

Environmental Forensics: Project Questionnaire

DATE:

NOTE: The following information will help Maxxam understand project questions or concerns and allow us to make better suggestions regarding analytical testing course of action. Additionally, this information would be very helpful should a formal data interpretation and expert opinion report be required. If information on certain items is not available or not applicable, please indicate with **N / A**.

Site Location Information

1) City or region of project site:

2) Is a site plan available for review?

Project and Site Background

3) What is the current property use?

4) Has the property ever been used for commercial or industrial purposes? Please explain:

5) Are there any potential or suspected sources of contamination in the vicinity of the project site? :

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6) Have any petroleum hydrocarbon products ever been produced, handled or stored on the project site? :

7) Have any petroleum hydrocarbon storage tanks ever been present at the project site? If so, please provide information on whether AST(s) or UST(s), location at the site and tank size (L) :

8) Is the source of contamination at the site known? If not, is there a suspected source? :

9) Has a contaminant spill occurred at the project site? If so, was the spill a catastrophic release or a slow sustained leak? :

10) Is the approximate date of the spill or incident known? :

11) Is there a suspected nature of the contaminant at the project site? (ie. gasoline or light distillates, heating oils or heavy distillates, etc.):

12) Is there knowledge on the approximate volume of of the contaminant leak? :

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Site Conditions

13) Please provide information regarding soil type at the site (ie. sands, silts or clays / fine or coarse soils):

14) Please provide an indication as to the suspected direction of groundwater flow at the project site:

15) Has contamination been identified in both soil and groundwater matrices? :

16) Has a DNAPL or LNAPL been detected in the groundwater at the site? If so, please provide details regarding location at the site, product thickness, colour and odour:

17) Has the impacted area been delineated? If so, please provide details:

Analytical Analysis

18) Have any preliminary analyses been performed? If analysis has been performed at Maxxam, **please indicate Maxxam job(s) number**; If preliminary analysis has been performed at a different facility, please provide analytical data (other information may be described in the “**Additional Information**” section of this document.

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19) What questions or additional information are required to be addressed through forensic analysis?
(please check all items that apply):

Categories	✓
Quantitative Information ($\mu\text{g/g}$, $\mu\text{g/L}$)	<input type="checkbox"/>
Regulatory Compliance	<input type="checkbox"/>
Product Characterization (comparison to reference petroleum hydrocarbon products)	<input type="checkbox"/>
Nature of contamination (Light or Heavy distillates; gasoline or heating oil)	<input type="checkbox"/>
Establish possible source of contamination (on-site, off-site)	<input type="checkbox"/>
Assess weathering of contaminant (biodegradation, solubilisation and evaporation)	<input type="checkbox"/>
Estimate relative age of contaminant based on degree of weathering	<input type="checkbox"/>
Differentiate between potentially multiple sources of contamination	<input type="checkbox"/>
Determine if contaminant is petrogenic or pyrogenic in nature	<input type="checkbox"/>
Provide Forensic Consultation services	<input type="checkbox"/>
Provide a Basic Analytical Report (signed by a Chartered Chemist)	<input type="checkbox"/>
Provide a Detailed Analytical Report (signed by a Chartered Chemist)	<input type="checkbox"/>
Provide expert witness / opinion or peer review services	<input type="checkbox"/>
Specific Characterization* (please identify below):	<input type="checkbox"/>

* For example:

<ul style="list-style-type: none"> Gasoline additive assessment; Sulphur content; Lead/Alkyl content; Gasoline grade; 	<ul style="list-style-type: none"> Unknown volatiles; Semi-volatile characterization; Non-petroleum hydrocarbon characterization (Synthetic lubricants, bio-diesel, bio-degradable lubricants, insulating oils, etc.).
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NOTE: Maxxam cannot provide an actual estimate on the age of a petroleum hydrocarbon product or contaminant, beyond relative observations. Our assessments are solely based on analytical data and as such, only take into account the apparent degree of weathering.

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Additional Information