

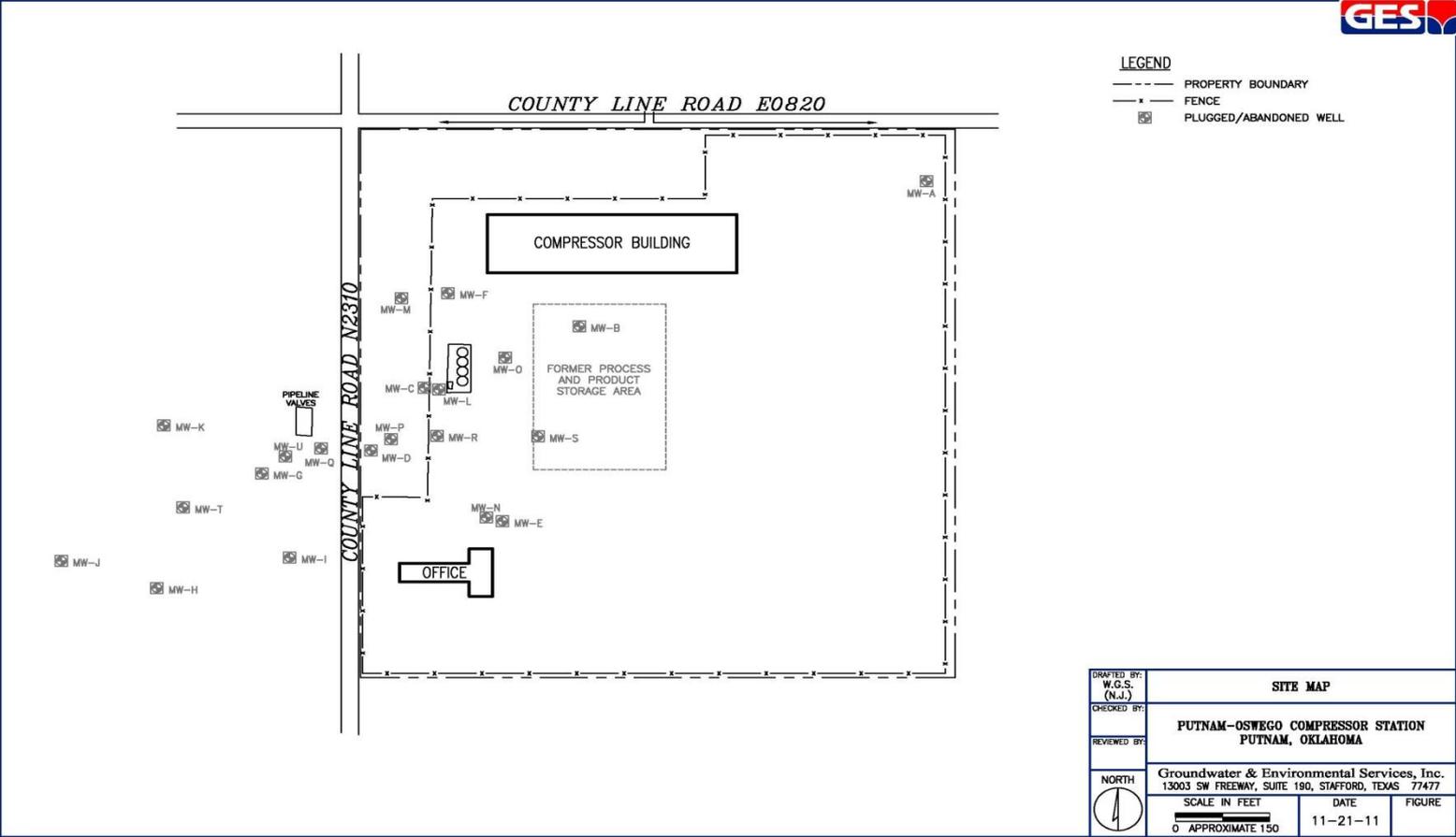
Appendix H at the Putnam Oswego Former Gas Plant

Ryan Carroll & James Hodges
GES, Inc.

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Site Map



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Site History

- Operated as a Lean Oil Plant from 1963 to 1978
- Operated as a Cryogenic Plant from 1978 to 1994
- Site is currently used as a Natural Gas Compression Station



Site Hydrogeology

- Located above Rush Springs Aquifer
- Groundwater depth at site ranges between 19 – 44 feet. Groundwater generally between 25 - 30 feet
- Sand, silt and clay in the top 10 -15 feet
- Siltstone and Sandstone from approximately 10 – 45 feet
- Groundwater flow is towards the west/southwest

Assessment & Remediation Background

■ Assessment

- Initial subsurface investigation conducted in 1996
- Monitoring wells installed in 1997 and 1998
- Comprehensive Assessment completed in 2000
Plume delineation completed
- Sources of petroleum hydrocarbons appear to be from former pipelines and USTs/ASTs



Assessment & Remediation Background

■ Remediation

- Active product recovery system installed in MW-G in 2000. In addition, passive product recovery (with passive bailers) was conducted at select wells
- Active product recovery system in operation from 2001 – 2008
- Passive product recovery completed at multiple wells from 1999 – 2010



Site Closure Rationale

- Vertical and horizontal delineation of petroleum plume
- No sensitive receptors within the site vicinity
- No completed exposure pathways
- No potable wells within 1/2 mile of the site

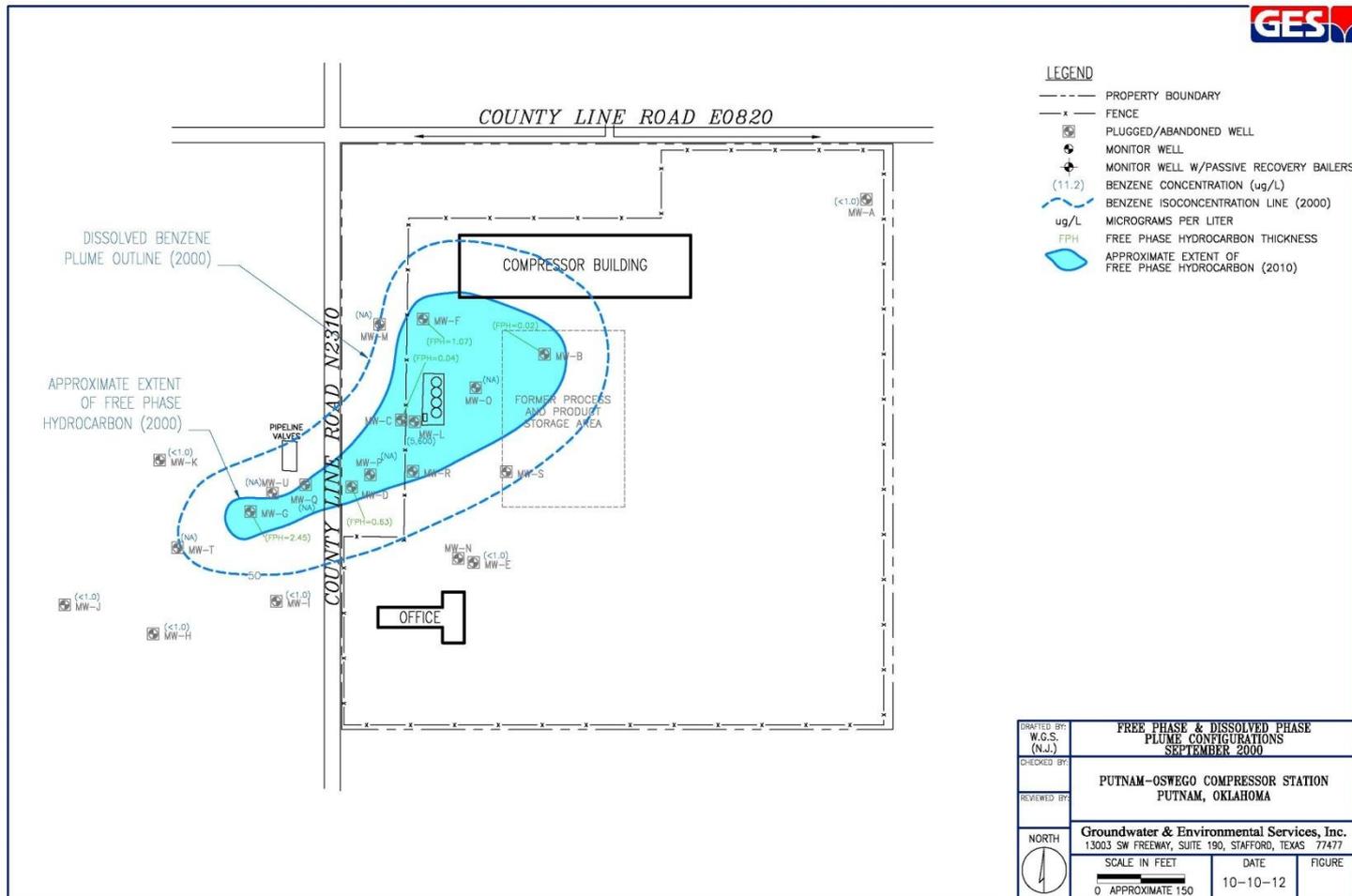


Site Closure Rationale

- Plume size and concentration has significantly decreased over time due to both engineered and natural remediation
- The Corporation Commission has agreed that the remediation technology has removed product to the maximum extent practicable



Petroleum Plume Size in 2000



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Site Closure Rationale

- Groundwater sampling for key indicators has demonstrated, to the Corporation Commission's satisfaction, that degradation of petroleum hydrocarbons by natural microorganisms is occurring at the site, and in time will naturally finish remediating the site.

Appendix H Rationale

- Sources have been removed or are no longer in use
- Extensive remediation completed at site (active and passive product removal)
- The free product has been removed to the maximum extent practicable

Appendix H Rationale

- Residual impacts are considered technically infeasible to remediate using standard available technologies
- Natural degradation of petroleum constituents is occurring
- There is no anticipated economic impact to include this site in Appendix H

Appendix H Rationale

- Benefits the public by not allowing use of shallow groundwater with residual petroleum impacts while residual petroleum is in the groundwater
- Allows potential future use of the deeper aquifer, while casing off the shallow groundwater

Appendix H Proposal

- Require future water wells to case and cement from the surface to 50' deep, gravel pack below that
- This will prevent use of shallow groundwater and prevent residual impacts from migrating down the well pack into deeper aquifer

