

DEVELOPMENT OF A REFINERY GIS – A COLLABORATIVE PROCESS CASE STUDY

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ABSTRACT: Site investigation data from the hazardous waste investigations at the Former BP Amoco Casper, Wyoming Refinery were integrated into a desktop GIS that guides analysis among the stakeholders in a collaborative process. The GIS is comprised of ArcView 3.2 and MS Access software and a custom interface that provides simple, site-specific dialogs to build consistent queries of the environmental database, and display the results either as map layers in ArcView or data reports, graphs, histograms or charts in Access, allowing for analysis with natural geographic features and historical anthropologic features, including property boundaries, process areas, above ground and underground storage tanks, and underground process, product and sewer piping. The affected properties include more than 1000 acres of wetlands, riparian areas, and terrestrial uplands along the North Platte River. Requirements of the GIS were defined in seven technical work groups, with each group comprised of representatives from the three major stakeholders groups: the Wyoming Department of Environmental Quality, the Casper, Wyoming community, and the property owner. The involvement of stakeholders in the software scope and requirements definitions, and the distribution of the system to the stakeholders for subsequent data analysis resulted in greater understanding of complex hydrologic and geostatistical analysis. The GIS has been used to define data usability, assess data adequacy and define areas requiring further characterization, and was used to formulate a sampling work plan and investigate remedial alternatives based on risk-based environmental and human health action levels. Additionally, it has been used in public information meetings to convey the scope and goals of the project, display the data, and demonstrate data adequacy and uncertainty. By utilizing collaborative decision making during the design of the GIS, results of data analysis using the GIS system have been more readily accepted by the stakeholders throughout the accelerated schedule site investigation and remedy agreement negotiations.