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September 28, 2009 Project No. 09-067-04E

VIA EMAIL (fmason@starfieldres.com)

Ms. Allison Rippin Armstrong
Director of Environment and Permitting
Starfield Resources Inc.
130 Adelaide Street West, Suite 2210
Toronto, ON M5H 3P5

Dear Ms. Rippin Armstrong:

Re: Interim Report for the Treatment and Discharge of Accumulated Storm and Melt Water from the Fuel Storage Containment Area, Starfield Resources Ferguson Lake Camp.

As requested, True Grit Consulting Ltd. (TGCL) is pleased to provide this Interim Report for the above noted project.

Background Information

TGCL has been retained by Starfield Resources Inc. (Starfield) to provide environmental consulting services involving the treatment of accumulated stormwater and meltwater from a lined earthen bermed fuel storage containment area at the Ferguson Lake Camp. TGCL provided initial consultations regarding the specification of appropriate treatment technologies as well as on-site services involving the commissioning of the system, collection and analysis of before treatment and after treatment water samples and determination of removal efficiencies of the system based on the water quality results in order to determine the required media replacement frequency.

This Interim Report is intended to serve as a basis for regulatory review and subsequent approval for the continuous discharge of treated effluent as outlined in correspondence to Starfield from Indian and Northern Affairs Canada (INAC).

Methodology

A total of six (6) representative water samples (BT1 to BT6) were collected at different locations from the accumulated stormwater within the containment area upon arrival at Ferguson Lake and prior to commissioning the treatment system for laboratory analysis.

A depth survey of the accumulated water was then completed using a graduated depth measuring device in order to facilitate an estimate of the total accumulated stormwater volume.

The treatment system was then assembled and located on the berm of the containment area on a sloped and lined gravel pad to ensure that any leakage would be directed back to the containment area. The system was commissioned and accumulated water was treated and discharged back to the containment area for a total period of six (6) hours in order to facilitate the collection of confirmatory effluent samples for laboratory analysis.

A total of four (4) representative water samples (AT1 to AT4) were collected from the discharge pipe of the treatment system during the six (6) hour test treatment period.

The results of the laboratory analysis of the un-treated and treated water were used to confirm the treatment efficiency of the system and to calculate the required media replacement frequency to ensure that treated water continuously meets discharge criteria provided by INAC.

Results

Analytical Results

The results of the laboratory analysis of the water samples are provided in Table 1 (attached). Laboratory Analytical Certificates are attached. The results indicate that the un-treated water exceeded the discharge criteria for toluene and F3-F4 hydrocarbons only, based on average concentrations. The average concentrations of remaining discharge criteria parameters were below the discharge limits.

The average concentrations of all discharge parameters in the treated effluent were below the discharge criteria.

Volume

Depth survey results indicate that the estimated volume of accumulated water, ignoring displacement, is approximately 200,000 liters. Based on a pumping rate of 10 USGPM (54,509 liters/day), the total estimated volume of water can be pumped out in approximately 3.7 days. Actual pumping times are anticipated to be lower as displacement from existing storage tanks and drums will result in a lower volume of water than estimated.

Removal Efficiency

Theoretical

Based on Case Studies provided by the system manufacturer, the following petroleum hydrocarbon removal efficiencies can be anticipated from the system.

Parameter	Removal Efficiency
Oil and Grease	98.6 %
Benzene, Toluene, Ethylbenzene and Xylenes	99.9 %
Petroleum Hydrocarbon Fractions F1-F4	99.4 %

Actual

Actual removal efficiencies are calculated from analytical results for pre-treatment and post-treatment water samples. As the results for most parameters are below laboratory detection limits for treated samples, actual removal efficiencies are difficult to calculate and therefore theoretical removal efficiencies are considered to be accurate. The exception, Oil and Grease, has a calculated actual removal efficiency of 55%.

Media Saturation Time

Based on information provided by the system supplier, the TM100 and Activated Carbon Media have the following saturation values for Petroleum Hydrocarbon parameters.

Parameter	Media Type	Saturation Value (% by Mass)	Total Mass of Media (kg)	Total Available Capacity (kg)
Oil and Grease	TM100	0.25	272	68
Benzene, Toluene, Ethylbenzene and Xylenes	Activated Carbon	0.171	300	51
Petroleum Hydrocarbon Fractions F1-F4	TM100	0.25	272	68

Using the above presented media saturation values, un-treated water parameter concentrations and volumetric flow rate, the following media consumption rates and lifespans are calculated.

Parameter	Average Inlet Concentration (mg/L)	Volumetric Flow Rate (L/day)	Daily Mass Loading (kg/day)	Removal Efficiency (%)	Total Available Capacity (kg)	Media Lifespan (days)
Oil and Grease	2.9	54,509	0.158	55	68	783
Benzene, Toluene, Ethylbenzene and Xylenes	0.00456	54,509	0.000249	99.9	51	204,819
Petroleum Hydrocarbon Fractions F1-F4	1.989	54,509	0.108	99.4	68	630

Non-detect concentrations were included in the calculations based on the laboratory detection limit.

Discussion

The results of the laboratory analysis, removal efficiency and media lifespan calculations indicate that there is sufficient media absorptive capacity in the existing treatment system to support a total continuous pumping time of 630 days. It is important to note that although the calculated media lifespan for activated carbon is approximately 204,819 days, this media should be replaced on the same frequency as the TM100 media. Activated carbon can be anticipated to lose absorptive capacity over time as the available pore spaces may be filled with compounds other than the petroleum hydrocarbon parameters of interest. In addition, should the inlet water quality change, a re-evaluation of the media removal rates should be completed in order to ensure discharge concentrations are within the regulatory limits.

Recommendations

Based on the laboratory analysis and above calculations, media replacement is not required during the anticipated pumping period to dewater the existing volume of contained water within the fuel storage containment area. In order to ensure adequate media absorptive capacity in the future, media removal is recommended after this year's pumping program. Subsequent pumping and treating operations should be completed after initial water quality data is collected and the above analysis is completed to ensure adequate media capacity and effective media replacement frequencies.

As per direction from INAC, once continuous discharge is approved, additional confirmatory water samples should be collected from the treated effluent should be collected on a daily basis (i.e. once every 24 hours) and submitted for laboratory analysis.

Closure

Ms Allison Rippin Armstrong
Starfield Resources Inc.
Proposal No. 09-067-04E
September 28, 2008

Thank you for the opportunity to be of service to Starfield Resources. Should you have any questions or require further information, please do not hesitate to contact the undersigned at 807.626.5640, Ext. 228.

Sincerely,

TRUE GRIT CONSULTING LTD.

Gus Hunt
ghunt@tgcl.ca

Attachment: Table 1: Summary of Water Analytical Results
Laboratory Analytical Certificates

CC: Mr. Fred Mason, Starfield Resources Inc.