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CANADA-NOVA SCOTIA BENEFITS

1998 ANNUAL REPORT

SABLE
OFFSHORE ENERGY
INCORPORATED

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OFFSHORE ENERGY
INCORPORATED

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ENERGY FROM BENEATH THE SEA

March 31, 1999

Mr. J. E. (Jim) Dickey
Chief Executive Officer
Canada-Nova Scotia Offshore Petroleum Board
6th Floor, TD Centre
1791 Barrington Street
Halifax, Nova Scotia B3J 3K9

Dear Mr. Dickey,

Re: Canada-Nova Scotia Benefits 1998 Annual Report

Sable Offshore Energy Incorporated (SOE Inc.) is pleased to submit its Canada-Nova Scotia Benefits 1998 Annual Report.

This report was prepared with input from the various Project departments associated with services, materials and equipment, procurement as well as Alliance contractors, sub-contractors and suppliers.

It has been prepared based on information compiled in accordance with the Canada-Nova Scotia Offshore Petroleum Boards requirements. Due diligence has been exercised in its preparation to ensure materiality and reasonableness.

L.E. (Laurie) Taylor
Canada-Nova Scotia Benefits Manager

Scott G. McDonald
Manager – Regulatory and Commercial

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David Hastings
Business & Shared Services Manager
Chief Financial Officer, SOE Inc.

for David J Hastings
John K. Brannan
President and General Manager

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EXECUTIVE SUMMARY

Sable Offshore Energy Inc.'s 1998 Annual-Canada Nova Scotia Benefits Report (Report) addresses the Sable Offshore Energy Project's (SOEP) Tier I cumulative activities to December 31, 1998 and forward projections.

The Report details commitments and initiatives undertaken by the Project proponents (SOE Inc., Alliance contractors and major sub-contractors) in maximizing benefits from the Project to Nova Scotia and the rest of Canada on a total "Best Value" basis.

Contents of the Report include analysis and assessments of the capability and capacity of suppliers in Nova Scotia in particular, and Canada in general, to meet demands arising from the Project.

Major subjects addressed include:

- Project development plan schedules and implementation activities
- Health, Safety & Environmental, Quality Assurance/Quality Control
- Contracting, Procurement and Supplier Development
- Research & Development, Training & Technology Transfer, Diversity & Inclusion
- Canada-Nova Scotia content to date and projections through development and production

Considering this is the first offshore gas project in Canada, many of the facilities and equipment required are not available in Nova Scotia or in Canada, such as heavy lift vessels, offshore pipe lay barges, drill rigs, and specialised steel/tubular goods/equipment. Nonetheless, regional companies have been successful in areas where subcontract services are required. Local contracting and fabrication companies have successfully participated in the supply of major offshore components and the majority of onshore facilities construction to date.

SOE Inc. is pleased with the increasing levels of participation in the Project shown by the Nova Scotia supply and service sector over the past year. In particular, the sanctioning of the Project at the beginning of the year sparked the interest and awareness of the general Nova Scotia supplier community. The performance of successful local contractors, suppliers and labour have demonstrated Nova Scotia's adept capabilities and have verified the advances being made in Nova Scotia toward achieving the long term goal of establishing a sustainable infrastructure to support the offshore industry.

The fourth quarter saw increased onshore activity at the pipecoating yard in Sheet Harbour, the gas plant in Goldboro, the fractionation facilities (Point Tupper) along with ongoing fabrication of living quarters, North Triumph Deck for offshore, pressure vessels and other components for both onshore and offshore.

The net result of increasing Nova Scotia content during the fourth quarter illustrates the upward progression originally forecast at Project sanction on February 17th, 1998.

As at the end of 1998, the overall total for Tier I facilities work including management, engineering, procurement, ready for operations, and construction has progressed to 60% complete.

Cumulative Project expenditures to the end of 1998 were 981 million dollars. Total actual Nova Scotia content to end of 1998 was 218 million dollars (22%) compared to forecast of 23% for this point in the Project. Employment hours stand at 6.6 million with 41% Nova Scotia content.

The Project is on budget and on schedule to deliver first gas safely in November, 1999.

1.0 Introduction and Project Update

1.1 Introduction

The Canada-Nova Scotia Benefits 1998 Annual Report (the Annual Report) for the Sable Offshore Energy Project (SOEP or the Project) is hereby submitted to the Canada-Nova Scotia Offshore Petroleum Board in accordance with the requirements of the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act,* and the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation (Nova Scotia) Act, (the Accord Acts).*

The Annual Report reflects the provisions of the Canada-Nova Scotia Benefits Plan (the Benefits Plan) submitted by the SOEP proponents to the Board in June 1996 as part of their Development Plan Application. Approval of the Benefits Plan and Development Plan was implemented by the Board on December 30, 1997 subject to certain conditions.

The Annual Report addresses Project Benefits activities to December 31, 1998 and forward projections, as well as the documentation of Canada-Nova Scotia Benefits processes and initiatives to be undertaken during the implementation of the Project.

The Annual Report has been prepared and submitted by Sable Offshore Energy Incorporated (SOE Inc.), a company formed by the SOEP proponents to construct and operate the Project facilities.

1.1.1 Project Development Plan

The Project involves the development of six natural gas fields in the vicinity of Sable Island, off the coast of Nova Scotia. The six fields; Venture, South Venture, Thebaud, North Triumph, Glenelg and Alma (Figure 1), are now estimated to contain greater than 3.5 TCF of recoverable gas reserves, enough to support a sales gas rate in excess of 460 mmscfd. The Project is targeted for production start-up in late 1999 and has a total life span of about 25 years.

SOEP Full Development Plan

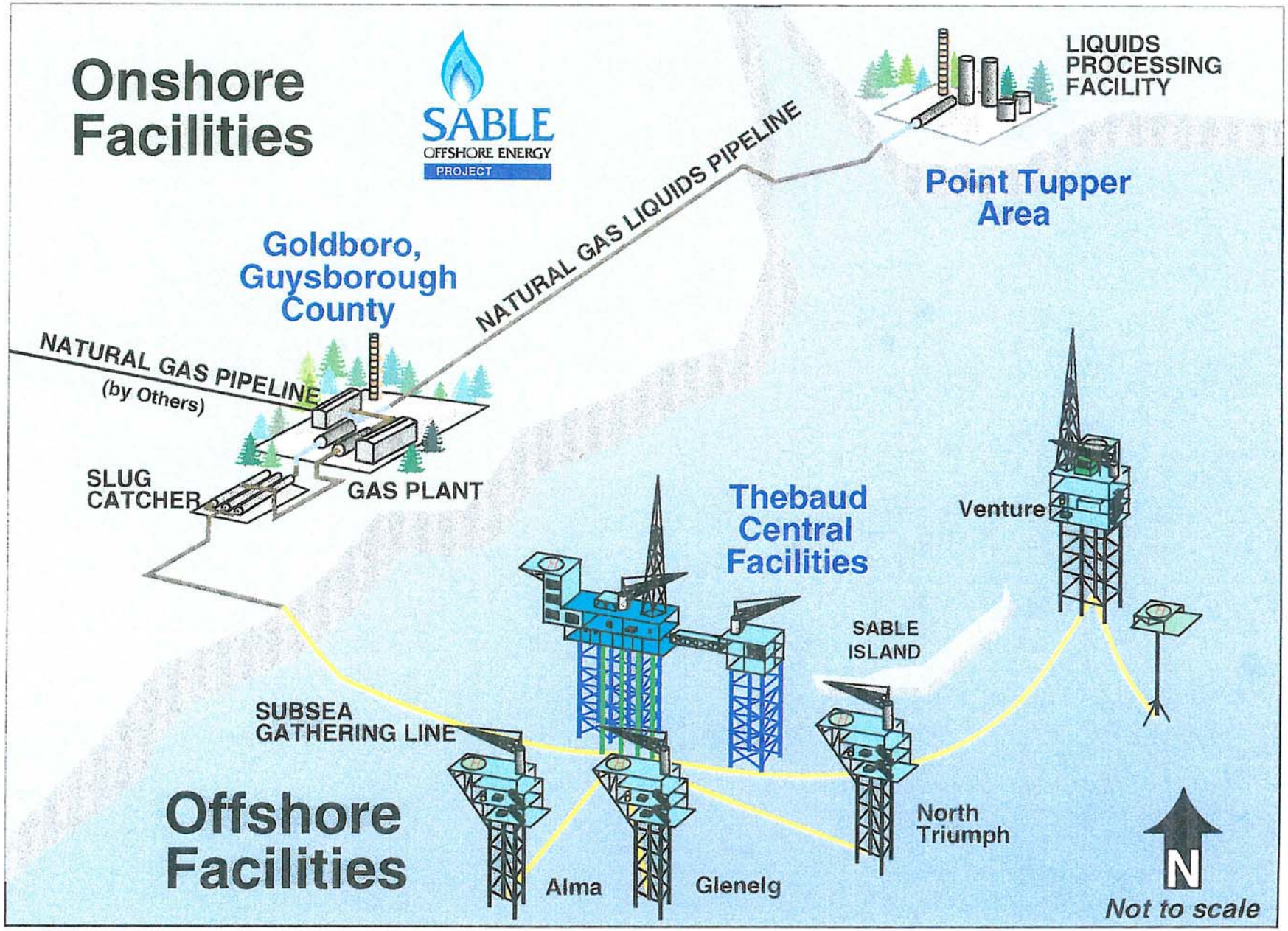


FIGURE 1

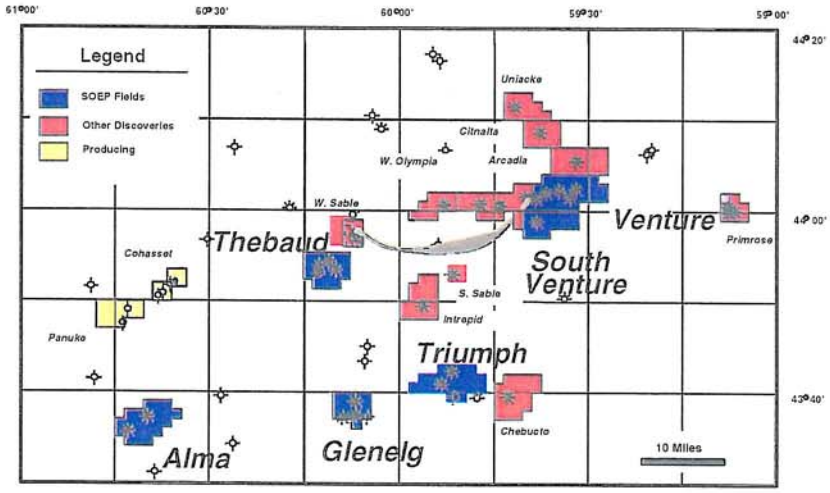


Figure 1

The Development Plan (Figure 2) involves production platforms at each of the six fields. A platform at Thebaud will provide central facilities for gathering, dehydration and future tie-ins for compression of the gas from all the fields. A second platform at this location will provide wellhead facilities for the Thebaud field itself. Hydrocarbons produced at the Venture,South Venture [1] , North Triumph, Glenelg and Alma platforms will be transported through a system of subsea flowlines to the Thebaud platform. After dehydration at the Thebaud platform, the raw gas will be transported through a subsea pipeline to landfall at Goldboro, Nova Scotia, and to a gas processing plant located nearby. There the gas will be conditioned by the removal of natural gas liquids (NGLs) and remaining water to meet high quality sales gas specifications. The sales gas will then be shipped to markets in eastern Canada and the north-eastern United States, through the Maritimes and Northeast Pipeline Project (M&NPP). NGLs and condensate will be transported by pipeline to Point Tupper for final processing.

[1] South Venture, Glenelg and Alma Fields constitute Tier II of the Project; the balance of the overall Project represents Tier I.

1.1.2 Regulatory Process:

The SOEP Development Plan was submitted to relevant regulatory agencies for approval in June 1996. These agencies included the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) and the National Energy Board (NEB). Later an application for a permit to build the (NGL) pipeline was filed with the Nova Scotia Energy and Mineral Resources Conservation Board (EMRCB). Pursuant to an agreement (Agreement for a Joint Public Review of the proposed Sable Gas Projects) signed by the Ministers of Environment for Canada and Nova Scotia, the Ministers of Natural Resources for Canada and Nova Scotia, the Chairman of the NEB and the Acting Chief Executive Officer of the CNSOPB, the SOEP and M&NP applications were the subject of an extensive regulatory process and public hearings. At the end of 1997, the SOEP Proponents received the following approvals to proceed with the implementation of the Project, subject to certain conditions:

- NEB Certificate of Public Convenience & Necessity
- CNSOPB Development Plan Approval
- CNSOPB Benefits Plan Approval
- NSDOE Environment Assessment Approval
- EMRCB Pipeline Permit

Benefits Plan Approval

During 1998 SOEI addressed those Conditions of Approval relevant to the specific project activities. For example, within the CNSOPB Benefits Plan Approval the following Conditions were satisfied:

- Condition 2 (Local Office) - approved September 23, 1998
- Condition 3 (Employment and Training Plan) - approved September 23, 1998
- Condition 4 (Research and Development Plan) - approved September 23, 1998
- Condition 5 (First Consideration for Goods and Services) - approved September 23, 1998
- Condition 6 (Disadvantaged Individuals or Groups) - approved September 23, 1998
- Condition 7 (Technology Transfer) - approved September 23, 1998

Development Plan Approval

The following Conditions of the CNSOPB Development Plan Approval were addressed with the partial submission of information made and recognizing that additional information was needed to fulfil the Condition:

- Condition 17 (Assessment of all Pools)
- Condition 18 (System Deliverability)
- Condition 19 (Commingled Production)
- Condition 20 (Reservoir Management Plan)
- Condition 21 (Low Toxicity Mineral Oil (LTMO) Based Drilling Mud)
- Condition 22 (Production Measurement and Allocation)
- Condition 23 (Pipeline to Shore)
- Condition 24 (Flowlines)
- Condition 26 (Financial Responsibility)
- Condition 27 (Environmental Effects Monitoring)
- Condition 28 (Code of Practice for Sable Island & the Gully)

During 1999 SOE Inc. will be making the further additional submission of information to satisfy the requirements of Conditions 17, 18, 19, 20, 22, 23, 25, 27 and 28.

Regulatory Applications

SOE Inc. also submitted applications to the Board pursuant to section 142 of the Accord Act for the following project activities:

- authorization to install the Venture, Thebaud, and North Triumph wellhead jackets,
- authorization to install the Thebaud process jacket,
- authorization to install the Thebaud to Goldboro subsea gathering line and inter-field flowlines, and
- authorization to drill wells at Venture and Thebaud.

Other Agencies

During 1998, SOE Inc. addressed the Conditions of the NEB, EMRCB and the Nova Scotia Department of the Environment relevant to the construction of the subsea pipeline, the Goldboro Gas Plant, the Point Tupper Fractionation Plant and the Natural Gas Liquids pipeline.

In October 1998, SOE Inc. received detailed route approval for the subsea pipeline from the National Energy Board following a public hearing process conducted by the Board.

SOE Inc. also initiated consultation and where necessary submitted applications, to the following agencies for their approval under various regulations applicable to project activities:

- Department of Fisheries and Oceans (Habitat)
- Environment Canada
- Department of Fisheries and Oceans (Coast Guard Navigable Waters)
- Nova Scotia Department of the Environment
- Nova Scotia Department of Natural Resources

1.1.3. Summary Schedule:

The current SOEP project schedule is presented in summary form in Figure 3. The schedule is focused on achieving first production in the fourth quarter of 1999. Current detailed project schedules are presented as Appendices 1, 2 and 3.

Although the Project encountered significant delays during 1997, largely associated with a longer than expected regulatory process, the Project remains on schedule for first production in late 1999. The production start-up target has been achieved by advancing key Project implementation activities in parallel with the regulatory process.

SOEP Summary Schedule

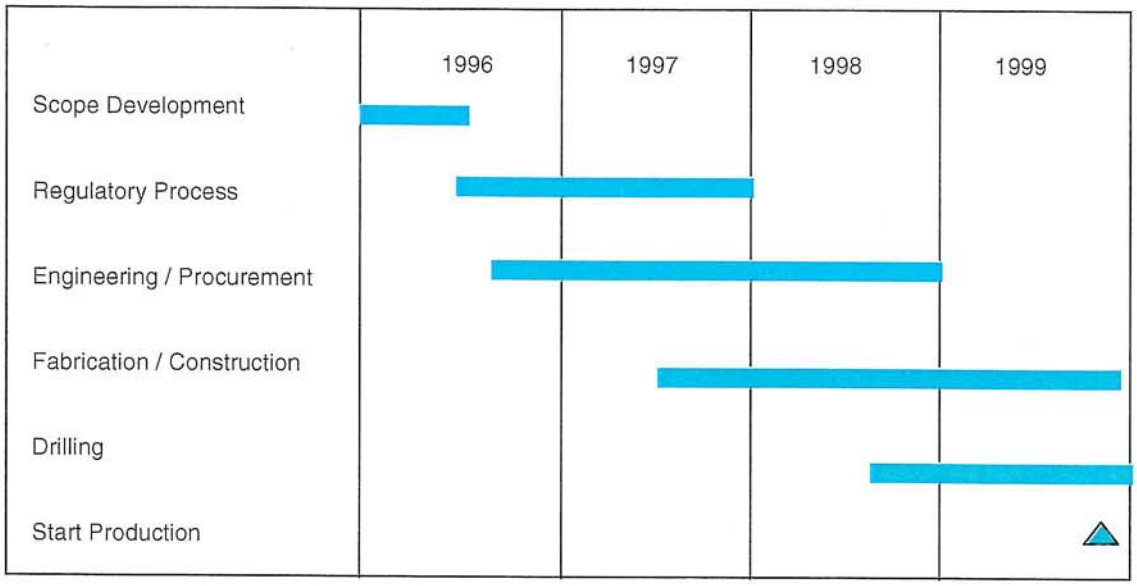


Figure 3

1.2 Project Update

As at the end of December, 1998, overall Tier I of the Project was 60% complete and on target for first gas in November, 1999. The following highlights numerous Project implementation activities that occurred in 1998:

January

- Living Quarters Modules ($16.7 MM) for Thebaud and Venture Topsides awarded to FABCO/CKT, Dartmouth, NS Detailed design being completed at Dartmouth with fabrication scheduled to start the first week of May.
- Sod turning ceremony at Goldboro, NS to mark the announcement that the necessary approvals were in place and construction had begun on the Project.
- Offshore Logistics, a joint venture of several Nova Scotia and other Canadian companies, began refurbishment of the Mobil dock in Dartmouth in preparation for the start of drilling.
- Offshore Environmental Effects Monitoring awarded to Jacques Whitford Environmental, Dartmouth, NS

February

- Owners sanctioned the Project and signed key commercial agreements and the Facilities Alliance Agreement to engineer, construct and install the facilities
- Anti-Corrosion and Concrete Weight Coating of Line Pipe ($45.0 mm) awarded to Shaw & Shaw Limited, Halifax, NS
- Drilling Helicopter Services ($12.0MM) awarded to Canadian Helicopters International
- Deethanizer Tower and Pressure Vessel contracts awarded to MM Industra, Dartmouth

March

- Goldboro Gas Plant earthwork ($3.5MM) awarded to J & T Van Zutphen, Port Hood, NS
- Concrete Batch Plant ($2.0MM) awarded to Ideal Concrete, Port Hood, NS
- Goldboro Wharf Construction ($1.1MM) awarded to Alva Construction, Antigonish, NS
- Early Jackets (Venture & Thebaud) completed at MMI yard in Dartmouth and transported to offshore location by Saipem 7000

April

- Venture and Thebaud Jackets installed by Saipem 7000
- The initial upgrade of the Drilling Support Services dock in Dartmouth completed
- First shipment of Undersea Piping delivered to Shaw & Shaw, Sheet Harbour for coating
- Construction commenced on the Goldboro Wharf in Guysborough

May

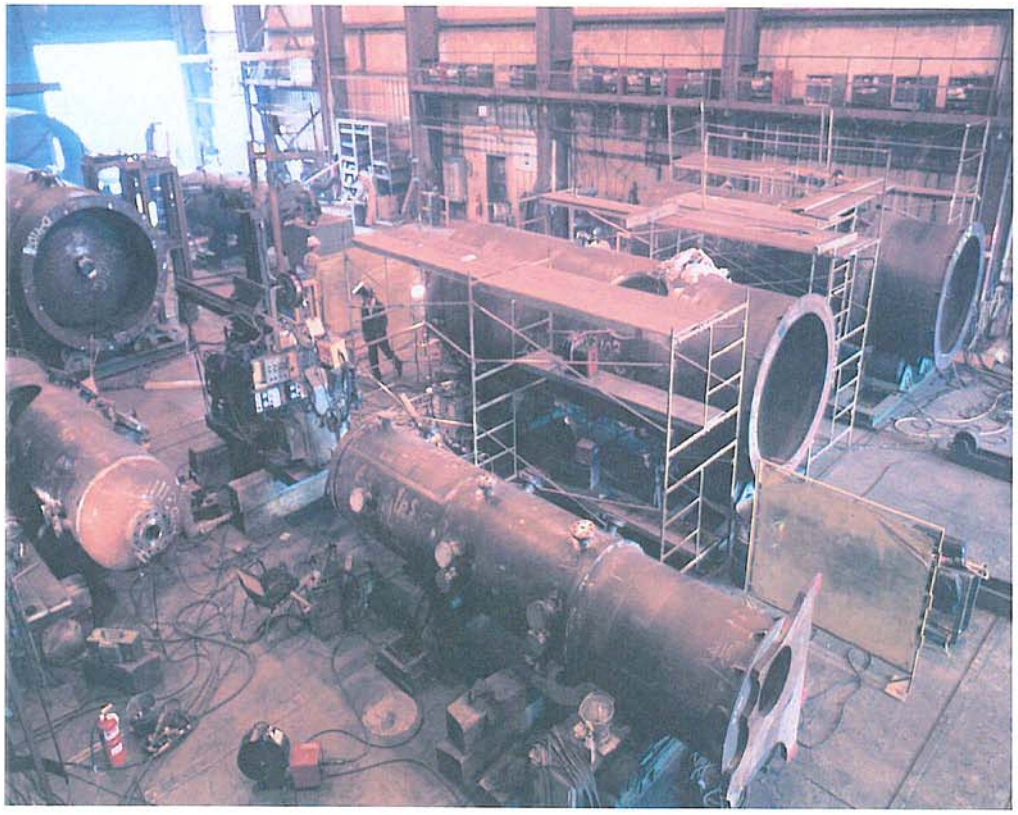
- A statement of intent was signed for the long-term lease of the Fractionation Plant site located in Point Tupper
- Fabrication of the North Triumph Deck at the MMI/Brown & Root site in Dartmouth commenced
- Construction of the Thebaud Living Quarters started at the Fabco/CKT site in Dartmouth

June

- Fabrication of Temporary Work Platform for drilling operations completed by Mulgrave Machine and delivered to Venture Field
- Rowan Gorilla II left Halifax for the Venture field to begin the drilling of five production wells
- Site security was established for the onshore facilities

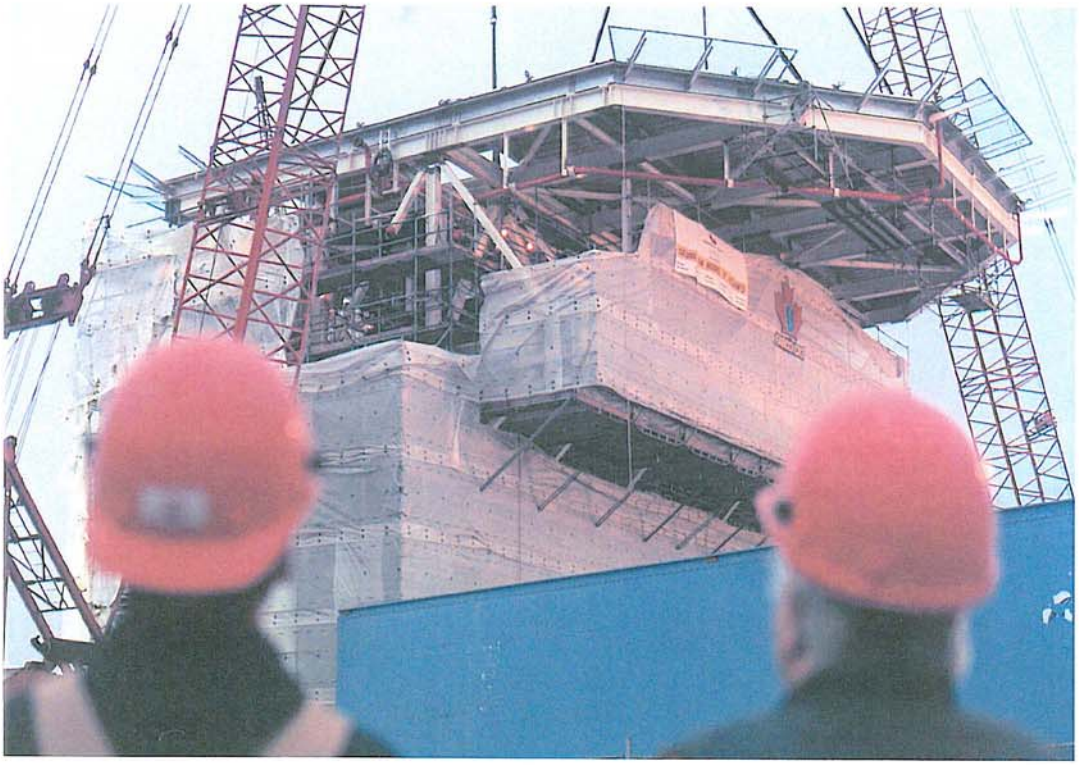
Deethanizer offloading at Goldboro Wharf.

Deethanizer Tower and Pressure Vessels being installed at the Gas Plant in Goldboro.



Pressure vessel fabrication - MMI /Dartmouth

Loading produced water package and pressure vessels fabricated in Dartmouth for Teeside UK-Thebaud Process Deck components.



Placing helo deck on Living Quarters module. Fabco/CKT yard - Dartmouth.

Pipe fabrication A.B. Mechanical - Louisdale, N.S.

Offloading pipe at Shaw & Shaw, Sheet Harbour, N.S.

Pipe yard and coating plant, Shaw & Shaw, Sheet Harbbour, N.S.

S7000 installing Thebaud jacket offshore.

Rowan Gorilla II drilling at Venture field.

Thebaud Process Deck at Kvaerner, Teeside.

Venture Deck at Kvaerner, Teeside.

Gas Plant, Goldboro, N.S.

July

- Goldboro wharf construction completed
- BBA completed more that 70,000 person hours without a lost time incident
- Foundation work for Goldboro Gas Plant commenced
- Shaw & Shaw's pipe coating yard in Sheet Harbour had its official opening
- MMI completed work on portions of production platform for shipment to Teesside
- Stability Mattresses contract for offshore pipe installation awarded to Pro Dive, Eastern Passage, NS
- Administration and other Pre-Engineered buildings for Gas Plant awarded to Meridian Construction, Dartmouth, NS

August

- SOEP installed a fish ladder in Betty's Cove Brook
- Saipem 7000 returned to complete work on early jackets and install mid jackets
- BBA awarded main mechanical packages for gas plant to Adam Clark and slugcatcher installation contract to Comstock
- Shore approach & Landfall contract for Offshore Pipeline awarded to Ham Dredging and Marine Contractors

September

- Thebaud Process and North Triumph wellhead jackets shipped from Corpus Christi
- Access Cable aired a series of seven shows on the Sable Gas Story
- Sable staff honoured with award for recognition of the Projects' high commitment to safety with over 229,000 person hours, without a lost time incident
- Foundation work commenced at Point Tupper Fractionation Plant

October

- Saipem 7000 installed mid jackets and returned to Europe for major refit
- BBA awarded Piperack Piping contract for the Fractionation Plant to Black and McDonald of Dartmouth

November

- Galaxy II rig started drilling at Thebaud field
- BBA awarded Gas Plant electrical & instrumentation to Black & McDonald, Dartmouth
- Elsag Bailey shipped the simulator building and panels to Goldboro
- Shaw & Shaw's final shipment of 26" line pipe offloaded at Sheet Harbour

December

- Right of Way Clearing for NGL line (Goldboro to Point Tupper) awarded to Asplundh Tree Services Ltd., Dartmouth, NS
- Fractionation Plant Mechanical contract awarded to AB Mechanical, Sydney, NS and Electrical & Instrumentation awarded to Black & McDonald/Land & Sea JV, Dartmouth, NS
- Shaw & Shaw completed Fusion Bond Epoxy and Concrete Pipe Coating at Sheet Harbour, NS
- Thebaud and Venture Living Quarters were 96% completed at Fabco/CKT yard in Dartmouth, NS as at December 31st, 1998; loadout scheduled for late January, 1999.
- North Triumph Deck at MMI/B&R Dartmouth, NS yard 66% complete with completion scheduled for June, 1999

1.3 Public Affairs

In 1998, Sable Offshore Energy Inc. public affairs department undertook a number of communication initiatives to support the organization as it continued to prepare for first gas. Its primary focus was to build awareness and understanding of the project and industry, as well as establishing SOE Inc. as a good Nova Scotia corporate citizen.

Community Investment Program

SOE Inc. is committed to contributing to the wellbeing of Nova Scotia. To that end, SOE Inc. implemented a Community Investment Program designed to provide financial support to charitable organizations focussed on education, community support, arts and culture, and social welfare.

Through the organization's Community Investment Program, SOE Inc. invested over $450,000 in Nova Scotia, with a specific focus in our key geographic target areas of Guysborough and Antigonish counties, the Strait Area and the Greater Halifax Area.

Some of the numerous organizations that received financial support in 1998 include:

- Stan Rogers Folk Festival
- Granville Green
- Scotia Festival of Music
- Black Educators Association
- Atlantic Geoscience Society
- Metro United Way
- Nova Scotia Nature Trust
- Nova Scotian Hospital Foundation

In 1999, SOE Inc. looks forward to strengthening its relationships with the communities in which it operates.

Education

Natural gas is a greenfield industry in the province and as such, SOE Inc. has taken a leadership role in educating and informing Nova Scotians about the project and the benefits and challenges associated with the emergence of a new industry.

The following are some of the specific initiatives undertaken in 1998 to educate Nova Scotians:

- **Sable on Cable** is a six-part series of half-hour public affairs show on the Sable Offshore Energy Project and the associated Maritimes and Northeast Pipeline. The series was carried by virtually all the cable systems in the province, accessing 85% of Nova Scotian homes. SOE Inc. also produced print ads that appeared in local newspapers promoting the series. SOE Inc. subsequently made the series available on video cassettes to industry associations and educational institutions.

- **Project Map -** Over 10,000 project maps were distributed to schools, libraries and the general public.

- **Project Brochure: "Nova Scotia Natural Gas" -** describes the Project along with general information about the key components of processing natural gas. Since the fall of 1998, over 5,000 copies of the brochure have been distributed to Nova Scotians.

- **Website - www.soep.com** contains project information and procurement notices, including a new section on Canada-Nova Scotia benefits, and digital display cases. On average, the number of users accessing the site is in excess of 10,000 per month. A series of advertisements were produced to promote the website.

- **Update Videos -** Videos capturing all major project milestones and initiatives were produced regularly in 1998 and distributed to educational institutions and other interested stakeholders.

- **Speeches and Presentations -** Information about the project was communicated directly to thousands of Nova Scotians at industry and business meetings, conferences, and schools. In 1999, SOE personnel have already committed themselves to speak to as many or more groups.

- **News Releases -** In excess of 20 news releases were distributed to all Nova Scotia media outlets to acknowledge major project milestones or announce the award of major contracts.

- **Visitor's Centre/Information Office -** SOEI staffed offices in Halifax, Port Hawkesbury and Goldboro with people and information equipped to answers questions about the Project.

  In addition, tours were co-ordinated for media, government and the general public of various SOE facilities, including the Goldboro Gas Plant, Point Tupper Fractionation Plant, Thebaud and Venture living quarters, heavy-lift vessel Saipem 7000 and the Santa Fe Galaxy II.

Nova Scotia Suppliers

A majority of the services and products produced for the public affairs department were provided by Nova Scotians, including:

- Consulting Services - Vantage Communications, William Alexander & Assoc., Newswatch
- Media Monitoring - Newswatch
- Video Production – Vantage Communications
- Photography - Prisma
- Advertisements – Daily NS publications, industry publications,
- Brochures and other printed materials – Diversity Publishing
- Souvenirs (including lapel pins) - Seagull Pewter, Village Awards, Eastern Woodland Publishing

- Displays – various NS firms
- Website Development and Maintenance – Vantage Communications, Online Communications
- Logistical Support for Special Events – Tel-Av, McFarlands, local hotels/catering
- Printing – Advanced Screen Printing, Norman Wade Company, Speedy Print

2.0 Health, Safety and Environment; Quality Control and Quality Assurance

2.1 Health, Safety and Environment (HS&E)

Sable Offshore Energy Inc. and its contractors are required to operate to stringent HS&E standards. Expectations, regarding these standards, are clarified in SOE Inc.'s Management Policy on Health, Safety & Environmental:

At Sable Offshore Energy (SOE), we believe all personnel working for or associated with SOE are responsible for the health and safety of our employees, contractors and customers and for protecting the environment in which we work. SOE's commitment to health, safety and environmental excellence is an integral part of our business and is essential to our long-term success. We expect all SOE personnel to pay meticulous attention to safety at home and in the workplace and respect the environmental sensitivities of the areas in which we work. SOE will strive to assure that we meet or surpass Government regulatory standards for environmental protection. Together, we will manage our business within SOE's Health, Safety & Environmental (HS&E) Management System, continuously building and improving as our business changes and grows, for the benefit of our employees, contractors and neighbours.

We also believe:

- *All HS&E incidents are avoidable;*
- *HS&E objectives must never be sacrificed for expediency or economics; and*
- *HS&E objectives are an integral part of our business objectives.*

To support these **beliefs**, we have established the following '**Stakes-In-The-Ground**':

- *Nobody will get hurt today nor tomorrow;*
- *Our environmental performance will be beyond challenge and continuously improving;*
- *We will include all participants in the safety planning process;*
- *We will document and share our learnings from any incidents and safety concerns;*
- *We will ensure that all relevant HS&E training and equipment are provided.*

Over the pass year, SOE and its contractors have implemented health, safety and environmental programs in support of SOE Inc.'s well construction activities, facilities design, construction, planned commissioning and operations, consistent with this Policy. These programs included the development of Safety Plans addressing safe work practices and procedures, Environmental Protection Plans addressing environmental management and monitoring activities and Emergency Response Plans addressing emergency preparedness. These activities have been conducted in close consultation with various stakeholders (e.g. Government, fishers, special interest groups, and the public at large) and with strong support from the engineering and consulting community of Nova Scotia. This has provided a benefit to all parties; to SOE by application of local knowledge and expertise, particularly on environmental issues; to Nova Scotia industry, in particular on the safety standards and practices applied by the oil and gas industry.

An example of SOE Inc.'s commitment to safety education occurred in the fall of 1998 when SOE hosted a series of sessions with its own employees and at major SOEP contracting sites with Charlie Moorecraft with a presentation entitled "Remember Charlie". Charlie recounted his personal story about being severely burned in an industrial accident and how each and every one of us needs to take personal accountability for our safety. SOE is bringing Charlie back in 1999 and making his presentation available to other organizations.

2.2 Quality Control and Quality Assurance (QA/QC)

A key focus has been to advise the Nova Scotia supplier community on SOEP quality assurance requirements. Because of the generally high quality and safety standards demanded by the offshore oil and gas industry, these were identified as potential obstacles for many local companies to pre-qualify for bid lists. Many companies worked to enhance safety and quality

systems, and SOE Inc. continues to provide leadership and guidance to those companies showing initiative in this area.

During 1998, "Quality Assurance" (QA) familiarity was noted as being at relatively low levels in Nova Scotia. During the procurement process, SOE Inc. stressed the importance of sub-contractors meeting the requirements of an internationally recognized quality system standard (ISO or another comparable standard). While the absence of ISO 9000 Quality System Registration did not disqualify a Nova Scotia business, meeting the requirements and intent of this standard was at the top of the agenda once the contract was awarded.

Quality requirements for suppliers providing packaged equipment and materials to the Engineering and Procurement team were clearly stated in Engineering and Purchase Order documents. Each procurement package was assigned a criticality based on objective safety and integrity criteria. Higher criticality equipment required a higher level of quality suppliers and level of SOEP involvement. Equipment such as the Offshore High Pressure Separator, Medium Pressure Vessels and Deethanizer manufactured in Nova Scotia were built to a high standard with companies operating ISO Quality Management Systems.

SOE Inc. works closely with the supplier community during the bidding, manufacturing and testing phases to ensure that companies committed to develop and implement quality policies and procedures do so in a manner that is "fit for purpose" in meeting the requirements of the oil and gas industry. This has contributed to improved quality concern with suppliers, and has a lasting benefits – not only does it enhance the qualifications for SOEP work, but adds considerable value to the products or services that the suppliers provide.

While Quality Assurance is taught at community colleges, and in a few university continuing education courses, very little QA has been incorporated into the regular university curriculum. As a consequence, many Nova Scotia business leaders and managers are graduating from Nova Scotia universities with little knowledge of Quality Assurance, quality management systems, and their importance to business. In order to increase Nova Scotia business familiarity with QA for the long term, SOE Inc. has invested over $40,000 in the business school at Acadia University for development of a QA case study.

The end result of SOE Inc.'s and other industry leaders investment at Acadia University is anticipated to be a full interdisciplinary minor course curriculum in QA. Significantly, this

curriculum (including the case studies) will be made available to any other university for a nominal charge, providing significant added value to SOE Inc.'s initial investment.

3.0 Contracting, Procurement and Supplier Development

3.1 Major Contracts

Nova Scotia companies participated in several major components, either through directed contracts, in joint ventures with Alliance contractors, or as subcontractors to Alliance contractors and main contractors. Nova Scotia companies could not bid on certain components, because the facilities and equipment required were not available in the province (or in Canada). Nonetheless, they were successful as in areas where subcontract services were needed. Included among the major components were:

- Subsea gathering system (pipelay barge)
- Offshore accommodation (flotel accommodation vessel)
- Heavy lift and transportation of offshore structures (crane barge)
- Drilling rigs and speciality services
- Material and equipment manufacture

3.2 Engineering and Procurement (EP)

By the end of 1998, the SOEP Alliance Contractor Agra Monenco/Brown & Root JV, responsible for Engineering and Procurement, completed approximately 90% of materials and equipment procurement. Since the beginning of the contract in July, 1996, this joint venture understood and recognized its role in Canada-Nova Scotia benefits, a commitment demonstrated by the organizations' project procurement philosophy and plan.

3.2.1 Nova Scotia Successes

Nova Scotia participated significantly in the supply of bulk materials to the Project. The province has a strong but limited industrial supply community with a good background in traditional resource industries such as marine fabrication, mining, pulp and paper, and refineries. This experience has translated into the successful supply of secondary steel, process piping materials, electrical bulks, process control instrumentation and some mechanical packages. Nova Scotia capability is summarized in Table 1.

- The agreement reached for the supply of process piping materials gives suppliers the responsibility of maintaining their own quality and delivery programs. Of the five agreements, four have been awarded to Nova Scotia distributors, representing 63% of piping materials.
- Instrumentation has a Nova Scotia content of 10%, and is an area where there is significant opportunity for growth as the offshore sector expands.
- Although Nova Scotia has no manufacturing base for secondary steel, process piping, electrical bulks or instrumentation, the distributors are knowledgeable and have direct or related experience in sourcing products for the oil and gas industry. Successful bidders for frame agreement awards to Nova Scotia had all approached SOEP in the early stages to ascertain the Project's scope, technical and quality assurance requirements. This preparation resulted in this significant success ratio for Nova Scotia suppliers. As margins on project work in the oil and gas industry are in the range of 12 – 15% of the total $39.5 million spent on these agreements, 5.4 million was available as earned margins, 76% went to Nova Scotia companies.
- Nova Scotia won 22% of the available expenditures for valves. At least two oil and gas distribution companies opened Nova Scotia offices in 1998, and further growth in this area should follow: it is a distinct market advantage for suppliers and service companies to operate from Nova Scotia.
- All available shop capability for pressure vessel fabrication was used during the 1998 supply window, with Nova Scotia firms accounting for 38% of the work done. Competitiveness was limited only by capacity. To ensure maximum participation, SOE Inc. made an effort to visit all Nova Scotia fabricators to assess their capabilities and advise, as necessary, on improvements needed to meet Project quality assurance and safety requirements. Those shops certified for pressure vessel fabrication complied with SOEP requirements, allowing them to successfully compete with other firms.
- All miscellaneous steel fabrication was done within Nova Scotia, with additional pipe rack and miscellaneous fabrication subcontracted by SOEP's Onshore Construction Manager, BBA, to Nova Scotia fabricators who purchased their steel from local suppliers.
- Loss prevention represents an area where there is a strong service industry in Nova Scotia. General products and services in this category are available through distributors. As yet there is not a manufacturing capability for the major capital items such as blast walls and survival craft (with davit). These make up 68% of this category. A notable success in this category is the fire extinguisher package.

Extensive pre-qualification initiatives were taken by the supplier and SOEP to qualify the product of a previously untried Canadian manufacturer and its Antigonish, NS distributor. This supplier was ultimately successful in winning this contract.

3.2.2 Nova Scotia Materials and Capability Analysis

A wide range of materials and equipment was purchased by SOEP EP Materials Management for construction of the plant facilities. The distribution of EP expenditures for the general categories of goods is shown below. The availability of the goods in Nova Scotia or Canada is also indicated. **Appendix 4 (2 pages)** details the Canada Nova Scotia benefits achieved for each category.

	SOEP EP	Nova Scotia Capability			
Description	**Expenditure Distribution**	**Nova Scotia Manufacturer**	**NS Distribution**	**Not Available**	**Potential for Opportunity**
Primary Steel	12.1%			X	
Secondary Steel	0.5%		X		Good opportunity distributors
Mechanical & Pkg. Equipment	23.1%	X		X	Good opportunity for subcontract work in assembly or packaging
Heat Exchangers	2.6%			X	Good opportunity for subcontract work in assembly or packaging
Pressure Vessel Fab.	5.5%	X			Limited capacity in Nova Scotia but ongoing work difficult to sustain
Misc. Steel Fabrication	<1%	X			Shops with the required QA & Health & Safety have good opportunity to supply to the oil & gas industry
Speciality Offsh. Fabrication	<1%			X	
Cathodic Protection Anodes	1.0%			X	
Valves	5.8%		X	X	Good opportunity for service work
Process Piping Materials	6.4%		X		Good opportunity for distributors
C.S. Line Pipe	31.1%			X	Good opportunity for distributors
Chemicals & Coatings	0.7%		X	X	Good opportunity for distributors
Loss Prevention	2.0%		X		Good opportunity for distributors
Elec. Equipment	1.2%	X	X		Good potential for manufacturing
Electrical Bulks	2.9%		X		Good opportunity for distributors
HVAC & Work Shops	0.2%	X			Good opportunity for manufacturing
Instrumentation	4.9%		X		Opportunity for Service Industry

Table 1

3.3 Infrastructure Improvements

Several infrastructure improvements have been provided by SOEP to facilitate transportation of onshore materials and equipment:

- Goldboro wharf upgrade and expansion
- James River siding upgrade
- Isaac Harbour road improvement
- Point Tupper road/rail crossing upgrade
- Antigonish to Goldboro road engineering study and structure inspections

3.4 Contractor Strengths and Areas for Improvement

Strengths

Smaller companies combined strengths with Alliance contractors and provided some strong proposals.

- In general, second time bidders presented more focused documents, addressing all the issues and were more creative with their commercial proposals
- Suppliers scheduled introductory/information meetings in advance of EOIs and RFPs
- Suppliers increased monitoring of SOE Inc.'s website and kept abreast of their area of interest as well as the overall project scope and schedule
- In most cases, debriefing meetings were worthwhile for the bidders and SOEP
- Local suppliers feel conformable openly discussing issues with SOEP. and gain additional information on technical, safety and quality issues

Areas for Improvement

There are several reasons why qualified Nova Scotia bidders were unsuccessful:

- Lacked the development and implementation of quality assurance programs meeting ISO 9000 or equivalent
- Bid cost of local bidder very high compared to successful bidder
- Bids submitted late or with incomplete or missing information; RFP instructions not followed
- Suppliers must ascertain at the Expression of Interest stage the preset bid evaluation criteria that will be applied by SOEP for each package
- Safety standards could not be met or developed

3.5 Engineering & Procurement Management "Actual" Expenditure Analysis

Analysis of EP materials and equipment expenditures has been done to determine the success ratio of Nova Scotia businesses when measured against the maximum estimated revenue, which could have gone to Nova Scotia in 1998. This analysis considers only the estimated distributors' margins or labour and profit components accruing to Nova Scotia while excluding the cost of materials and equipment that could not be manufactured in Nova Scotia. Nova Scotia was successful in winning 51% of this benefit in an internationally competitive environment. SOEP provided these businesses with full and fair opportunity to participate in its international competitive bidding process and subsequent evaluation for best value for the Project. See **Appendix 5** for a detailed breakdown of the analysis.

3.6 Supplier Development

Sable Offshore Energy Inc. is committed to the building of a strong, viable domestic supply and service sector capable of meeting the long-term requirements of offshore exploration and production. It is a common goal of Project proponents, suppliers, potential suppliers and government.

SOE Inc. is pleased with the increasing levels of participation in the Project, shown by the Nova Scotia supply and service sector over the past year. In particular, the sanctioning of the Project at the beginning of the year sparked the interest and awareness of the general Nova Scotia supplier community. The performance of successful local contractors, suppliers and labour have demonstrated Nova Scotia's adept capabilities and have verified the advances being made in Nova Scotia towards achieving long term goals in the industry.

3.6.1 Initiatives Undertaken

During the year, SOE Inc. personnel continued to interface and work with Nova Scotia supplier groups and various supplier associations proactively to address needs identified. Communications with local suppliers have taken the form of information sessions, workshops, presentations at organizational meetings, supplier site visitations and scheduled meetings with local business concerns. Site visits by SOEP/SOE Inc. personnel and contractors to the supplier shops are common and have been an excellent way to exchange information. Public forums and industry associations have been conducive to meeting local suppliers and learning more about

their capabilities. **Appendix 6** shows the main initiatives undertaken during the year. This list may not be all inclusive but it does illustrate the type and amount of activities carried by SOE Inc. personnel to communicate information about the Project to the local supplier community.

The Canada-Nova Scotia Benefits Advisory Committee (BAC) is an initiative of SOEP to provide two way communication with industry suppliers, contractors and labour to foster local development and business enhancement as well as to add value to the Project. The BAC met eight times during 1998, three of which were outside the metro area. Tours were held in conjunction with the BAC meetings in July at the Allseas/Shaw & Shaw pipe coating facilities in Sheet Harbour , in September at the BBA gas plant construction site in Goldboro and in December at the Fabco/CKT and MMI/Brown & Root fabrication yards.

The Project interfaces with a large number of groups representing Nova Scotia industry, suppliers, contractors, labour, consultants and government. The following groups have had direct links to the Project through the BAC and through various SOEP and Alliance Partner activities during the year:

- Construction Association of Nova Scotia (CANS)
- Strait Area Chamber of Commerce
- Nova Scotia Petroleum Directorate
- Offshore Technologies Association of Nova Scotia (OTANS)
- Atlantic Canada Opportunities Association (ACOA)
- Consulting Engineers of Nova Scotia (CENS)
- Halifax Regional Development Agency (HRDA)
- Human Resources Development Canada (HRDC)
- Strait Highlands Regional Development Agency
- Guysborough County Regional Development Authority
- Natural Resources Canada
- Enterprise Cape Breton Corporation
- The Potential Offshore Gas Opportunities Group (POGO)
- The Association of Professional Engineers of Nova Scotia (APENS)
- NS Mainland Building Trades Association
- Cape Breton Building Trades Association
- Sable Gas Project Group

At the January 20, 1998 BAC meeting, a supplier development sub-committee was formed to act of behalf of the larger group to promote supplier development initiatives in Nova Scotia and report back to the group. The BAC supplier development sub-committee consists of representatives from the OTANS, ACOA, Nova Scotia Petroleum Directorate and SOEP. The supplier development sub-committee met regularly during the year to organize supplier development activities. The group decided that OTANS would assume a lead role in promotion of supplier development initiatives and OTANS would co-ordinate with POGO for activities in Cape Breton. SOEP personnel supported and participated in these initiatives.

Supplier Development Workshops were a key focus of the supplier development committee in 1998. Through the BAC supplier development sub-committee, there were ten formal workshops held throughout the province in 1998, most of which were sponsored collectively by OTANS, POGO and SOEP. Six of the ten workshops were held in Cape Breton locations. Three of the ten were held at First Nations reserve locations. Information covered in the sessions included BIDS Nova Scotia, supplier pre-qualification process, the SOEP procurement cycle and Canada Nova Scotia Benefits objectives.

A particular focus of workshops held in the first half of the year was to inform the Nova Scotia supplier community on SOEP bidder requirements for HS&E and QA/QC. These areas were identified as potential barriers to local companies in pre-qualifying for bid lists. Workshops were held in Sydney, Port Hawkesbury, Halifax and Eskasoni. SOEP is committed to helping local companies, who show initiative in this area, to enhance their level of safety and quality management. SOEP Quality Assurance Managers worked with successful local companies to help them meet SOEP requirements.

The focus of workshops in the second half changed to highlight the procurement and contracting strategies of Allseas, SOE Inc. Operations and SOEP's Ready for Operations Group (RFO). Workshops were held in Guysborough, Port Hawkesbury, Halifax, Bear River and Millbrook. Additional supplier development sessions are planned for 1999, as SOEI Operations generate additional strategy detail. Additional topics for future sessions will include diversity and inclusion principles, training, technology transfer, research & development tracking, and the SOE Inc. Alcohol & Drug policy.

Technology transfer has been identified by the supplier development sub-committee as a workshop activity. Areas such as safety and risk management and certification requirements are

of interest. Key stakeholders, such as the APENS and CENS were consulted to participate in BAC discussions to develop increased co-ordination among the respective groups. During the year, SOEP participated in meetings with the APENS council and through its Offshore Energy Committee to exchange information and explore engineering, safety, technology transfer and business opportunities. Discussions with the engineering and technical community are continuing in conjunction with other initiatives by SOE Inc. to identify and promote technology transfer. SOE Inc., through its training and development manager, is working with the supplier development sub-committee on plans for a technology transfer workshop in the spring of 1999.

The SOEP Canada/Nova Scotia Benefits Peer Group met periodically during the year, to maintain focus on monitoring the outlook and scopes for procurement requirements and the benefits processes and outcomes. Representation from SOEP included MMI/Brown & Root, Elsag Bailey, Allseas Canada, Agra Monenco/Brown & Root (procurement and contracts), Saipem, BBA, Well Construction and Canada Nova Scotia Benefits. Communications with the Kaverner representatives were maintained as required.

During 1998, Benefits Peer Group activities were based primarily in Halifax. Meetings were held face to face and video conferencing was used regularly to connect the remote sites. Discussions were held to identify potential opportunities to increase Nova Scotia content including a group brainstorming session held in May, using a professional facilitator. Ideas from this session were used to stimulate group activities to aid in identifying remaining local benefits opportunities in Tier I. Guest presentations were made to the group on Industrial Benefits and Aboriginal Inclusion. As Project activity transitions from construction to commissioning with increased operations involvement, the Peer Group participation is adjusting accordingly to keep abreast of opportunities for Canada Nova Scotia Benefits. The SOEP engineering, materials and equipment procurement role shifted as that activity began to decline, while new members were introduced in the group to represent operations procurement and RFO activities as these came on stream.

3.6.2 Construction Activities

For onshore construction, constant vendor contacts were made and meetings were held to discuss the needs of the Project and to become familiar with individual companies. Suppliers and contractors were advised to register with BIDS and coached on how to respond to Project needs. Individual company site visits were made by SOEP personnel. Requests for information were received on a regular basis from local suppliers attempting to refine their services levels to

accommodate SOEP. This shows the enthusiasm of the local supplier community for the opportunities available.

The offshore construction alliance contractors had less direct involvement with local suppliers, due to the specific types of equipment and services required for the project offshore. Alliance subcontractors did get more involved and found the local suppliers in general were very open to suggestions on how to improve and develop their products and services.

SOEP understood from past experience that the multipartite structure of the Project would be a barrier for some suppliers seeking direct access to information on upcoming opportunities. SOEP was proactive in the planning of its several supplier workshops, seminars and benefits advisory meetings conducted in 1998 to familiarize the supply community with the Project in order to alleviate this barrier. All Alliance members took part regularly in the workshops and meetings. In addition, SOEP personnel from procurement, contracting and local community offices were available at all of the sites to respond to inquiries.

3.6.3 Transportation Activities

In February 1998, the Sable Offshore Energy Project awarded the contract for North American Ground Transportation to a managing contractor, Fritz Starber Inc. of Mississauga, Ont. Fritz Starber managed the execution of this contract from their Halifax office. The haulage opportunities were advertised widely to the Canadian and Nova Scotia transportation industry. Nova Scotia contractors were successful in winning a significant majority of this work. The scope of work has offered both the managing contractors, local transportation contractors and the Nova Scotia industry, many advantages. A few of these advantages are:

- increased volume of work and improved trade lanes from various major cities, within North America, to Nova Scotia
- suppliers have established and/or are providing improved service to the eastern shore of Nova Scotia
- additional staff member placed in the Halifax office to assist in co-ordination of North American air shipments
- 100% local carriers were used to transport the goods from Halifax International Airport to the construction sites and alliance companies
- local companies and manpower were hired to transport these shipments to both construction sites on the special moves portion of the business

- local riggers, cranes, transporters and operators are used to provide the essential services required to move special shipments to final destination
- For shipments of all types within North America, the local Nova Scotia companies are contacted first. According to Fritz Starber, this applies not only to SOEP shipments, it also applies to the alliance companies with whom they have established business relationships. an example of this is where we had a pickup in BC for Pt. Tupper. SOEP utilized a local company and received a competitive price to move the shipment.
- Fritz Starber, with its international customer base, has developed solid business relationships with Nova Scotia carriers. They expect this will assist in future business endeavours, providing additional benefits to the local economy.

The Panalpina groups participation in the Project has contributed to local development by utilizing and working with many Nova Scotia firms such as:

- Trucking firms: Brookville, Cape Nova/Lighthouse/McKenzie Eastern G.W.
- Crating/packing: Industrial Packaging Limited
- Various sea/air agents: F.K. Warren/ACL/Holmes Maritime/Montreal Shipping/Air Canada
- Stevedores: Logistec, Cerescorp
- Barge Operators: Dominion diving
- Crane Operators: A.W. Leil Crane
- Heavy Hauling: Mills
- Couriers: Midland Courier/MBW

Panalpina has supported local firms in order to give full and fair opportunity for participation in this Project and to maximize the Nova Scotia content. By working with these many firms, Panalpina was able to both contribute to the economic benefits to Nova Scotia and to gain from the experience of working together with local companies and establish exposure to new potential markets. Panalpina looks forward to a long lasting relationship with all these companies.

3.6.4 Nova Scotia Successes

There have been many SOEP contracts and purchase orders awarded to Nova Scotia companies over the past year. In addition to increasing expenditure and employment levels, there are other "Best Value" criteria that indicates success by the Nova Scotia supplier community. The following 1998 analysis of local awards of $250,000 or greater, provides an illustration of other areas where Nova Scotia companies were successful and provided the best value to the Sable Project:

Nova Scotia Companies were both competitive and able to meet SOEP technical requirements (Best Value) , versus other Canadian or international bidders:

UPS/DC Battery System	W.N. White
API Tanks	Stenpro
Process Tower	MM Industra
Deluge valves, Hose reels, Spray nozzles	EMCO
Onshore electrical cable	Anixer
Electrical Bulk Package	Harris & Roome Supply
Pumps	Peacock
Actuators, control valves	Atlantic Controls
HVAC Units	Alscott Air Systems
Environmental Field Survey	Jacques Whitford Environment Ltd.
Weather Forecasting Services	Siemac Ltd.
Waste Management	Offshore Waste Management Group
Rig Positioning Services	Racal Pelagos
Electrical/Instrumentation -Living Quarters	Ainsworth Atlantic
Remotely Operated Vehicles	Dominion Diving
Supply vessel - Allseas	Maersk Company Canada Ltd.
NGL Geotechnical Services	Jacques Whitford & Associates
Heavy Lifts/Equipment Handling	Irving Equipment Ltd., Halifax
On-site Coating - MMI/BR	Parker Brothers, Waverley
Architectural Casework - Fabco/CKT	PMW Construction Ltd., Dartmouth
Plumbing - Fabco/CKT	Bremner's Plumbing & Heating Ltd., Halifax
Transport Sect. Deck Assem. - MMI/BR	A.W. Leil Cranes & Equip., Dartmouth
Safety Clothing	Superior Vallen, Dartmouth
Offshore Catering Services - Santa Fe	East Coast Catering (NS) Ltd., Halifax
Marine Agency - ACAN	Holmes Maritime Inc.
C.S. Pipe Flange Fittings	EMCO
S.S. Pipe Flange Fittings	EMCO
Bolts & Gaskets	EMCO
Offshore Electrical Cables & Connectors	WESCO
FRP Pipe	EMCO
Secondary Steel/North Triumph	Russell Metals
Fire Extinguishers	Levco Fire & Safety

In addition to above, where Nova Scotia content, local proximity of facilities and/or the potential for long term servicing/support were a key factors in awards:

L.P. Vessels	Mulgrave Machinery
Basic Survival Training	Survival Systems
Ground Transportation	Fritz Starber
Offshore Environ. Effects Monitoring	Jacques Whitford
Onshore Environ. Effects Monitoring	Martec
Helicopter Services	Canadian Helicopters
Medical/Occupational Health	Atlantic Offshore Medical
Communications Centre Personnel	Stratos Mobile Networks
Tandem Axle Truck/Trailors - S&S	CERES, North Atlantic Marine Terminals
Travel Agency Services - SOEI	Maritime Marlin Travel
Stationary Supply Services	Todays Business Products
Customs Brokerage Services	Atlantic Custom Brokers

Joint venturing provided best value and final award success:

North Triumph Topsides	MM Industra\Brown & Root
Pipe Coating	Shaw & Shaw
Living Quarters	Fabco/CKT
Maintenance Excellence	ATL/Jacques Whitford
Communications Centre Personnel	Stratos Mobile Networks
Positioning Services - Saipem	NJW Geoservices Inc.
Tandem Axle Truck/Trailors - S&S	CERES, North Atlantic Marine Terminals
Shore Approach and Landfall	Harbour Developments/Ham Dredging

In the construction and fabrication areas, many Nova Scotia companies, or Canadian companies with high Nova Scotia content, were competitive in providing best value and were awarded contracts for work carried out as sub-contracts to alliance contractors and other key contractors:

Onshore

Site Clearing - BBA	R. MacLean Forestry
Earthwork - BBA	J&T van Zutphen Construction
Concrete Patch Plant - BBA	Ideal Concrete

Wharf construction - BBA	Alva Construction
Site preparation - Shaw & Shaw	Dexter Construction
Site Preparation - Shaw & Shaw (S&S)	Dexter Construction
Wood Framed Building - S&S	L&R Construction
Electrical Contractor - S&S	Black & MacDonald
Crawler Crane Rental - S&S	A.W. Leil 1986 Ltd.
Structural Steel Fabrication - BBA	RKO Steel
Piling - BBA	BFC Civil
Staging and Enclosures - Fabco/CKT	Aluma Systems Canada Inc.
S & P Fire Protection - MMI/BR	Parker Brothers Contracting Ltd.
Electrical & Instrumentation - MMI/BR	Land & Sea Instrumentation
S.S. Pipe Fabrication - BBA	A & G Cranes Ltd., Antigonish
Large Bore C.S. Pipe Fabrication - BBA	Black & MacDonald Ltd., Dartmouth
Slugcatcher Installation - BBA	Comstock, Dartmouth
Structural Steel Erection - BBA	RKO Steel, Dartmouth
Pipe Rack Piping Installations - BBA	Black & MacDonald Ltd., Dartmouth
Foundations - BBA	Meridian Construction, Dartmouth
Large Bore Pipe Fabrication - BBA	A.B. Mechanical Ltd., Sydney
Small Bore Pipe Fabrication - BBA	A.B. Mechanical Ltd., Sydney
Non-destructive Examination - MMI/BR	Trispec Technical Services
Off Rack Piping & Mech. Equip. - BBA	Adam Clark
Drilling and Blasting (Onshore) - ACAN	Archibald Drilling & Blasting
Machining of Pipe - ACAN	Fabco Industries - Peacock Inc.
Insulation, Living Quarters - Fabco/CKT	Guildfords Ltd.
Plumbing, Living Quarters - Fabco/CKT	Bremner's Plumbing & Heating
Onshore Landfall Site & Trench - ACAN	J&T van Zutphen Construction
Fencing - BBA	Nova Fencing
Electrical & Instrumentation - BBA	Black & MacDonald/Land & Sea
Right of Way Clearance - BBA	Asplundh Tree Services
NGL/NG Pipeline Construction - BBA	Atlantic Pipeline Resources Ltd.

Offshore

Grouting Services - Saipem	Pro-Dive Marine Services
Flexible Stability Mattresses	Pro-Dive Marine Services
Subsea ROV Services - Saipem	Dominion Diving
Tugs and barges - Saipem	Allan Marine Inc.

Examples of companies opening new offices or facilities in Nova Scotia to provide technical services and longer term support, creating new local employment opportunities:

Core and Fluid Analysis	Core Laboratories Canada Ltd.
Valves	C.E. Franklin
Drilling	Santa Fe Drilling Co. (Canada) Ltd.
Marine Services	Bayview Co-Op
Environmental	Agra Earth Sciences

Examples where Nova Scotia equipment distributors will play an increasing role to provide long term industry support for other Canadian or international manufacturers:

Dust, Glycol Hot Oil Filters	Petro Equipment Sales Ltd. (equipment spares to be warehoused in Dartmouth)
Instrument Gauge Valves	Atlantic Controls
Foam Monitors - Fabco/CKT	Grinnell Fire Protection, Dartmouth
Firewater Pumps	National Process Equipment
Piping, Bolts & Gaskets	EMCO

Noteworthy contract awards based on use of Canadian sourced commodities, raw materials or products:

Steel	Storage and Pressure Vessels	RNG Pro-Tech Inc., Que.
	Steel Plates/Structurals for Living Quarters	Russell Metals Inc.
Paint	Protective Coatings for Topsides	Ameron Canada
Cement	Pipe Concrete Coating	LeFarge Canada
Diesel Fuel	Pipe Coating	Irving Oil Company
	Marine Fuel	Imperial Oil, Dartmouth
FBE Epoxy Coating	Pipe Corrosion Coating	3M Canada Company
Steel Blast Media	Pipe Concrete Coating	Atlantic Compressed Air

In terms of contract awards with high total Canadian content, the following new successes were recorded in 1998:

Storage Bullets & Alloy Vessels	RNG Pro-Tech Inc.
Sacrificial Anodes	D.C. Corrosion Control
Regeneration Gas compressors	Wilron Equipment
Wellsite Geologist Services	Seabed Exploration
Seismic Data Processing	CGG Geophysics Canada
Seismic Data Processing	Pulsonic Geophysical Ltd.
Simulator Building - Elsag Bailey	Provincial Particians
Tug/Cargo Barge Vessels - Saipem	Crowley Inc.
Polyethlene Wrap- Shaw & Shaw	TRU PAK Systems
Anti-slip Adhesive - Shaw & Shaw	Sika Canada
Steel Blast Media - Shaw & Shaw	Atlantic Compressed Air Ltd.
Drilling Tubular/Tool Inspection	OIS Fisher Inc.
Electrical & Instrumentation Equipment	Ainsworth Atlantic
Off Piping & Mech. Equip. Installation	Adam Clark, Brantford, Ont.
Air Handling Units - Fabco/CKT	Stork Canada Ltd., Candiac, Quebec

Examples of awards to international or local companies with international affiliation, who are committed to long term operations support and significant Nova Scotia content:

Completion Equipment & Services	Baker/Schlumberger (BASICS, Dartmouth)
Survey Positioning - ACAN	Racal Pelagos Canada Ltd., Enfield

3.6.5 BIDS Nova Scotia Ltd. (BIDS)

BIDS is the registration vehicle conduit for communicating SOEP procurement opportunities to the supply sector. In 1998, SOEP personnel actively promoted registration with BIDS to local companies, through meetings, seminars and advertising. The registration activity with BIDS in 1998 has coincided with the expectations for contracting and procurement activity. In excess of 1500 companies have registered with BIDS as of December, 1998.

4.0 Research & Development Employment, Training and Technology Transfer, Diversity and Inclusion

The Sable Offshore Energy Project is a seed project for the natural gas industry in Nova Scotia. As a leader in this industry's development, SOE Inc. in 1998 proactively undertook various initiatives that will add to success in the future. These initiatives have been divided into three categories – Research & Development, Training & Technology Transfer and Diversity & Inclusion.

4.1 Research & Development

SOE Inc. and the owner companies of the Project have had a long-standing history of investing in Research and Development in Nova Scotia. Strong relationships with research institutions such as Dalhousie University, Acadia University, the Geological Survey of Canada (Atlantic) and the Bedford Institute of Oceanography have existed for many years. Since Project sanction, the relationships between the Nova Scotia Research & Development stakeholders and SOE Inc. and the owner companies has grown even stronger – both in the number of institutions and level of investment. In fact, in excess of $5 million was invested or committed to Research and Development in 1998. This figure, in contrast to figures of past years, represents a sharp increase. The following table lists the yearly expenditures on Research and Development.

Year	Amount
1995	$121,500
1996	$146,000
1997	$3,888,373
1998	$5,758,207
Total 1995 – 1998	**$9,914,080**

A listing of Research & Development initiatives, accompanied by a brief description, can be found in **Appendix 7 (4 pages).** Some Projects of note in 1998 include:

Development of Centres of Excellence

Commitments to the development of Centres of Excellence in the petroleum field at Dalhousie University and the University College of Cape Breton. Shell Canada donated $250,000 to Dalhousie University. Mobil Oil Canada committed to $1.25 million over five years to Dalhousie and $250,000 to the University College of Cape Breton. Numerous other small grants were provided to Dalhousie University and Acadia University.

Development of Quality Assurance Curriculum

One of the Nova Scotia skill gaps identified early on in the Project was Quality Assurance familiarity. In order to increase the depth of familiarity in Nova Scotia with Quality Assurance, SOE Inc. has invested $40,000 in the Acadia University School of Business for the development of Quality Assurance course curriculum and case studies. While Quality Assurance is taught at community colleges and a few university continuing education courses, very little Quality Assurance has been incorporated into regular university curriculum. As a consequence, many Nova Scotia business leaders and managers are graduating from Nova Scotia universities with little knowledge of Quality Assurance, quality management systems, and their importance to business.

Continued Environmental Research

While SOEI and the Owner Companies have made substantial investments in environmental research, Nova Scotia-specific environmental research became a focused activity in 1998. Some of the highlights include support for the Sable Island Conservancy Program, a Traditional Ecological Knowledge (TEK) study with the Mi'Kmaq Fish & Wildlife Commission, investigative research into Alternate Drilling Fluids and continued research related to Right Whales.

Other Initiatives Related to Research & Development

During 1998, in addition to monetary investments in the Nova Scotia Research & Development Community, SOE Inc. and the Owner Companies invested time and expertise. Notable are round table discussions at Daltech and with InovaCorp and general Research and Development initiatives as well as numerous one-on-one meetings to discuss potential research projects and ideas. Tours of Nova Scotia academic institutions were scheduled for key managerial and technical staff in order to enhance the understanding of local capabilities and interests, and to identify key interests of the industry in terms of Research & Development.

Future Research & Development

Research and Development expenditures for 1999 were extensively discussed in 1998. Some areas of significant focus include continued environmental and safety-related research, further investments in sediment stability at the Geological Services of Canada (Atlantic) and continues support for development of Centres of Excellence in the petroleum field.

4.2 Training & Technology Transfer

Training

Training related to the Project was quite substantial in 1998 totalling just under $8 million. **Appendix 8 (2 pages)** provides a detailed break down of all of the training expenditures. Throughout 1998, safety training predominated. Significant skill-development training took place within the Operations team, which will be responsible for the long-term operation of the facilities.

Co-op Students

While there is direct training for individuals already employed on the job, SOE Inc. realizes that a key component of building a sustainable industry in Nova Scotia is the education of future employees through work terms in the industry. In 1998, SOE Inc. and the Owner companies provided co-op and work placement opportunities for 36 students from Nova Scotia academic institutions. The total cost for hosting these students exceeded $250,000.

The following list provides a summary of the co-op and student placements opportunities. A more detailed table is included as **Appendix 9.**

Discipline	Number of Students
Accounting	5
Administration	5
Architecture	2
Commerce	3
Computer Science	1
Engineering	11
Geology	1
Information Services	1
Machinist	1
Steamfitting/Pipefitting	2
Welder	4
TOTAL	**36**

Technology Transfer

Technology Transfer is a special kind of training, equipment or expertise that is transferred to a particular location, which did not previously possess that equipment or expertise. Many incidents of technology transfer occurred in 1998 resulting in a much stronger and maturer natural gas industry in Nova Scotia. In has been estimated that the expenditures related to technology transfer exceed $900,000.

A summary of Technology Transfer Investments is attached as **Appendix 10 (3 pages).**

4.3 Diversity & Inclusion

In 1998, SOE Inc. submitted it's response to the *CNSOPB Decision Report , Condition # 6 – Disadvantaged Individual or Group*. In that response, SOE Inc. stated that...

"...(it) desires and will strive to achieve a work environment that is based on full and fair opportunity in terms of hiring based on full and fair opportunity in terms of hiring, training and supplier/contract practices. Additionally, SOE Inc. desires and will strive to achieve an inclusive atmosphere - one that continually supports individuals from all backgrounds.

SOE Inc. recognizes that the key to competitiveness, growth and performance lies in unlocking the full potential of a diverse work force. Leveraging diversity and building a high-performance inclusive culture will be instrumental in making this Project a success and helping to create a sustainable base for future projects.

Diversity *is the many different perspectives, approaches, talents and aspirations SOE Inc. people bring to their work. Diversity considerations include nationality, ethnicity, race, gender and many other aspects of our backgrounds and identities including age, style, religion, geography, family status, occupation, sexual orientation, physical and mental ability and other differences. Some of our differences are unique to us as individuals; others connect us to groups of people. The strength of diversity is realized by valuing all these differences.*

Leveraging Diversity *occurs when we remove barriers to employment, training and high performance and fully engage all our people. As we leverage our external and internal capabilities, we achieve a 360 ° view of our business opportunities. We strengthen our business partnership with customers, suppliers and stakeholders. We also realize a new and sustainable competitive advantage.*

Global Inclusion *results when we align our visions, values, practices and policies to achieve a high-performance culture where all our people value diversity and share a common sense of purpose. They feel empowered to accept and exercise responsibility, and delegation of authority allows them to improve their own performance. In this environment, teamwork across geographic, functional and other boundaries is the norm."*

Also, in the same response to the *Decision Report* SOE Inc. committed to work with the four traditionally underrepresented groups identified by the Nova Scotia Human Rights Commission, namely: Aboriginal Person, Racially Visible Persons, Women and Persons with Physical or Mental Challenges.

Voluntary Self-Identification

SOE Inc. is following the process of voluntary self-identification – meaning that we consider an individual to be a member of one of the traditionally underrepresented groups only if they voluntarily identify themselves as a member of a particular group. Early in 1999, a climate survey will be sent to each of the members of the SOE Inc. Venture Team to provide a structured opportunity for self-identification. During 1998, individuals identified themselves on their resumes and pro-actively to their supervisor. Following is a breakdown of individuals who self-identified themselves as a member of a traditionally underrepresented group in 1998. There are probably more than the following number of Project employees who consider themselves a member of a traditionally underrepresented group. As stated above, however, SOE Inc. does not make assumptions about membership in a traditionally underrepresented group.

Quarter	Aboriginal Persons	Racially Visible Persons	Women	Persons with Physical or Mental Challenges
First Quarter (Jan. – Mar.)	1	0	5	1
Second Quarter (Apr. – Jun.)	9	6	6	2
Third Quarter (Jul. – Sep.)	19	12	16	2
Fourth Quarter (Oct. – Dec.)	22	13	30	2

Diversity & Inclusion Initiatives

Following are a list of initiatives undertaken in 1998 to aid in the diversification of the Project's workforce:

Recruitment Initiatives

In 1998, SOE Inc. met with numerous stakeholder groups representing members of traditionally underrepresented groups to ensure wide distribution of information regarding employment opportunities (now and future) including:

- HRDC to discuss equity legislation
- Nova Scotia Native Council
- Membertou Reserve Band Council staff
- Confederacy of Mainland Micmacs (CMM)
- Union of Nova Scotia Indians (UNSI)
- African Nova Scotia Training Centre
- African Canadian Employment Clinic
- Black Cultural Centre
- Guysborough Black Community Representatives
- Preston & Area Congress of Black Women representative
- Nova Scotia Advisory Council on the Status of Women
- Women in Trades and Technology (WITT)
- Colchester Action Association for Persons with Disabilities
- Transition to Work
- Various other community leaders
- Aboriginal Peoples Training & Employment Commission (APTEC)
- First Nation Community Employment Officers
- CCM Economic Advisor
- DIAND Employment Officer
- Dalhousie & Saint Mary's Aboriginal Student Counsellor

To further facilitate wide distribution of information, SOE Inc.:

- registered all diversity stakeholder groups with Atlantic Canada Careers
- participated in the Pictou Landing Career Fair for First Nation high school students from the mainland
- held workshop with Aboriginal youth from the Challenge to Change Program to help them explore career options in the natural gas industry
- held recruitment meetings with WITT (Women in Trades & Technology) NS and the Aboriginal Community (1 meeting in Millbrook First Nation & the other in Eskasoni First Nation) for Operations Associates positions
- supported and participated in the National Aboriginal Achievement Foundation – Blueprint for the Future Career Fair
- made public presentations in Guysborough (1) and Sydney (2), at special public meetings co-sponsored by the Nova Scotia Advisory Council on the Status of Women and the Nova Scotia Petroleum Directorate, about opportunities for Nova Scotia women in the natural gas industry

Secunda Cadet Program & Other Training Initiatives

The Secunda Cadet program is a unique initiative undertaken by Secunda Marine (SOEP supply vessel sub-contractor) to help give individuals an opportunity to explore a career at sea. The program involves a three week training experience aboard one of Secunda Marine's container vessels that has a Caribbean charter. By the end of 1998, 16 individuals from traditionally underrepresented groups participated in the program – many going on to full-time paying positions. SOE Inc. has supported Secunda in this initiative by helping to recruit individuals from traditionally underrepresented groups and assuming the related expenses.

"Techsploration"

In 1998, SOE Inc. committed to funding a unique project called "Techsploration" which is a program designed to help young women in grade 9 explore careers in the trades and technologies areas. 8 schools in the Project's impact area are involved in this pilot program including a Mi'Kmaw First Nation school.

"Techsploration" sponsored by Sable Offshore Energy Inc. ($95,000), is a joint venture of the Nova Scotia Community College, WITT National Network (Women in Trades and Technologies), and the Nova Scotia Department of Education – Apprenticeship Division to promote careers for women in the trades and technologies occupations. "Techsploration" uses a combination of career research, job shadowing and workshops to expose young women to a variety of career options in the trades and technologies.

The program will be delivered through the schools with the full involvement of the participants' teachers. A team of 6 young women from eight schools (total 48 young women) in the Project's impact areas will participate (including a Mi'Kmaw First Nation school). Each will be assigned an "in-demand" trades and technology career to research with the assistance of a female role model who is employed in the career. The team will create interactive presentations that will be shared with other participants, allowing them to learn about a number of career options.

"Techsploration Day" is set for April 23, 1998. On this morning, the young women and their role models will gather together for a protective equipment relay race and will deliver presentations on their researched careers. In the afternoon, the young women will attend activity workshops designed to capture their attention and interest and to highlight the skills required for specific jobs.

Diversity and Aboriginal Awareness Training

As part of its commitment to Diversity & Inclusion, in 1998 SOE Inc. held numerous diversity and inclusion workshops. It also held a number of Aboriginal Awareness workshops. These sessions were open to SOE Inc. direct employees as well as the employees of sub-contractors.

In addition, four SOE Inc. employees participated in a TEK (Traditional Ecological Knowledge) workshop put on by Ni'Kwek Management & Services in Truro on August 13, 1998

Supplier Development

In addition to employment opportunities, SOE Inc. aggressively worked on supplier development with traditionally underrepresented groups. During 1998, most of the effort was focused on the Aboriginal community. 1999 will see more supplier development initiatives with other traditionally underrepresented groups. Some specific initiatives in supplier development in 1998 included:

- attended Aboriginal Trade Show
- held Supplier Development Workshops in Eskasoni, Millbrook and Bear River
- facilitated discussions between the Aboriginal community and the various local trades unions
- donated three complete computer hardware packages to Eskasoni, Millbrook and Indian Brook First Nation communities to help facilitate access to information about employment and procurement opportunities on the Project
- paid for registrations of Eskasoni and Wagmatcook First Nation community on the BIDS NS registration system
- met with a number of Aboriginal companies to explore company capabilities and build relationships
- provided detailed safety and quality assurance assistance to interested companies
- participated in a special meeting on procurement between Ulnooweg Development and procurement officials from various government departments
- developed the Sable Aboriginal Relations Action Team (S.A.R.A.T.) to help increase dissemination of information on procurement opportunities

Other Diversity & Inclusion Initiatives

In the latter part of 1998, an Aboriginal Liaison Manager was hired to help facilitate increased employment and procurement opportunities for Aboriginal persons.

Many other initiatives and expenditures were made in the area of Diversity & Inclusion totalling in excess of $200,000. A summary of Diversity & Inclusion Investments is attached as **Appendix 11.**

5.0 Canada-Nova Scotia Content

5.1 Employment Headcount

In August, 1998, Sable Offshore Energy Inc. undertook to conduct a headcount of all those working on the Sable Project. This headcount is taken on the last business day of each month and includes not only direct hires, but also employees of the Project's principle contractors. Sub-contract employees are not included. **Appendix 12** shows total Project Activity at 3,268 persons with 58% working in Nova Scotia.

5.2 Labour and Expenditure Content

Overall cumulative forecasted Project expenditures, including the two proposed development phases, currently estimated to be complete at the end of 2009:

	$ M (as spent)
Tier I	2,034
Tier II	947
Operations (1999-2009)	1,001
Total	3,983

Canada-Nova Scotia Content Projections to end of 2009

Nova Scotia	1,673	42%
Other Canadian	710	18%
Foreign	1,599	40%

Total Projected Full Life Cycle of the Project is Estimated to be 25 Years (ending year 2024)

Development & Operations (to end 2009)	3,983
Operations	2,197
Total	6,170

Content Projections Life Cycle (as spent $M)

Nova Scotia	3,270	53%
Other Canadian	1,100	18%
Foreign	1,800	29%

Appendix 13 indicates projected expenditures and content percentages in five-year increments as spent during expected project life.

Project development activity and, in particular, Facilities Alliance work, has ramped up during 1998 as indicated below:

Quarterly Expenditure Levels

	($million)
1st Quarter	88
2nd Quarter	171
3rd Quarter	253
4th Quarter	334
1998 Total	846

As at the end of 1998, the overall total for Tier I facilities work including management, engineering, procurement, ready for operations and construction has progressed to 60% complete.

Cumulative project expenditures to the end of 1998 were 981 million dollars. The 334 million spent during the fourth quarter included payments for deck and jacket fabrication in the UK/US drilling rig contracts, offshore jacket installation and pipe acquisition.

The fourth quarter also saw increased onshore activity at the pipecoating yard in Sheet Harbour, the gas plant in Goldboro, the fractionation facilities (Point Tupper) and other fabrication work being carried out with high Nova Scotia content.

The net result of increasing Nova Scotia content during the forth quarter illustrates the upward progression originally forecast at Project sanction (February 17th, 1998). **Appendix 14** reflects actuals to end of 1998 as well as projected cash flows by quarter to the end of Tier I development. Expenditures are superimposed on overall development forecast (2009).

Cumulative Expenditures

Actual vs. Forecast ($M)

	Nova Scotia	Other Cdn.	Foreign	Total
To end of 3rd quarter	122.5	168.6	356.5	647.6
4th quarter[2]	95.5	(2.2)	240.3	333.6
Total to end of 1998	218.0	166.4	596.8	981.2
	22%	17%	61%	100%
Forecast to year end 1998	235.5	241.0	568.2	1,044.7
	23%	23%	54%	100%

Appendix 15 (7 pages) details expenditures to the end of 1998 as well as cumulative Project to date by vendor. Vendors with cumulative dollars greater than $50,000 are listed individually. Vendors with cumulative dollars less than $50,000 (> 700 vendors) are shown as a single dollar amount. The vendors highlighted are new participants in 4th quarter, 1998.

[2] Reflects adjustments made in total 1998 expenditure allocations resulting from clarification in interpretation of profit allocation and labour expenditures.

Appendix 16 (4 pages) details employment person hours for 1998 and project cumulative to December 31, 1998 by vendor. **Appendix 17** contains cumulative Canada-Nova Scotia employment and expenditure summaries to the end of 1998.

6.0 Looking Ahead

SOE Inc. is confident that the extensive initiatives undertaken to date will be successful in allowing the Project to meet or exceed forecasted Benefits levels as the Project progresses. This confidence is based on the dedication of our Project teams, including our Facilities Alliance contractors and other key contractors to promote Canada-Nova Scotia benefits and the evident ability of Nova Scotian and other Canadian suppliers of goods and services to effectively compete. Evidence of this is already being experienced with the increased participation of Nova Scotia contractors for both onshore and offshore activity during 1998. Further increases will continue through 1999 with completion of the onshore facilities (Gas Plant, Fractionation Facilities, NGL line) as well as Ready for Operations (RFO) hook-up and commissioning activity offshore.

Nova Scotia companies will receive increased opportunities during Tier II and the longer work because of the groundwork being done in Tier I. The Project's efforts with local engineering and design activity, jacket fabrication and topsides construction will continue to build Nova Scotia capability and ensure that the infrastructure is in place for the future development of Scotian Shelf reserves, both within the Sable Project and with anticipated new developments.

We are proud to not that, in life cycle terms; Nova Scotia content in the Sable Offshore Energy Project will exceed 50%.

Level I Master Schedule

SABLE OFFSHORE ENERGY

(Status to January 03, 1999)

Alliance Contractors On Board 01 May
15 Aug Start Issue Long Lead P.O.'s
05 Jan Start Thebaud Deck Fabrication
Detailed Design Complete 21 Dec
Thebaud Deck Fabrication Complete 26 May
500 mmscf/day 01 Nov
300 mmscf/day 14 Oct
110 mmscf/day 01 Oct
75 mmscf/day 23 Sep
26 Nov First Gas Through Meter
10 Dec 300 mmscf/day
31 Dec Full Gas Production

1997 | Data Date 1998 | 1999 | 2000

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR

Detailed Design
Fabrication / Construction
Commissioning

Offshore Facilities

Engineering

First Primary Steel IFC Thebaud Process
First Venture Primary Steel IFC
Preliminary Engineering
Detailed Design
Support Engineering

Procurement

Start Issue Long Lead PO's
Start Major Equipment Deliveries
Last Major Equipment Deliveries
Material Inquiries
Manufacture and Deliver Equipment and Bulks

Fabrication

Start Early Jacket Fabrication
Start Thebaud Deck Fabrication
Start Venture Deck Fabrication
Start North Triumph Deck Fabrication
Complete Thebaud Process Deck Stack
LQ Installed
Venture Fab'n Complete
Thebaud Fab'n Complete
North Triumph, Thebaud, Venture Jackets and Decks

Loadout

N. Triumph Fab'n Complete
Complete Venture Loadout
Complete North Triumph Loadout
Complete Thebaud Loadout

Transportation and Installation

Early Jackets Installed
Thebaud Process Jackets Installed
N.Triumph Jacket Partial Installation
Complete Temporary Installation N. Triumph Jacket
Thebaud Decks Installed
N. Triumph Deck Installed
Venture Deck Installed
Start N. Triumph Drilling
N. Triumph Drilling Complete

Drilling

Start Venture Drilling
Start Thebaud Drilling
Venture Drilling Complete (3 wells)
Thebaud Drilling Complete (4 wells)

Pipeline

Engineering

Detailed Design
Support Engineering

Procurement

Pipe Coating Complete
Procurement and Pipe Coating

Installation

Installation & Tie-In

Offshore Hook up and Commissioning

Fabrication Commissioning
Offshore Comm.
Gas Comm.

Onshore Facilities

Engineering

Prelim. Engineering
Detailed Design
Support Engineering

Procurement

Start Issue Long Lead PO's
Start Major Equipment Delivery
Last Major Equipment Delivery
Material Inquiry
Manufacture and Deliver Equipment and Bulks

Construction

Site Preparations/Underground/Foundations
Electrical/Mechanical Installation
Onshore Commissioning
Gas Comm.

Legend:

- Baseline Milestones
- Stretch Target Milestones
- Key Dates (Stretch)
- Critical Path
- Installation Duration

Approved by:	File No.: G-53-430	Date Issued: 14-Jan-1998

APPENDIX I

Level II - Schedule Offshore Facilities - *Page 1 of 3*

SABLE OFFSHORE ENERGY

(Status to January 03, 1999)

All Alliance Contractors on Board 31 May
Start Long Issue Lead PO's 15 Aug
Start Thabaud Deck Fabrication 15 Jan
Thebaud Process/ Wellhead Detail Design Complete 30 Oct
Thebaud Deck Fabrication Complete 26 May
500 mmscf/Day 01 Nov
300 mmscf/Day 14 Oct
110 mmscf/Day 01 Oct
75 mmscf/Day 23 Sep
26 Nov First Gas Through Meter
10 Dec 300 mmscf/Day
31 Dec Full Gas Production

(C Gauthey)

Data Date 1998

Activity Description

1997: MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC
1998: JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC
1999: JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC
2000: JAN FEB MAR APR MAY JUN JUL AUG

Legend:
- Baseline Milestones
- Stretch Target Milestones
- Key Dates (Stretch)

Thebaud Process Quarters Deck

Engineering
- Initial Steel MTO
- Issue P&IDs IFD
- Major Structural MTO
- First IFC Major Structural Drawings
- First Pre-Stack ISO
- Start IFC Pipe ISO Post Stack
- Complete IFC Piping ISOS
- Complete Instrumentation and Electrical Engineering

Procurement
- Start Issue PO Major Equipment
- Structural Steel MTO to Supplier
- Second Delivery Major Steel
- Start Major Mechanical Deliveries
- Complete Major Mechanical Deliveries

Fabrication
- Start Inquiry for Mechanical Package
- Start Primary Steel Fabrication
- Start Secondary Steel Fabrication
- Deck Stack
- Start Electrical
- Final Bulk Deliveries
- Start Commissioning
- Start Loadout and Seafasten
- Ready for Shipment

Transport and Installation
- Start Pipe Work Fabrication
- Start Installation Pipework
- Install Drains Pipework
- Complete Major Equipment Installation
- Install Living Quarters
- Fabrication Complete
- Installation Complete
- Hook-Up and Commissioning Complete

Thebaud Process Jacket

Engineering
- Start Structural Bulk Design
- Initial MTO Steel
- First IFC Major Steel Drawings
- Issue Remaining Secondary Steel Drawings

Procurement
- Intermediate Steel MTO
- Issue Steel Commitments
- First Delivery Steel to Site
- Last Delivery Steel To Site
- Issue Loadout/Seafastening

Fabrication
- Start Leg Fabrication
- Start Main Steel Fabrication
- Ready for Shipment

Transport and Installation
- Installation Complete

Thebaud Wellhead Deck and Bridge

Engineering
- Issue P&IDs IFD
- First IFC Major Structural Drawings
- First IFC Issue ISO's
- Complete IFC Pipe and ISOS
- Complete Electrical

Procurement
- Start Inquiry for Mechanical Package
- Start Issue PO Mechanical Package
- Intermediate MTO Primary Steel
- Start Steel Delivery
- Final Equipment Deliveries
- Complete I&C Final Bulk Deliveries

Fabrication
- Start Primary Steel Fabrication
- Erect Drain Pipework
- Stack Decks
- Start Electrical
- Major Equipment Installation Complete
- Fabrication Complete
- Start Loadout and Seafasten

Transport and Installation
- Start Pipe Work Fabrication
- Start Installation Pipework
- Ready for Shipment
- Deck Installation Complete
- Hook-Up and Commissioning Complete
- Bridge Installation Complete

Thebaud Wellhead Jacket - 1998 Install.

Engineering
- IFC Major Steel Drawings
- IFC Secondary Steel Drawings
- Issue Installation Drawings

Procurement
- Order Fabricated Steel and Pipe
- Complete Material Delivery

Fabrication
- Start Fabrication Jacket
- Complete Jacket Fabrication

Install at Wellsite
- Transport Jacket
- Jacket Installed (Excluding Cellar Deck)
- Jacket Installation Complete

Thebaud Drilling

- Start Drilling
- Thebaud Well #3
- Thebaud Well #2
- Complete T1-3
- Thebaud Well #1
- Perforate and Clean-Up Complete T1-3
- Thebaud Well #6
- Perforate and Clean-Up Complete Well 6
- Drill and Complete Thebaud Well #5

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Level II - Schedule Offshore Facilities - *Page 2 of 3*

SABLE OFFSHORE ENERGY

(Status to January 03, 1999)

All Alliance Contractors on Board 01 May
Start Long Issue Lead PO's 15 Aug
Start Venture Deck Fabrication 19 Jan
Venture Detail Design Complete 30 Oct
Venture Deck Fabrication Complete 20 May
500 mmscf/Day 01 Nov
300 mmscf/Day 14 Oct
110 mmscf/Day 01 Oct
75 mmscf/Day 23 Sep
26 Nov First Gas Through Meter
10 Dec 300 mmscf/Day
31 Dec Full Gas Production

(C Goudey)

Data Date

Activity Description | 1997: MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC | 1998: JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC | 1999: JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC | 2000: JAN FEB MAR APR MAY JUN JUL

Legend:
- Baseline Milestones
- Stretch Target Milestones
- Key Dates (Stretch)

Venture Deck

Engineering
- Issue P&IDs IFC
- Intermediate Primary Steel MTO
- First IFC Major Structural Drawings
- First IFC Secondary Structural Drawings
- Start Issue Post Stack Piping ISOS IFC
- Complete Issue Piping ISOS IFC
- Complete Electrical and Instrumentation Control Engineering

Procurement
- Start Inquiry for Mechanical Packages
- Structural Steel MTO to Supplier
- Deliver Deck Steel
- Start Issue Pre Stack ISOS
- Start Bulk Pipe Delivery
- Complete Pre Stack Mech. Deliveries
- Final Bulk Deliveries

Fabrication
- Start Issue PO's Mechanical Packages
- Start Primary Steel Fabrication
- Start Secondary Steel Fabrication
- Deck Stack
- Start Process Pipework Installation
- Install Living Quarters
- Start Loadout and Seafasten
- Ready for Shipment

Transport Installation
- Start Pipework Fabrication
- Start E/I Installation
- Install Drains Pipework
- Major EQPT Installation Complete
- Start Commissioning
- Fabrication Complete
- Installation Complete
- Hook-Up and Commissioning Completed

Venture Jacket - 1998 Installation

Engineering
- MTO
- IFC Major Steel Dwg's
- IFC Secondary Steel Drawings
- Issue Installation Drawings

Procurement
- Order Fabricated Steel and Pipe
- Complete Material Delivery

Fabrication
- Start Fabrication Jacket Rolled Plate Sections
- Complete Jacket Fabrication

Transport Installation
- Transport Jacket
- Jacket Installed

Venture Drilling

- Start Drilling
- Venture #1
- Venture #3
- Venture #4
- Venture #2
- Perforate & Clean-Up V2
- Venture #5
- Perforate & Clean-U Complete
- Perforate and Cleanup Complete V1, 4 Wells
- Perforate and Cleanup Complete V3

Pipelines Subsea

Engineering
- Complete Venture Riser Designs
- Complete Layout Design
- Complete Alignment Sheets
- Complete Shore Approach Details

Procurement
- Start Concrete Coating
- Complete Concrete Pipe Coatings

Pipelay
- Out for Inquiry 12", 18" and 26 Pipe
- Award PO's for 12", 18" and 26" Pipe
- Start Delivery 12", 18" and 26" Pipe For Coating
- Last Pipe Delivery for Coating
- Mobilize Pipe Lay Vessel
- Complete Pipe Lay and Demob Vessel
- Leak Tests/Hydrostatic Tests Complete
- Start Lay 12" 18 and 26" Pipe
- 26" Dewater/Drying Complete

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Level II - Schedule Offshore Facilities - *Page 3 of 3*

SABLE OFFSHORE ENERGY

(Status to January 03, 1999)

(C Gourley)

All Alliance Contractors on Board 01 May
Start Long Issue Lead PO's 15 Aug
Start North Triumph Deck Fabrication 01 May
N. Triumph Detail Design Complete 30 Oct
North Triumph Fabrication Complete 01 Jun
500 mmscf/Day 01 Nov
300 mmscf/Day 14 Oct
110 mmscf/Day 01 Oct
75 mmscf/Day 23 Sep
26 Nov First Gas Through Meter
10 Dec 300 mmscf/Day
31 Dec Full Gas Production

Data Date

1997 | 1998 | 1999 | 2000

MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUN JUL

Legend:
- Baseline Milestones
- Stretch Target Milestones
- Key Dates (Stretch)

Activity Description

North Triumph Deck

Engineering
- Bulk Piping MTO
- First IFC Major Structure Drawings
- Start First IFC ISOS Issue
- Complete IFC Piping ISOS
- Complete Electrical Engineering

Procurement
- Issue P&IDs IFD
- Intermediate Primary Steel MTO
- Deliver Deck Steel
- Start Bulk Pipe Delivery
- Start Equipment Delivery
- Final Equipment Deliveries
- Complete Instrumentation and Control Engineering
- Start Inquiry for Mechanical/Packages
- Start PO Issue for Mechanical Packages
- Final Bulk Deliveries

Fabrication
- Start Steel Fabrication
- Start Electrical/ Instrumentation
- Deck Mating
- Start Loadout and Seafasten
- Ready for Shipment

Transport Installation
- Start Pipe Spooling
- Start Pipe Installation
- Start Commissioning
- Equipment Installation Complete
- Installation Complete
- Hook-Up and Commissioning Completed

North Triumph Jacket

Engineering
- Start Structural Bulk Design
- Initial MTO Steel
- First IFC Major Steel Drawings
- Issue Remaining Secondary Steel Drawings

Procurement
- Intermediate Steel MTO
- Issue Steel Commitments
- First Delivery Steel to Site
- Last Delivery Steel to Site
- Issue Loadout/Seafastening

Fabrication
- Start Leg Fabrication
- Start Main Steel Fabrication
- Ready for Shipment

Transport Installation
- N. Triumph Partial Installation (Pile Refusal)
- Complete Temporary Installation on N. Triumph Jacket

NOTE: Schedule for permanent installation of N. Triumph Jacket under review

North Triumph Drilling

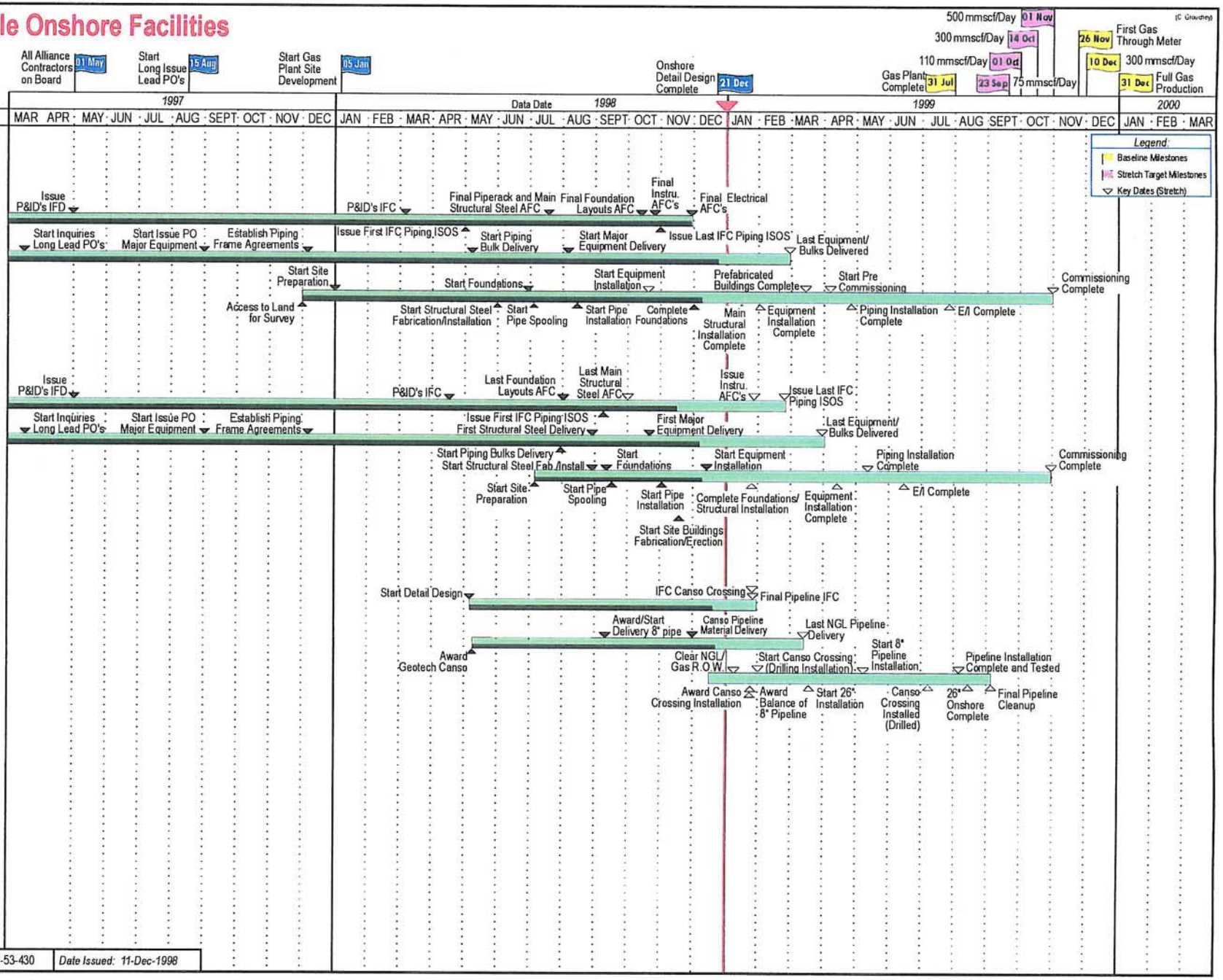
- Start Drilling
- Complete North Triumph #1
- Complete North Triumph #2 and Clean-Up

Approved by:	File No.: G-53-430	Date Issued: 18-Jan-1999

Level II - Schedule Onshore Facilities

SABLE OFFSHORE ENERGY PROJECT

(Status to January 03, 1999)



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SABLE OFFSHORE ENERGY PROJECT

Issue 29/03/99

MATERIALS MANAGEMENT EXPENDITURE SUMMARY LISTED BY COMMODITY

CATEGORY	DESCRIPTION	COMMITTED VALUE	NS $	NS %	CONTENT OTHER C $	CONTENT CDN %	CONTENT FGN. $	CONTENT FGN %
1	PRIMARY JACKET & DECK STEEL							
	Total Primary Steel	$32,651,852	$4,654	<1%	$6,770	<1%	$32,640,428	99%
	Percentage of Total	12.1%						
2	SECONDARY STEEL							
	Secondary Steel - North Tri.	$1,368,471	$205,271	15%	$478,965	35%	$684,236	50%
	Percentage of Total	0.5%						
3	MECHANICAL & PACKAGED EQUIPMENT							
	Subtotal Onshore Mechanical Packages	$39,119,077	$178,981	<1%	$5,323,869	14%	$33,616,227	85%
	Subtotal Offshore Mechanical Packa	$22,787,620	$1,762,416	8%	$6,125,183	27%	$14,900,021	65%
	Total Mechanical Packages	$61,906,697	$1,941,397	3%	$11,449,052	18%	$48,516,248	s
	Percentage of Total	23.0%						
4	HEAT EXCHANGERS							
	Total Heat Exchangers	$6,982,808	$12,806	0%	$4,515,000	65%	$2,455,002	35%
	Percentage of Total	2.6%						
5	PRESSURE VESSEL FABRICATION							
	Subtotal Pressure Vessel Fabrication	$14,681,570	$2,535,789	17%	$8,252,716	56%	$3,893,064	27%
	Percentage of Total	5.5%						
6	MISCELLANEOUS STEEL FABRICATION							
	Subtotal Miscellaneous Steel Fabrication	$80,506	$72,277	90%	$8,229	10%	$0	0%
	Percentage of Total	<1%						
7	SPECIALTY OFFSHORE FABRICATION							
	Flexible Stability Mattresses	$125,710	$6,286	5%	$0	0%	$119,425	95%
	Percentage of Total	<1%						
8	CATHODIC PROTECTION ANODES							
	Total Cathodic Protection	$2,574,010	$0	0%	$1,833,642	71%	$740,368	29%
	Percentage of Total	1.0%						
9	VALVES							
	Total Valves	$15,696,898	$473,678	3%	$1,372,044	9%	$13,851,175	88%
	Percentage of Total	5.8%						
10	PROCESS PIPING MATERIALS							
	Subtotal FRP Piping	$2,575,114	$128,756	5%	$386,267	15%	$2,060,091	80%
	Subtotal Duplex Piping	$3,779,477	$348,588	9%	$627,458	17%	$2,803,432	74%
	Subtotal Carbon Steel Piping	$5,733,617	$355,271	6%	$333,769	6%	$5,027,672	88%
	Subtotal Stainless Steel Piping	$3,967,604	$197,413	5%	$230,262	6%	$3,507,916	89%
	Subtotal Bolts & Gaskets	$1,224,681	$171,455	14%	$0	0%	$1,053,226	86%
	Total All Piping Material	17,280,493	1,201,482	7%	1,577,756	9%	14,452,337	84%
	Percentage of Total	6.4%						

SABLE OFFSHORE ENERGY PROJECT

Issue 29/03/99

MATERIALS MANAGEMENT EXPENDITURE SUMMARY LISTED BY COMMODITY

CATEGORY	DESCRIPTION	COMMITTED VALUE	NS $	NS %	CONTENT OTHER C $	CONTENT CDN %	CONTENT FGN. $	CONTENT FGN %
11	CARBON STEEL LINE PIPE							
	Subtotal Line Pipe	$83,719,775	$20,652	<1%	$109,339	<1%	$83,956,228	98%
	Percentage of Total	31.1%						
12	CHEMICALS & COATINGS							
	Total Chemicals & Coatings	$1,995,838	$0	0%	$302,553	15%	$1,693,285	85%
	Percentage of Total	0.7%						
13	LOSS PREVENTION							
	Total Loss Prevention	$5,333,212	$46,829	1%	$322,192	6%	$4,964,192	93%
	Percentage of Total	2.0%						
14	ELECTRICAL EQUIPMENT							
	Subtotal Onshore Electrical	$987,145	$58,657	3%	$692,953	88%	$235,535	9%
	Subtotal Offshore Electrical	$2,094,286	$71,279	3%	$452,611	22%	$1,570,396	75%
	Total Electrical	$3,081,431	$129,936	4%	$1,145,564	37%	$1,805,931	59%
	Percentage of Total	1.1%						
15	ELECTRICAL BULKS							
	Subtotal Onshore Bulks	$3,234,542	$535,601	17%	$1,248,046	39%	$1,450,895	44%
	Subtotal Offshore Bulks	$4,622,574	$729,440	16%	$1,967,730	43%	$1,925,405	41%
	Total Electrical Bulks	$7,857,116	$1,265,041	16%	$3,215,775	41%	$3,376,299	43%
	Percentage of Total	2.9%						
16	HVAC & WORK SHOPS							
	Subtotal HVAC	$574,610	$478,082	83%	$41,310	7%	$55,218	10%
	Percentage of Total	0.2%						
17	PROCESS CONTROL INSTRUMENTATION							
	Subtotal Onshore Instrumentation	$4,915,294	$288,240	6%	$1,772,072	36%	$2,855,604	58%
	Subtotal Offshore Instrumentation	8,191,048	987,531	12%	693,338	8%	6,510,179	79%
	Total Instrumentation	13,106,342	1,275,771	10%	2,465,410	19%	9,365,782	71%
	Percentage of Total	4.9%						
TOTAL EP ALLIANCE MATERIAL & EQUIPMENT		269,017,339	9,669,951	4%	37,096,319	14%	222,569,216	83%

SABLE OFFSHORE ENERGY PROJECT
EP MATERIALS MANAGEMENT "ACTUAL" EXPENDITURE ANALYSIS
EXCLUSIVE OF MATERIALS / EQUIPMENT NOT AVAILABLE IN NOVA SCOTIA

CATEGORY DESCRIPTION	Project Committed Value	Project Actual $ NS Achieved	Project Overall NS %	Estimated % Available To NS	$ Available To NS	Actual NS % Achieved	Assumption Basis of % Available
Primary Steel	$32,651,852	$0	0%	0%	$0	0%	Not available from Canadian mills
Secondary Steel - North Triumph.	$1,368,471	$205,271	15%	15%	$205,271	100%	All material supplied from NS
Mechanical Packages	$61,906,697	$1,941,397	3%	6%	$3,466,775	56%	Based on 50% of 11% available in NS
Heat Exchangers	$6,982,808	$0	0%	0%	$0	0%	Specialized fabrication not available
Pressure Vessel Fabrication	$14,681,570	$2,535,789	17%	45%	$6,606,707	38%	Based on 45% labour for NS potential
Miscellaneous Steel Fabrication	$80,506	$72,277	90%	90%	$72,455	100%	All fabrication supplied from NS
Flexible Stability Mattresses	$125,710	$6,286	5%	5%	$6,286	100%	NS Agents fee only
Cathodic Protection	$2,574,010	$0	0%	0%	$0	0%	No Nova Scotia bidders
Valves	$15,696,898	$473,678	3%	15%	$2,354,535	20%	Estimated distributor's markup only
Bulk Piping Material	$17,280,493	$1,201,482	7%	10%	$1,728,049	70%	Estimated distributor's markup only
Line Pipe	$83,719,775	$0	<1%	0%	$0	0%	Not available from Canadian mills
Chemicals & Coatings	$1,995,838	$0	0%	10%	$199,584	0%	Estimated distributor's markup only
Loss Prevention	$5,333,212	$46,829	1%	5%	$266,661	18%	Delete Survival Craft & Blast Walls then 15% of balance.
Electrical	$3,081,431	$129,936	4%	15%	$462,215	28%	Estimated distributor's markup only
Electrical Bulks	$7,857,116	$1,265,041	16%	16%	$1,257,139	101%	Estimated distributor's markup only
HVAC & Work Shops	$574,610	$478,082	83%	83%	$476,926	100%	All fabrication supplied from NS
Instrumentation	$13,106,342	$1,275,771	10%	15%	$1,965,951	65%	Estimated distributor's markup only
TOTAL EP MAT'L & EQUIPMENT	$269,017,339	$9,631,839	4%		$19,068,552	51%	Estimated +/- 10% of Actual Values
		Note 1			Note 2	Note 3	

Note 1. This value represents the actual supplier reported Nova Scotia content for material and equipment supplied to the Project.

Note 2. This value represents the estimate of maximum Nova Scotia content achievable when those items that are not available in Nova Scotia have been deleted from consideration. (e.g. Line Pipe, Primary Steel, Manufacturing and raw material cost components)

Note 3. Nova Scotia companies have achieved an estimated 51% success on international competitive bidding of materials / equipment that can be found in Nova Scotia for the EP portion of the Project

Supplier Development Initiatives - 1998

Date	Event	Location	Groups Represented	Individual Attendance	Purpose/Topic	Participants/Sponsors
1998						
14-Jan	Meeting with Local Business	Sydney	Laurentian Energy Group	10	Review requirements/opportunities	N.S. Economic Development & Tourism
14-Jan	**SOEP Open Information Session**	Sydney	Public and business community	80	Project update & opportunities	SOEP, OTANS, POGO
15-Jan	**SOEP Open Information Session**	Port Hawkesbury	Public and business community	50	Project update & opportunities	SOEP, OTANS, POGO
16-Jan	OTANS presentation	Halifax	Local business		Information on NGL's	SOEP, OTANS
08-Jan	Open House Info Session	Issacs Harbour	Local community & business		Community Information sessions	Local community, BIDS
09-Jan	Open House Info Session	Country Harbour	Local community & business		Community Information sessions	Local community, BIDS
10-Jan	Open House Info Session	Guysborough	Local community & business		Community Information sessions	Local community, BIDS
11-Feb	Presentations to NSCEA	Halifax	NSCEA members		Engineering & DCS	SOEP, Elsag Bailey
18-Feb	Meeting with Local Municipality	New Glasgow	Municipal Representatives		Project overview & update	Municipality, SOEP
20-Feb	British Trade Mission	Halifax	Suppliers and contractors		Business development	OTANS
11-Mar	**Supplier Development Workshop**	Sydney	Public and business community	41	Safety & Quality Management, Procurement	SOEP, OTANS, POGO, QPI, ECBC
31-Mar	**Supplier Development Workshop**	Halifax	Public and business community	105	Safety & Quality Management, Procurement	SOEP, OTANS, POGO, QPI
21-Apr	CERI Conference	Halifax	Business and Industry		Procurement & Participation Opportunities	SOEP
04-May	Atlantic Provinces Trucking Assoc.	Halifax	Trucking Industry		Project status and opportunities	SOEP
27-May	**Supplier Development Workshop**	Eskasoni	Eskasoni First Nation	13	Project Update, HSE, Quality, Procurement	SOEP
17-Jun	**Supplier Development Workshop**	Port Hawkesbury	Suppliers and contractors	31	Safety & Quality Management, Procurement	SOEP, POGO, QPI, ECBC
						SOEP
03-Jul	**Supplier Development Workshop**	Bear River	Bear River First Nation	11	Project Update, Procurement, BIDS	SOEP
06-Jul	**Supplier Development Workshop**	Millbrook	Millbrook First Nation	14	Project Update, Procurement, BIDS	
02-Oct	APENS AGM	Halifax	Local Engineering Community	50	Engineering & Technology Transfer to NS	SOEP Engineering
13-Oct	Visit to Port of Louisbourg	Louisbourg	Local Town Council	8	Presentation and tour of Port Facilities	SOEI Operations, Well Constructuon
13-Oct	Public Information Session	Sherbrooke	Public of Guysborough County	40	Drilling/Construction Update, Life on Drill Rig	SOEP, Rowan Companies
21-Oct	SARAT Aboriginal Inclusion Session	Halifax	SOEI Suppliers & Contractors	30	Business Case for Aboriginal Inclusion	SOEI, ARC Consultants
22-Oct	Sable Safety Day	Halifax	SOEI Employees, Suppiers,	500	Charlie Morecraft Presentation	Charlie Morecraft, SOEI, and local
22-Oct	Sable Safety Day	Dartmouth	Contractors, Local Public		Safety Panel	associations, government.
22-Oct	Sable Safety Day	Sheet Harbour	Contractors, Local Public			
23-Oct	Sable Safety Day	Goldboro	Contractors, Local Public	200	Charlie Morecraft Presentation	Charlie Morecraft, SOEI, and local
24-Oct	NovaKnowledge Stakeholder Assembly	Digby	Sable Alliance		Understanding the Impact of SOEP	
05-Nov	Oilfield Technical Society	Halifax	Local Business Community	60	Supply & contract opportunities	SOEI Operations
30-Nov	**POGO Supplier Develop. Session**	Port Hawkesbury	Local Business Community	45	Supply & contract opportunities	SOEI Operations, RFO
16-Dec	**OTANS Supplier Develop. Session**	Halifax	Local Business Community	85	Supply & contract opportunities	SOEI Operations, RFO, Allseas Canada
1999						
25-Feb	**Supplier Development Workshop**	Guysborough	Local Business Community		SOEI Operations - Contracting	SOEI Operations
Proposed:						
30-Mar	Supplier Development Workshop	Halifax	Local Business Community			
08-Apr	Supplier Development Workshop	Sydney	Local Business Community			

Summary of Research & Development Investments

	Program Description
1995	
Dalhousie	Grant to study petroleum seeps concentrate bacteria to produce deep-water limestone mounds of coniferous age in Cape Breton. (Funding for 2 yrs. 1995-1996)
Dalhousie	Scholarship Fund established in the 1980's – paid out scholarships to 3 engineering students this year.
TUNS	Grant to study simplified model predicative control (Funding for 3 yrs. 1995, 1996 & 1997)
NS Agricultural College	Grant to study the biodegradation of hydrocarbon-contaminated peat moss.
Geological Survey of Canada & Bedford Institute of Oceanography	Support for research into sediment stability; support for development of subsea measurement tools; joint research into fault distribution in Glenelg field. (Funding for 4 yrs -1995, 1996, 1997, 1998/99)
Canso Regional Development Agency Fisheries Resource Centre	Contribution to support environmental mapping
Total for 1995	**$121,500**
1996	
Dalhousie	Grant to study petroleum seeps concentrate bacteria to produce deep-water limestone mounds of coniferous age in Cape Breton. (Funding 2 yrs. 1995-1996)
Dalhousie	Grant to study growth of framboidal metal sulphides with in sulfur-rich petroleum.
Dalhousie	Grant to study formation of coke at steam cracking conditions (Funding for 3 yrs 1996, 1997, 1998)
Dalhousie	Scholarship Fund established in the 1980's – paid out scholarships to 3 engineering students this year.
TUNS	Grant to study simplified model predicative control (Funding for 3 yrs. 1995, 1996 & 1997)
Acadia University	Support Acadia Advantage Program (Funding 5 yrs. – 1996, 1997, 1998, 1999 & 2000)
Geological Survey of Canada & Bedford Institute of Oceanography	Support for research into sediment stability; support for development of subsea measurement tools; joint research into fault distribution in Glenelg field. (Funding for 4 yrs -1995, 1996, 1997, 1998/99)
Nortech – Jacques Whitford Surveys Inc. & University of New Brunswick	Provided the following geotechnical/geophysical work – (a) two swath bathymetry surveys consisting of over 2000 line km. of sounding data; (b) a geotechnical program of 175 bottom penetrations; and (c) a geophysical survey of the proposed undersea pipeline corridor from the field installation to landfall at Country Harbour.
MacLaren Plansearch	Environmental Impact Assessment including public consultation, land use, community socio-economic impacts, oceanographic studies, modelling of oil-based muds, visibility analysis and document design compilation.
Washburn & Gillis Associates Ltd.	Environmental assessment of the proposed natural gas liquids pipeline route and the proposed liquids facility site at Point Tupper.
Sable Island Environmental Protection	Environmental monitoring of effects of seismic program.
Western Geophysical	Developed new procedures for deploying Ocean Bottom Cables (OBC) through three marine zones. Employment of this new technology represented the first time OBC technology was used offshore Canada in these water depths. The operation utilized state-of-the-art seismic recording equipment mounted onboard the R/V Western Polaris with three vessels using DGPS positioning to locate and deploy recording equipment and seismic sound source.
TOTAL for 1996	**$146,000**
1997	
Dalhousie	Grant to study formation of coke at steam cracking conditions (Funding for 3 yrs 1996, 1997, 1998)

* Actual $ paid to students, derived from interest accumulated on original donation of $175K in mid 80's

Summary of Research & Development Investments

Dalhousie	Grant to study structure-selective mass spectrometric analysis of polycyclic aromatics. (Funding for 2 yrs. 1997, 1998)
Dalhousie	Scholarship Fund established in the 1980's – paid out scholarships to 3 engineering students this year
Acadia University	Support Acadia Advantage Program (Funding for 5 yrs. – 1996, 1997, 1998, 1999 & 2000)
TUNS	Grant to study simplified model predicative control (Funding for 3 yrs. 1995, 1996 & 1997)
Sable Island Weather Station	Cash & support in kind to help maintain weather station & emergency infrastructure to replace withdrawn government funding. (Funding for 5 yrs. - 1997, 1998, 1999, 2000, 2001)
Sable Island Conservancy Program	Zoe Lucas research on Sable Island wildlife and environmental effects. (Funding for 5 yrs. - 1997, 1998, 1999, 2000, 2001)
Geological Survey of Canada & Bedford Institute of Oceanography	Support for research into sediment stability & scour monitoring; support for development of subsea measurement tools; joint research into fault distribution in Glenelg field. (Funding for 4 yrs -1995, 1996, 1997, 1998/99)
Atlantic Universities Geological Conference	Contribution
East Coast Ecosystem	Right Whale research (Funding for 2 yrs. – 1997 & 1998)
Washburn & Gillis	Compiled a database of environmental information from various provincial sources. This information was used in the description and delineation of the environment, related to the various components of the Project.
Jacques McClelland Geosciences	Offshore Geotechnical Program – 1) Completion of offshore geotechnical bore-holes with instu testing at the Venture, Thebaud and NorthTriumph locations as well as some specific test locations along the pipeline route to shore. 2)Radio-carbon dating of samples from sandridges 3. Developed a new "real time" software program specifically designed for SOEP for logging of downhole test data and borehole imaging as part of the offshore geotechnical investigation.
Nortech Jacques Whitford Geosurveys and the University of New Brunswick	Jointly developed a computer software package that can provide 3-D seabed characterization maps. The software was developed using previously collected SWATH survey data and provides imaging of the nearshore pipeline route. The software can be used in other seabed mapping applications.
Branta-Biostrata	Performed a biostratigraphy study in order to provide a chronostratigraphic framework for correlating the reservoir zones between the South Venture O-59 well and the Venture B-52 well. It also was done to provide estimates of paleowater depth in order to help with interpretations of depositional environments.
Branta-Biostrata	Biostratigraphy study on the deep reservoir section at Thebaud.
Rocky Mountain Geological Engineering	Petrographic Image Analysis - The objective of the study was to generate estimates of such parameters as irreducible water saturation and permeability from simulated capillary pressure curves. Although these parameters are normally obtained from core analysis, there was no conventional core cut at South Venture. PIA helped to characterize the South Venture reservoir section in the absence of core, although it is not a commonly used technique and is not as accurate as core measurements.
TOTAL for 1997	**$3,888,373**
1998	
Daltech	Daltech Oil & Gas Institute – (Funding for 5 yrs. – 1998, 1999, 2000, 2001, 2002)
Daltech	Daltech Oil & Gas Institute
Dalhousie	Grant to study formation of coke at steam cracking conditions (Funding for 3 yrs 1996, 1997, 1998)

* Actual $ paid to students, derived from interest accumulated on original donation of $175K in mid 80's

Summary of Research & Development Investments

Dalhousie	Grant to study structure-selective mass spectrometric analysis of polycyclic aromatics. (Funding 2 yrs. 1997, 1998)
Dalhousie	Grant to study calculation of properties of fluids via a new cluster method.
Dalhousie	Grant to study process control and optimization of a catalytic naphtha reformer.
Dalhousie	Scholarship Fund established in the 1980's – paid out scholarships to 5 engineering students this year.
University College of Cape Breton	UCCB Petroleum Development (Funding for 5 yrs. – 1998, 1999, 2000, 2001 & 2002)
University College of Cape Breton	UCCB Centre of Excellence in Petroleum Development
Acadia University	Grant to study the role of C4H7 radical in natural gas upgrading.
Acadia University	Support Acadia Advantage Program (Funding for 5 yrs. – 1996, 1997, 1998, 1999 & 2000)
Acadia University	Quality Assurance Case Study Research & Development
Acadia University	Quality Assurance Interdisciplinary Program Design Project
St. Francis Xavier University	Recruitment Scholarship
Sable Island Weather Station	Cash & support in kind to help maintain weather station & emergency infrastructure to replace withdrawn government funding. (Funding for 5 yrs. - 1997, 1998, 1999, 2000, 2001)
Sable Island Conservancy Program	Zoe Lucas research on Sable Island wildlife and environmental effects. (Funding for 5 yrs. - 1997, 1998, 1999, 2000, 2001)
East Coast Ecosystem	Right Whale research (Funding for 2 yrs. – 1997 & 1998)
Mi'Kmaq Fish & Wildlife Commission	TEK – Traditional Ecological Knowledge
Jacques Whitford	Micro-structure of the North Triumph sands with respect to physical make-up of geological structures. (Funding for 2 yrs. – 1998 & 1999)
Coastal Oceans	Development of short transmission methods for Acoustic Dopler Current Profiler (Funding for 2 yrs. – 1998 & 1999)
Atlantic Consultants	Engineering study into potential outcome of scallop gear hitting pipeline (effects to both gear and pipeline)
LGL Ltd.	Measurement of noise from pile driving and determination of potential impact on whales in the gully
Sub-Surface	De-bottlenecking study
MEPTEC USA	Specialized research and development done in Nova Scotia to adapt MEPTEC LFRD (Load & Resistance Factor Design) Processes for application to HPHT wells.
SOE Inc. - Sub-surface	Development of methods to determine commingling in high pressure, high temperature gas reservoirs (Funding for 2 yrs. – 1998 & 1999)
Schlumberger	CMR (Composite Magnetic Resonance) – logging device used for determining reservoir permeability (Funding for 2 yrs. – 1998 & 1999)
Martec	Environmental Effects Monitoring – Nearshore (Funding for 2 yrs. – 1998 & 1999)
Jacques Whitford	Environmental Effects Monitoring – Offshore (Funding for 2 yrs. – 1998 & 1999) – includes scientific research into the environmental effects of Alternate Drilling Fluids on local environment.
Jacques Whitford	Development of specialized procedure to deal with pipe temperature and ground heave.
Jacques Whitford	Geotech Survey of onshore pipeline route – including acid rock considerations.
Jacques Whitford	Geotech Survey in the Strait of Canso
BBA	Environmental Effects Monitoring – Onshore (Funding for 2 yrs – 1998 & 1999)
HEF Petrophysical Consulting Inc. (Calgary)	Manipulation of dipmeter log data and a structural and stratigraphic interpretation of this data.
SOE Inc. – Well Construction	Research into the use of Alternate Drilling Fluids for use with deep co-mingled wells. (This is incremental to work being done under the Environmental Effects Monitoring Program.)
MEPTEC and SOE Inc. Well Construction Team	OCTG (Offshore Country Tubular Goods) evaluation processes were further developed to deal with the peculiarities of the HPHT wells. The research was conducted jointly by MEPTEC and the SOE Inc. Well Construction Team. The expenditure reflects only the research and development conducted in Nova Scotia.

* Actual $ paid to students, derived from interest accumulated on original donation of $175K in mid 80's

Summary of Research & Development Investments

Environmental Studies Revolving Fund	Environmental Studies Revolving Fund
TOTAL for 1998	**$5,758,207**
TOTAL for 1995 – 1998	**$9,914,080**

* Actual $ paid to students, derived from interest accumulated on original donation of $175K in mid 80's

Summary of Training Expenditures

TRAINING	Cost
Saftey Training for all Venture & Alliance Staff	
BST	$28,700
OSI	$650
Emergency First Aid/CPR	$135
Standard First Aid/CPR	$5,720
WHMIS	$5,625
TDG	$375
Permit to Work - Supervisor	$3,200
Permit to Work - Worker	$1,600
First Line Well Control	$1,485
Second Line Well Control	$895
Confined Space	$1,200
Fire/Floor Warden/Office Safety	$450
H2S Alive	$240
Other Training for Venture & Alliance	
Operations - *direct and indirect costs for all training to prepare for facility operation, including:PLP, Facility training, Gulf Of Mexico Offshore Training, Factory Acceptance Training, Computer Training, Breathing Apparatus Training*	$1,300,000
Emergency Response Command & Control	$1,345,654
Management/Leadership Training	$1,365,429
Computer Training	$16,779
PDMS Training	$250,000
Traditional Ecological Knowledge (TEK) Awareness Training	$2,000
Offshore Medical Training	$8,000
Geological/geophysical sub-surface training	$121,320
Saipem - *BST, specialized CAD training, OTJ skill development*	$764,725
Allseas - BST, specialized accounting systems, pipelay engineering installation	$43,200
Elsag Bailey - *Project engineering procedures, Bailey WINTOOLS, Orientation*	$172,000
MMI/B&R - *flexcore welding, WHMIS, First Aid, welder process training*	$495,540
BBA - *welding upgrading & new welding skills training, site safety orientation, WHMIS, First Aid, Fall Protection,Traffic Control, and Traffic Signing*	$572,000
First Level Contractor Training Expenditures (Safety & Other)	
FABCO/CKT - *Orientation, Forklift, HSE Mgmt., First Aid, Respiratory, Risk Mgmt.*	$103,880
Canadian Helicopters - *recurrent training, IFC Training, PPC, Simulator Procedures, Cock-pit Resource Management, First Aid, Night Flight Training, Night Recurrence Training, Simulator Process Trainer, Aircraft Simulator, BST, Aircraft specific ground sch*	$171,552
FI Canada - *BST & other safety-related training, Hawk Tong usage*	$119,792
MI/Swaco - *BST, H2S Alive, WHMIS, IFE, ISO, Safety Orientations, Forklif, Drilling Fluids Training*	$76,875
Santa Fe - *BST, WHMIS, Emergency First Aid, H2S Alive, Well Control, General Induction, Fire Team, Mariner/First Aid, Coxswain, Fast Rescue, HLO*	$330,000
Rowan - *BST, WHMIS, H2S Alive, OFT, Work Permit, HLT, Confined Space Entry, Crane Safety, Standard & Advanced First Aid, Well Control, A/I Investigation, HLO, Weather Observer, Radar Observer, Radio Operator, Rig Stability Training*	$366,900

Summary of Training Expenditures

Secunda - *WHMIS, Mariner II, FRC, A/I Investigation, Confined Space Entry, Work Permit - Supervisor, Work Permit - Worker, OB, Fire Fighter, Train the Trainer, Fast Craft Rescue TDG*	$68,516
Lloyd's Register - *WHMIS, BST*	$12,875
Offshore Logistics - *TDG, First Aid, WHMIS, Operator Training*	$31,279
Weatherford Services - *BST*	$2,200
Sperry Sun - *BST, WHMIS, TDG, Hands-on Lan*	$112,280
Schlumberger - *BST*	$35,000
Baker Hughes - *oil field familiarization, BHI surface logging training, BST, H2S Alive, "Drillbyte" system training*	$61,900
Co-op Programs	**$250,000**
Technology Transfer expenditures resulting in a stronger natural gas industry in Nova Scotia. (See section on Technology Transfer and Appendix _____)	**$972,655**
TOTALS	**$7,999,971**

Co-op and Student Placements

Discipline	Academic Institution	Team
Accounting	Dalhousie	Mobil - Calgary
Accounting	Dalhousie	Accounting
Accounting	Dalhousie	Accounting
Accounting	Dalhousie	Accounting
Accounting	Dalhousie	Mobil - Calgary
Administration	CompuCollege	BBA
Administration	CompuCollege	BBA
Administration	Dartmouth High	MMI/B&R
Administration	Nova Scotia Community College	MMI/B&R
Administration	CompuCollege	MMI/B&R
Architecture	Dalhousie	FABCO/CKT
Architecture	Dalhousie	FABCO/CKT
Commerce	Acadia	Shell - Calgary
Commerce	Acadia	Shell - Calgary
Commerce	Dalhousie	Mobil - Aberdeen & Halifax
Computer Science	Dalhousie	Mobil - Calgary
Engineering	Dalhousie	Shell - Calgary
Engineering	Dalhousie	Shell - Calgary
Engineering	Dalhousie	Shell - Calgary
Engineering	Dalhousie	Shell - Calgary
Engineering	Dalhousie	Operations
Engineering	Dalhousie	Operations & Well Construction
Engineering - Chemical	Dalhousie	Well Construction
Engineering - Civil	Dalhousie	Allseas
Engineering - Civil	Dalhousie	Saipem
Engineering/Mining	Dalhousie	Operations
Engineering/Mining	Dalhousie	Mobil - Calgary
Geology	Dalhousie	Mobil - Calgary
Information Services	Dalhousie	Information Services
Machinist	Nova Scotia Community College	MMI/B&R
Steamfitting/Pipefitting	Nova Scotia Community College	MMI/B&R
Steamfitting/Pipefitting	Nova Scotia Community College	MMI/B&R
Welder	Nova Scotia Community College	MMI/B&R
Welder	Nova Scotia Community College	MMI/B&R
Welder	Nova Scotia Community College	MMI/B&R
Welder	Nova Scotia Community College	MMI/B&R

Summary of Technology Transfer Investments

	Program Description
1998	
Jacques-Fuguro Geosciences (Joint Venture) – Geotechnical survey expertise	A joint venture of Jacques Whitford & Fugro (Jacques-Fuguro Geosciences) was formed to provide offshore geotechnical surveys. They also established an uplink station in their Dartmouth office for provision of Starfix (Fugro) DGPS services to the East Coast oil and gas industry.
Shaw & Shaw Limited (Joint Venture) – Anticorrosion and concrete weight coating of sub-sea pipeline	A joint venture of The Shaw Group Limited of Halifax and Shaw Pipe Protection Limited of Calgary (Shaw & Shaw Limited) was formed to transfer expertise in anticorrosion and concrete weight coating of subsea interfield flowlines and main gathering line.
MMI/Brown & Root JV (Joint Venture) – fabrication of early jakets and topsides	A joint Venture of Brown & Root and MMI (Dartmouth company) was formed to transfer knowledge from the UK and US Gulf Coast on fabrication of the early jackets (Venture and Thebaud) and the topsides for North Triumph. Some specialized work done on training riggers and crane operators in the specialized lifts and procedures for the erection of the jackets. This expertise did not previously exist in Nova Scotia.
FABCO/CKT Design & Fabrication (Joint Venture) – Offshore Living Quarters Fabrication Expertise	A joint venture (FABCO/CKT Design & Fabrication), born from a successful NS fabrication and maintenance contractor & a Netherlands engineering and project management company, was formed to transfer knowledge on how to construct Thebaud and Venture offshore living quarters. Some specific incidents of technology transfer include: 1. INEXA interior wall systems, DAMPA ceiling systems and PREMAC prefabricated washrooms were specified for the Lining Quarters. An installation engineer was brought from Europe to train and supervise in excess of 24 craftspeople and labourers to install and finish these components ($79,300) 2. Helidecks – BAYARDS supplied the aluminum helideck components for the Living Quarters. A factory representative was brought into to train in excess of 12 craftspeople and labourers to assemble these components. ($40,942)
MMI/Brown & Root JV (Joint Venture) – fabrication of early jakets and topsides	A joint Venture of Brown & Root and MMI (Dartmouth company) was formed to transfer knowledge from the UK and US Gulf Coast on fabrication of the early jackets (Venture and Thebaud) and the topsides for North Triumph. Specialized training was done on training riggers and crane operators in the specialized lifts and procedures for the erection of the jackets. This expertise did not previously exist in Nova Scotia.
MOBIL DOC (Data Operations Centre)	MOBIL DOC data transfer/RGII process expertise was transferred to Nova Scotia from Dallas through the training of 2 members of the Well Construction Team. This expertise did not previously exist in Canada
Elsag Bailey	3 Nova Scotia engineers were sent to Elsag Bailey's office in Burlington, ON to develop technical knowledge during the development phase of Process Control Systems, Fire Gas & Safety Systems, and configuration testing. They will return to Nova Scotia with this knowledge that will be useful for the ongoing operations. 3 other Nova Scotians have spent time in the Burlington office and are bringing back expertise in Fire & Gas systems, training manuals, dynamic simulator design and DCS systems.
Shell – International	Well Completion expertise for HPHT wells was transferred to Nova Scotia from outside Canada by bringing from abroad an expert in the field to work with the Well Construction Team to further develop the local team's knowledge. This knowledge did not previously exist in Canada.
Santa Fe – UK	HPHT Well Control & TRUE Training was provided to Nova Scotia employees of Santa Fe by their UK counterparts. Specifically, the Nova Scotians gained knowledge in problem solving techniques related to hole formations, drilling fluids, and the use of technologically advanced drilling equipment.
Randy Smith Drilling School – USA	Expertise in well control of High Pressure/High Temperature wells was transferred to Nova Scotia through training of 12 members of SOE Inc.'s Well Construction and Operations teams. This expertise, sourced from the US, did not previously exist in Canada.
BBA	MIG Automatic welding process for barrel piping was a new method of welding introduced to Nova Scotia for work on the Slug Catcher
MEPTEC – Mobil USA	Mobil LRFD (Load & Resistance Factor Design) training – methodology for tubulars due to the increased instances on cost-effective design coupled with a quantifiable risk-assessment in tubular design. This expertise, transferred to Nova Scotia from the US, through the training of 20 members of the well construction team, did not previously exist in Canada.
ACCENT Engineering – PDMS 3-D CADD and solid modeling capability	ACCENT Engineering facilitated the transfer to Nova Scotia of PDMS 3-D CADD and solid modelling capability.
Baker Hughes – "BHI Drillbyte System" expertise	Baker Hughes facilitated a technology transfer to Nova Scotia by bringing in a specialized trainer from Houston to teach a five-day course in "BHI Drillbyte System". This is the first time this system has been operated in Canada, and although Baker Hughes was initially dependent upon outside operators, it is now able to gradually reduce their non-Nova Scotia content.
Saipem 7000 specialized training	Two, 3rd officers, two 3rd engineers, two field engineers and a safety officer were hired from NS to join the Saipem 7000 permanently in order to gain an expertise for heavy lift barges like the Saipem 7000

Summary of Technology Transfer Investments

Kvaerner/Whitman Benn	2 Engineers from Nova Scotia went to Teeside to work with Kvaerner Oil & Gas. They are gaining valuable knowledge in the areas of offshore P&ID drawings, PDMS Review, InTools Instrument Database, CARD + cable database and Axiom Project Management software, platform construction procedures, MEG/TEG dehydration systems, Heat Medium Package and Hydraulics package. They also gained valuable knowledge with the Offshore Telecommunications System construction and commissioning.
Operations	The production of the Operations Manuals by an integrated team represented a technology transfer to Nova Scotia.
Mobil – Calgary	Mobil procurement contract management expertise was transferred to Nova Scotia from Calgary through training of 2 members of the Well Construction team.
Mobil – Calgary	Mobil Star DCC (document control) knowledge was transferred to Nova Scotia from Calgary through the training of a member of the Well Construction Team. This knowledge did not previously exist in Nova Scotia.
Sperry Sun	Individual was sent to Aberdeen for training in offshore directional drilling. This expertise did not previously exist in Nova Scotia.
ATL/JW Consulting (Joint Venture) – Maintenance Excellence	ATL Consulting from the UK joined with Jacques Whitford to offer Asset Integrity Management solutions to the Canadian Oil & Gas Industry so they can operate at peak performance. Other services that will be provided include maintenance management, condition monitoring inspection and corrosion management and performance management.
Scand Power	A/S HAZID Identification process expertise was transferred to Nova Scotia from the North Sea through the training of 8 members of the Well Construction Team. This expertise did not previously exist in Canada.
Well Services Technology Canada	Further advanced HAZID expertise was transferred to Nova Scotia from abroad through the training of 6 members of the Well Construction Team. This expertise did not previously exist in Canada.
FI Oilfield Services Canada Ltd. – Edmonton	Use of Hawk Jaw Tongs. While this expertise exists in western Canada, it did not previously exist in Nova Scotia.
Sperry Sun – Edmonton	Nova Scotian sent to Edmonton to gain expertise in Mud Motor Maintenance.
Sperry-Sun	FE Technical expertise was brought to Nova Scotia from the North near through transfer of an individual.
Sperry-Sun	PPFG – Study on Pore Pressure Modelling on Venture & Thebaud Fields. This represents new knowledge in Nova Scotia
OAS (Offshore Audit Services)	RG 2 Audit expertise particular to HPHT wells was transferred to Nova Scotia from the Gulf of Mexico through the training of 2 members of the Well Construction Team. This expertise did not previously exist in Canada.
Project Management Institute	Donation for the Project Management Symposium which discussed learnings to be gained from the Sable Offshore Energy project.
MEPTEC	MEPTEC OCTG (Offshore Country Tubular Goods) Evaluation Process expertise was transferred to Nova Scotia from the US through the training of 2 members of the Well Construction Team.
Safety First	Specialized safety training processes were transferred to Nova Scotia from Calgary through the training of 6 members of the Well Construction Team. This knowledge did not previously exist in Nova Scotia.
Sperry-Sun	Instructor brought in from the North Sea to train Nova Scotia engineers in Drilling Optimization Service
Sub-surface - geological/geophysical expertise	Sub-surface geological/geophysical expertise transferred to Nova Scotia with the arrival in Halifax of an expert in this field from the North Sea. He is working with local staff to develop a local expertise.
Allseas – EFAS Accounting/Management System	An individual was sent to Holland to learn a specialized accounting/management system called EFAS. This expertise did not previously exist in Nova Scotia.
Allseas – Offshore Pipelay Installation	A Cape Breton engineer has been working directly with a Dutch expert in offshore pipelay installation to develop a local expertise.
Remembering Charlie (Charlie Morecroft)	Safety practises and a total company commitment to safety represents a technology transfer to Nova Scotia that has resulted from the Project. The transfer was accelerated through presentations given by Charlie Morecraft. SOE Inc. sponsored this event and then opened it to other Nova Scotia businesses.
OLI	POB (Personnel on Board) expertise was transferred to Nova Scotia from Calgary through the training of 2 members of the Well Construction Team. Knowledge of these specially developed processes and procedures for the safe movement of personnel offshore, did not previously exist in Nova Scotia.
MOBIL – Dallas	General knowledge on working with HPHT wells was transferred to Nova Scotia through the training of 11 members of the Well Construction Team. This knowledge did not previously exist in Canada.
Texas	Drill String/BHA expertise which deals with how to prevent failure in deep wells using conventional rotary shoulder equipment, was transferred to Nova Scotia from Texas, through the training of 18 members of the Well Construction Team. This knowledge did not previously exist in Canada.
MOBIL US	Directional Drilling expertise for abnormal pressure in HPHT wells was transferred to Nova Scotia from the US through the training of 2 members of the Well Construction Team. This expertise did not previously exist in Canada.
Sperry-Sun	PWD Interpretation Service expertise was transferred to Nova Scotia from Houston by bringing in an instructor.

Summary of Technology Transfer Investments

Santa Fe – US	2 Senior Santa Fe Hydraulic Engineers from the US trained 2 Nova Scotia Hydraulic Engineers in the operation and maintenance of the Galaxy II's well control equipment. While well control equipment technology is not new to Nova Scotia, the improvement of these systems from purely manually operated systems, to computer integrated and operated systems that also maintain manual operational features is new technology to Nova Scotia.
TOTAL for 1998	**$972,655**

Summary of Diversity & Inclusion Investments

	Program Description
1998	
Black Educators Association	Funding to hold Saturday school for the Licolnville/Sunnyville Communities
Black Women's Congress	Study into the barriers to Black women participating in the workforce.
First Nation communities	Assumed registration costs for 2 First Nation communities on the BIDS NS registration system.
Nova Scotia Community College/WITT NS/ NS NS Dept. of Education & Culture – Apprenticeship Training Division	"Techsploration" – a program designed to help young women in grade 9 explore careers in the trades and technologies areas. Eight schools in the Project's impact area will be involved in this pilot program including a Mi'Kmaw First Nation School
Secunda Cadet Program	Support for 16 cadets from Traditionally underrepresented groups.
ARC & Shell Aboriginal Manager	Aboriginal Awareness Workshops
TWI	Diversity Training
NS Native Council Wee Ones Carnival	Donation of 4 Sable Island books.
First Aid /CPR Training	Three individuals were given spots in a First Aid/CPR course (1 from the Racially Visible community and two from the Aboriginal community)
First Nations - Computers	Donations of three computers (hard drive, monitor, keyboard and modem donated to Eskasoni, Millbrook & Indian Brook First Nation communities
Mi'Kmaw Kinamatnewy/Education Mi'Kmaw Science Camp Committee	Donation to the Mi'Kmaw Kinamatnewy/Education Mi'Kmaw Science Camp
Mi'Kmaq-Maliseet News	Placed ad in Mi'Kmaq-Maliseet News to celebrate Mi'Kmaw History Month.
National Aboriginal Achievement Foundation	Donation made for the Blueprint for the Future Career Fair
WITT (Women in Trades & Technology) NS	Provided funding for advertising and dissemination of information regarding positions with Operations Team.
TOTAL for 1998	**$209,931**

SABLE OFFSHORE ENERGY PROJECT

Month End Employment Record

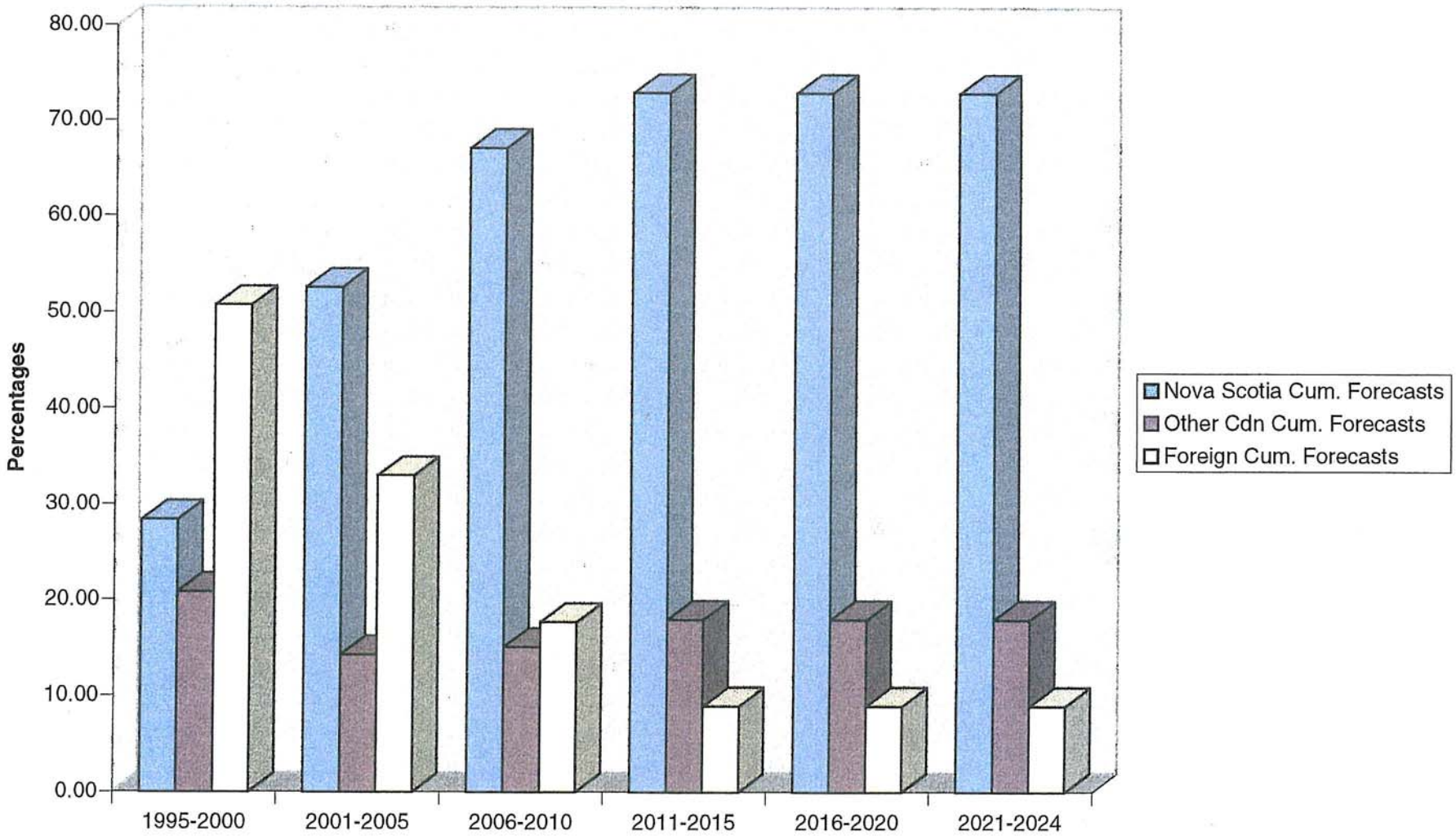
as at December 31, 1998

	LOCATION OF WORK									
	NOVA SCOTIA			OTHER CANADA			FOREIGN			
	Persons From			Persons From			Persons From			
	Nova Scotia	Other Canada	Foreign	Nova Scotia	Other Canada	Foreign	Nova Scotia	Other Canada	Foreign	Total
Facilities										
Integrated Management Team	1	2	1	0	0	0	0	0	0	4
AGRA Monenco/Brown & Root	45	27	5	0	23	0	0	0	82	182
Allseas Canada Ltd.	171	18	5	0	2	0	0	0	19	215
BBA JV	653	6	1	0	0	0	0	0	0	660
Elsag Bailey(Canada) Inc	0	0	0	4	45	2	0	0	0	51
Kvaerner Oil & Gas Ltd.	0	0	0	0	0	0	0	2	1098	1100
MM Industra/Brown & Root JV	198	0	0	0	0	0	0	0	0	198
Saipem UK Ltd.	8	20	12	0	0	0	0	0	15	55
Fabco /CKT	101	5	0	0	0	0	0	0	0	106
Lloyds Register	5	0	0	0	4	0	0	0	40	49
Venture Management										
Management	61	22	6	1	2	0	0	0	0	92
Operations	23	12	1	0	0	0	4	3	1	44
Ready for Operations (RFO)	17	2	5	0	0	0	0	0	0	24
Well Construction										
Management	26	3	11	0	0	0	0	0	0	40
Santa Fe	76	1	23	0	0	0	0	0	0	100
Rowan	92	6	18	0	0	0	0	0	0	116
Secunda Marine	73	9	0	0	0	0	0	0	0	82
Offshore Logistics	8	0	0	0	0	0	0	0	0	8
Canadian Helicopter	8	12	0	0	0	0	0	0	0	20
Service Contractors	76	24	11	1	3	0	0	0	7	122
Total	**1642**	**169**	**99**	**6**	**79**	**2**	**4**	**5**	**1262**	**3268**

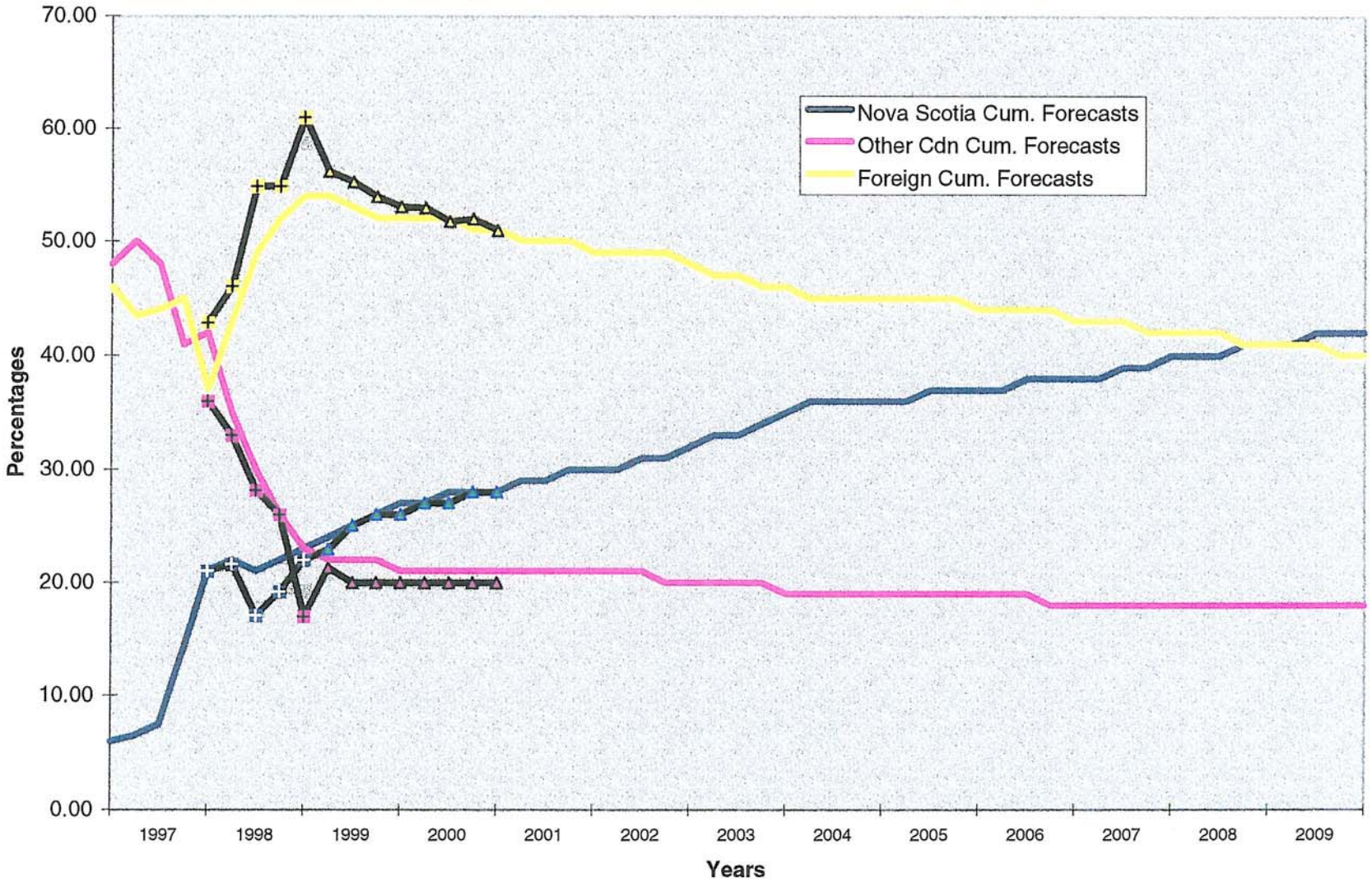
The monthly statistics include only staff working for the principle contractors identified above, in addition to the employees of the principle contractors a significant number of workers are employed by other contractors and sub-contractors involved with the project.

Staffrep.xls

Canada-Nova Scotia Benefits - 5 Year Intervals - Sanction Forecasts



Canada-Nova Scotia Benefits Directional Progress
Actuals to Fourth Quarter 1998



Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
A. D. I. Nolan Davis	7020 Mumford Road	Halifax, Nova Scotia	B3L 4S9		
Aboriginal Resource Consultant	Box 891	Perth, New Brunswick	E0J 1V0		
Accent Engineering & Consultant	P.O. Box 353	Halifax, Nova Scotia	B3J 2N7		
Adams Pearson Associates Inc.	600 521 3rd Avenue SW	Calgary, Alberta	T2P 3T3		
Air Canada Enroute	2550 144 4th Avenue SW	Calgary, Alberta	T2P 3N4		*
Aker Gulf Marine	PO. Box C - FM 1069 S.	Ingleside, Texas	78362-1302	*	*
Allseas	407 1959 Upper Water Street	Halifax, Nova Scotia	B3J 3N2	*	*
Alscott Air Systems Limited	50 Thornhill Drive Unit 5	Dartmouth, Nova Scotia	B3B 1S1	**	*
AMI Offshore Inc.	P.O. Box 13934, Station "A", Suite 200, 1 Crosbie Place	St. John's, Newfoundland	A1B 4G7	*	*
An Deringer				*	*
Armour Construction Limited	P.O. Box 665, Station Central RPO	Halifax, Nova Scotia	B3J 2T3		
Atlantic Canada Careers Inc.	6389 Coburg Road; Suite 304	Halifax, Nova Scotia	B3H 2A5		
Atlantic Controls	15 Dartmouth Road; Suite 310	Bedford, Nova Scotia	B4A 3X6	*	*
Atlantic Custom Brokers Ltd.	1525 Birmingham Street; P.O. Box 902 Sta M	Halifax, Nova Scotia	B3J 2V9	*	*
Atlantic Geoscience Centre	Division of Bedford Institute of Oceanography	Bedford, Nova Scotia		**	
Atlantic Netcom	102 Chain Lake Drive; Vantage 1 Site 3	Halifax, Nova Scotia	B3S 1A7		
Atlantic Offshore Medical Associates	6155 North Street	Halifax, Nova Scotia	B3B 5R3		
Atlas Copco Rotoflow	540 East Rosecrans Avenue	Gardena, California	90248	*	*
Atl-JW Consulting	3 Spectacle Lake Drive	Dartmouth, Nova Scotia	B3B 1W8	*	*
Automatic Power Inc.	5 Post Oak Park; 4400 Post Oak PkWy 8th Floor	Houston, Texas	77027		*
Bailey Engineering Consultants	3201 Cherry Ridge Drive; C319	San Antonio, Texas	78230		*
Baker Hughes Inteq	1959 Upper Water Street Suite 407	Halifax, Nova Scotia	B3B 1R9	*	*
Baker Process Systems	PO Box 200246	Houston, Texas	77216-0246	*	*
Basic Technologies	490 West Side Road	Welland, Ontario	L3B 5R6	*	*
BBA, A Joint Venture	1701 Hollis Street; 6th Floor	Halifax, Nova Scotia	B3J 3M8	*	*
BWIP International Limited	5920 -1A Street SW; Suite 106	Calgary, Alberta	T2H 0G3		
Bennett Jones Verchere	4500 855 2 Street SW	Calgary, Alberta	T2P 4K7		*
Bercha International Inc. (F.G. Bercha)	250 1220 Kensington Road NW	Calgary, Alberta	T2N 3P5		*
Bott Equipment Company	PO Box 14235	Houston, Texas	77221	**	
Brian Controls	10 Morris Drive; Unit 9	Dartmouth, Nova Scotia	B3B 1K8		
Brown & Root Energy Services	Greens Bayou Fab Yard; Box 9807; 14035 Industrial Rd	Houston, Texas	77213-9807	*	*
Burnet, Duckworth & Palmer	1400 350 7th Avenue SW	Calgary, Alberta	T2P 3N9		*
C. N. S. O. P. B.	1791 Barrington Street, Suite 600	Halifax, Nova Scotia	B3J 3K9		*
CAC Network Services	2908 221 6th Avenue	Calgary, Alberta	T2P 3W3	**	
C.E. Franklin Limited	19th Floor, 300 -5th Avenue SW	Calgary, Alberta	T9P 3C4		*
CETCO	1350 W Shore Drive	Arlington Hts, Illinois	60004	*	*
CL Consultants	3601 A 21 st NE	Calgary, Alberta	T23 6T5		
CSC Project Management	604 550 11th Avenue SW	Calgary, Alberta	T2R 1M7		*
Canadian Helicopters	637 Barnes Road	Enfield, Nova Scotia		*	*

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
Canning & Pitt Associates Inc.	36 Monkstown Road	St. John's, Newfoundland	A1B 3T3		*
Cantak Corporation	1000 Canada Place; 407 - 2nd Street SW	Calgary, Alberta	T2P 2Y3	*	*
CDN Seabed Research Ltd.	341 Myra Road; P.O. Box 299	Porter's Lake, Nova Scotia	B0J 2S0	**	*
Cessco Fabrication & Engineering	7310 99 Street	Edmonton, Alberta	T6E 3R8		*
Clamp on Inc.	11232 Wilcrest Green Drive	Houston, Texas	77042		
Comco Pipe and Supply	Box 4457, 5910 17th Street N.W.	Edmonton, Alberta	T5J 2K1	*	*
Conscious Communications	RR 1	Mulgrave, Nova Scotia	B0E 2G0		
Cooper Cameron Corporation	600 715 5th Avenue S.W.	Calgary, Alberta	T2P 2X6	*	*
Cordah	Kettock Lodge - Bridge of Don	Aberdeen, Scotland	AB22 8GU	**	
Crosby Valve c/o Atlantic Controls	15 Dartmouth Road; Suite 310	Bedford, Nova Scotia	B4A 3X6	*	*
DC Corrosion Corporation	c/oGalvotec Alloys Inc., 6712 South 36th Street,	McAllen, Texas	78503	*	*
DSC Engineering	Doelasletta 7 N-3408	Tranby, Norway		*	*
Dikema Contructiest	Postbus 5659 Eemhavenweg 70	3089 KH Rotterdam	3089	**	*
Diversity Special Interest	Box 2705 Station M	Halifax, Nova Scotia	B3J 3P7		
Dominion Diving Limited	7 Canal Street	Dartmouth, Nova Scotia		*	*
Dreco Energy Services Limited	6514 75th Street	Edmonton, Alberta	T6E 0T3	*	*
Dymaxion Research Limited	5515 Cogswell Street	Halifax, Nova Scotia	B3J 1R2		
E C & M Electric Limited	3503 - 78th Avenue S.E.	Calgary, Alberta	T2C 1J7	**	*
East Coast Offshore Alliance	1874 Brunswick Street Suite 400	Halifax, Nova Scotia	B3J 2G7	**	*
Eastex Petroleum Consultants Ltd.	17 Foxgrove Lane	Dartmouth, Nova Scotia	B2Y 4N8		
Eisenbau Kramer mbh	57271 Hilchenbach - Dahlbruch Karl-Kramer Strasse	Dahlburch, Germany			
Elsag Bailey	860 Harrington Court	Burlington, Ontario	L7N 3N4	*	*
Emco Limited - Distribution	Box 897; Wright Avenue	Dartmouth, Nova Scotia	B2Y 3Z6	*	*
Endreess & Hauser Canada Limited	1440 Grahans Lane #1	Burlington, Ontario	L75 1W3		
Exchanger Industries	5505 52nd Street SE; P.O. Box 1107 Stn J	Calgary, Alberta	T2A 6A8	*	*
Exploration Consultants Ltd.	9801 Westmeimer; Suite 1060	Houston, Texas	77042	**	*
FI Canada Oilfield Services Limited	#9 Pettipas Drive	Dartmouth, Nova Scotia	B3B 1K1	*	*
Fabco Industries Limited	45 Raddall Avenue	Dartmouth, Nova Scotia	B3B 1L4	*	*
Facility Innovations	307 239 10th Avenue SE	Calgary, Alberta	T2G 0V9		*
Festival City Fabricators Inc.	487 Lorne Avenue East	Stratford, Ontario	N5A 6T1		*
Fitzgerald, J.A. Consulting Services	P.O. Box 2226	Windsor, Nova Scotia	B0N 2T0		
Flotech Enterprises Limited	P.O. Box 1475; 14 Robin Hood Bay Road	St. John's, Newfoundland	A1C 5N8	**	
Flour Daniel Canada Inc.	10101 Southport Rd SW	Calgary, Alberta		**	
Forest Resources Consultants	Box 702	Truro, Nova Scotia	B2N 5E5		
Foster International	1625 50 O'Connor Street	Ottawa, Ontario	K1P 6L2		
Foster Wheeler Fired Heaters Limited	450 7330 Fisher Street S.E.	Calgary, Alberta	T2H 2H8	*	*
Fritz Starber Companies Ltd.	2651 Dutch Village Road, Suite 205	Halifax, Nova Scotia	B3L 4T1	*	*
Genoyer Group Inc.	11757 Katy Freeway, Suite 1050	Houston, Texas	77079	*	*
Geological Survey Canada (Atlantic)	Bedford Institute of Oceanography P.O. Box 1006	Dartmouth, Nova Scotia	B2Y 4A2	**	

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
Glentel Inc.	8501 Commerce Court	Burnaby, British Columbia	V5A 4N3		
Graham, Mary	3039 4th Street SW	Calgary, Alberta	T2S 1X9	**	
Grammaticus Group Ltd.	2004 98th Avenue SW	Calgary, Alberta	T2V 0Y9		*
Grove Dresser Italia Spa	Via Italo Betto, 15	Voghera, Italy	27058	*	*
H E F Petrophysical	350 717 7th Avenue SW	Calgary, Alberta	T2P 0Z3		
HSRS Aviation Services	81 Ilsley Avenue, Unit 7	Dartmouth, Nova Scotia	B3B 1L5		
Halliburton Energy Services	1000 333 5 Avenue S.W.	Calgary, Alberta	T2P 3B6	*	*
Hallmark Tubulars Limited	710 255 5 Avenue S.W.	Calgary, Alberta	T2P 3G6	*	*
Harris & Romme Supply Limited	3600 Joseph Howe Drive	Halifax, Nova Scotia	B3K 5M7	*	*
Harris RF Communications Group	1680 University Avenue	Rochester, New York	14610	**	
High Peak Technologies Inc.	7 Candy Mountain Road	Mineville, Nova Scotia	B2Z 1K6		*
Hudson Industries	c/o Monk Eng.; 16800 Greenspoint Park Dr.; Suite 200-South	Houston, Texas	77060		
IMP Group Limited	Pippy Place; P.O. Box 8560	St. John's, Newfoundland	A1B 3P4		*
Imperial Oil Products & Service	40 Alderney Drive	Dartmouth, Nova Scotia	B2Y 4R1	*	*
Imperial Oil Research Ltd.	Box 2480 Station M 237 4th Avenue	Calgary, Alberta	T2P 3M9	*	*
Import Tool Corporation Limited	440, 910 7th Avenue SW	Calgary, Alberta	T2P 3N8	*	*
Independent Project Analysis Inc.	300 11150 Sunset Hills Road	Reston, Virginia	20190	**	
Integraph Canada Inc.	2912 Memorial Drive S.E.	Calgary, Alberta	T2A 7R9		*
Jacques Fugro Geosciences Inc.	3 Spectacle Lake Drive	Dartmouth, Nova Scotia	B3B 1W8		
Jacques Whitford Environmental	3 Spectacle Lake Drive	Dartmouth, Nova Scotia	B3B 1W8	*	*
John Wright Company	5629 FM, 1960 West Suite 216	Houston, Texas	77069		
John Zink Company	11920 East Apache, P.O. Box 21220	Tulsa, Oklahoma	74121-1220		*
JMW Consultants Inc.	1 Station Place	Standford, CT	06902	**	*
Keeley Reporting Services	Box 144 Station B	Ottawa, Ontario	K1P 5A0		
Keltec Petroleum Services	25 Rubislaw Terrace	Aberdeen, Scotland	AB10 1XE	**	
Kobe Steel	Kobelco Bldg 3-2; Toyo 2 Chome	Tokyo 135	KOTO-KU	*	*
Koch-Glitsch Canada Company	1400 111 - 5th Street S.W.	Calgary, Alberta	T2P 3Y6		
Kvaerner Oil & Gas	Port Clarence Yard	MiddlesBrough	TS2 1RZ	*	*
Landmark Graphics	2200 645 7th Ave. SW	Calgary, Alberta	T2P 4G8	**	
LDMP Administrative	1991 Brunswick Street, Apt. 306	Halifax, Nova Scotia	B3J 2G9		
Lloyd's Register of Shipping	1959 Upper Water Street; Suite 709, Purdy's Tower One	Halifax, Nova Scotia	B3J 3N2	*	*
London Offshore Consultants	20 St. Dunstan's Hill	London, England	EC3R 8HL		*
Lucas, Zoe	c/o Enviro Canada Atmospheric Weather; 1496 Bedford Hwy	Bedford, Nova Scotia	B4A 1E5		
M.B.C. Business Services	529 Cow Bay Road	Eastern Passage, N.S.	B3G 3B7		
M.I. Drilling Fluids Canada Inc.	Box 1845, Postal Station M	Calgary, Alberta	T2P 2L8	*	*
MacDonald, Finlay	1333 Dresden Row	Halifax, Nova Scotia	B3J 2J9		
MacLaren Plansearch	Suite 200 Park Lane Terraces; 5657 Spring Garden Road	Halifax, Nova Scotia	B3J 3R4	**	*
Mactronic Limited	P.O. Box 621, 211 Petrolia Drive	Red Deer, Alberta	T4N 5G6		*
Marex International Limited	Box 21031; Cole Harbour	Dartmouth, Nova Scotia	B2W 6B2		

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
Mark Tool Co. Inc.	Box 261	Franklin, Los Angeles	70538-0261	**	
Martec Ltd.	1888 Brunswick Street, Suite 400	Halifax, Nova Scotia	B3J 3J8	*	*
Measurtech Instruments	52 Lake Hill Drive	Head of Chezzetcook, N.S.	B0J 1N0	**	
Meptec Charges	Box 800	Calgary, Alberta	T2P 2J7	**	*
MJ Solutions Inc.	2 Park Street	Norwalk, Ct	06851	**	
MM Industra Limited	61 Estates Road, Woodside Industrial Park	Dartmouth, Nova Scotia	B2Y 4K3	*	*
MM Industra/Brown & Root, Venture	61 Estates Road, Woodside Industrial Park	Dartmouth, Nova Scotia	B2Y 4K3	*	*
Mobil	Box 800	Calgary, Alberta	T2P 2J7	*	*
Monenco Agra-Brown & Root	1100 801 6th Avenue SW	Calgary, Alberta	T2P 3W3	*	*
Morgan Capital Limited	Suite 901, TD Place; 140 Water Street	St. John's, Newfoundland	A1C 6H6		
Mulgrave Machine Works Limited	Box 280, 149 Mill Street	Mulgrave, Nova Scotia	B0E 2G0		*
Murphy, SD Consulting	Box 21156, 665 8th Street SW	Calgary, Alberta	T2P 4H5		*
Murray International	429 2929 Briarpark	Houston, Texas	77042		*
Nations, Joe F. Consulting Inc.	10201 John's Bayou Road	Vancleave, MS	39565		*
Neo Valves	430 Northfinch Drive	Downsview, Ontario	M3N 1Y4	*	*
Nolark Resources Inc.	c/o Mobil	Calgary, Alberta		**	*
Nortech Jacques Whitford	25 Pippy Place	St. John's, Newfoundland	A1B 3X2		*
Nortech Surveys	25 Pippy Place, Box 26009	St. John's, Newfoundland	A1B 3X2	**	
Northumberland Consultants Limited	Box 214	Guysborough, Nova Scotia	B0H 1N0		*
OGOP Oil & Gas Observer	c/o Seafood Producers Assoc. of N.S. PO Box 991	Halifax, Nova Scotia	B2Y 3Z6		
OIS Fisher Inc.	1 Duffy Place; 2nd Floor	St. John's, Newfoundland	A1B 4M8		
Offshore Logistics	30 Atlantic Street	Dartmouth, Nova Scotia	B2Y 4N2	*	*
Oil States Mcs	P.O. Box 670	Arlington, Texas	76004		
Oland Engineering	10734 Cheryl Road	Winfield, British Columbia	V4V 1W7		
Optimized Process Furnaces Inc.	P.O. Box 706	Chanute, KS	66720		*
Orbit Valve Canada Limited	11935 - 27 Avenue N.E.	Calgary, Alberta	T2E 7B4		*
Panalpina Inc.	468, rue St-Jean; Suite 400	Montreal, Quebec	H2Y 2S1	*	*
Paragon Engineering	Suite 121; 13939 Northwest Freeway	Houston, Texas	77040-5196		
Parker Brothers Contracting Limited	P.O., box 158	Waverly, Nova Scotia	B0N 2S0		
Patterson Industries (Canada)	250 Danforth Road	Scarborough, Ontario	M1L 3X4	*	*
Peacock Inc.	10 Morris Drive; Unit 9	Dartmouth, Nova Scotia	B3B 1K8	**	
Perry Equipment	Box 640	Mineral Wells, Texas	76068	**	*
Phase Dynamics Inc.	1343 Columbia Drive; Suite 405	Richardson, Texas	75081	**	
Pioneer Transformers Limited	CP 272, 612 Ch. Bernard	Granby, Quebec	J2G 8E6		
Pipe Specialties - Canada	665A Justus Drive	Kingston, Ontario	K7M 4H5	*	*
Powell Electrical Manufacturing Company	P.O. Box 12818	Houston, Texas		*	*
Promat Services Ltd.	18 Oathill Crescent	Dartmouth, Nova Scotia	B2Y 4H1		
Proquip International	835 Fourth Line	Oakville, Ontario	L6L 5B8		
Puffer-Sweiven Inc.	PO Box 200775	Houston, Texas	77216-0775		

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
RNG Controls	119, 2250 Argentia Road	Mississauga, Ontario	L5N 5R1	*	*
RNG Pro Tech Inc.	69 Parsons Industrial Drive	Lennoxville, Quebec	J1M 1Z4	*	*
Racal Pelagos Canada	209 Aerotech Drive, Unit 3A	Enfield, Nova Scotia	B2T 1K3		
Randy Smith Drilling Schools	201 Energy Parkway, Suite 240	Lafayette, Louisiana	70508	**	
Receiver General for Canada		Ottawa, Ontario			
Reed Consulting Group	200 Wheeler Road	Burlington, MA	01803	**	
Riksen, E.N. SA		Snaroya, Norway		**	
Robert Mitchell Inc.	350 Decarie Boulivard	St Laurent, Quebec	H4L 3K5		*
Rosemount Instruments Limited	Suite 204A, 11 Morris Drive	Dartmouth, Nova Scotia	B3B 1K7		
Rowan Companies Inc.	99 Wyse Road, Suite 1070	Dartmouth, Nova Scotia	B3A 1L9	*	*
Royal LePage Relocation Services	39 Wynford Drive	Don Mills, Ontario	M3C 3K5		
S. L. Ross Environment	200 717 Belfast Road	Ottawa, Ontario	K1G 0Z4		
S. N. C. Lavalin	200 5657 Spring Garden Road	Halifax, Nova Scotia	B3J 3R4		*
Saipem U K Ltd.	Box 517; 1701 Hollis Street	Halifax, Nova Scotia	B3J 3M8	*	*
Santa Fe Drilling Company	36 Brookshire Court, Suite 13	Bedford, Nova Scotia	B4A 4E7	*	*
SAW Holding Ltd.	12424 Cannes Road SW	Calgary, Alberta	T2W 0H5		*
Saw Pipes USA Inc.	5200 E. McKinney Road, Suite 200	Baytown, Texas	8549	*	*
SHL System House	6176 Computer Innovations, 2nd Floor	Halifax, Nova Scotia	B3K 2A6		*
SIF Group BV	Mijnheerkensweg 33, 6041 TA Roermond NL	Netherlands			*
Schlumberger of Canada	33 Thornhill Drive	Dartmouth, Nova Scotia	B3B 1R9	*	*
Schneider Canada Inc.	Unit K, Ilsley Centre; 100 Ilsley Avenue	Dartmouth, Nova Scotia		*	*
Secunda Marine Services Limited	1 Canal Street, P.O. Box 605	Dartmouth, Nova Scotia	B2Y 3Y9	*	*
Security DBS	1400 - 5th Street	Nisku, Alberta	T9E 7R6		
Sedgwick Ltd.	Box 2376 Station M; 1400 324 8th Avenue SW	Calgary, Alberta	T2P 2M6	**	*
Seimac Limited	271 Brownlow Avenue	Dartmouth, Nova Scotia	B3B 1W6		*
Shaw Group Inc., The					
Shell Canada Ltd.	Box 100 Station M, ADX 219	Calgary, Alberta	T2P 2H5	*	*
Simpson Power Products	11545 Kingston Street	Mapleridge, British Columbia	V2Z 0Z5		*
Smith International Canada Limited	9205 - 51 Avenue	Edmonton, Alberta	T6E 4W8	*	*
Solar Turbines	Box 5630 Station South; 2510 84th Avenue	Edmonton, Alberta	T6E 6P8	*	*
Sooner Pipe & Supply Canada Limited	1400 Canterra Tower, 400 4th Avenue Sw	Calgary, Alberta	T2P 4H2	*	*
Spartan Controls	305 - 27th Street S.E.	Calgary, Alberta	T2A 7V2	*	*
Specialty Component Sales	600 11012 McLeod Trail South	Calgary, Alberta	T2J 6A5		
Sperry Sun Drilling Services of Canada	25 Neptune Crescent	Dartmouth, Nova Scotia	B2Y 4P9	*	*
Statia Terminals Canada	P.O. Box 2116	Port Hawkesbury, N.S.	B0E 2V0		*
Statiflo International Limited	Crown Center, Bond Street	Macclesfield, Cheshire	SK11 6QS	**	
Steel and Engine Products Limited	110 Water Street; P.O. Box 1120	Liverpool, Nova Scotia	B0T 1K0	**	
Steel Plate & Sections Limited	Iskmy House; 2 Fazeley Street	Birmingham	B5 5JP	**	*
Stewart McKelvey Stirling & Scales	Box 997; Purdy's Wharf Tower One	Halifax, Nova Scotia	B3J 2X2		*

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	Address	Province	Postal Code	1998	Cumulative
Stratos Mobile Networks	PO Box 5754	St. John's, Newfoundland	A1C 5X4		
Summit Tubulars Corporation	#3310 350 - 7th Avenue	Calgary, Alberta	T2P 3N9	*	*
Sun Source/Air Dreco	P.O. Box 730236	Dallas, Texas	75373-0236		
Survival Systems International	34140 Valley Center Road, P.O. Box 1855	Valley Center, California	92082	*	*
Survival Systems Training	40 Mount Hope Avenue	Dartmouth, Nova Scotia	B2Y 4K9		
SWACO Canada	Box 1845, Postal Station M	Calgary, Alberta	T2P 2L8	*	*
TH Hill Associates Inc.	7676 Hillmont Suite 360	Houston, Texas	77040		*
TAD Pipe Canada Limited	1740 Drew Rd	Mississauga, Ontario	L5S 1J6		*
Taylor Forge Engineered Systems	208 North Iron Street	Paola, KS	66071	*	*
Taylor, L.E.	1188 Belmont Road RR # 2	Newport, Nova Scotia	B0N 1A0		*
Teledyne Electronic Technologies	16830 Chestnut Street	City of Industry, California	91748-1020	*	*
Telesat Canada	1601 Telesat Court	Gloucester, Ontario	K1B 5P4	*	*
Templar Control Systems Limited	101, 18003 105 Avenue	Edmonton, Alberta	T5S 2E1		*
Texas Systems & Controls	9841 Windmill Park Lane	Houston, Texas	77064	**	*
Tideland Signal Canada Limited	105-3650 Bonneville Place	Burnaby, British Columbia	V3N 4T7	**	
Tracer Construction Canada	12849 - 141st Street	Edmonton, Alberta	T5L 4N1	**	
Trico Industries Inc.	2503 Hunter Road	San Marcos, Texas	78666	*	*
Tube Developments Limited	Queenzieburn Indusstrial EST	Glasgow, Kilsyth	G65 9BN	**	*
Union Pump (Canada) Limited	4211 Mainway	Burlington, Ontario	L7L 5N9	*	*
United Pipelines Ltd.	St. James Court; Wilderspool Causeway	Warrington, England	WA4 6PS	**	
Vantage Communications	604 5657 Spring Garden Road	Halifax, Nova Scotia	B3J 3R4		*
Vaughn Engineering Associates	1600 1801 Hollis Street; Box 2045 Station M	Halifax, Nova Scotia	B3J 2Z1		
WCC Offshore Limited	3925 Kempt Road, PO Box 9015, Station A	Halifax, Nova Scotia	B3K 5M6		
W.R. Consulting	135 Oakfern Way S.W.	Calgary, Alberta	T2V 4J9		
Wallace, MacDonald, & Lively	Governor's Place; 26 Union Street	Bedford, Nova Scotia	B4A 2B5		
Washburn & Gillis Associates Ltd.	25 Waggoners Lane	Fredericton, New Brunswick	E3B 2L2		*
Weatherford	14435-116 Avenue NE	Edmonton, Alberta	T5M 3E8		*
Weatherford Enterra Canada Limited	9625 Shepard Road S.E.; Box 244 Station M	Calgary, Alberta	T2P 2H9	*	*
Weatherford Enterra Compression	9625 Shepard Road S.E.; Box 244 Station M	Calgary, Alberta	T2P 2H9	*	*
Well Service Technology Canada	P.O. Box 8473	St. John's, Newfoundland	A1B 3M9		
Wesco Distribution Canada Inc.	133 Ilsley Avenue, Unit T	Dartmouth, Nova Scotia	B3B 1S9	*	*
Western Atlas International	505 3rd Street SW; Suite 1200	Calgary, Alberta	T2P 3E6	**	*
WFI International Inc.	4407 Haygood	Houston, Texas	77022	**	*
William Alexander & Associates	300 5171 George Street	Halifax, Nova Scotia	B3J 1M6	**	*
Wilron Equipment	10685-176 Street	Edmonton, Alberta	T5S 1G5	*	*
Wyckomar inc.	956 Edinburgh Road S.	Guelph, Ontario	N1G 4W8	**	
XL Systems Inc.	PO Box 201565	Houston, Texas	77216-1565		
Yuasa (Canada) Inc.	392 Deer Hurst Drive	Brampton, Ontario	L6T 5H9		
Total Overheads & Vendors < $ 50;000	**Note: There are over 700 Vendors in this category**			*	*

Project Expenditures Cumulative to December 1998 by Vendor

				Fourth Quarter	
Vendors	**Address**	**Province**	**Postal Code**	**1998**	**Cumulative**
1997 3D Seismic	As previously listed in the 1997 Annual Report.			**	*
Cumulative Report Totals					
Nova Scotia 218,017,672 22%					
Other Canadian 166,459,147 17%					
Foreign 596,756,747 61%					
Total $ 981,233,566					
Comments: Vendors whose totals are **equal to or greater than $250,000** are marked with one asterisk" * "					
Vendors who were **not active in the Fourth Quarter of 1998** are marked with two asterisk " ** "					
The colour highlights represent new vendors to the project in the Fourth Quarter 1998.					

Project Employment Cumulative to December 1998 by Vendor

Vendors	1998 Nova Scotia	1998 Canada	1998 Foreign	1998 TOTAL	Cumulative Nova Scotia	Cumulative Canada	Cumulative Foreign	Cumulative TOTAL
A. D. I. Nolan Davis	862.5	19	0	881.5	2,327	93	0	2419.8
Aboriginal Resource Consultant	948.75	853	0	1801.75	1,167	1,002	0	2168.25
Accent Engineering & Consultant	40286.8	0	0	40286.8	41,839	1,559	0	43397.8
Adams Pearson Associates Inc.	340.3	1140.06	0	1480.36	340	1,140	0	1480.36
Aker Gulf Marine	0	0	156493.6	156493.6	0	0	157,270	157269.6
Allan Marine Services				0	90	0	0	90
Allseas	271497	44035	31422	346954	271,966	44,035	40,095	356095.5
Atlantic Canada Careers	999			999	999	0	0	999
Atlantic Custom Brokers Limited	1144.5	0	0	1144.5	1,558	0	0	1558
Atlantic Offshore Medical	12240.00	0.00	0.00	12240	12,240	0	0	12240
BBA, A Joint Venture	519741.00	12979.00	813.00	533533	528,315	20,476	813	549604
Baker Hughes	9746.00	2610.00	2440.00	14796	9,746	2,610	2,440	14796
Bell Administrative Services				0	0	50	0	50
Bennett Jones Verchere				0	54	1,128	0	1181.85
Bercha International Inc. (F.G. Bercha)				0	229	1,767	2,301	4297
Big Sky Wireless				0	0	5	0	5
Boyne Clarke				0	0	25	0	25
Burnet Duckworth & Palmer	100.05	4603	0	4703.05	100	4,603	0	4703.05
CDN Seabed Research Ltd.				0	1,204	156	0	1360
CGG Geophysics Canada Ltd.				0	0	4,834	0	4834
CL Consultants	0.00	2714.00	0.00	2714	0	2,714	0	2714
CSC Project Management	0	594.5	0	594.5	0	4,198	0	4198
Canadian Airlines				0	1,979	0	0	1979
Canadian Helicopters	9032	11808	0	20840	9,032	11,808	0	20840
Canning & Pitt Associates Inc.	489.75	507.5	0	997.25	1,622	999	0	2620.96
Cautley Enterprises Inc.				0	65	185	70	320
Chubb Security	200	0	0	200	200	0	0	200
Cooper Cameron Corporation	3945	372	19339.9	23656.9	3,945	372	19,340	23656.9
Core Laboratories Canada Limited	0	269	0	269	0	279	0	279
Corwall Communications					0	256	0	255.5
Corporate Safety Services Limited	0	1095	0	1095	0	1,095	0	1095
Custom Media Services	2150.5	0	0	2150.5	2,151	0	0	2150.5
Delta Hudson				0	0	606	0	605.5
Design Group, The				0	0	3,566	0	3566
Detailed Design Drafting Service Limite	297	1501		1798	297	1,501	0	1798

Person Hours

Project Employment Cumulative to December 1998 by Vendor

Vendors	1998 Nova Scotia	1998 Canada	1998 Foreign	1998 TOTAL	Cumulative Nova Scotia	Cumulative Canada	Cumulative Foreign	Cumulative TOTAL
Dominion Diving Limited	8442	3018	0	11460	8,442	3,018	0	11460
Dr. Susan Bennett				0	193	9	0	201.5
East Coast Offshore Alliance	3721.80	4751.00	0.00	8472.8	9,019	5,882	0	14901.3
Eastcan Group				0	297	43	0	339.5
Elsag Bailey	2150	47365	1750	51265	2,150	49,161	1,764	53075
Epix Design Inc.				0	0	510	0	509.5
Exploration Consultants Limited				0	0	0	4,120	4120
F I Oilfield Services Canada Limited	7361	3112	80	10553	7,361	3,112	80	10553
Fabco Industries Limited	218449	16478	12706	247633	218,449	16,478	12,706	247633
Facility Innovations	2016	5002	0	7018	2,016	5,002	0	7018
Fitzgerald, J.A. Consulting Services	1936	0	0	1936	2,876	0	0	2876
Flour Daniel Billings				0	0	1,565	0	1564.5
Foster International	0	859.5	0	859.5	0	860	0	859.5
Graham, Mary				0	0	1,127	0	1127
Grammaticus Group Ltd.	2016	0	0	2016	2,016	1,190	4,126	7332
H E F Petrophysical				0	0	400	10	410
HG Pearson Consulting				0	0	24	0	24
Haliburton Energy Services	24360	5040	5320	34720	24,360	5,040	5,320	34720
High Peak Technologies Inc.	2619	0	0	2619	5,473	0	0	5473
Imperial Oil Research Limited	870	15062	196	16128	870	23,253	1,726	25848.6
Import Tool Corporation	1132	384	3820	5336	1,132	384	3,820	5336
Kvaerner Oil & Gas	1651	111	1158099	1159861	1,651	111	1,175,130	1176892
Lloyd's Register of Shipping	3700.25	378	25085.35	29163.6	5,256	420	28,739	34414.29
Lucas, Zoe	954			954	954	0	0	954
M.I. Drilling Fluids Canada	9313	2308	1498	13119	9,313	2,308	1,498	13119
MM Industra	48588	2736	0	51324	48,588	2,736	0	51324
MM Industra/Brown & Root, Venture	607444	1686	79759	688889	662,799	1,686	138,656	803141
Maclaren Plansearch				0	23,439	0	0	23439.05
Martec Limited	14360.3			14360.3	14,624	0	0	14624.05
Miller, G.E.			115	115	0	0	444	443.5
Mobil	97696	64949	19835	182480	102,777	173,025	41,735	317537
Monenco Agra-Brown & Root	59618.5	202212.25	444987	706817.75	67,461	365,665	715,309	1148434.98
D.R. Mountenay Consulting	1800	0	0	1800	1,800	0	0	1800
N.W. Miller & Associates				0	81	0	0	81
Joe F Nations Consulting	0	0	2648	2648	0	0	2,648	2648

Person Hours

Project Employment Cumulative to December 1998 by Vendor

Vendors	1998 Nova Scotia	1998 Canada	1998 Foreign	1998 TOTAL	Cumulative Nova Scotia	Cumulative Canada	Cumulative Foreign	Cumulative TOTAL
Neill and Gunter (Nova Scotia) Limited				0	281	0	0	280.75
Nolark Resources Inc.				0	0	2,540	0	2540
Norecol Dames & Moore	0	22	0	22	0	22	164	185.5
Nortech Jacques Whitford	36	161	0	197	9,205	6,390	1,149	16744
Nortech Surveys				0	1,798	1,582	0	3380
Novacal Energy Inc.				0	1,079	475	0	1553.5
OGOP Oil and Gas Observer	11246	0	0	11246	11,246	0	0	11246
Offshore Logistics	22961.9	0	0	22961.9	26,162	0	0	26161.9
Oland Engineering Limited		515.25		515.25	0	515	0	515.25
Olsten Staffing Service				0	0	1,023	0	1023.3
Olive Scientific Inc.		87		87	0	87	0	87
Porter Dillion	42.5	0	0	42.5	43	0	0	42.5
Promat Services Limited	360	0	0	360	1,464	0	0	1464
RKO	1969.00	0.00	0.00	1969	1,969	0	0	1969
Ray Kadonaga & Associates				0	0	119	0	119
Rowan Companies	107401	7416	19397.5	134214.5	107,401	7,416	19,398	134214.5
S. L. Ross Environment				0	0	195	0	195
Saipem U K Limited	55409.24	28257	337516.5	421182.74	55,409	28,257	337,517	421182.74
Santa Fe Drilling	56572	712	12024	69308	56,572	712	12,024	69308
Scarratt, David & Associates	252.5	0	0	252.5	856	0	0	855.75
Schlumberger of Canada	8000	3680	1040	12720	8,000	3,680	1,040	12720
Seabed Exploration Consultants				0	746	0	0	746
Secunda Marine	106187	32544	0	138731	106,187	32,544	0	138731
Security DBS					0	492	216	708
Seimac	3819	0	0	3819	4,181	0	0	4181
Sevant, Dunbrack				0	19	0	0	18.7
Shell Canada Limited	7848	40859	8981	57688	7,848	87,712	12,496	108056
Sperry Sun Drilling Services	9256.50	12345.00	2908.00	24509.5	9,257	12,345	2,908	24509.5
Stelter Factory Direct	53	9	0	62	53	9	0	62
Stewart McKelvey Stirling & Scales	2877.12	14.7		2891.82	3,714	15	0	3728.82
Survival Systems Ltd.				0	4,400	0	0	4400
Swaco Canada	4897	7731	3078	15706	4,897	7,731	3,078	15706
Taylor, L.E.	1984	0	0	1984	4,088	0	0	4088
Total Overload & Secretarial				0	0	1,994	0	1994
Vantage Communications	1808.75	14	0	1822.75	3,417	14	0	3431

Person Hours

Project Employment Cumulative to December 1998 by Vendor

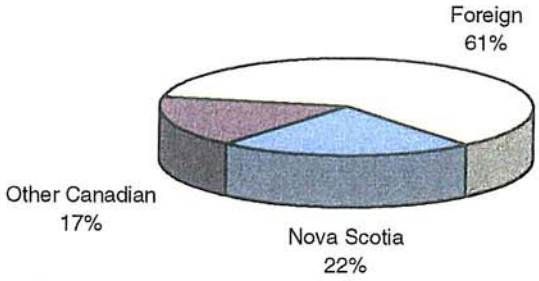
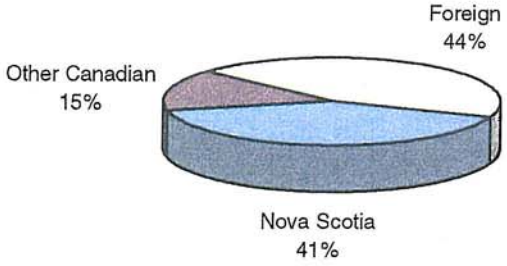
Vendors	1998 Nova Scotia	1998 Canada	1998 Foreign	1998 TOTAL	Cumulative Nova Scotia	Cumulative Canada	Cumulative Foreign	Cumulative TOTAL
Wallace, MacDonald, & Lively				0	553	0	0	553.25
Washburn & Gillis Associates Limited	1910	1407.5	0	3317.5	6,127	3,213	0	9340
Weatherford	4160	1073	0	5233	4,160	1,073	0	5233
Western Atlas International				0	89,884	11,804	117,930	219618
William Alexander & Associates	2650.25	33	0	2683.25	20,932	265	0	21196.5
1997 3D Seismic				0	27,084	16,678	32,522	76284
New Report Totals	**2,405,919**	**597,432**	**2,351,352**	**5,354,703**	**2,693,891**	**1,002,969**	**2,900,598**	**6,597,458**
Percentages	45.00	11.00	44.00		41.00	15.00	44.00	
					40.83	15.20	43.97	

Person Hours

Canada-Nova Scotia Benefits Cumulative
Employment and Expenditures Summaries to December 1998

Expenditures	Nova Scotia	Other Canadian	Foreign	Yearly Total
Cumulative to the end December 1998	218.0	166.5	596.7	981.2
Percentages	22	17	61	
Millions of Dollars				
Employment	**Nova Scotia**	**Other Canadian**	**Foreign**	**Yearly Total**
Cumulative to the end December 1998	2.7	1.0	2.9	6.6
Percentages	41	15	44	
Millions of Hours				

Cumulative Expenditures to the end December 1998



Cumulative Employment to the end of December 1998