MEMO REPORT FROM KRW CONSULTING, INC.

August 5, 2010

To: J.D. McElhaney – RSO – Delineation & Remediation SME – ExxonMobil
Nedra Kelly – Operations Compliance Specialist – ExxonMobil

Subject: **Field Report / Remediation Plan – 296-7A Tank Containment Area**
Piceance Creek Development Project

The following is a summary of assessment methods:

Per ExxonMobil's request - KRW Consulting, Inc. (KRW) initiated an environmental assessment at the subject site on June 15, 2010. The intent of this assessment was to evaluate the vertical and lateral extent of any impacted soils associated with a condensate release within a tank battery containment area at the site.

The assessment included the collection of soil samples from twenty three test points outside the containment area (horizontal "H" samples) and twelve test points generally inside the containment area (vertical "V" samples) of which three were collected just outside the containment area; as well as two composite samples collected inside the containment area for landfill waste characterization ("GR" and "SO" samples). The H samples, from outside the containment area, are surficial samples (0 to 12" below surface), collected manually, with a shovel and field screened for pH, conductivity, and PID readings (photo-ionization detector readings, indicating hydrocarbons). These samples were collected to assess the horizontal extent of impacted soils (if any) outside the containment area. The V samples were collected with a backhoe at various intervals starting at 12 inches below surface, extending to bedrock (generally 3.5 feet below surface). These V samples were field screened for PID readings, only, and were collected to assess the vertical extent of impacted soils. In addition, two representative composite samples were collected: a gravel sample ("GR" sample) from a 6-inch thick gravel bedding layer overlying the synthetic liner; and a soil sample ("SO" sample) collected from soils materials beneath the synthetic liner. Both of these samples were collected to determine if this material would be acceptable for landfill disposal and to determine if additional Table 910-1 analyses might be required. It should be noted that the gravel material and synthetic liner have been removed from the containment area and are currently stockpiled

on site pending disposal decisions. This gravel/liner material is placed on and covered with plastic to prevent potential off-site migration of contaminants.

In total, fourteen surficial H samples were submitted for laboratory analysis of total petroleum hydrocarbons-Gas Range Organics (TPH-GRO), total petroleum hydrocarbons-Diesel Range Organics (TPH-DRO), sodium absorption ratio (SAR), electrical conductivity (EC), and pH. The other five H samples collected were not submitted for laboratory analysis based on elevated PID field screening measurements and/or field observations (i.e. soil staining) indicating that the material was likely impacted. A total of eleven V samples, the majority from within the containment area, were also submitted for laboratory analysis of the same parameters as the H samples. The two composite samples from within the containment area were submitted for the complete COGCC Table 910-1 listed parameters as well as required waste characterization sampling parameters for disposal at Rio Blanco County's Wray Gulch Solid Waste Disposal Facility.

To aid in the evaluation of soil pH conditions at the site, data was used from six background surficial samples collected at the site on January 14, 2010, as part of another environmental sampling program. These samples were all collected adjacent to the drill pad location, but outside the disturbance area. Subsequently, a statistical method employed by the Colorado Department of Public Health and Environment (CDPHE, reference sited on attached table 1) and a background variability factor employed by the Colorado Oil and Gas Conservation Commission (COGCC), were used to evaluate the background sample analytical data.

Each of the samples was collected following proper sampling protocol to prevent cross-contamination. Select samples were submitted for laboratory analyses to Accutest, Inc. in Wheat Ridge, Colorado following proper chain-of-custody protocol. All excavation/ sampling equipment was properly decontaminated following environmental sampling protocol.

Please refer to the attached site plan figure as well as the field notes for additional information regarding sample locations and field screening results. Laboratory findings for the soil sample analyses are summarized and Colorado Oil and Gas Conservation Commission (COGCC) allowable levels are presented on Table 1, attached. Also, attached are complete laboratory reports related to the analysis of soil samples collected at the site as part of this assessment.

The following is a summary of assessment findings:

1. 296-7A – Inside Containment Area

   a. Nine test points were advanced within the containment area.

   b. Soils beneath the containment area generally consist of silty, sandy gravel.

   c. Laboratory analytical results from the nine samples collected inside the containment area indicate elevated TPH concentrations exceeding the *COGCC* allowable levels at five sample locations. Specifically, TPH levels are significantly elevated in samples from V1, V2, V5, V8, and V9. Field screening observations and PID measurements indicate that hydrocarbon impact in these areas generally extends from surface to bedrock, approximately 3.5 feet below surface. Laboratory analytical results from samples collected at V3, V4, V6, and V7 locations, indicate some hydrocarbon impact, but at levels below *COGCC* allowable levels. In addition, the laboratory analytical results of the composite soil sample (SO sample) from inside the containment area exhibited elevated TPH concentrations. Further, laboratory results indicate that materials inside the containment area generally exhibit pH levels above the Table 910-1 allowable levels.

2. 296-7A – Outside Containment Area

   a. Twenty three H test points and three V test points were advanced outside the containment area.

   b. Soils generally consist of silty, sandy gravel outside the tank containment area.

   c. Field evidence of hydrocarbon impacted soils was encountered at five of the twenty three H test points and at one of the V test points outside the containment area. Specifically, field observations indicate hydrocarbon impact at H sample locations H5, H12, H13, H15, and H16, as well as at sample location V11. However, laboratory analytical results from samples collected at sample locations V12 and V10 indicate that impact in the areas of H12/H13 and H5, respectively, are not above *COGCC* allowable levels. Also, the laboratory analytical results from the V11 sample indicate that

hydrocarbon impact is less than COGCC allowable levels in that area. Further, laboratory analytical results indicate that there is no apparent impact, other than elevated pH levels, in the remaining eighteen H sample locations located around the containment area.

3. 296-7A – Background pH determination

   a. The statistical evaluation methodology or a 20 percent variability factor to evaluate background sample data indicates that background pH levels at the site are above the COGCC allowable level (see Table 1). Specifically, the statistical method utilized indicates an allowable background pH level of 10.60. Alternatively, applying a 20 percent variability factor to the highest background concentration value results in an allowable pH level of 11.28 for the site. Given the highest pH level detected in test pit samples was 9.51, it is unlikely that any release in the containment area has impacted site pH levels.

The following is a proposed remediation plan:

The hydrocarbon impacted soils above COGCC allowable levels in and adjacent to the containment area will be excavated and transported from the site for disposal at a permitted solid waste disposal facility. The attached site plan shows the proposed limits of excavation. The excavation will include areas associated with sample locations V1, V2, V5, V8, and V9. It will also extend slightly beyond the containment area to the east of the V1 and V2 sample locations in the area of sample locations H15 and H16, because of elevated field screening PID results in this area. Soil sample laboratory results supported by field screening results indicate that significant impact extends from surface to bedrock in the proposed soil removal area. Therefore, the excavation will extend to bedrock, at approximately 3.5 feet below surface. Following excavation and removal of significantly impacted soils, four representative confirmation soil samples will be collected from the sidewalls of the excavation to document that all significant impacted soils have been removed. The excavation will be advanced to the top of competent bedrock (i.e., no excavation base samples will be collected). Excavated soils will be transported to an approved solid waste disposal facility (Rio Blanco County's Wray Gulch landfill). Certified clean backfill material (likely crusher fines from the White River City Pit, Meeker Colorado) will be placed in the excavation to pre-remediation grades.

Based on the amount of condensate reportedly released, the estimated depth to groundwater beneath the site (greater than 150 feet), and site subsurface conditions (i.e. competent bedrock), it is unlikely that groundwater has been impacted beneath the site. Since no assessment has been completed below the top of bedrock, if significant fracture zones in the bedrock are noted during excavation and soil removal activities, additional assessment may be warranted.

The area of apparent impact is approximately 2,300 square feet, with impact extending to a depth of approximately 3.5 feet below surface, resulting in an impacted soil volume of approximately 8,050 cubic feet (298 cubic yards). Assuming a porosity of 30% and a 20% natural moisture content of the material in the area, there is a computed 1,932 cubic feet of void space available to contain the release. Given records indicate that only 0.81 barrels of oil (i.e. 0.45 cubic feet of oil) were released, there is ample "storage" within the impacted area to contain the known volume of release.

If you have any questions regarding this report, please contact us at your convenience.

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Attachments – Sample Location Figure; Field Screening Results; Data Summary Table; Soil Laboratory Results