures 1 and 2. The produced water release extent was still noticeable when R.T. Hicks Consultants arrived on site to delineate the release. The northern release point showed signs of surface flow from wave action. The southern release point shows a deep incision where the polypipes connect to the pump.

The release flowed along a north/south pipeline then crossed under the pipeline about 2/3 the way downgradient (south).

Oil spray discussion:
Analytical results show no hydrocarbons from 0 to 1 foot. The eastern extent of the dotted surface aligns with the stockpiled soil extent. The area bounded by the green shading to the east has very limited surface oil but the mesquite is coated with oil.

Advance Energy plans to cut the grasses to the ground, rake up the cut grass, and haul off. Any oil adhering to the surface soil would be captured by the cut vegetation and raking process. Then remove the mesquite. If the vegetation does not grow back then Advance would reseed the area

EM Survey:
Figure 1 shows the results of the EM Survey. Using temperature corrected EC readings of 22 mS/m correlated with the observed release extent. A reading below 22 will show chloride <600 mg/kg. Outside of the release extent and within the oil spray area EC was at or near background.

With the exception of EM-03, EC readings increased with depth. EM-03 is within the observed surface flow area, chloride impact at depth is not expected.

Two locations with the highest EC readings and one location at the downgradient extent were flagged for soil sampling.

Soil Sampling:
Figure 2 shows the results of the soil sampling. As expected, HA-01 is below detection for chloride. HA-02 and HA-03 shows decreasing chloride from 0 to 4, then an increase at 4.5 feet.

Estimated Volume:

A quick calculation (shown below) assuming typical soil porosities for the area and impairment to 4-feet, shows that the release volume is approximately 1,048 barrels. Interviews with several people all stated that sustained winds from 60 to 80 mph lasted for 18 hours. If it is possible that 1 barrel of water/minute was released by wave action in the containment over an 18 hour period, then the estimated 1,048 barrels released makes sense and the math adds up.