

# OIL SANDS PILOT PLANT LOGISTICS

## PROJECT MANAGEMENT - LOGISTICAL EXPERTISE

SGS is aware that successful pilot plant solutions can have a significant positive impact on your commercial process and investment decisions. SGS brings over 65 years of experience in pilot plant operations to every pilot project we do. We are global technical leaders in this field and continually strive to provide the necessary discipline and methodologies to achieve success with the pilot plant process. At SGS, we have learned that the key to successful pilot plant campaigning is the application of rigorous project management protocols, a skilled project manager and knowledgeable operators with experience in the oil sands industry.

The success of your pilot campaign is clear when we have achieved the desired technical result within the scoped time and budget. To achieve this, it is critical that the project manager focuses on project and technical management aspects of the project, utilizing a team approach to the task. SGS brings a well established methodology to the operation of pilot plants worldwide, including experience within the Canadian oil sands industry. Partner with SGS and let the world's leading inspection, verification, testing and certification company successfully operate and manage your oil sands pilot project.

### PREPLANNING AND PREWORK

Pilot plants are complex operations and demand a strong team approach. SGS will establish an experienced pilot plant team that typically includes a:

- Project manager.
- Technical manager.
- Specific area technical leader.
- Data handler.
- Health and safety (HSE) consultant.
- Financial support person.

Early in the planning stages of your project, we will discuss your project timing, anticipated project scope and financial requirements. This allows SGS to develop the pilot program that best suits your needs within budgetary constraints. Discussion and consultation will then continue throughout start-up, commissioning and operation, ensuring that you are well informed throughout the project life cycle.

### HEALTH, SAFETY AND ENVIRONMENT

The preplanning stage is where we create a detailed flowsheet, material balance and pilot plant support requirements plan. SGS normally engages in a project Hazards and Operability Analysis (HAZOP) for the project, and creates Standard Operating Procedures (SOP's) to ensure safety for all those involved. All visitors to our site are bound by our health and safety policies, including clients or their representatives such as consultants, engineering firms and contractors. Additionally SGS undertakes the following procedures to minimize human and environmental risks and to maximize the potential for pilot plant success:

- Project team training sessions before project initiation.
- HAZOP information and training sessions.
- Tailings and samples storage protocols defined and programmed, and
- Detailed operator schedule drawn up that includes the establishment of clear operator responsibilities.

### Pilot Plant Support

The objective of your pilot plant testing is to examine ways to improve recoveries, process efficiencies, process costs, product quality and product handling characteristics or to establish confidence for financiers, shareholders, managers or other key stakeholders in the project. Accordingly SGS understands that pilot

plant support is crucial in the success of the project. We will undertake extensive preparations in the support of your project including:

- Determining and implementing expert systems and process control needs (scheduling, logistics, asset management, and calibration).
- Labeling sample points, process hoses, process pipes, skids and drums.
- Sourcing, maintenance and testing of all equipment including diagnostics and calibrations.
- Specialty trades sourced if needed
- Employing site and plant security arrangements completed including:
  - Access coded as appropriate
  - Security level investigated and implemented
  - Requirements for product security determined and implemented.
- The alerting of laboratory facilities (analytical, mineralogy and environmental) that may include.
  - Turnarounds and methods needs reviewed and assessed
  - Arrangements made for priority servicing
  - New methods developed and validated if needed.
- Creating a comprehensive floor plan to accommodate all activities of the plant.

### Recording and Reporting

The recording of pilot plant analytical data needs to be consistent and accurate throughout the life of your project.

SGS is a global technical leader and has decades of experience producing accurate, repeatable laboratory analysis for clients worldwide. We will produce detailed templates for plant activities and measurements prior to project initiation including:

- Detailed sampling and assaying plans.
- Series of spreadsheets, tables and graphs pre-established, printed and laminated before plant operations. These will be used to enter and record measurement and lab data, track activities, monitor and sign-off key operational points.
- Templates for data entry created, samples predefined, and containers bar-coded to minimize error and speed activity.

Just prior to your project start-up, SGS will hold a project kick-off meeting with you, your contractors and our staff to brief all on the upcoming plant. We believe the start-up of your pilot plant is substantive milestone towards optimizing your process efficiencies and minimizing the substantial financial risk associated with work in the oil sands. Trust SGS as your technical expert and put our 65 years of successful pilot plant experience to work for you.

### ONGOING PILOT PLANT OPERATIONS

The key to the success of your pilot plant operation is the application of key project management skills and methodologies that ensure that a pilot plant is run well and achieves technical targets on budget and on-time. A pilot plant provides the flexibility to permit you a range of tests at

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a scale that is transferable to a full-scale process plant. To do so successfully, SGS maintains strict ISO and ASTM control standards on all processes and reporting requirements. We maintain:

- A detailed operator schedule with clear operator responsibilities established.
- Routine client meetings during the pilot plant operation to review pilot plant performance and make key strategic decisions.
- Regular data reports during the pilot plant operation to enable an assessment of the technical status of the project.
- A focus on key assaying/PSD information turnaround in less than 24 hours so that key control decisions can be made.

The analytical results from a well operated pilot plant mitigate project technical risks and help to optimize project efficiencies. SGS will ensure that your pilot plant project operates efficiently and accurately providing you with the data you need to make informed financial and operational decisions. As your technical experts we will ensure your pilot plant operates as planned, within budget, and provides you with the analytical answers you need.

### DELIVERABLES

At the completion of the pilot plant operation, there is a team focus on completing and reporting all data quickly and accurately, allowing you to make informed operational decisions. Our goal is to present you with a completed final report within 12 weeks of a piloting campaign finish. This report is a rigorous technical document that typically describes:

- Project objective(s)
- Sample description
- Technical description of tests undertaken

- Results achieved
- Analysis of the results achieved
- Description of all complementary test carried out and the results achieved
- Conclusion
- Recommendation

The SGS methodology focuses on project timeliness, and project efficiency (staying on-budget) while achieving desired technical results in a safe and healthy pilot plant. When you need to be sure, depend on SGS to deliver accurate technical solutions for all your pilot plant needs.

### DATA SECURITY

#### Implementation

At SGS we take the security of your confidential data seriously and all SGS data applications are implemented using 3 levels of security. The first method addresses communication security. The SSL protocol (Security Socket Layer) is used for encryption if all communications and transfer of data are via web. The second method is a stringent user authentication protocol. The third method to ensure security of data is the physical architecture of the various servers and databases required to execute access to the data.

#### Trust

SGS has years of experienced operating laboratories and pilot plants where confidential client intellectual property is an issue. Confidentiality is guaranteed, as integrity is a cornerstone of how SGS operates globally. If necessary, highly confidential technology can be operated in isolation from the rest of the plant with controlled access, security cameras and other security protocols as necessary. Partner with SGS when accuracy, dependability and confidentiality matter most. We are your independent technical experts.