



# STARFIELD RESOURCES INC.

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September 27, 2009

Mr. Andrew Keim  
Inspector  
Department of Indian and Northern Affairs Canada  
Nunavut Regional Office  
Building 553  
PO Box 100  
Iqaluit, Nunavut X0A 0H0

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Dear Mr. Keim:

**RE: Analytical Results of Water Samples**

Further to the update submitted to you on September 24th, 2009 please find enclosed the analytical results of the water samples collected within the fuel storage area prior to any treatment and those collected following treatment. In addition, this letter provides the information referred to in the Technical Review Memorandum which you sent on September 24th.

We are pleased to report that the treatment system is functioning as predicted which is indicated by the analytical results reported herein. In response to the query regarding the filter bag being used, Model FOS P2P is a nominal sub-micron triple layer filter bag, with an inner bag of 5 micron polyester felt, middle layer polypropylene melt blown and an outer layer mesh.

In your Inspector's Direction, you provided the following discharge criteria:

Parameter Maximum Average	Concentration	Maximum Allowable Grab
pH	6.0 to 9.5	6.0 to 9.5
TSS	25 mg/L	50 mg/L
Oil and Grease	15 mg/L and no visible sheen	15 mg/L and no visible sheen

Parameter Maximum Average	Concentration	Maximum Allowable Grab
Benzene	370 µg/L	370 µg/L
Toluene	2 µg/L	2 µg/L
Ethylbenzene	90 µg/L	90 µg/L
Lead	1 µg/L	1 µg/L
Al	1.5 mg/L	1.5 mg/L

Additionally, Starfield, in consultation with True Grit, recommended the following be added to ensure adequate protection of the environment:

- a. Petroleum Hydrocarbon Fractions F1 and F2: Maximum combined concentration 1000 µg/L.
- b. Petroleum Hydrocarbon Fractions F3 and F4: Maximum combined concentration 1000 µg/L.
- c. Xylenes: Maximum concentration 72 µg/L.

A description of the sampling program thus far and a summary of the analytical results can be found in the appended document provided by Gus Hunt of True Grit Consulting. In summary, six representative water samples were collected from within the fuel storage area to determine the water quality (which has been used in calculating the mass balance equation, see appended document). The treatment system was constructed, mounted and positioned on the upper side of the fuel storage area within a lined, bermed containment. Water was pumped through the system for a total of seven (7) hours with the water being pumped back in to the fuel storage containment area except while pumped to additional secondary containment for the purposes of collecting four (4) samples of the treated water. In total, ten (10) samples were sent to ALS Environmental Laboratory for analyses, six (6) 'before treatment' (BT) and four (4) 'after treatment' (AT).

The analytical results (see appended document) indicate that for each petroleum hydrocarbon parameter, with the exception of Oil and Grease, the water was treated to below detection limits. However, for the purposes of calculating the mass balance to determine the removal efficiency of the media within the system, detection limits were used thus providing an additional safety factor in calculating media saturation time. The calculation (see appended document), given the current water quality within the fuel storage area, indicates a media saturation time of 630 days based on continuous pumping, however, as an additional safety factor the media will be changed upon completion of this dewatering program.

As previously stated in earlier correspondence, we estimate that there is approximately 200,000L of water within the fuel storage area. The drums that were scattered within the fuel storage area are being collected and re-stacked in neat rows within the fuel storage area. The two enviro-tanks that are within the fuel storage area will be removed and will sit on the upper edge of the fuel storage area (which has liner and geotextile fabric and slopes back in to the fuel storage area).

Starfield, in consultation with True Grit, recommend sampling the discharge water at 24 hour intervals during dewatering and collecting a final sample prior to shutting the system down. Given the estimate of 200,000L and a pumping/treating rate of 10 gallons/minute, treatment and dewatering of the fuel storage area would take eighty-eight (88) hours. However, since the estimate of 200,000L excludes allowances for the displacement of the storage tanks, fuel bladders and barrels contained within the fuel storage area, we anticipate that the actual time required to treat and dewater will be significantly reduced.

If the plan submitted by Starfield is not approved, the water will remain within the fuel storage area over winter. Starfield will return to site in the spring, remove snow prior to melt and will incorporate a batch treatment system once the ice has melted and the water can be treated. The total volume of water that the

fuel storage area could hold without concern for the integrity of the berm is approximately 2,400,000L. If we assume that the accumulated snow melts (with no sublimation rate factored) and knowing the water content of snow to be 10 percent, we can estimate that if no snow is removed prior to melt an additional 317,000L could potentially accumulate within the fuel storage area. If we add this volume to the estimated 200,000L already contained within the fuel storage area, there could be a total volume of 517,000L next spring. Therefore, there is ample capacity to contain the predicted volume of water without jeopardizing the integrity of the berm should the need for a batch treatment system arise.

If the treatment and dewatering plan is approved, a final report will be submitted with information on the total volume of water treated and discharged, the discharge location (coordinates will be provided), all water sample analytical results, the amount of treatment media used, a summary of any operational problems encountered and how they were resolved. Photographs will be included in the final report. A separate report will be submitted which addresses the other issues outlined in the Inspector's Direction, including how waste, generated from clean up activities, has been stored and/or disposed of, disposal locations where applicable, a summary of the activities conducted on site and a description of work that will be ongoing. Photographs will also be included in the report.

If you have any additional questions, please do not hesitate to contact me via email at [fmason@starfieldres.com](mailto:fmason@starfieldres.com).

Yours truly,

**Fred Mason**  
**VP Operations**

Cc     Phyllis Beaulieu, Nunavut Water Board  
        Bernie MacIsaac, INAC  
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        Kevin Buck, INAC  
        Tanya Trenholm, INAC  
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        Luis Manzo, Kivalliq Inuit Association  
        Stephen Hartman, Kivalliq Inuit Association  
        Gus Hunt, P.Eng., True Grit Consulting Ltd.  
        Andre Douchane, Starfield Resources  
        Sylvia Sawers, Starfield Resources  
        Allison Rippin Armstrong, Starfield Resources

Attachment:     True Grit Consulting Interim Report for the Treatment and Discharge of Accumulated Storm and Melt Water From the Fuel Storage Containment Area, Starfield Resources Ferguson Lake Camp.