



**DRAFT
GRUM SULPHIDE COVER
INDEPENDENT ENGINEER PROGRESS REPORT
FARO MINE SITE**

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EXECUTIVE SUMMARY

Conestoga-Rovers and Associates (CRA) is the Independent Engineer (IE) for the Faro Mine Closure Project. The Faro Mine Closure Project is primarily in the Care and Maintenance Phase of operations but is transitioning to mine closure and re-habilitation.

Early Remediation of the Grum Sulphide Cell is in progress to minimize ARD seepage to groundwater and seepage of high TSS water to Moose Pond and/or Vangorda Creek. In general the IE scope of work for the Grum Sulphide Cell Cover Construction includes the following:

- Project Review - Review Project Structure, Contract Specifications and Addenda
- Construction Review - Verify Construction Progress/Evaluation of Contract Reporting Requirements
- Monthly Reporting

To complete this scope of work the IE has reviewed documents that are identified in this report and witnessed construction on August 4 and September 22, 2010. The IE has made several observations in the spirit of continuous improvement. In summary the observations are:

- Management systems are in place and functioning for the Grum Sulphide construction.
- The plans required of the contractor Pelly identified in the contract were of limited detail and consequently of limited use. The absence of a thoughtful QC Plan is of particular concern.
- The construction of the Grum Sulphide Cover appears to be on schedule as of September 20, 2010.

The IE is unable to make general observations about work quality. Not having witnessed a comprehensive record of documented quality is the biggest concern that the IE has at this stage of progress.

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SCOPE OF WORK RELATED TO GRUM SULPHIDE CELL COVER
CONSTRUCTION

1.0 INTRODUCTION

Conestoga-Rovers and Associates (CRA) is the Independent Engineer (IE) for the Faro Mine Closure Project. The Faro Mine Closure Project is primarily in the Care and Maintenance Phase of operations but is transitioning to mine closure and re-habilitation.

The Indian and Northern Affairs, Northern Affairs Program Contribution Agreement for Yukon Type II Mine Sites, Management and Accountability Framework describes the role of the Independent Engineer as "*the validation or checking mechanism that the technical merits of the project are being addressed*".

The Faro Mine Complex Detailed Type II Work Plan identifies high-risk events to the project. Any high-risk event identified in the Type II Detailed Work Plan is a candidate for early remediation. Early remediation is conducted to address high-risk events on site to mitigate potential adverse effects in an efficient manner. ARD seepage to groundwater and seepage of high TSS water to Moose Pond and/or Vangorda Creek has been identified as a high-risk event. As a result, construction of the Grum Sulphide Cell Cover was identified as a 2010/2011 early remediation objective for the Faro Mine Site in the Detailed Type II Work Plan.

The IE scope of work for the Grum Sulphide Cell Cover Construction is described in a June 15, 2010 Memorandum titled Independent Engineer Scope of Work Related to Grum Sulphide Cell Cover Construction. The June 15, 2010 memorandum is presented in Appendix A. In general the IE SOW includes the following:

- Project Review - Review Project Structure, Contract Specifications and Addenda
- Construction Review - Verify Construction Progress/Evaluation of contract reporting Requirements
- Monthly Reporting

Review and reporting will be conducted consistent with the overall role of the IE. As stated in the IE Scope of Work the emphasis will be on a common sense, high-level quality assurance review focused on significant items that may affect project quality, cost and schedule. The IE expects that its observations will be used to demonstrate value for funding and to support a process of continuous learning and improvement. The IE work is for information only and is not part of the payment approval process.

No comments have been received on the Independent Engineer Progress Report for August 2010. As a result some aspects of the August Progress Report are repeated in this report.

1.1 GRUM SULPHIDE CELL COVER CONSTRUCTION PROJECT OBJECTIVE

The IE believes that the objective of the Grum Sulphide Cell Cover is to minimize ARD production by controlling the amount of fresh water that gets into the Grum Sulphide Cell. This will be accomplished by installing an impermeable membrane cover and directing surface water drainage away from the Grum Sulphide Cell. The IE assumes that this objective is reflected in the Grum Sulphide Cell Cover Design.

1.2 BASIS OF IE REVIEW

This review is based on a September 22, 2010 site inspection conducted with YG representatives and the following documents:

- 1) Contract #C00004265, Grum Sulphide Cell Cover Construction, June 2, 2010
- 2) Contractor Documents GSC-Faro Mine Site Project, Grum Sulphide Cell Cover, 2010, June 15, 2010
- 3) Contractor submittals as defined in Section 3 of this report (no new contractor submittals were received)
- 4) SRK weekly reports numbers 11 through 14
- 5) Merit weekly reports for the weeks ending September 11 through October 3
- 6) Revised Pelly schedule dated September 30, 2010

2.0 PROJECT REVIEW

The purpose of the IE review is to document that construction management, monitoring and reporting systems are in place and are being used. The outcome of the review as of this progress report is that there is a project management structure in place that is being followed to the extent that documents have been provided to date. Observations are provided that, in the IE's opinion, identify areas where the project management system could be made more robust. Additional review is required to be able to state that the project management system has been followed completely.

2.1 PROJECT STRUCTURE

The project management structure is defined by the document "Contractor Documents GSC - Faro Mine Site Project, Grum Sulphide Cell Cover". The parts of this document that are relevant to defining project management are: the Site Contacts page, the Stakeholder Analysis and the Reporting and Communications Charts. The IE acknowledged, in the August Progress Report, that some revisions to the project management structure have occurred that re-profile some project management responsibilities but to the IE's knowledge these changes have not been documented. IE comments on the relevant portions of the "Contractor Documents" are presented in the following sub sections of this progress report.

2.1.1 SITE CONTACTS

The IE reported in the August Progress Report that it could not find that any of the Site Contacts listed had a role that was defined in the Stakeholder Analysis. In addition all of the contacts listed have British Columbia area codes leading the IE to wonder if the perhaps the wrong list was copied into the main document. Site contacts are a moot point now but the comment remains that the original site contacts list does not appear to have been correct.

2.1.2 STAKEHOLDER ANALYSIS

This document provides a useful overview of each stakeholder's role and interest in the project. The IE is adopting the term "Implementing Stakeholder" to refer to stakeholders that have a direct role in construction. Implementing stakeholders include Pelly, Merit,

SRK and DES. IE observations on this document made in the August Progress Report are as follows:

- 1) As far as the implementing stakeholders are concerned the "Director - YG" should be the highest authority in the project management structure. Any communication to the Asst. Deputy Minister or Deputy Minister should go through the "Director - YG" and therefore for the purpose of the contractors and consultants "Director - YG" should be the highest authority presented in a document that is available to contractors and consultants.
- 2) Merit is identified as the Project Manager but it is not clear what responsibility Merit has to ensure completion, as opposed to overseeing or advising. Similarly what authority does Merit have to compel compliance with contract documents? We also note that the Supplementary General Conditions of the Contract identify SRK as the "Engineer", a position that in most contracts would be considered analogous to Project Manger.
- 3) Many individuals have the title "Owners Representative". The IE is concerned that this will lead to confusion on the part of the contractor as to whose instructions are final. It would be a lot clearer if one entity was defined as the "Owners Representative". It would be consistent with the role of Project Manager for Merit to be the Owners Representative.
- 4) The position of "Construction Manger" overlaps with the roles and responsibilities of "Project Manger" and "Project Quality Management".

No comment was received on these observations and construction is now well advanced making these observations less important to the Grum Sulphide Cell Cover Construction but nevertheless worthy of retention in a "lessons learned" context.

2.1.3 REPORTING AND COMMUNICATION CHARTS

Eight charts are provided that describe the intended relationship between each of the implementing stakeholders for each of eight aspects of project management. The eight charts are useful for the development of procedures. The IE presented observations on the charts in its August Progress Report. The IE believes that the observations presented are relevant and that there should be a master chart that defines authority and responsibility. In the classic model of project management this chart would have the "Owner" separated from all of the "Contractors" by the "Project Manager" or more commonly "Engineer". The overall effect of the classic model is to place an expert between a contractor completing the works and the "Owner". The "Project Manger" is a

filter, where some issues and problems will be screened out before they require an "Owners" decision. The Project Manager is also a controlled time delay so that issues and problems can be properly and accurately framed with a considered recommendation for an "Owner" decision. This process avoids placing the "Owner" under the pressure of making an immediate field decision before all data and options have been properly considered. Problem solving then becomes a collection of two party sessions where priorities can be assessed openly without inadvertently making a premature commitment by either party. A final resolution would be a tri-party (or more if sub-contractors are affected) effort reflecting agreement by all. The classic model need not consume excessive schedule time if all parties are committed to making the process work. In the case of a complicated issue it may in fact be prudent to allow schedule to burn while the correct technical/financial decision is developed.

The following observations are offered on each of the eight charts, based on the assumption that Merit is the "Project Manger" as defined in the "Stakeholder Analysis".

- 1) ACCOUNTING - the accounting function should be invisible to the contractors and sub-contractors. Before a cost hits the accounting system it has to go through an approval process which should be controlled by the "Project Manager". The "Project Manager" should be the YG Accounting system's primary source of data. In this way YG Accounting will only see costs developed from one set of eligibility rules and in a format prescribed by or at least familiar to YG. This should minimize YG's data collection effort.
- 2) COMMUNICATIONS - the chart illustrates internal project communications. The IE suggests that a box be added to emphasize that all communications external to the project such as news media or the public have to be through YG.
- 3) CONTRACTS ADMINISTRATION - this chart comes close to defining the classic model of construction project management. The IE suggests that this chart be updated to reflect changes made to the project management structure. The IE also suggests that the empty boxes be filled or deleted and that "BRODIE" be moved under YG to reflect its position as an agent of YG but not an implementer in the same sense as the other contractors.
- 4) PURCHASING & EXPEDITING - no specific observation.
- 5) QUALITY CONTROL - consistent with the "Stakeholder Analysis" and the IE's understanding of contractor responsibilities all contractors should be shown feeding into SRK with SRK responsible to Merit.
- 6) PROJECT SAFETY & SECURITY - no specific observation.
- 7) CONSTRUCTION RECEIVING & WAREHOUSING - no specific observation.

- 8) ENGINEERING - consistent with the "Stakeholder Analysis" and the IE's understanding of contractor responsibilities all contractors should be shown feeding into SRK with SRK responsible to Merit.

2.1.4 OTHER DOCUMENTS IN CONTRACTOR DOCUMENTS

The remaining documents in the Contractor Documents package are all useful and reflect good planning.

2.2 CONTRACT SPECIFICATIONS/ADDENDA

2.2.1 CONTRACT DOCUMENTS

The IE has a copy of Contract #C00004265 entitled "Grum Sulphide Cell Cover Construction, Faro Mine Complex, Yukon". The contract is comprised of:

- Articles of Agreement
- Supplementary Conditions (SGC)
 - Appendix A - Terms of Payment
 - Appendix B - Yukon Business Incentive Policy
- General Conditions (GC)
- Technical Specifications (Spec)
- Tender Form and Tender Schedules
- Post tender Meeting Minutes between YG and Pelly Construction Ltd.
- A set of 14 Design Drawings issued "For Construction"

The Contract Documents are generally consistent with what the IE would expect for a project of this scope. The IE offers the following observations:

- 1) The Owner has a more prominent role than we would consider typical and has specific responsibilities to direct and approve throughout the Technical Specifications. These responsibilities require technical expertise to address.
- 2) The Contractor is directed to specific locations on site for "Waste Rock (sulphidic)" and "Waste Rock ("geochemically clean")" without a testing

requirement. We presume then that the design contains adequate characterization of these materials to support this direction to the Contractor.

- 3) Quality Control is not specified and is left up to the Contractor to propose and the Owner to approve in a "QC Program" (spec 1.1.9-1c).

2.2.2 SCHEDULE

The "Contractor Documents" package contains a schedule dated May 28, 2010. Important milestone dates on that schedule are:

- June 2, 2010 - Mobilization
- June 22, 201 - Begin Earthworks
- October 27, 2010 - Begin Revegetation (Earth works would have to be complete to complete Revegetation)
- November 5, 2010 - Demobilize

The IE has received an updated schedule dated September 30, 2010. Minor changes are presented in the September 30, 2010 schedule. Changes to the milestone dates are Earth Works commencing on June 22, 2010 and Demobilization completes on October 31, 2010. SGC 7.8.1.1.1, Construction Schedules, requires the Contractor to provide an updated schedule with each request for payment or at the request of the Owner. The IE assumes that the Contractor has complied with this provision of the Contract but the IE has not seen a revised schedule with the three payment applications approved by YG. Based on the IE's review of material available to the IE and the September 22, 2010 witnessing of progress the following observations on schedule are offered:

- 1) Completion reasonably close to schedule appears to be achievable subject to the usual caveats for unreasonable bad weather.
- 2) The IE continues to believe that a contingency plan to stabilize the works for the winter in case of an early freeze out would have been a worthwhile exercise.
- 3) Conditions that would require implementation of a contingency plan should be discussed and agreed to in advance so that the contingency trigger will be clear to all implementing stakeholders.

2.2.3 TERMS OF PAYMENT

Payment terms are defined in Appendix A of the Supplementary General Conditions. The payment terms are consistent with what the IE would expect for a contract of this nature. The IE received copies of three progress payment claims before preparing the August Progress Report. The progress payment claims are discussed in the context of progress in Section 4.1 of the August report. The IE remains unaware of the status of the statutory declarations required by SGC Appendix A 4.5 and cannot confirm that they have been received or whether or not the declarations comply with the contract.

The IE did not get access to any other progress payment claims.

2.2.4 PROJECT CONTROL SYSTEMS

The project control system is defined by the "Reporting and Communications" charts described in Section 2.1.3 above. Project control relies on the timely performance of duties by the Owner, Merit, the Project Manager and SRK, the designer and Quality Control specialist. Other contractors involved provide support to these primary implementing stakeholders.

The IE has provided observations on project controls in the context of the Project Management Structure above. The IE understands that the management structure has been refined and consequently the IE will not offer additional observations until it has reviewed the revised Project Management Structure. A field observation, presented in Section 3.2 below, also relates to project control.

3.0 CONSTRUCTION REVIEW

3.1 SUBMITTALS

Contractor Submittals are defined in SGC 19. Thirty-four submittals are listed. The IE compiled a list of submittals from the Technical Specifications. The IE's list generally agrees with the SGC 19 list. The IE list is presented on Table 3.1. Table 3.1 includes the Contract Reference where the submittal is required, a cross reference to relevant or referenced Contract References and a cross reference to the SGC 19 submittal list number. The SGC submittal list number is simply the order in which the submittal appears in the SGC 19 list. Table 3.1 also presents a summary of the submittal status that reflects the IE's knowledge of the submittal. Many of the submittals require approval by the Owner. The IE has no knowledge of the Owner approval status at this time but will attempt to determine when the key submittals were approved.

Several submittals were combined into a single Pre-Construction Submittal by the Contractor. Pre-Constructions Submittals Part 1 (undated) includes the following listed submittals:

- Operations Plan - SGC7.8.2.3, SGC 19 item number 5
- Final Subcontractors List - SGC11.4, SGC 19 item number 6
- AYFN Subcontractor beneficiary status - SGC13.1, SGC 19 item number 7
- Dust Sediment and Surface Water Control Plan - Spec 1.1.7, SGC 19 item numbers 10 and 11
- Quality Control Plan - Spec 1.1.9.1.c, SGC 19 item number 12
- Mobilization Plan - Spec 2.1.3, SGC 19 item number 13
- Site Preparation Plan - Spec 3.1.3, SGC 19 item number 14

Pre-Construction Submittals Part 2 (undated) appears to be a response to questions from SRK.

Even with the additional detail requested by SRK the plans are of poor quality and are more in the nature of a pledge than a plan. Of particular concern are the QC Program required by Spec 1.1.9.1.c. and the total absence of detail on how the objectives of Spec 7.2.5 will be achieved. Specifically the IE would have expected to see the following addressed in a QC Plan:

- Spec 6.3.1 - How will the Contractor ensure that loads of Waste Rock (sulphidic) and Waste Rock (geochemically clean) arrive at the correct destination?
- Spec 6.3.2.1.b - How will the Contractor identify and remove material >1 m diameter from waste rock? How will the Owner confirm?
- Spec 6.4.1.3 - How is "unsuitable" material defined?
- Spec 6.4.2.1 - How will samples of till be collected and tested to confirm compliance with Table 6.1?
- Spec 6.4.2.2 - How will Contractor confirm that boulders > 300 mm in diameter are excluded?
- Spec 6.5.1.3 - What testing is proposed for alternate waste rock sources?
- Spec 6.5.2 - What testing is proposed to confirm that Select Waste Rock meets gradation requirement?
- Spec 6.6.2 - What testing is proposed to confirm that Rip Rap meets gradation requirement?
- Spec 7.2.1.2 - How will contractor demonstrate completion of sufficient compaction runs over a defined area?
- Spec 7.2.1.5 - How and when will the three compaction trials be completed? Where are the results? Has YG approved the compaction trials?
- Spec 7.2.2.2 - How will foundation condition be tested to demonstrate compliance with liner installer specification? How will result be recorded?
- Spec 7.2.2.4 and 7.2.2.9.e - How will material thickness be confirmed?

Many of these questions were answered in the field on September 22, 2010; however, they remain items of concern that should have been clearly defined in a Construction Quality Control Plan.

3.2 FIELD OBSERVATIONS

The IE was present at the Grum Sulphide Cell construction area on September 22, 2010. YG provided access to the entire Grum Sulphide Cell construction area. The IE's observations from the field are as follows:

- 1) The field leadership issue that was identified during the August 4, 2010 IE field event appeared to be resolved and it was clear that Merit was taking a leadership role.

- 2) There was considerable discussion about the quality of the subgrade preparation. The prepared subgrade visible on August 4 did not look acceptable to the IE but the final acceptance will be up the Liner Installer. On September 22, 2010 it was clear that changes had been made and the subgrade appeared to be in much better condition and was acceptable to the liner installer.
- 3) The Contractor appeared to making effective use of his resources.
- 4) It was not clear how compaction was being measured and accepted. The IE is still unclear on this but expects that QC records will document the number of passes and relationship to test pads.
- 5) The liner contractor was making rapid progress.

3.3 CONTRACTOR PROGRESS CLAIMS

The IE has received three YG approved payment applications from Pelly for work completed related to the Grum Sulphide Cover construction. Pelly is the successful bidder on the Grum Sulphide Cover construction. The dates on the three payment applications are as follows:

- June 20, 2010
- July 20, 2010
- August 20, 2010

The IE believes that each payment application includes all work completed by Pelly up to and including the identified date. A discussion of the payment applications was included in Section 4.2 of the August Progress Report.

3.4 CHANGE ORDERS

The IE is aware of two change orders related to the Grum Sulphide Cell Cover as of September 30, 2010.

The first change order is identified as CO/EW# 20100706001 dated June 7, 2010 and defines a minor specification change for geosynthetic liner material; this change order is fully executed.

The second change order is identified as CO/EW# 2 dated August 18, 2010 and defines a material quantity reduction for geomembrane liner; this change order has not been executed.

3.5 QA/QC

There are several Quality Assurance/Quality Control items to address during the course of the Grum Sulphide cover construction. The items include:

- Particle size of various local fill material
- Compaction
- Grade
- Material source and disposition
- HDPE liner manufacturer testing
- Resin producer product data
- Liner weld testing (destructive and non-destructive)

The IE understands that Merit has a complete record of QC and QA testing.

3.6 HEALTH AND SAFETY

The IE has reviewed the Pelly Safety Policy Document. The document contains general procedures for a variety of operations Pelly will undertake as a part of the Grum Sulphide Cover construction. However, the safety policy does not appear to have been tailored to any site specific hazards present at the Faro Mine Site. As presented, the Health and Safety Plan is weak and lacks important site specific detail such as individual task hazard assessments.

4.0 IE REVIEW

4.1 CONTRACTOR PROGRESS VERSES PAYMENT

The IE has not received any progress payment claims since the August Progress report was prepared. Comments on the first three progress claims are presented in Section 4.1 of the August Progress report.

4.2 SCHEDULE PERFORMANCE REVIEW

This review relates cost claim to schedule. As there is no new cost claim data a review has not been completed.

4.3 QA/QC ANALYSIS

The IE has only second hand knowledge of most QA/QC testing. The IE will discuss getting access to QA/QC in a manner that results in the least effort for all parties with YG. The IE will then report its QA/QC findings in a project wrap up report.

5.0 SUMMARY

The following items summarize the IE observations to date:

- Management systems are in place and functioning for the Grum Sulphide construction. Modifications to the management structure to establish clear lines of authority were made the construction management structure more robust but the IE has not seen any documentation of the changes that were made.
- The submittals required of the contractor Pelly identified in the contract were of limited detail and consequently of limited use. The absence of a thoughtful QC Plan is of particular concern. The IE believes that the absence of a well designed plan was a contributing factor to the delay that occurred as a result of till placement methods during the week ending September 18 and the liner blowouts that occurred due to high winds during the week ending October 2, 2010.
- The construction of the Grum Sulphide Cover appears to be on schedule as of September 30, 2010.
- The IE is unable to make significant observations about work quality. Not having documented quality is the biggest concern that the IE has at this stage of progress.
- The IE's experience is that contractors in general do not put enough effort into developing published plans that communicate their intentions to the customer. The Pelly plans are among the poorest quality that the IE has experienced in North America. The IE recommends that a strategy be developed to overcome the poor quality plans. The development and review of such plans forces all parties to think through the details in advance of experiencing a problem. Well defined plans also give the field management staff (Designer, Engineer, Owners Representative) an objective reason for correcting the contractor. Some suggestions for consideration are as follows:
 - Have the designer specify QC sampling, testing and reporting
 - Include a lump sum price at a specified dollar value as a pay item for the contractor, the contractor cannot claim the item until the plan is accepted, fixing the price removes the item from price competition and prevents the contractor from undervaluing the planning process
 - Make sure the schedule includes adequate time for the development, review and revision of implementation plans

TABLE 3.1

**GRUM SULPHIDE CELL COVER CONSTRUCTION
SUBMITTALS IN ORDER REQUIRED
GRUM SULPHIDE COVER
IE PROGRESS REPORT
FARO MINE SITE
FARO, YUKON**

| <i>Submittal</i> | <i>Contract Reference</i> | <i>Additional Reference</i> | <i>SGC 19 Number</i> | <i>Status</i> |
|---|---------------------------|--------------------------------------|----------------------|---|
| SUBMITTALS WITH BID | | | | |
| Membrane Manufacturers Spec | 8.2-1a | | | Specifications for membrane Properties are included in membrane QA/QC reports - pdf files 207295 through 207299 |
| Membrane installers list of completed projects, resume of field supervisor, QC program approved by manufacturer, prelim deployment plan | 8.2-2a | | | Mftr's generic QC Program dated 2002 |
| SUBMITTALS AFTER AWARD | | | | |
| Mobilization Plan (14day) | Spec 2.1.3 | | 13 | Included in Operations Plan, need to check completeness |
| including | | | | |
| Shipping Schedule | Spec 2.1.3-1a | Spec 1.1.12-1 | 13 | |
| Layout Drawings | Spec 2.1.3-1b | Spec 2.1.2-2a, 3.1.3-1b | 13 | Figure 1 of Operations Plan |
| Contractor HASP | Spec 2.1.3-1c | Spec 1.1.6, 4.1.4-1c | 13 | Safety Policy dated December 2, 2009 - Generic program not specific to Faro Project |
| Accommodation Plan | Spec 2.1.3-1d | Spec 2.1.2-3 | 13 | |
| Fuel Management Plan | Spec 2.1.3-1e | Spec 2.1.3-1b, 4.1.4-1c | 13 | Storage Tank System permit dated 2010 06 25 |
| Site Preparation Plan (14day) | Spec 3.1.3 | | 14 | Included in Operations Plan, need to check completeness |
| including | | | | |
| Typical equipment deployment | Spec 3.1.3-1a | Spec 2.1.2-2a, 4.1.4-1a, 5.1.4-1a | 14 | Not included in Pelly Operations Plan |
| Work Schedule | Spec 3.1.3-1b | Spec 2.1.3-1a, 4.1.4-1b | 14 | 7 days a week up to 12 hour shifts per day (Operations Plan) |
| All permits | Spec 3.1.3-1c | Spec 3.1.2-1a | 14 | |
| List of Subcontractors (10day) | SGC11.4 | | 6 | Included in Part 1 of Operations Plan |
| AYFN Participation Plan (10day) | SGC13.1 | SGC13.6 | 7 | Included in Operations Plan, need to check completeness |

TABLE 3.1

**GRUM SULPHIDE CELL COVER CONSTRUCTION
SUBMITTALS IN ORDER REQUIRED
GRUM SULPHIDE COVER
IE PROGRESS REPORT
FARO MINE SITE
FARO, YUKON**

| <i>Submittal</i> | <i>Contract Reference</i> | <i>Additional Reference</i> | <i>SGC 19 Number</i> | <i>Status</i> |
|---|----------------------------|-----------------------------|----------------------|--|
| Performance Bond (21day) | SGC14.1 | | | Copy Received |
| Lab&Matl Payment Bond (21day) | SGC14.1 | | 2 | Copy Received |
| Certificate of Insurance | SGC15.3.3 | | | Copy Received |
| SUBMITTALS BEFORE MOB OR DELIVERY OF MATERIALS | | | | |
| Construction Schedule | Spec 1.1.12, SGC7.8.1-1 | Spec 2.1.3-1a | 3 | Version dated 2010 06 25 |
| Operations Plan: | SGC7.8.1.3 | | 5 | Main component of Pre-construction Submittal Part 1 |
| Letter of Compliance YK WCB H and S | GC45.3 | | 8 | Not sure if June 18, 2010 letter included qualifies as this Part 1 of Pre-construction submittals indicates Pelly has requested additional information from YWCHSB |
| SUBMITTALS BEFORE WORK | | | | |
| Health and Safety Plan (14day) | 1.1.6-1b | SGC8.6 | 9 | Did not find - Safety Policy dated December 2, 2009 - Generic program not specific to Faro Project |
| Dust, Sediment, SW Control Plan (14day) | 1.1.7 | | | Not Identified by IE |
| including | | | | |
| Detailed dust, sediment & SW Control Plan | 1.1.7-6a | | 10 | Operations Plan says see Operations Plan, no plan found |
| Detailed Construction and Contingency Runoff Plan | 1.1.7-6b | | 11 | Not Identified by IE |
| QC Program (14day) | 1.1.9-1c | | 12 | Operations Plan and Geomembrane Supplier Generic QA/QC Program for Liner installation |

TABLE 3.1

**GRUM SULPHIDE CELL COVER CONSTRUCTION
SUBMITTALS IN ORDER REQUIRED
GRUM SULPHIDE COVER
IE PROGRESS REPORT
FARO MINE SITE
FARO, YUKON**

| <i>Submittal</i> | <i>Contract Reference</i> | <i>Additional Reference</i> | <i>SGC 19 Number</i> | <i>Status</i> |
|---|---------------------------|-----------------------------|----------------------|---|
| Resin supplier QC certificates and manufacturers QA/QC testing certificates | 8.2-1b | 8.3-1 | 15 &16 | Received QA/QC for 90 rolls of Geomembrane (104 468.4 square meters) resin lots are C100520L01, C100520L03,C100519L03. All resin lots satisfy specifications. QA/QC of geomembrane received for 90 rolls. All rolls satisfy specification |
| Calibration cert for all equipment, panel layout, ballast plan.(14day) | 8.2-2b | SGC7.8.1.2 | 4&17&18 &26 | Calibration data received for Tensile Tester is dated 01/19/2010. August 4, 2010 Letter from Western Tank and Liner to Pelly. Sketch includes liner deployment. Installation anticipates backfilling of one meter till cover after placement identifies up to 30,000 sand bags will be available to ballast but no information on placement |
| Geotextile Manufacturers inspection, certification and install instruction (14day) | 9.1.3-1 | | 19 | Western Tank and Liners Quality Control Manual for HDPE membrane Installations dated March 2002 |
| Notify owner of intended methods of Revegetation with details (7day) | 11.1.4-1 | | 20 | |
| Shipping bill (assume seed, 1 day) | 11.1.4-2 | | 21 | |

DAILY SUBMITTALS

| | | | | |
|--|--------------|----------|----|----------------------|
| Geomembrane Progress Report | 8.2-2b | 8.4.5-av | | Not identified by IE |
| Daily Revegetation Progress Reports | 11.1.4-3 | | 27 | Not identified by IE |
| Daily Progress Reports | SGC7.8.2.1.1 | | 22 | Not identified by IE |

MONTHLY SUBMITTALS

| | | | | |
|----------------|--|--|--|--|
| Invoice | | | | Received Payment Claims dated June 20, 2010, July 20, 2010 and August 20, 2010 |
|----------------|--|--|--|--|

TABLE 3.1

**GRUM SULPHIDE CELL COVER CONSTRUCTION
SUBMITTALS IN ORDER REQUIRED
GRUM SULPHIDE COVER
IE PROGRESS REPORT
FARO MINE SITE
FARO, YUKON**

| <i>Submittal</i> | <i>Contract Reference</i> | <i>Additional Reference</i> | <i>SGC 19 Number</i> | <i>Status</i> |
|---|---------------------------|-----------------------------|----------------------|---|
| Construction Schedules updates | SGC7.8.1-1 | | 24 | No Schedule in July SRK report. |
| Progress Reports - Monthly | SGC7.8.2.2 | | 23 | Received July plus weekly to mid August |
| Statutory Declaration | SGC-A.TP4.6 | | | |
| CLOSE OUT SUBMITTALS | | | | |
| All Fill QC Data at end of project and on Owner Request | 7.1.3-4 | 1.1.9-1c | 32 | Not identified by IE |
| Written warranty for Geomembrane | 8.2-2c | | 33 | |
| Geotextile Contractor as built report, certification and warranty | 9.1.3-2 | | 34 | |
| Pre-final Inspec Notice (Substantial Completion) | SGC7.8.3.1 | SGC-A.TP4.9 | 28 | |
| Final Inspection Notice (Total Completion) | SGC7.8.3.2 | SGC-A.TP4.12 | 29 | |
| Close-out Reporting (before final pay released) | SGC7.8.3.3 | | 30 | |
| Letter of Compliance YK WCB H and S (on completion) | GC45.3 | | 31 | |
| SUBMITTALS THAT DO NOT HAVE A DEFINED SCHEDULE | | | | |
| Change Orders | 1.1.11-1 | | | Not identified by IE |
| Complete and accurate survey submitted on owners request | 1.1.14-1 | | | Topographic surfaces evaluated by SRK in July 2010 monthly report. Clean Waste Rock Survey from Pelly dated June 24, 2010 |

TABLE 3.1

**GRUM SULPHIDE CELL COVER CONSTRUCTION
SUBMITTALS IN ORDER REQUIRED
GRUM SULPHIDE COVER
IE PROGRESS REPORT
FARO MINE SITE
FARO, YUKON**

| <i>Submittal</i> | <i>Contract Reference</i> | <i>Additional Reference</i> | <i>SGC 19 Number</i> | <i>Status</i> |
|--|------------------------------|-----------------------------|----------------------|---|
| Complete list of plants, equipment, tools, supplies and material required | 2.1.2-2a | 2.1.3-1b, 3.1.3-1b | | Listing of major equipment in Operations Plan |
| Geomembrane Shipping Manifest and spec sheet | 8.4.1-a | | | Packing slips received for all 90 rolls that QA/QC data has been received for |
| Proof of Appropriate Business License | SGC1.2.2 | | | PCL 2010-3337 Appropriate? Accepted? |
| Statutory Declaration-Substantial Performance | SGC-A.TP4.9 | | | |
| Statutory Declaration-Total Performance | SGC-A.TP4.12 | | | |
| Name of superintendent | GC18.2 | | | SRK Weekly Report 1 identifies Gunnar Slack, Pelly as the Site Manager and Dan Russel, Pelly as the Project Manager |
| Formal definition of extreme weather | Q29 from Post tender Meeting | | | Not identified by IE |

APPENDIX A

JUNE 15, 2010 MEMORANDUM TITLED INDEPENDENT ENGINEER SCOPE OF WORK
RELATED TO GRUM SULPHIDE CELL COVER CONSTRUCTION

MEMORANDUM

TO: Joanna Ankersmit, Stephen Mead

REF. NO.: 047006

FROM: Michael Nahir/avn/4

DATE: June 15, 2010

RE: **Independent Engineer Scope of Work Related to Grum Sulphide Cell Cover Construction**

INTRODUCTION

Covering of the Grum Sulphide Cell is being completed as an early remediation task in advance of final reclamation actions at the Faro Mine Site near Faro, Yukon Territory. The Independent Engineer, Conestoga-Rovers & Associates (CRA), is to conduct the activities described in this Scope of Services Memorandum to ensure that value purchased through the construction agreement is delivered to INAC and YG. When authorized, the work proposed will be conducted in accordance with the terms of Standing Offer EW 699-09-0897. This is a summary scope derived from the Independent Engineer Operations Manual, Final Draft, dated 2009 12 03.

Alan Van Norman as the lead IE will be under contract to PWGSC Edmonton and report functionally to Michael Nahir, INAC and Deborah Pitt, YG. The emphasis will be a common sense, high level quality assurance review focused on significant items that may affect the project quality, cost and schedule.

IE EXECUTION

Draft monthly reports will be directed to the INAC Project Sponsor and YG Project Lead. This will be followed by a meeting with the INAC and YG project team to discuss progress and clarify information where after the final monthly report will be issued. Following completion and final payments a final report will be issued which will include summary of monthly reports and any recommendations. There will be an opportunity for the IE to participate in a lessons learned exercise as part of the project post-mortem.

It is agreed that the reports are for purposes of information and not tied to certification for payment.

TASK LISTING

Task 1 – Review Project Structure, Contract Specifications and Addenda

The IE will undertake the following reviews:

- Review overall project delivery system
- Review that construction management, monitoring and reporting systems are in place and functional
- Review contract documents, schedule and terms of payment and project control systems

Task 2 – Verify In Progress Construction

The IE will undertake the following:

- Review contractor progress claims to confirm consistency with contract terms and actual progress
- Review change orders to confirm consistency with contract terms and project objectives
- Witness representative field measurements made in support of contract payment terms
- Witness representative quality control sample collection
- Confirm that quality assurance samples are collected, tested and compared to quality control results
- Assess compliance with Health and Safety Plan (for information only)

Task 3 – Evaluation and Reporting

The IE will evaluate construction implementation data and report monthly to INAC and YG on the following:

- Overall compliance with project objectives
- Consistency between progress and contractor payment
- Expected cost to complete
- Schedule performance and anticipated completion
- Quality control and quality assurance results

Task 4 – Meetings

The IE anticipates that progress meetings will be required monthly to facilitate discussion of the IE's observations and plan for next steps.

Schedule

Task 1 will be completed within 2 weeks of receiving the contract drawings, the contract and any addenda that form part of the contract. The IE has the project specifications.

Task 2 will be initiated following completion of Task 1.

Task 3 and 4 will be completed consistent with construction progress.