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Calgary, Alberta, Canada T2P 5C5
Phone (403) 290-3600

September 30, 2025

Via Email Only: OROOG@gov.nt.ca

Department of Justice
Office of the Regulator of Oil and Gas Operations
Government of the Northwest Territories
4th Floor Northwest Tower
5201 – 50th Ave
Yellowknife NT X1A 3S9

**Attention: Mr. Michael Martin,
Chief Safety Officer
Chief Conservation Officer**

Response to OROGO's Information Request regarding Environmental Liabilities at Nogha B-23 & K-14

MGM has reviewed the reported spills for the two diesels spills in the Nogha field provided by OROGO in your letter data August 29, 2025.

The NWT Spill# 2004149, 3.0 m3 diesel spill at Nogha B-23 site was cleaned up with a vacuum truck and scrapped up from the surface. The fluid was disposed of at Imperial's disposal well in Norman Wells and the solids taken to Canadian Crude Separators (CCS) in Rainbow Lake, Alberta. The spill information was provided to Indian and Northern Affairs (INAC) and unfortunately, MGM has not located the waste manifest to date.

The NWT Spill# 20050711, 0.3 m3 diesel spill at Nogha K-14 site was cleaned up with a vacuum truck and disposed of at Canadian Crude Separators (CCS) in Rainbow Lake Alberta. The spill information was provided to Sahtu Land and Water Board (SLWB), however, MGM has not located the waste manifest to date.

Attached is Northern Envirosearch Ltd. report with soil analysis for K-14 and B-23 sites submitted to the Sahtu Land and Water Board (SLWB) on August 17, 2005

MGM have been monitoring the sites over time and been reporting the results to the SLWB. The most recent reports can be found at <https://slwb.com/registry/s1911-003>

These B-23 and K-14 site spill areas, as well as other contaminants of concern will be assessed as part of the draft Closure and Reclamation Plan (CRP) for both sites under the Land Use Permit previously submitted to the Sahtu Land and Water Board (SLWB). The next updated CRP will be submitted on November 15, 2025 and will be subject to a review by affected parties, reviewers and the SLWB.

Should you require additional information, please contact me.

Respectfully,

MGM Energy

A handwritten signature in blue ink, appearing to read "John Hawkins", with a long horizontal stroke extending to the right.

John Hawkins, P.Eng.

Director Asset Management

403-817-5074



Northern EnviroSearch Ltd.

620, 703 – 6 Avenue S.W., Calgary, AB T2P 0T9 Ph: 403-543-5353 Fax: 403-233-2513

August 17, 2005

Sahtu Land & Water Board

Box 1

Fort Good Hope, NT

X0E 0H0

By email: sahtuhyd@allstream.net

Dear Patrick:

Re: Violation of Terms and Conditions

As requested in your January 28, 2005 letter: Nogha/Tunago Settlement Lands 2003/2004 Drilling Program Water License S03L1-016, soil samples were collected by Northern EnviroSearch Ltd. on behalf of Apache Canada Ltd for the K-14 well on July 20, 2005. A sample was taken from the well centre, and a control sample was taken 50m upslope from the well centre. The soil sample analytical results are attached and summarized below in table 1.

Table 1: Analytical results for K-14 wellsite soil samples.

Sample ID		K-14	K-14
Location		Well Centre	Control
Sample Date		July 20, 2005	July 20, 2005
Test Parameter	CCME		
Conductivity (dS/m)	4	0.457	0.127
pH	6-8	7.04	5.70
Sodium Adsorption Ratio (SAR)	12	0.27	0.21
Saturation Percentage %	N/A*	499	997
Specific Gravity	N/A*	1.08	0.970
TGR (tonnes/hectare)	N/A*	<0.10	<0.10
Calcium (Ca) (mg/kg)	N/A*	251	110
Chloride (Cl) (mg/kg)	N/A*	255	184
Magnesium (Mg) (mg/kg)	N/A*	111	45.8
Potassium (K) (mg/kg)	N/A*	115	123
Sodium (Na) (mg/kg)	N/A*	46	32
Sulphate (SO ₄) (mg/kg)	N/A*	226	51.7

A sample from the well centre and a control were taken. Analytical results are compared to Canadian Council of Ministers of the Environment (CCME) 2002 Canadian Soil Quality Guidelines for industrial activities.

*N/A – Values were not listed in CCME for Industrial Soil Quality Guidelines

A review of the above results indicate comparable values within the K-14 well centre and control samples for the tested parameters with the exception of sulphates. All are within acceptable soil quality guidelines, with the exception of pH for the control, as outlined by the Canadian Council of Ministers of the Environment (CCME) 2002 Canadian Soil Quality Guidelines for Industrial Activities, and do not pose any concern.

If you have any questions, please contact the undersigned at (403) 543-5353 or by email (NatalieA@envirosearch.ca).

Sincerely,
NORTHERN ENVIROSEARCH LTD.



Natalie Albert, B.A.I.E., T.T.
Environmental Technologist

Attach.

Cc: David Calvert (Apache Canada Ltd.)
John Laidlaw (Apache Canada Ltd.)
Armin Johnson (Northern Affairs Canada Inspector)





CHEMICAL ANALYSIS REPORT

Date: August 15, 2005

ALS File No. CC500006

Report On: 2056NT04
Mawnar/Nogha

Report To: **Northern EnviroSearch Ltd (NESL)**
620, 703 - 6th Avenue SW
Calgary, AB
T2P 0T9

Received: July 29, 2005

ALS ENVIRONMENTAL

per:



Bill Chew, B.Sc. - Manager, Client Services
Monica Gibson, M.Sc. - Project Chemist

File No. CC500006

REMARKS



Cation Exchange Capacity Results

K14 Well Centre (ALS #CC500006-1) = 196.4 meq/L

K14 Control (ALS #CC500006-2) = 178.6 meq/L

C34 Well Centre (ALS #CC500006-3) = 160.7 meq/L

C34 Control (ALS #CC500006-4) = 178.6 meq/L

CEC samples were subcontracted to Pacific Soils.

RESULTS OF ANALYSIS - Sediment/Soil

Sample ID	K14 Well Centre	K14 Control	C34 Well Centre	C34 Control
Sample Date	05-07-20	05-07-20	05-07-22	05-07-22
ALS ID	1	2	3	4
Physical Tests				
Conductivity (dS/m)	0.457	0.127	0.949	0.582
pH	7.04	5.70	6.55	7.37
Sodium Adsorption Ratio (SAR)	0.27	0.21	0.48	0.11
Saturation Percentage %	499	997	998	500
Specific Gravity - as received	1.08	0.970	0.990	0.940
TGR (tonnes/hectare)	<0.10	<0.10	<0.10	<0.10
Saturated Paste Extractables				
Calcium Ca	251	110	907	320
Chloride Cl	255	184	627	82.0
Magnesium Mg	111	45.8	399	168
Potassium K	115	123	372	67
Sodium Na	46	32	216	21
Sulphate SO4	226	51.7	1430	44.6

Remarks regarding the analyses appear at the beginning of this report.
Results are expressed as milligrams per dry kilogram except where noted.

Appendix 1 - QUALITY CONTROL - Reference Materials



Sediment/Soil

	Result	Target	Units	DL	ALSQC#	Method
ALS Environmental Soil RM, SAL01						
Physical Tests						
Conductivity (dS/m)	6.30	6.52	dS/m	0.002	22050	a
pH	7.70	7.68	pH	0.1	22050	a
Saturated Paste Extractables						
Calcium Ca	398	371	mg/kg	0.5	22050	b
Chloride Cl	705	763	mg/kg	0.5	22050	c
Magnesium Mg	92.3	89.2	mg/kg	0.5	22050	b
Potassium K	22	<20	mg/kg	20	22050	b
Saturation Percentage %	58.0	55.6	%	0.1	22050	d
Sodium Na	400	385	mg/kg	20	22050	b
Sulphate SO4	1060	999	mg/kg	1	22050	c

Methods:

a = Saturated Paste/Meter

b = SM_SAR-Paste_ICPOES

c = Saturated Paste/I \bar{C}

d = Saturated Paste/Gravimetry

Bold Targets indicate uncertified targets

Appendix 2 - METHODOLOGY



Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

Conductivity in Soil by Saturation Paste Extraction

This analysis is adapted from the methods outlined in "Soil Sampling and Methods of Analysis" (Canadian Society of Soil Science). In summary, 200 -500 dry grams of sample is extracted for a minimum of 4 hours with an amount of deionized water required to create a saturated paste. The resulting extract is then filtered or decanted and analysed for conductivity with an conductivity electrode using procedures adapted from APHA Method 2510 "Conductivity".

Recommended Holding Time:

Sample Extraction: 6 months

Sample Analysis: 28 days

Reference: Canadian Society of Soil Science and APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

pH in Sediment/Soil

This analysis is adapted from the methods outlined in "Soil Sampling and Methods of Analysis" (Canadian Society of Soil Science).

"Saturated Paste Extract" In summary, 200 - 500 dry grams of sample is extracted for a minimum of 4 hours with an amount of deionized water required to create a saturated paste. The resulting extract is then filtered and analysed for pH.

"Fixed Ratio Extract (e.g., 1:1, 1:5)" In summary, weigh out the appropriate amount of air-dried soil and add sufficient deionized water to achieve the desired extraction ratio and shake for 1 hour. The resulting extract is then filtered and analysed for pH.

pH analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode.

Recommended Holding Time:

Extract: asap

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

Sodium Adsorption Ratio (SAR) in Sediment/Soil

Sodium Adsorption Ratio (SAR) is calculated from the Sodium, Calcium, and Magnesium concentrations in the saturated paste extract of a sediment sample. The SAR calculation is described in "Soil Sampling and Methods of

Appendix 2 - METHODOLOGY - Continued



Analysis" by M. Carter.

Recommended Holding Time:
Sample/Extract: not applicable

Saturated Paste Extracts

This analysis is adapted from the methods outlined in "Soil Sampling and Methods of Analysis" (Canadian Society of Soil Science). In summary, 200- 500 dry grams of sample is extracted for a minimum of 4 hours with an amount of deionized water required to create a saturated paste. The saturation % can be calculated from the amount of soil and water. The resulting extract is then filtered or decanted and analysed for various parameters.

Recommended Holding Time:
Sample: 6 month
Reference: Canadian Society of Soil Science
For more detail see ALS Environmental "Collection & Sampling

Guide"

Theoretical Gypsum Requirement (TGR) in Sediment/Soil

Theoretical Gypsum Requirement (TGR) is calculated from the Sodium Adsorption Ratio (SAR), and from the Sodium and Saturation % results, using Method A as described in "A Comparison of Methods for Gypsum Requirement of Brine-Contaminated Soils", by J. Ashworth, D. Keyes and J. Crepin (Cdn J. of Soil Science, 1999). Theoretical Gypsum Requirement results are reported as metric tonnes per hectare to a depth of 15 cm.

Please note that 50 tonnes/hectare is considered the maximum practical gypsum amendment.

Recommended Holding Time:
Sample/Extract: not applicable

Metals in Saturated Paste Sediment Extracts

Saturated paste sediment extracts are analyzed for metals by inductively coupled plasma optical emission spectrophotometry (EPA Method 6010B) or flame atomic absorption/emission spectrophotometry (EPA Method 7000 series). Reported metals results have been converted into milligrams per dry kilogram.

Recommended Holding Time:
Sample/Extract: 6 months
Reference: EPA



Anions in Soil by Saturation Paste Extraction

This analysis is adapted from the methods outlined in "Soil Sampling and Methods of Analysis" (Canadian Society of Soil Science). In summary, 200 -500 dry grams of sample is extracted for a minimum of 4 hours with an amount of deionized water required to create a saturated paste. The resulting extract is then filtered or decanted and analysed by IC for the requested parameters using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG17 anion exchange column with a sodium carbonate and sodium bicarbonate eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate. Further details are available on request.

Recommended Holding Time:

Sample Extraction: 6 months

Sample Analysis: 28 days (bromide, chloride, fluoride, sulphate)

Sample Analysis: 2 days (nitrate, nitrite)

Reference: Canadian Society of Soil Science, APHA and EPA

For more detail see ALS Environmental "Collection & Sampling Guide"

Results contained within this report relate only to the samples as submitted.

This Chemical Analysis Report shall only be reproduced in full, except with the written approval of ALS Environmental.

End of Report