DESIGN OF A GEOSPATIAL DECISION SUPPORT SYSTEM TO LIMIT THE ENVIRONMENTAL IMPACT OF NATURAL GAS DRILLING

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We describe the development of Geospatial Decision Support System (GDSS) funded through the Department of Energy's Low-Impact Natural Gas and Oil (LINGO) program. When fully deployed, this GDSS will provide regulators and gas producers operating in the Fayetteville Shale a platform to assess potential environmental impacts of proposed well pad, reserve pit, compressor station, gathering line and road placements. The system is web-based and will provide access to current geospatial data layers from a variety of sources. Two primary users are envisioned: 1) regulators at AOGC, ADEQ and ANRC who will have easy access to complex geospatial analysis to inform permitting decisions, and 2) producers who wish to vet infrastructure placement proposals and expedite permitting by efficiently communicating with regulators. The system will provide quantitative assessments including, but not limited to, 1) Proximity to threatened and endangered species habitats, 2) Delination of potential run-off areas based on local terrain, soil type and land cover, 3) Proximity to bodies of water and a traces from that body through-out the hydrologic system, 4) Required stream crossings, and 5) Infiltration potential.

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