Alberta Oil and Gas Orphan Abandonment and Reclamation Association

Orphan Well Association

2009/10 Annual Report

June 2010
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CHAIRMAN’S MESSAGE

The 2009/10 fiscal year was an extraordinary year for the Orphan Well Association (OWA) in terms of both funding and accomplishments. In June 2009, the province of Alberta through Alberta Energy provided $30 million grant funding to the OWA. This grant funding is part of an incentive program from the Government of Alberta with a view to encouraging local jobs and spending in rural communities and with additional emphasis on reducing the number of orphan sites waiting to be reclaimed in the province.

In addition to this grant funding, the upstream oil and gas industry continued to demonstrate its commitment towards dealing with the abandonment and reclamation liabilities associated with the industry by continuing its funding of the OWA activities through the annual Orphan Fund levy. As a result of these two combined revenue sources, the OWA was able to accelerate its abandonment and reclamation activities on orphan wells and sites by tripling its operating expenditures to almost $35 million compared to prior year expenditures of over $11 million.

Almost $21 million of the $30 million grant funding was expended this year and the expenditures from the grant funding is estimated to have accelerated the OWA’s activities of abandonment and reclamation by two years this year. By the end of the following fiscal year, the grant funding is estimated to have accelerated OWA activities by three years in total. A very large amount of remediation (dealing with contaminants) was handled on orphan sites which will reduce significantly the number of orphan sites waiting to be reclaimed. As well, the additional funding provided an opportunity for the OWA to address a number of technically challenging remedial repairs and abandonment of orphan wells.

The OWA is planning another busy year in 2010 to continue the efforts of this unique and effective joint initiative of industry and government working together to address upstream oil and gas orphans. Our goal is to fully utilize the provincial grant funding along with our regular annual spend to maintain the accelerated abandonment and reclamation program and to maximize the province’s stated objective of enhancing local spending.

David Pryce
Chairman
BACKGROUND

Orphan Well Association
The Alberta Oil and Gas Orphan Abandonment and Reclamation Association is a not for profit organization which operates under the registered trade name of the Orphan Well Association (OWA). The OWA operates as a separate, financially independent organization under the legal authority delegated by the Alberta Energy Resources Conservation Board (ERCB).

The OWA was established as a joint initiative between the upstream oil and gas industry and the provincial government in January 2002 and commenced operations on April 1, 2002. The Alberta government supports this initiative to deal with upstream oil and gas orphans through its regulatory agencies, the Alberta Energy Resources Conservation Board (ERCB) and Alberta Environment (AENV) which:

(1) Initiate appropriate enforcement actions to ensure that the responsible parties address their obligations to deal with their well and facility abandonment and reclamation liabilities, and

(2) Develop appropriate policies to minimize unfunded orphan liability and to prevent the creation of new orphans.

The ERCB collects funds from industry through an annual Orphan Fund levy and other fees. These funds are then contributed directly to the OWA to cover the expenditures on orphan abandonment and reclamation activities. Each year the OWA prepares an annual budget which determines the amount of the Orphan Fund levy. This budget is then approved by its Member organizations: Canadian Association of Petroleum Producers (CAPP), Small Explorers and Producers Association of Canada (SEPAC), and the ERCB.

The OWA and ERCB and AENV have a signed Memorandum of Understanding which outlines the roles and responsibilities of each organization regarding orphans. The ERCB and AENV are responsible for identifying and investigating potential orphans. Orphans are defined as properties which are typically ERCB licensed wells, pipelines, facilities or associated sites. Once an orphan has been investigated, and it has been confirmed there are no legally responsible or financially viable parties, the ERCB has the authority to determine (deem or designate) orphans under the Oil and Gas Conservation Act and the Orphan Fund Delegated Administration Regulation.
AENV participates in the orphan process by investigating and then by providing the legal authority to the OWA for right of access to conduct our reclamation and remediation activities on orphan well or facility sites by issuing an Environmental Protection Order (EPO) to the defunct operator. When the defunct operator does not comply with the order, AENV designates the OWA as their agent through a site specific letter. Once a site is designated orphan by the ERCB and the EPO and the agent letter from AENV are received, the OWA has the legal authority to access sites to conduct its site reclamation activities.

Directors of the Orphan Well Association
Five representatives are appointed as directors by our Member organizations. As per our by-laws, our directors are listed as follows:

- David Pryce, Vice-President, Canadian Association of Petroleum Producers
- Orest Kotelko (Canadian Natural Resources Limited), Canadian Association of Petroleum Producers
- David Wolf (Stone Petroleums Ltd.), Small Explorers and Producers Association of Canada
- Hal Knox, Alberta Energy Resources Conservation Board
- Ernie Hui, Alberta Environment (honorary non-voting)
HISTORICAL SUMMARY

Historical Summary of Funding

A Historical Summary of Funding for the OWA orphan activities is shown in Figure 1 and Table 1. Since 1992, $136 million has been collected to fund orphan abandonment and reclamation activities from the upstream oil and gas industry. $111 million has been collected from industry by the ERCB through the Orphan Fund levy, which is the main source of funding for this program.

In 2009, as part of the Government of Alberta’s stimulus plan worth up to $1.5 billion to increase activity in the Alberta oil and gas industry, the OWA received a one time grant funding from Alberta Energy of $30 million. This grant funding was contributed to the OWA as part of an incentive program with a view to reducing the “environmental footprint” of the energy sector. The grant funding is to be used before the completion date of March 31, 2011, or the unexpended grant funding plus all proceeds are to be returned to Alberta Energy.

A Historical Summary of Funding is shown below in Figure 1 and Table 1. Prior to March 2002, the Orphan Fund levy was collected by the ERCB based on the number of inactive wells held by each Licensee on December 31st of the prior calendar year. After March 2002, the Orphan Fund levy was collected by the ERCB based on each Licensee’s calculated proportionate share of total deemed industry liability. See Note [1]. The other source of funding for this program is from First Time Licensee Fees and Board Directed Transfer Fees (FTL and BDT Fees). See Financial Highlights, Revenue for a description of these fees.

Figure 1 – Historical Summary of Funding
Table 1 – Historical Summary of Funding

<table>
<thead>
<tr>
<th>Year (Apr 1 to Mar 31)</th>
<th>ALBERTA ORPHAN PROGRAM (ERCB) [1]</th>
<th>Orphan Well Association (OWA)</th>
<th>% of liability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior Years</td>
<td>00/01</td>
<td>01/02</td>
</tr>
<tr>
<td>Levy ($/Inactive Well)</td>
<td>100-65</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>GoA Grant Funding</td>
<td>30,000</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>Orphan Fund Levy</td>
<td>7,019</td>
<td>7,072</td>
<td>11,855</td>
</tr>
<tr>
<td>FTL and BDT Fees</td>
<td>1,420</td>
<td>1,280</td>
<td>1,570</td>
</tr>
<tr>
<td>Interest + Other</td>
<td>202</td>
<td>475</td>
<td>488</td>
</tr>
<tr>
<td>Total Revenue ($k)</td>
<td>23,298</td>
<td>1,554</td>
<td>1,181</td>
</tr>
</tbody>
</table>

Note [1] The ERCB conducted orphan activities under the program known as the Alberta Orphan Program. Orphan activities were conducted by the OWA when it commenced operations on April 1, 2002. Prior to September 1997, the ERCB had the legal authority to conduct well abandonments on orphans. The provincial legislation was then changed to give the ERCB the legal authority to conduct additional orphan activities such as pipeline abandonment, facility decommissioning and reclamation of associated sites.

Historical Summary of Expenditures

A Historical Summary of Expenditures on orphan operating activities shown below in Figure 2 and Table 2. This summary divides expenditures into five types of activities. As per the Financial Statements, Statement of Operations, four types of expenditures (Well Abandonment, Site Reclamation, Pipeline Abandonment and Facility Decommissioning) are considered Operating Expenditures and the fifth type of activity (ERCB Enf Activities/WIC) is a combination of ERCB Enforcement Activities and industry Working Interest Claims. See Financial Highlights, Expenditures Section for a description.

To date, total expenditures on these five types of operating activities is $135 million. The $31 million difference between Historical Revenue ($166 million) and Historical Expenditures ($135 million) is comprised of (1) Administration costs over 13 years (Admin over 13 years) which is on average 3.5% of Total Expenditures, (2) the Orphan Fund Levy collected for the following year’s operations commencing April 1, 2010, and (3) the Operating Balance, as shown in Table 2.

The OWA agreed to make use of the Alberta Energy grant funding in a manner parallel to the use of funding received by the OWA from the Orphan Fund to accelerate the abandonment and reclamation of orphan wells and sites. To meet the intent of this agreement with Alberta Energy, the OWA has divided its Operating Expenditures so that 60% comes from the grant funding and 40% from the Orphan Fund. The numbers shown in this Annual Report will reflect total expenditures to avoid confusion. All operational accomplishments achieved this fiscal year were 60% funded from the grant funding.
Figure 2 – Operation Activity Historical Summary

Table 2 – Historical Summary of Expenditures

<table>
<thead>
<tr>
<th>Year (Apr 1 to Mar 31)</th>
<th>ALBERTA ORPHAN PROGRAM (ERCB) [1]</th>
<th>Orphan Well Association (OWA)</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior</td>
<td>00/01</td>
<td>01/02</td>
</tr>
<tr>
<td>Well Abandonment</td>
<td>10,505</td>
<td>2,187</td>
<td>54</td>
</tr>
<tr>
<td>ERCB Enf Activities/WIP</td>
<td>670</td>
<td>5,533</td>
<td>163</td>
</tr>
<tr>
<td>Site Reclamation</td>
<td>3,885</td>
<td>1,840</td>
<td>382</td>
</tr>
<tr>
<td>Pipeline Abandonment</td>
<td>359</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Facility Decommissioning</td>
<td>180</td>
<td>168</td>
<td>0</td>
</tr>
<tr>
<td>Subtotal Op Activity</td>
<td>14,929</td>
<td>4,223</td>
<td>436</td>
</tr>
<tr>
<td>Admin over 13 years</td>
<td>4,807</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orphan Fund Levy</td>
<td>12,110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Balance</td>
<td>14,051</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note [1] The ERCB conducted orphan activities under the program known as the Alberta Orphan Program. Orphan activities were conducted by the OWA when it commenced operations on April 1, 2002. Prior to September 1997, the ERCB had the legal authority to conduct well abandonments on orphans. The provincial legislation was then changed to give the ERCB the legal authority to conduct additional orphan activities such as pipeline abandonment, facility decommissioning and reclamation of associated sites.
OPERATING HIGHLIGHTS

Using the one-time grant funding from Alberta Energy together with the funding provided by the upstream oil and gas industry, the OWA was able to triple its operating activities on orphan sites, wells, pipelines and facilities compared to the prior year. A total of $34,972k was spent on Operating Activities (211% increase from $11,240k in prior year). 60% of these expenditures ($20,983k) were contributed by the grant funding and 40% ($13,989k) was contributed by industry funding.

Summarized below are four types of operating activities conducted by the OWA with expenditures in thousands of dollars ($k) and the percentage of each activity.

<table>
<thead>
<tr>
<th>Operating Expenditures</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Reclamation</td>
<td>25,839</td>
<td>74%</td>
</tr>
<tr>
<td>Well Abandonment</td>
<td>8,553</td>
<td>24%</td>
</tr>
<tr>
<td>Pipeline Abandonment</td>
<td>339</td>
<td>1%</td>
</tr>
<tr>
<td>Facility Decommissioning</td>
<td>241</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34,972</td>
<td>100%</td>
</tr>
</tbody>
</table>

Site Reclamation activities were selected as a priority because these continue to represent the largest backlog of orphan work waiting to be done. The infusion of funds from the grant funding allowed the OWA to execute a larger number of sizeable remediation projects which would normally have been deferred into the future or spread over multiple years. Similarly, the grant funding gave the OWA an opportunity to attempt some technically challenging remedial repairs on well abandonments which otherwise would have been postponed.
Site Reclamation

Site Reclamation expenditures in 2009/10 were an unprecedented triple of prior year expenditures at $25,839k (317% compared to $8,140k in prior year). The inventory of orphan sites is decreasing as closure is being obtained on more sites each year. There were 435 orphan sites in this year's inventory in comparison to 476 orphan sites in the prior year.

The term “Site Reclamation” is used in this report to describe expenditures on two types of work: remediation activities and reclamation activities. Remediation activities include the investigation and removal of contaminant impacts to soil and groundwater as per current regulatory guidelines. Reclamation activities include soil replacement, re-establishment of drainage, re-contouring and re-vegetation of disturbed sites. They also include weed control, vegetation monitoring and the application for reclamation certificates from Alberta Environment (AENV) when site reclamation has been completed.

This year, 91% of Site Reclamation expenditures were on remediation activities and 9% on reclamation activities (compared to 83% and 17% in the prior year). Site Reclamation expenditures were allocated to remediation activities as a priority in order to bring more orphan sites toward closure. The grant funding gave the OWA the opportunity to accelerate this remediation work by accomplishing the equivalent of three years of work in one year.

Site Reclamation Closure Count

The Site Reclamation Closure Count of the number of orphan sites which have obtained closure in the past ten years is shown below in Figure 3 and Table 3. To date, closure has been obtained on 325 out of 711 orphan sites (46%). This count consists of 253 sites that have received reclamation certificates (Sites RC Received) and 72 sites that have received some other type of closure (Sites Handled). These terms are further described below.

Sites RC Received Sites counted in this category have received a Reclamation Certificate from AENV, which regulates private lands or from Alberta Sustainable Resource Development (ASRD), which regulates public lands. The receipt of a Reclamation Certificate indicates that the site reclamation satisfies applicable regulatory standards and no further action is required. Sites that are counted can either be well sites or facility sites. When there are two licensed properties overlapping one location; for example, a well site with an overlapping single well facility site, two counts are taken for this category.

Forty-four orphan sites received reclamation certificates in 2009/10. The process to ready a site for application for a reclamation certificate can be time consuming. After remediation and reclamation is
completed on a site, it can take from one to five years for the site to re-vegetate and be ready to apply for a reclamation certificate. The actual time required depends on the land use and growing conditions such as rainfall. Forty-four is the highest number of reclamation certificates received in one year since the inception of the orphan well program. In addition, 26 applications for reclamation certificates have been submitted to AENV and are awaiting review as of March 31, 2010. Both these statistics are a reflection of work accomplished in prior years.

Sites Handled - Sites counted in this category have received some type of closure with no further action required. This includes sites associated with wells that were abandoned prior to reclamation legislation being enacted, known as Reclamation Exempt (Rec Exempt) wells. These are wells that either a) are in the White Area (private land) of the province and were abandoned prior to June 1, 1963, or b) are in the Green Area (Crown land) of the province and were abandoned prior to August 15, 1978. Rec Exempt well sites are not considered "specified land" by AENV and therefore do not require a reclamation certificate. On these sites, any surface reclamation issues that impede the current land use are addressed and a letter is written to notify AENV of closure. This category also counts sites which are taken over by active oil and gas companies, typically when a company takes out a surface lease that overlaps the orphan site. Four orphan sites were counted as Sites Handled for a total of 48 sites that obtained Site Reclamation Closure this year.

Figure 3 – Site Reclamation Closure Count
Table 3 – Site Reclamation Closure Count

<table>
<thead>
<tr>
<th>Fiscal Year (Apr 1 to Mar 31)</th>
<th>ALBERTA ORPHAN PROGRAM (ERCB) [1]</th>
<th>Orphan Well Association (OWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior Years</td>
<td>02/03</td>
</tr>
<tr>
<td>Sites RC Received</td>
<td>35 22 33</td>
<td>7 4 6 30 14 29 44</td>
</tr>
<tr>
<td>Sites Handled</td>
<td>9 9 4</td>
<td>5 2 2 9 6 6 16 4</td>
</tr>
<tr>
<td>Site Reclamation Closure Count</td>
<td>44 31 37</td>
<td>12 6 8 39 35 20 45 48</td>
</tr>
</tbody>
</table>

Note [1] The ERCB conducted orphan activities under the program known as the Alberta Orphan Program. Orphan activities were conducted by the OWA when it commenced operations on April 1, 2002. Prior to September 1997, the ERCB had the legal authority to conduct well abandonments on orphans. The provincial legislation was then changed to give the ERCB the legal authority to conduct additional orphan activities such as pipeline abandonment, facility decommissioning and reclamation of associated sites.

Site Reclamation Categories

To simplify the description of Site Reclamation activities, each orphan site was assigned one of seven categories according to the most significant activity (largest expenditure) on each site in the year. For example, if an orphan site was remediated and then reclaimed in the same year, the site would be assigned to the Remediation category if more money was spent to remediate the site than to reclaim it. Similarly, if more money was spent to reclaim the site than to remediate it, the site would be assigned to the Reclamation category.

The 2009/10 Site Reclamation Costs by Category is shown below in Figure 4 and Table 4 and the 2009/10 Average Site Reclamation Costs by Category is shown below in Figure 5 and Table 5. Note that the average cost per site given in Table 5 is affected by the distribution and type of work conducted on all the sites that are in the category. For example, in the Phase 2 category, the inclusion of sites with lagging reporting for Phase 2 work done in prior year, lowers the average cost per site. Similarly, one or two extensive Phase 2 investigations will skew the average cost per site higher. See the comments in each category description regarding the factors that affect the average cost per site values in Table 5.

Site Reclamation typically occurs in the order that the various categories are listed and described below:

**Startup:** Sites in this category were typically received as new orphans during the fiscal year. Work included conducting Phase 1 environmental site assessments, landowner contact, initial site visits, posting OWA signs, initial weed control and pre-reclamation site assessments.
Phase 2: Sites in this category had intrusive investigations conducted to characterize and delineate contaminants in soil and groundwater. Phase 2 related work included, but was not limited to, conducting electromagnetic conductivity (EM) surveys, ground disturbance, surveying, drilling, installing groundwater monitoring wells, sampling soil and groundwater, lab analyses and report preparation. This category includes risk assessment work including highly detailed site investigations and computer modeling to develop site-specific criteria.

Remediation: Sites in this category had remediation (decontamination) conducted including, but not limited to, dealing with impacts associated with flare pits, drilling sumps, underground storage tanks, well centre, spills and other pits. Work may have included hauling impacted material to landfill, operation and maintenance of in-situ soil and groundwater treatment systems as well as confirmatory sampling of soil and groundwater.

Major Reclamation: Sites in this category had substantial reclamation work conducted such as lease stripping, soil redistribution or major re-contouring to blend the site back into the surrounding landscape.

Minor Reclamation: Sites in this category had limited reclamation work conducted such as minor soil disturbances like paratilling, rock picking, removal of debris, repairing minor slumping at well centre or erosion on access roads, the addition of topsoil, seeding and fencing.

Monitor: Sites in this category had monitoring type work conducted. Work included monitoring vegetation health/growth, weed control, mowing and minor re-seeding.

Closure: Sites in this category had work conducted related to the process of applying for a reclamation certificate. Work included conducting soil and vegetation detailed site assessments, landowner consultation, preparing and submitting application documents, responding to application inquires from Alberta Environment or arranging 100% overlapping agreements with a third-party operator.
Figure 4 – 2009/10 Site Reclamation Costs By Category

Table 4 – 2009/10 Site Reclamation Costs By Category

<table>
<thead>
<tr>
<th>Activity</th>
<th>Startup</th>
<th>Phase 2</th>
<th>Remediation</th>
<th>Major Reclamation</th>
<th>Minor Reclamation</th>
<th>Monitor</th>
<th>Closure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reclamation ($k)</td>
<td>8,776</td>
<td>151,185</td>
<td>557,325</td>
<td>1,244,766</td>
<td>102,614</td>
<td>137,174</td>
<td>166,037</td>
<td>2,367,877</td>
</tr>
<tr>
<td>Remediation ($k)</td>
<td>0</td>
<td>2,489,352</td>
<td>20,739,419</td>
<td>204,722</td>
<td>9,643</td>
<td>20,325</td>
<td>7,844</td>
<td>23,471,305</td>
</tr>
<tr>
<td>Total ($k)</td>
<td>8,776</td>
<td>2,640,537</td>
<td>21,296,744</td>
<td>1,449,488</td>
<td>112,257</td>
<td>157,499</td>
<td>173,881</td>
<td>25,839,182</td>
</tr>
<tr>
<td>Number of Sites</td>
<td>3</td>
<td>67</td>
<td>104</td>
<td>51</td>
<td>20</td>
<td>87</td>
<td>103</td>
<td>435</td>
</tr>
</tbody>
</table>
Figure 5 – 2009/10 Average Site Reclamation Costs By Category

Table 5 – 2009/10 Average Site Reclamation Costs By Category

<table>
<thead>
<tr>
<th>Activity</th>
<th>Startup</th>
<th>Phase 2</th>
<th>Remediation</th>
<th>Major Reclamation</th>
<th>Minor Reclamation</th>
<th>Monitor</th>
<th>Closure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reclamation ($)</td>
<td>2,925</td>
<td>2,256</td>
<td>5,359</td>
<td>24,407</td>
<td>5,131</td>
<td>1,577</td>
<td>1,612</td>
</tr>
<tr>
<td>Remediation ($)</td>
<td>0</td>
<td>37,155</td>
<td>199,417</td>
<td>4,014</td>
<td>482</td>
<td>234</td>
<td>76</td>
</tr>
<tr>
<td>Total ($)</td>
<td>2,925</td>
<td>39,411</td>
<td>204,775</td>
<td>28,421</td>
<td>5,613</td>
<td>1,810</td>
<td>1,688</td>
</tr>
<tr>
<td>Number of Sites</td>
<td>3</td>
<td>67</td>
<td>104</td>
<td>51</td>
<td>20</td>
<td>87</td>
<td>103</td>
</tr>
</tbody>
</table>
Site Reclamation Highlights Described by Category

The following are comments for each Category in order of descending expenditure amounts:

Remediation category

The largest Site Reclamation expenditures were for sites in the Remediation category, with $21,296k spent on 104 sites (334% increase compared to $4,903k on 68 sites in prior year). Note that ten additional sites had remediation activities conducted on them but were not counted in the Remediation category because larger expenditures were made on these sites to conduct either Phase 2 or Major Reclamation work. This results in a total of 114 sites with remediation work conducted, a 178% increase compared to the 68 sites remediated in the prior year.

One of the goals of the OWA is to work towards obtaining closure on as many orphan sites as possible within a set budget each year. When other considerations are equal, sites which require less money to remediate are selected first over the more expensive sites. With this approach, the remaining average remediation cost of orphan sites becomes progressively higher each year. The grant funding received in 2009 gave the OWA a unique opportunity to conduct remediation on more expensive sites than we normally would in a typical budget year.

For these reasons, 20 large remediation projects were conducted at costs ranging from $309k to $1,942k for an average remediation cost of $644k per site. Excluding these 20 sites, the other remediation projects costs ranged from $4k to $249k for an average remediation cost of $90k per site (compared to $72k per site in prior year). These numbers are more descriptive of the remediation work than the average remediation cost per site at $204k shown in Table 5. The remediation work accomplished on the 114 orphan sites represents a significant move forward towards obtaining closure.

Another opportunity that the grant funding afforded the OWA was the ability to work on some very expensive remediation projects which would normally be staged over several years. The grant funding allowed some significant cost savings to the OWA by completing these projects in the same year because (1) the cost and availability of services for heavy equipment and hauling or trucking was very competitive this year compared to prior years, (2) the larger volumes of soil trucked to landfills resulted in savings through discounted tipping fees at some disposal facilities, (3) the removal of inefficiencies from closing an excavation and then reopening it in the following year, and (4) the associated reduction in mobilization and demobilization costs for equipment. Another advantage to working on a large remediation project in one year instead of over multiple years is that it reduces the timeframe in which landowner operations are disrupted. In addition, fast progress on multiple sites increases stakeholder
confidence in the program.

Phase 2 category
Phase 2 category expenditures totaled $2,641k on 67 sites ($2,013k on 86 sites in prior year), with activities including: conducting EM surveys, drilling boreholes for soil sampling, digging test pits, installing groundwater monitoring wells, collecting soil and groundwater samples, conducting bedrock investigation, groundwater modeling and laboratory analyses. The Phase 2 category also includes initial site investigations and supplemental investigations to further characterize and delineate contaminants. Detailed site investigations provide information crucial to developing more accurate Remedial Action Plans that include detailed cost estimates and work scopes for future remediation work.

Some site investigations are part of an approach called ‘risk assessment’ which looks in detail at the contaminants and creates computer models of their transport through soil and groundwater to potential source receptors. The purpose of this approach is to assess the potential risks associated with the contaminants to nearby human and/or ecological receptors (e.g. livestock, plants, aquatic life). This approach, which is supported by AENV, is taken for sites with extremely large volumes of contaminants in order to consider alternative remedial options that are protective of all receptors. On most of these sites, the contaminants of concern are elevated concentrations of salinity in soil and groundwater. Phase 2 sites which had some risk assessment and remediation components completed in 2009/10 ranged in costs from $39k – $157k for an average of $58k.

As in previous years, expenditures on some sites counted in this category had small costs for lagging reporting from the prior year. Excluding sites with lagging reporting and sites using the risk assessment approach, the average Phase 2 cost per site is $22k (compared to $23k in prior year). These costs ranged from $8k for a supplemental investigation to $117k to assess a very complex site with groundwater impacts. These numbers are more descriptive of the Phase 2 costs than the average of $39k per site, shown in Table 5.
Major Reclamation category

Major Reclamation category expenditures totaled $1,449k on 51 sites (234% increase compared to $620k on 28 in the prior year). The increase in expenditures was due to the increase in the number of sites that were ready for reclamation i.e. that had obtained remediation closure in 2008 and 2009. The grant funding provided an opportunity to coordinate reclamation of sites immediately after the completion of the remediation. More reclamation work was accomplished than anticipated due to a later than normal freeze up in early December 2009 in most parts of the province (reclamation work is most effectively done before the ground freezes). The average cost of reclamation increased from $22k to $28k. This is because sites with larger disturbances from remediation activities were reclaimed this year and because some of the orphan sites that were reclaimed had long access roads.

Major reclamation activities included surface re-contouring, re-establishment of drainage, reclamation of access roads, topsoil purchase and/or replacement and seeding. Note that 14 additional sites had major reclamation activities conducted on them but were not counted in the Major Reclamation category because larger expenditures were made conducting Remediation or Phase 2 work. Adding these sites gives a total of 65 sites that had major reclamation activities conducted (132% increase compared to 28 sites in the prior year).

Minor Reclamation category

Minor Reclamation category expenditures totaled $112k on 20 sites (compared to $213k on 39 sites in prior year). Expenditures ranged from $634 to $9,675 per site with a $5,613 average per site. Activities included the addition of small volumes of topsoil, seeding and paratilling.

Closure category

Closure category expenditures totaled $174k on 103 sites ($1,688 average per site). Closure activities included conducting soil and vegetation detailed site assessments, landowner consultation, preparing and submitting reclamation certificate applications, dealing with inquiries from AENV on applications, and obtaining overlap exemption forms for sites taken over by other operators. Some sites also had minor expenditures for lagging Phase 2 and remediation reporting from the prior year. We anticipate approximately half of these sites to be ready for reclamation certification next year.

Monitoring category

Monitoring category expenditures totaled $158k on 87 sites (compared to $121k on 152 sites in prior year). Monitoring activities included vegetation monitoring, site inspections and weed control. The average cost per site in the Monitoring category was $1,810, compared to an average cost of $798 the
prior year. The increase in the average cost per site is due to the increase in the percentage of sites in this category in non-cultivated land uses, which require additional costs for weed control. Note that expenditures on some sites counted in this category includes small costs for lagging remediation reporting and lagging invoicing for reclamation work from the prior year. The total number of sites in the monitoring category (87) has decreased (152 in prior year) because many sites went into the closure category from monitoring this year. This is again, a reflection of work done in prior years to reclaim sites.

**Startup category**

Startup category expenditures totaled $9k on three new orphan sites licensed to Cardinal Petroleum Company (compared to $51k on 10 sites in prior year). Startup activities included conducting Phase 1 Environmental Site Assessments and landowner visits.

**Site Reclamation Highlights**

The following are highlights of some orphan activities conducted this year described by defunct company and location or field to provide a better overview of the work accomplished in 2009/10 on orphan sites.

*South Alberta Energy Corp. ($1,445,494)*

The defunct company South Alberta Energy Corp. (SAEC) came to the orphan program in 1998. There are 111 orphan sites licensed to SAEC, which are all located in a field south of Seven Persons, Alberta, southwest of Medicine Hat. The SAEC wells were drilled between 1977 and 1984 and were mostly gas wells. At the start of the year, closure had previously been obtained on 28 sites (26 with reclamation certificates) or 25% of the field.
Out of the remaining 83 SAEC orphan sites, two sites had supplemental Phase 2 assessments conducted ($11k and $13k each), 16 sites were remediated ($1,099k total with costs of $12k to $206k per site), 15 sites were reclaimed ($142k total with costs of $5k to $17k per site) and 17 other SAEC sites either had minor reclamation conducted or were being monitored for vegetation growth. Because these are older orphan sites, a larger number (33) of sites are in the Closure category indicating that they are ready for reclamation certificate application or are currently going through that process. Thirteen sites in the Closure category received reclamation certificates in 2009/10.

This field illustrates how the grant funding has helped to accelerate orphan work by enabling the OWA to conduct more remediation and reclamation activities in one year, thus removing any inventory backlog due to budget constraints. It also shows that although the grant funding is helpful in moving sites forward, it cannot produce immediate closure on sites. Once a site is investigated for contaminants and then is remediated, it needs to be reclaimed and allowed a period of time to re-vegetate. Many SAEC sites are in native prairie grassland which typically requires three to five years to re-vegetate depending on moisture conditions. Our work accomplished in this year is anticipated to help bring closure to this entire field in the next five years.

Big Valley Energy Corporation ($5,669,441)

The defunct company Big Valley Energy Corporation (BVEC) came to the orphan program in 2000. The orphan sites licensed to BVEC are mostly located in the Joarcam field east of Armena and north of Camrose, Alberta. There were 67 orphan sites licensed to BVEC, and at the beginning of the year closure had previously been obtained on 29 sites (28 with reclamation certificates) or 43%.

The activities that were accomplished in the BVEC field were quite different in distribution from the SAEC field. The wells in this field were drilled in 1952 and most produced crude oil and water for over 40 years in times when environmental regulations were less stringent than they are today. As a result, the volume of contamination associated with individual well sites and facilities is unusually high. Compared to other fields, a relatively large proportion of resources were dedicated to conduct Phase 2 and Remediation activities.

BVEC orphan sites in the Joarcam field were identified to have unusually high concentrations of boron in the soil. Presumably, this is a result from wellbore spills and equipment cleaning agents rather than from produced water, as the boron concentrations were not typically co-impacted with salts and were found in plumes around well centres or distributed unevenly through the surface soils. Well centre excavations to remove boron impacted soil were conducted at four BVEC sites (costs from $48k to $67k). Detailed
vegetation and soil assessments were conducted on reclaimed sites with higher boron impacts.

Two facility sites, 09-13-048-21W4 (BVEC 9-13 facility) and 15-06-048-20W4 (BVEC 15-6 facility), were selected as priorities to handle with the grant funding because of the length of time they have been in the program, their high visibility and their proximity to residences, which has led to stakeholder concerns. The grant funding provided the OWA with an opportunity to deal with the majority of contaminants at these sites over one year instead of over multiple years.

**BVEC 9-13 facility** is located in a highly visible location in the Joarcam field, adjacent to a local residence and highly visible from the main county road. Remediation activities (expenditure $1,942k) included additional site characterization and modeling, excavating, hauling and landfill disposal of over 30,000 tonnes of salinity, hydrocarbon, and boron impacted soil from the sizeable process area, tank farm and large flare pit. Activities also included debris removal, cleaning up spills from onsite pipelines, and backfilling the excavations. A large debris pit was identified during excavation that contained hydrogen sulphide, which required special precautions during excavation and land-filling. Site specific risk-based criteria were generated through site characterization and extensive modeling. It is estimated to have reduced excavation volumes of approximately 30% as compared to the application of AENV generic Tier1 criteria. This particular approach was selected with the intention to obtain closure of this site with a reclamation certificate. This is the only one of four BVEC sites located in Section 13 Twp 48 Rge 21 W4 that has not yet been reclaimed.

**BVEC 15-6 facility** was similarly selected as a priority because of stakeholder concerns. Remediation activities (expenditure $1,475k) included additional site characterization and modeling, excavating, hauling and landfill disposal of over 25,000 tonnes of salinity, hydrocarbon, and boron impacted soil from
the process area, tank farm and large flare pit. Activities also included removal of debris, excavation and removal of pilings and backfilling. It is estimated that a 30% reduction in excavation volumes was realized through the development of site specific risk-based criteria, as compared to generic AENV Tier I criteria. This approach was selected with the intention to obtain closure of this site with a reclamation certificate.

This is the last of ten BVEC sites located in Section 6 Twp 48 Rge 20 W4 that has not yet been reclaimed. Six BVEC sites were reclaimed ($176k total with costs of $8k to $90k per site). The largest reclamation expenditure was on BVEC 00/16-02-036-28W4/0 well site located near Innisfail ($90k). Activities included additional backfilling and compaction to repair the settlement of a large excavation area, surface re-contouring, replacement of topsoil, seeding, and construction of an elk-proof fence to keep livestock away from the reclaimed area. Eight BVEC sites were monitored for vegetation growth and four sites received reclamation certificates in 2009/10.

Legacy Petroleum Ltd. ($4,213,079)
The defunct company Legacy Petroleum Ltd. (Legacy) properties came to the OWA in 2003. There are 99 orphan sites licensed to Legacy; mostly shallow gas wells drilled in the 1970’s with drill dates ranging from 1959 to 1986. At the start of the year, closure had been previously obtained on 13 sites (two with reclamation certificates and the remaining through overlaps) or 13%. The remaining 86 orphan sites licensed to Legacy are located in three fields; 24 sites east of Irvine, 52 sites north of Buffalo and ten sites north of Viking.

In the Irvine field, Phase 2 investigations supporting risk assessment approaches were conducted on 17 Legacy Irvine sites this year ($627k total with costs of $27k to $52k per site). Parameters of concern
consisted of high electrical conductivity (EC) and high Sodium Adsorption Ratio (SAR) values associated with blow down pits, facility areas and drill sumps.

Six Legacy Irvine sites were remediated ($1,212k total with costs of $183k to $462k per site); the remediation of three of these sites was based on the results of a risk assessment approach developed in the prior year. This risk based approach to remediation substantially reduced remediation costs by reducing the volumes of soil requiring excavation. One Legacy Irvine site was reclaimed ($12k) and none were in the monitoring or closure categories.

In the Buffalo field, more remediation work had been conducted on the 52 Legacy Buffalo sites in the prior year, so more sites had progressed further towards closure. This year, five Phase 2 investigations were conducted ($43k total with costs of $8k to $12k per site). Thirteen Legacy Buffalo sites were remediated ($1,362k total with costs of $42k to $179k per site). Remediation site activities included some additional drilling for delineation; excavating salinity impacted soil from well centre, drilling sump and spill areas, land-filling the impacted soil and backfilling the excavations.

Three Legacy Buffalo sites were reclaimed ($44k total with costs of $11k to $28k per site). Twenty-five other Legacy Buffalo sites were in the vegetation monitoring stage and six sites were in the closure category (one reclamation certificate received, two taken over by another company and three ready to apply for reclamation certificate). Growth of vegetation on the reclaimed native prairie sites continues to be slow due to the lasting drought in the area.

In the Viking field, the main activity on the ten sites was remediation. Seven Legacy Viking sites were
remediated ($667k total with costs of $63k to $244k per site). One Legacy Viking site 00/11-15-039-16W4/0 was reclaimed ($62k). Costs were relatively high due to a long access road and large wellsite area. Minor reclamation (harrowing and rock picking) and vegetation monitoring was conducted at the other two sites.

Condor Resources Inc. ($3,611,563)
The defunct company Condor Resources Inc. (Condor) properties came to the OWA in 2003. The orphan sites licensed to Condor are all located in the Drayton Valley area. The Condor wells were drilled between 1956 and 1968 and were mostly oil wells. A total of 30 orphan sites were received and at the start of the year closure had been obtained on one site that was taken over by another company.

Similar to the BVEC field, the cost estimates to remediate the Condor well and facilities sites were relatively high compared to other orphan sites, so the grant funding was used as an opportunity to work towards closure on these higher cost orphan sites. The main impacts associated with Condor sites consist of large drilling sumps and pits containing hydrocarbon, salinity and heavy metal impacts. One detailed supplemental Phase 2 site assessment was conducted on a site with two Condor wells on it ($80k total). This site had hydrocarbon impacts which extended from the padded lease into the surrounding muskeg/peat area. In total, 14 Condor sites were remediated ($3,171k total with costs of $133k to $659k per site).

Of note, the Condor facility 11-19-048-08W5 was remediated for $659k. There were four directional wells drilled from this location. Over 9,000 tonnes of non-dangerous oilfield waste (non-DOW) hydrocarbon, salinity and heavy metal impacted material were excavated from seven separate excavations: two well centre areas, the flare pit area, the tank farm area, a spill area, the process area and a separate small above ground storage tank (AST) area. During excavation operations, two additional drilling sumps were identified outside of the main facility area. Approximately 900 tonnes of DOW material were excavated from the drilling sumps. The material proved non-conducive to on-site treatment and was disposed of at a Class I landfill.

Katana Resources Ltd. ($1,743k)
Five historical orphan wells are licensed to the defunct company Katana Resources Ltd. (Katana). These wells are located in the Longview - Turner Valley area and were drilled between 1929 and 1945. Two of these orphan well sites have achieved closure (one reclamation certificate received). An initial Phase 2 assessment was conducted on one Katana site located north of the town of Turner Valley and large remedial activities were conducted on two additional Katana sites described below. The grant funding
offered an opportunity to designate both these sites as priorities this year.

**Katana 03/11-04-019-02W5/0**

This historical orphan site was selected as a priority for remediation because it is located adjacent to the landowner’s residence. Hydrocarbon impacted soil and groundwater extends beneath the landowner’s yard and around the water line servicing the residence. Impacts at depth were identified as close as 15 m from the residence. Remediation activities ($861k) included excavation and landfill disposal of hydrocarbon contaminated soil within the lease area and in-situ remediation (Oxygen Release Compound or ORC injection) of hydrocarbon impacted soils beneath the landowner’s yard. With landowner consultation, the option of an in-situ remediation method was selected for the yard to minimize disruption to the landowner and prevent the removal of trees. Remediation closure was obtained within the original lease boundaries, however some hydrocarbon impacted soil remains beneath the landowner’s yard. The in-situ remediation program in the yard will therefore continue in 2010. The site was also reclaimed through surface re-contouring, spreading of topsoil and seeding ($30k).

**Katana 05/08-01-020-03W5/0**

This historical orphan site was also selected as a priority for remediation because of its location within the Town of Turner Valley between the town’s raw water reservoir, water treatment plant and a number of residences. Prior to the start of remediation activities, the OWA notified all the residents in the Town of Turner Valley through a mail out in their utility bills cautioning of possible disruption of traffic as well as possible noise and odour as a result of our activities. Adjacent residents were visited and signs were posted at the entrances to the fenced site explaining our activities and providing contact information. Remediation activities ($819k) included installation
of a secure fence around the work site, removal of trees and site debris, excavation and a combination of on-site treatment and landfill disposal of hydrocarbon impacted soils, disposal of impacted water in the excavation and backfilling of the excavation. The on-site treatment method selected was an ex-situ modified “trommel” system, which uses forced air to strip the hydrocarbons from the soil and then passes the air through a biofilter to biodegrade the hydrocarbons and remove odours prior to discharging the air to atmosphere. Operations were completed with minimal disturbance to the town with no known complaints from local residents to the town of Turner Valley, the ERCB or the media.

Well Abandonment

Well Abandonment expenditures in 2009/10 totaled $8,552k (368% increase compared to $2,324k prior year). These expenditures were on orphan wells ($8,393k) and on a type of orphan wells known as care and custody wells ($160k). There were 24 orphan wells and seven care and custody wells with the OWA this year. The care and custody wells are wells in long term monitoring status and are not included in the well abandonment count. Total orphan well abandonment count to date is 556 wells.

Well Abandonment Count

The Well Abandonment Count of the number of orphan well abandonments counted to date is shown below in Figure 6 and Table 6. The well count is split into two types of abandonments; wells which are abandoned by the OWA (Well Abd OWA) and wells which are abandoned by the ERCB as Enforcement Action (Well Abd ENF) that subsequently become orphan.
Figure 6 – Well Abandonment Count

Table 6 – Well Abandonment Count

<table>
<thead>
<tr>
<th>Fiscal Year (Apr 1 to Mar 31)</th>
<th>ALBERTA ORPHAN PROGRAM (ERCB) [1]</th>
<th>Orphan Well Association (OWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior Years</td>
<td>02/03</td>
</tr>
<tr>
<td>Well Abd OWA</td>
<td>192</td>
<td>37</td>
</tr>
<tr>
<td>Well Abd ENF</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Well Abd Count</td>
<td>292</td>
<td>41</td>
</tr>
</tbody>
</table>

Note [1] The ERCB conducted orphan activities under the program known as the Alberta Orphan Program. Orphan activities were conducted by the OWA when it commenced operations on April 1, 2002. Prior to September 1997, the ERCB had the legal authority to conduct well abandonments on orphans. The provincial legislation was then changed to give the ERCB the legal authority to conduct additional orphan activities such as pipeline abandonment, facility decommissioning and reclamation of associated sites.

Note [2] Well Abd OWA Count for 2006/07 adjusted from 11 to 12 to include the Board Directed Transfer of Legal Oil & Gas Ltd 02/11-31-049-26W4/0.

The terms used in Figure 6 and Table 6 are described below.

**Well Abd OWA**: Wells in this category were first deemed or designated orphan by the ERCB and then were abandoned by the OWA. Wells that were designated orphans and were then handled so that no further action is required by the OWA are also included in this count. For example, wells that had their well licenses taken over by another company through a Board Directed Transfer of the well license after
they were designated orphan are included in this count. Seven orphan wells are counted as abandoned this year. This includes six wells which were surface abandoned and one well which was transferred to another company as a Board Directed Transfer in 2009/10.

Well Abd ENF: Wells in this category were abandoned by the ERCB as either part of their enforcement activities on reluctant licensees or as orphans with historical ERCB involvement. The ERCB issues Abandonment Orders to all liable parties (licensees and working interest partners for wells and facilities and licensees for pipelines). When the ERCB is dealing with a reluctant liable party, as part of its enforcement action, it can conduct the abandonment and attempt to recover the monies. If the wells, pipelines, or facilities are subsequently designated orphan by the ERCB, the OWA will reimburse the abandonment costs to the ERCB. No wells were abandoned by the ERCB and transferred to the OWA for reimbursement in 2009/10.

Well Abandonment Highlights
Grant funding gave the OWA an opportunity to take advantage of the slow down in industry to address some technically challenging well re-entries and remedial repairs. As in prior years, the well abandonment activities were highly varied and difficult to summarize by type of operations. Well abandonment operations are broken into three groups for description of activities.

<table>
<thead>
<tr>
<th>Completed Well Abandonments</th>
<th>6 wells abandoned and 1 well taken over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Remedial Operations</td>
<td>9 wells</td>
</tr>
<tr>
<td>Other Well Activities</td>
<td>8 wells</td>
</tr>
<tr>
<td>Care and Custody Wells</td>
<td>7 wells</td>
</tr>
<tr>
<td>Total</td>
<td>31 wells</td>
</tr>
</tbody>
</table>

Completed Well Abandonments (6 wells plus 1 well taken over)
Six wells had well operations conducted on them and were then surface abandoned in 2009/10. The two wells first described required remedial repairs for gas leaks (surface casing vent flow which is gas leaking between the production casing and the surface casing, and gas migration which is gas leaking outside of the casing). The next four wells were received as orphans together in April 2009 and were abandoned as a project. The well license of the seventh well counted in this group was transferred to an active company.
**Pethelen Resources (1973) Limited 00/10-05-028-02W4/0 ($305k)**

This gas well was drilled in 1974 with 114.3 mm production casing landed at 932.0 mKB. The well was zonal abandoned in 1987 and not surface abandoned. This well had a gas leak (surface casing vent flow). Four remedial repair attempts were made in 2006 and 2008, which impacted the surface casing vent flow but did not shut it off. In 2009, a casing leak was identified at previous remedial perforations at 180.0 mKB and was perforated, acidized and cement squeezed before vent flow repair operations started. The casing was then drilled out, perforated at 302.0-303.0 mKB and a cement retainer was set at 277.0-278.0 mKB, and a block circulation squeeze conducted. The casing was again drilled out, perforated at 240.0-241.0 mKB and 220.0-221.0 mKB, a cement retainer set, perforations acidized and a block circulation squeeze conducted. Noise-temp logs indicated another shallower possible source, so the casing was perforated at 109.0-110.0 mKB and a third cement squeeze conducted. The well was monitored to confirm surface casing vent flow repair success and surface abandoned in August 2009.

**Victory Oils Limited 00/07-32-050-05W4/0 ($428k)**

This oil well licensed to Victory Oils Limited was drilled in 1942 to a total depth of 559.5 m. The well had 177.8 mm production casing landed at 557.44 mKB with a liner run from 549.5 mKB to 558.4 mKB and an open hole section from 558.4 mKB to total depth (TD). It was abandoned with cement plugs in the casing in 1955 and was confirmed to have a gas leak (gas migration). To prepare the well for re-entry with a service rig, the casing stub had to be located, extended and a wellhead installed. The well is located on native prairie grassland; rig mats were used on the access route and well site to prevent damage from heavy equipment and trucking at the landowner’s request. A service rig was brought on to drill out the casing. Rocks, cement and heavy oil in the casing slowed clean
out operations. It took six days of rig operations to drill out the casing to 551.23 mKB, just below the liner top. A cement retainer was set above the liner at 546.0 mKB and the liner top was cement squeezed. The well was perforated 413.0-415.0 mKB, a cement retainer set and 4.3 m³ of cement was squeezed into the perforations. This did not impact the gas migration so the casing was perforated at 275.0-278.0 mKB, a cement retainer was set at 270.8 mKB and circulation to surface was achieved. The well was cemented with 10.6 m³ of cement and monitored to confirm the gas migration repair success and then surface abandoned. Rig mats were removed and the site was cleaned up.

Carl Oil and Gas Ltd. ($288k for 4 wells)
The abandonment operations of four wells licensed to the defunct licensee Carl Oil and Gas Ltd. (Carl) located in the Alderson area, were conducted as a project together. A rod pulling rig and hot oiler were used to prepare the four wells for service rig abandonment to minimize service rig costs. After monitoring the wells to confirm that the remedial repairs were successful, the four wells were surface abandoned together in November. The wellheads, tubing, sucker rods and pump jacks from the wells were sold as salvage.

Carl Oil and Gas Ltd. 02/04-07-015-10W4/0 ($130k)
This oil well was drilled in 1984 to a total depth of 962.0 mKB. The well had a surface casing vent flow which required remedial repair. After the rods and tubing were pulled, the well was zonal abandoned with a bridge plug set at 927.0 mKB, and pressure tested to 14 MPa, (8 lineal meters of cement placed were on top of the bridge plug and the well bore was inhibited (herein referred to as pressure tested, dump bailed and inhibited). Noise-temp and cement bond logs were run to identify potential gas sources and locate the cement top and give information about the quality of the cement. The casing was perforated, cement retainer set, acidized and cemented in three remedial repair attempts at 381.0–382.0 mKB, 278.8–280.8 mKB, and 163.8–166.8 mKB. The last repair was successful in stopping the surface casing vent flow.

Carl Oil and Gas Ltd. 00/06-07-015-10W4/0 ($21k)
This oil well was drilled in 1982 to a total depth of 970 mKB. The well did not have any leaks (surface casing vent flow or gas migration) so abandonment operations were straightforward. After the rods and tubing were pulled, the well was zonal abandoned with a bridge plug set at 924.0 mKB, then pressure tested, dump bailed and inhibited.
Carl Oil and Gas Ltd 00/12-07-015-10W4/0 ($22k)
This oil well was drilled in 1984 to a total depth of 965 mKB. The well did not have any gas leaks and abandonment operations were routine. After the rods and tubing were pulled, the well was zonal abandoned with a bridge plug set at 923.0 mKB, then pressure tested, dump bailed and inhibited.

Carl Oil and Gas Ltd 00/14-07-015-10W4/0 ($115k)
This gas well was drilled in 1984 to a total depth of 974 mKB. The well had a surface casing vent flow which required remedial repair. After the rods and tubing were pulled, the well was zonal abandoned with a bridge plug set at 675.0 mKB, then pressure tested, dump bailed and inhibited. Noise-temp and cement bond logs were run to identify potential gas sources and cement top and give information about the quality of cement. The casing was perforated, cement retainer set, acidized and cemented in three remedial repair attempts at 375.5–377.5 mKB, 250–252 mKB, and 168.5–170.5 mKB. Circulation to surface was obtained at the last attempt and cement was run with 0.95 m³ returns to surface. The last repair was successful in stopping the surface casing vent flow.

Prince Resource Corporation 02/04-20-069-09W5/0
Abandonment operations on two orphan wells licensed to Prince Resource Corporation were on hold due to potential well license transfers to an active company. In December 2009, 02/04-20-069-09W5/0 was transferred to KinMerc Oil & Gas Inc. and no further action is required on this well. Like other Board Directed Transfer wells, this well is counted as a well abandonment in the OWA statistics.
Well Remedial Operations (9 wells)

Well remedial operations are briefly described for nine wells below. They are listed in approximate chronological order. As the year progressed, more technically challenging projects were attempted as more experience was gained in re-entering wells with a drilling rig.

The Regent Oil Company Limited 05/16-01-020-03W5/0 ($909k)

This historical oil well was cable tool drilled in 1929 to a total depth of 622.7 m and was licensed to the defunct licensee The Regent Oil Company Limited. It is located in the Town of Turner Valley and the casing stub was exposed by the land developer in preparation for residential subdivision construction.

The well came to the OWA in fall 2008 because small amounts of gas were found bubbling around the casing stub. Gas samples confirmed that the gas bubbling was sweet, not sour (meaning no H2S gas). This is supported by the fact that the total depth of the well is shallower than the sour gas formations which are produced in the area. When this well was originally drilled, 393 mm surface casing was landed at 26.9 m and 273 mm production casing was landed at 540 m. During abandonment in 1935, the production casing was completely pulled out of the hole and there were no records of what cement plugs were set.

Extensive stakeholder consultation was conducted with the ERCB, the Town of Turner Valley and local residents to address issues of safety, noise, odour and traffic. Because of the well’s close proximity to residences, extra efforts to reduce noise and traffic were taken. Hospital-grade mufflers were installed on the rig and pump engine exhausts and high noise abandonment operations such as moving casing, trucking, and cementing operations were conducted during day shifts whenever possible.
Seven days were required to prepare the casing stub, extend casing and install wellhead, and to prepare the lease (level and establish drainage around lease) for the drilling rig. There was a significant amount of domestic debris from the previous tenants (such as old farming equipment and an abandoned recreational vehicle) which had to be moved. A rat hole rig was brought on to drill out the surface hole for two days prior to moving the drilling rig on.

The drilling rig was moved on to the site and rigged up during daylight hours to minimize the impacts of traffic and noise to local residents. The well was drilled and cleaned out to 89 mKB. Progress was extremely slow because of the variety of debris found inside the hole (such as wooden timbers, shredded rope, oily sludge, and cement) and because there was some lost circulation. 340 mm casing was installed at 76 mKB and cemented with returns to surface to stabilize the well bore. Drilling and clean out of the open hole continued very slowly because sloughing shale caused high torque on the bit and numerous cleanout trips were required. After ten days, drilling operations were stopped because of tight hole conditions. 139.7 mm casing was landed at 517 mKB, and cemented with returns to surface.

The well was monitored and two noise-temp/cement bond logs were run to confirm cement integrity and to look for any signs of gas leaks. Monitoring the well over the summer and winter 2009/10 indicates that the gas leak appears to have been repaired. This well will be monitored into the following summer and then surface abandoned when it is confirmed that there are no leaks.
Alliance Oil Company Ltd. 00/14-11-006-02W5/0 ($840k)

This historic gas well licensed to Alliance Oil Company Ltd. is located in the Foothills area near the hamlet of Beaver Mines (19 km west of Pincher Creek). It was drilled in 1940 to a depth of 2,049.2 m and abandoned in 1942. The well was identified as having gas migration by the landowner because of noticeable lack of vegetation growth around the well centre. At the request of the ERCB to do stakeholder notification, the residents adjacent to the well site and residents of Beaver Mines were visited and given information packages describing the planned operations. The access road was upgraded and the site prepared to accommodate a drilling rig and support equipment. Four days were required to construct the access road and prepare the site for a drilling rig.

The well had 339.7 mm conductor casing landed at 25.6 m, 273.1 mm intermediate casing landed at 491.6 m, and 177.8 mm production casing landed at 1,832.2 m. During the 1942 abandonment, the production casing was shot off with explosives at an unknown depth (suspected above 850 m) and pulled. An open hole section was expected below the intermediate casing shoe at 491.6 m and above 850 m.

A top-drive drilling rig was moved to the site and drilling and clean out operations began. Numerous magnet runs, mills and junk baskets were run to remove existing and milled debris. The hole was eventually cleaned to 778 mKB. 139.7mm casing was landed at 778 mKB and cemented with returns to surface. The repair appeared to be successful and the well will be monitored and re-entered if found to still be leaking.

Ocean City Development ($1,117k for 2 wells)

Background - These two historical wells licensed to the defunct licensee Ocean City Development (Ocean City) were turned over to the OWA based on concerns from the landowner about gas migration impacting vegetation. Well operations were coordinated to use the same abandonment consultants, fishing personnel and services used on the Regent, Alliance, Dina, and Victory wells. Both casing stubs were excavated and located at the same time in preparation for the drilling rig re-entry operations.

Because the wells were located on sensitive native prairie grass lands with no access road or lease present, rig mats were laid down to protect the access route. The general location of the wells was identified by the presence of gas migration; however, the exact location of the well bores was unknown. A large excavation was required to locate the casing for Ocean City B0/12-32-050-05W4/0 (Ocean City B0) and the 273 mm casing was finally located at a depth of 7 m below ground level. Contaminated soil, drilling cable, and other oilfield related debris was removed from the excavation and hauled to appropriate
disposal facilities. The casing top extended to surface and a wellhead was installed. The casing for Ocean City B2/12-32-050-05W4/0 (Ocean City B2) was found 7.25 m away from the Ocean City B0 well and 0.3 m below ground level. A total of five days were required to locate the well casing and to prepare the site and well bore for abandonment.

**Ocean City Development B0/12-32-050-05W4/0 ($733k)**

This historical well was drilled in 1942 to a total depth of 408.1 m. Surface casing (273.1mm) was landed at 55.63 m, intermediate casing (219 mm) landed at 433 m and production casing (168.5 mm) landed at 472.7 m, and open hole from 472.7 m to 480.1 m. It appears that some of the production casing and intermediate casing was shot with explosives and pulled out of the hole and the well was abandoned in 1945 but there were few details about this in the well records. When down hole operations were done, records show that a wood plug and a bridge of rock and soil were placed down hole followed by five sacks of cement poured on top.

A drilling rig was moved on and operations to re-enter the open hole started. The well was drilled out and cleaned of debris, wood, cement, sand and gravel to 66 mKB.

The well bore was drilled and cleaned out to 126 mKB where the top of the 219 mm intermediate casing (fish) was found shot off with explosives. Slow drilling/milling progress was due to cement plugs, wood debris and metal debris found around the top of the fish. Various mills, bent subs, magnets and other milling and fishing tools were used to open the hole and fish out debris and keep it stable enough to run casing. During the milling of the top of the 219 mm casing, a bit and drill collar bottom hole assembly accidentally backed off and was dropped down hole. The assembly was recovered with minimal lost time and damage. A smaller diameter bottom hole assembly was then run to fish into the casing. The inside of the 219 mm casing was drilled and cleaned to 437 mKB, and a cased neutron/gamma ray, radial cement bond log and collar locator log were run to confirm the 219 mm casing inside diameter and to collect information about the open hole section and to look for possible gas sources. 139.7 mm casing was run and landed at 433.04 mKB and cemented with returns to surface. The rig was released after six days of operations.
The well was monitored and it was confirmed that there was still gas migrating to surface on the outside of the casing. A noise-temp log was run to help identify possible gas sources. A service rig was moved on and the well perforated at 299.2–301.3 mKB and 260.2–262.2 mKB, with a cement retainer set at 290.0 mKB. The perforations were acidized to improve injection rates and 0.21 m$^3$ of cement was squeezed into the perforations. The rig was moved off and the well was monitored for leaks.

The vent flow was not significantly impacted so another noise-temp log was run. The casing was cleaned out to 255.5 mKB with a mud motor and bit. A modified jetting tool with 8 cutting nozzles was used this time to attempt to cut through the 139.7 mm casing and original 219 mm casing at 251.0–251.3 mKB. The vent flow was not impacted, so the casing was perforated twice with large 39 gram charges from 250.2-252.2 mKB. A cement retainer was set at 246 mKB and 3.3 m$^3$ cement slurry was squeezed into the perforations. The service rig was moved off. It appears that the repairs were successful. The well will be monitored and when successful repair is confirmed it will be surface abandoned.

**Ocean City Development B2/12-32-050-05W4/0 ($384k)**

This historic well was drilled in 1942 to a total depth of 632.8 mKB. Surface casing (273 mm) was landed at 55.78 m and no production casing was run. The open hole well was abandoned in 1942 with cement plugs. The drilling rig was moved over from Ocean City B0 and the well bore was drilled and cleaned out of cement and gravel to 36 mKB. After encountering a number of tight hole problems caused by sloughing shale, cement and metal objects (likely from the 1942 abandonment operations) the well was cleaned with difficulty to 582 mKB. Open hole logs were run before running casing. 139.7 mm casing was landed at 581 mKB and cemented with returns to surface. The rig was released after six days of operations. The well was then monitored.

The repair was not successful, so noise-temp and cement bond logs were run and a service rig was moved on. The 139.7 mm casing was perforated, a cement retainer set, acidized and cemented at 270.2-272.2 mKB. This repair appeared to be successful. The well will be monitored and when successful repair is confirmed it will be surface abandoned.

**Dina Oil & Refining Company 00/05-05-045-01W4/0 ($1,296k)**

This historical oil well licensed to the defunct licensee Dina Oil & Refining Company (Dina) was drilled in 1926 to a total depth of 1,063 m then abandoned in 1950. The well was identified as having gas migration (gas leak) by ASRD because of a distinct lack of vegetation growth around the well centre.
The original 1950 abandonment created enormous challenges to re-enter this well for repair. The grant funding provided an opportunity to attempt repairs on this well in one year, and to limit the disturbances from our operations to the access road landowner. It created efficiencies by allowing the drilling operations to continue uninterrupted because of budget constraints. (The cost to halt drilling operations and to rig off and demobilize a drilling rig and then to mobilize at another time is very high.) The repair of this Dina well also gave the OWA additional experience in re-entering open hole wells with pulled casings and allowed the development of technical expertise which can be applied to other re-entry operations.

This well had 406 mm surface casing landed at 42 m, and 273 mm production casing landed at 570 m. During the 1950 abandonment, the production casing was shot with explosives to retrieve the casing at 213 mKB, 183 mKB, 152 mKB and finally at 122 mKB. The well bore was filled with mud, bridged with unknown material and then three sacks of cement were placed at 76.2 m as the abandonment plug. Of interest, the well had four unusual 2 m high pyramid cement structures around the well bore which were used for rig footings. To re-enter the well with a drilling rig, a new access road had to be constructed because the original access was too steep to traverse with today's heavy equipment. A very large excavation was required to locate the 406 mm surface casing, which was eventually located 12.5 m below ground level. Special precautions for lease construction were taken as the well was located near the edge of Ribstone Creek. Seventeen days of operations were required to prepare the lease and casing for re-entry.

A drilling rig was brought on-site in December 2009 and drilling and clean out operations began. Drilling and milling continued for 11 days until 570 mKB was reached. A tapered casing string (244 mm tapered to 117.8 mm) was run with a cement stage tool and external casing packers and landed at 562.65 mKB.
and then cemented with returns to surface. The stage tool was then drilled out with plans to deepen the hole. Unknown obstructions prevented the bit from going deeper than 570 mKB, possibly because something (such as dropped drilling tools or a piece of a casing string that was shot and pulled) was dropped into the hole during the 1950 abandonment. The rig was released after 18 days of operations. A noise-temp log was run and a small leak at the stage tool was identified and cement squeezed. Monitoring over the winter indicated that the gas leak had been repaired. This well will be monitored into the following summer and then surface abandoned if it is confirmed that there are no leaks.

**Gratton Oil Company ($1,588k for 2 wells)**

These two historical orphan wells licensed to the defunct licensee Gratton Oil Company were drilled adjacent to each other and were addressed together. They were accepted by the OWA in 2008 based on gas migration concerns from the landowner, ASRD. There are no original drilling or completion reports for either well. The 00/01-04-045-08W4/0 (Gratton #1) was drilled in 1914 to a total depth of approximately 580 m and thought to be abandoned in the early 1940’s. The 02/01-04-045-08W4/0 (Gratton #2) well was drilled in 1915 to a depth of approximately 510 m and was thought to be abandoned in the early 1950’s.

Prior to Gratton #1 re-entry, it was unknown if any of the casing strings had been pulled. It was assumed that in the well there was 406 mm surface casing with unknown integrity. Down hole operations confirmed there were fragments of the 406 mm casing remaining in the well bore at approximately 100 m. The casing had been separated by shooting with explosives (shot) and then pulled out of the hole leaving behind metal casing fragments which complicated the down hole re-entry. Subsequent down hole operations confirmed there was a 300 mm casing string set at 292.6 mKB which was also shot at 95.7 mKB and pulled. In addition, a 200 mm casing had been landed at 368.8 mKB which was also shot at 95.7 mKB and pulled.

The Gratton #2 wellbore was not re-entered; the 406 mm, 300 mm and the 254 mm casings strings are still intact and were found to extend to the surface. Reports indicate that the 152 mm casing string was landed at 579 mKB and was pulled in 1939. The decision was made to proceed with drilling re-entry on Gratton #1 well in the last quarter of the fiscal year because of the grant funding. The OWA was able to take advantage of the experience gained from other drilling rig re-entries, by using the same abandonment consultants, fishing personnel and various services used earlier in the year.

Initially, the actual locations of the wells were of concern since the ERCB coordinates for both the Gratton #1 and Gratton #2 wells indicated that the wells were located south of the Battle River on the Wainwright
The wells were confirmed to be on an isolated small parcel of ASRD land with access required across private property on the north side of the Battle River. This was supported by conversations with local residents (one resident drove a water truck for the abandonment in 1950). The well sites and access road required extensive construction because the access traversed a side hill and crossed several soft natural spring fed streams. Since the wells were located near the edge of the Battle River, a berm was constructed between the well site and the Battle River and a fence was installed to prevent any surface water and soil or sedimentation from running into the river.

Locating the Gratton #1 well bore was challenging, because it was discovered that all the casing at surface had been pulled from the well. The hole was located using infrared gas detection equipment and by excavating and eventually exposing the hole in the sandstone bedrock. The location that was thought to be the Gratton #2 well bore was excavated and a steel pin was located instead of the well casing. Extensive gas migration testing using an infrared meter and test pitting in the area of the Gratton #1 well, unearthed the Gratton #2 casing stub 35 m north of the Gratton #1 well, not east as recorded in 1939 well reports.

A rat hole rig (auger rig) was used to clean the hole to 33 mGL prior to drill rig move. The drill rig was mobilized and began drilling/clean out operations in February 2010. Four days were required to drill and mill to 94.5 mKB due to the large amount of casing shrapnel left in the hole when the original casing was shot with explosives prior to retrieval. To stabilize the hole and seal the former casing debris in place, 406 mm surface casing string was landed at 93 mKB and cemented with returns to surface. Gas migration continued to leak outside this new casing string. The new casing was perforated at 72.0–74.3 mKB to redirect the gas flow to the inside of the
casing. When the primary cement had cured, the perforations were cement squeezed with 11.7 m$^3$ of cement slurry. The rig was laid down to stabilize the ground around the cellar with gravel and extra rig matting.

Drilling and milling, and cleanout operations into the open hole resumed. Large pieces of casing shrapnel were encountered throughout the drilling operations requiring numerous magnet and junk basket runs and two down hole camera runs to confirm down hole debris and casing top configuration. After 5 days, the well was cleaned to 250 mKB and a 244 mm production casing was landed at 96.9 mKB and cemented with returns to surface. The casing was then cut, Blow-Out Preventers (BOP’s) were installed, and pressure tested and drilling operations continued the following day. The hole was then cleaned to 570.5 mKB after three days of milling and shrapnel fishing. 114.3 mm casing was run and landed at 570 mKB and cemented and the rig was released after 20 days of rig operations. The well will be monitored for repair success in the following year.

Gratton Oil Company 02/01-04-045-08W4/0 ($123k)

During well operations at Gratton #1, the casing stubs (360 mm and 298 mm) at Gratton #2 were hot tapped to confirm that the casings had no pressure. The casing stubs were cut at surface (prepped) and a wellhead was installed. Initial tests indicate that the well operations at the Gratton #1 well may have stopped the gas migration at Gratton #2. The well will be monitored and further plans made depending on results.

Marwayne Oils Limited 00/05-16-048-05W4/0 ($653k)

This gas well licensed to the defunct licensee Marwayne Oils Limited was drilled in 1952 and abandoned in 1953. Because there is no access road, and the site is located on sensitive native prairie grassland, both the landowner, ASRD and the occupant asked that abandonment work be done during very dry summer or frozen winter conditions. Even a small amount of rain would delay operations and confine equipment to the site. A winter access road was constructed, the well casing stub hot tapped and the surface casing extended to ground level in the winter of 2009. The well was located on a hillside which made the set up of equipment difficult and time consuming. Rig mats were installed on portions of the access road and well site to protect the vegetation. The well had 219.1 mm surface casing landed at 55.8 m and 139.7 mm production casing landed at 592.7 m which was presumably pulled during the abandonment operations in 1952 as it was not found when the casing stub was located. There were no indications of pulled casing in the well records. The service rig was moved on and rigged up. Operations ran 24 hours with two consultants and two rig crews. The well bore was re-entered and the open hole
was drilled and cleaned using a down hole mud motor to a depth of 602 mKB. Sloughing shale in the open hole made progress very slow. 139.7 mm casing was landed at 592.7 mKB and cemented with returns to surface. The rig and rental equipment were released and the well monitored.

The vent continued to flow small amounts of water and gas, and further steps were taken to investigate. Noise-temp and cement bond logs were run to identify cement top and potential gas sources. The well was perforated at 458.0–459.0 mKB, a feed rate established, and the well swabbed dry and monitored. A week later, a cement squeeze was conducted with 2.4 m³ of cement slurry squeezed into the perforations. The vent flow was not impacted by this repair attempt and the well will be monitored. Another repair will be considered in the following year.

Arthur Gerald Caron 00/06-11-047-07W4/02 ($629k)

This well was drilled in 1952 by an oil and gas company and then turned over to the landowner, Arthur Gerald Caron. The well was abandoned in 1953. It is located in a cultivated field with no lease or access road. Operation timing was restricted to before seeding or after harvest. Based on previous re-entries of this well, it appears that a ghost hole was drilled when the original well was drilled. This means that there are two open hole legs associated with the same well. The presumed ghost hole leg was located, re-entered and abandoned with cement plugs in 2002. Another leg was located when the well was re-entered again in 2004 to drill out and re-abandon the first leg. 114.3 mm casing was run into the presumed original hole in 2004.

Using a service rig, additional remedial repairs were done in the 114.3 mm cased well in 2006 and 2007. In 2008, the casing was perforated at 207.0–208.0 mKB where there is a suspected large washout where the two open hole legs deviated. A feed rate was established into the perforation and the vent flow was affected. The well was then monitored and in 2009 a ceramic cement squeeze was conducted at these perforations with little impact to the gas leak. During these repairs, a cement retainer setting tool and tubing were cemented in the hole during the circulation cement squeeze operation. The tubing was cut at 208.5 mKB and retrieved but the remainder of the tubing was still attached to the setting tool at 226.13 mKB. Operations were halted and the service rig was rigged off due to wet conditions.
Later in the year, another repair attempt was made using a service rig; drilling and milling, and fishing operations to remove the cemented tubing and setting tool proved to be extremely difficult. The difficulty of these operations was increased because the 114.3 mm casing installed in 2004 appeared to be either cork screwed or bowed. This combined with the stiff bottom hole assembly required for the drilling/milling operations and the fact that the lost tool was not centered in the well bore created problems for the milling and fishing operations. Various fishing tools, numerous magnets, impression blocks, and a down hole camera were all used.

Eventually a hole was accidentally milled through the casing at 230 mKB and a short ghost hole was drilled at which point operations were terminated. The new ghost hole appears to have intersected the vent flow outside the casing and the well bore fluid has killed the vent leak. The well has been monitored and the gas leak is confirmed to be dead. Consideration will be taken on how to proceed with this well in the following year.

Other Well Activities (8 wells)

A variety of other activities were conducted on the remaining eight orphan wells in the OWA inventory to prepare the well or lease for re-entry or to plan and program the well abandonment. Activities on five of these wells included the following: wireline work to confirm the presence of perforations and tubing in a new orphan well with incomplete completion records, inspection of new orphan well in a very remote northern location to look for casing stub for re-entry and file review and programming, clearing the trees on another remote northern orphan well site to improve the helicopter access and excavating the casing stub and installing a wellhead to prepare for abandonment operations, the installation of a conductor barrel over a shallow gas orphan well with persistent gas migration, and lease preparation on a well adjacent to the town of Turner Valley to prepare for abandonment operations in the following year. Two more orphan wells that are lower priority with even more technically challenging re-entries were monitored over the year and operations on one well licensed to Prince Resource Corporation 00/14-36-076-09W5/0 was on hold because of the potential for well license transfer to an active company.
Care and Custody Wells (7 wells)
Care and custody wells are historical orphan wells that require a long term plan to repair and abandon because of technical challenges and unusual historical circumstances associated with each well. Expenditure on care and custody wells was $160k (22% increase compared to $131k in prior year). Regular inspections and maintenance were conducted on the seven care and custody orphan wells this year. Of note, $71k was spent on Alberta Clay Products Limited 00/15-29-012-05W4/0, located in the City of Medicine Hat adjacent to a commercial greenhouse, for regular testing and maintenance of the upgraded soil gas management system and for annual monitoring of gas concentrations in the adjacent greenhouse during the sensitive growing season using gas monitoring laser technology. Other costs were for regular care and custody inspections and maintenance, abandonment programming, and preparing cost estimates for the other wells.

Pipeline Abandonment ($339k)
In 2009/10, pipeline abandonment expenditures were $339k (40% decrease compared to $571k in prior year). At the start of this year, all pipeline abandonment work had been completed with no work waiting to be done in the orphan inventory. However, as Site Reclamation activities tripled, the need to cut back or remove previously abandoned orphan pipelines located in the work areas (excavations) of remediation and reclamation activities were required.

A total of 69 pipeline segments were handled at 37 different orphan sites for an average cost of $4,917 per pipeline segment. Six pipelines licensed to Carl Oil & Gas Ltd. were abandoned for $36,658 total ($6,110 per pipeline) and 63 pipeline segments were cut back or removed to accommodate orphan remediation or reclamation work for an average cost of $4,803 per pipeline. When an OWA activity requires that an abandoned pipeline licensed to another company on an orphan site be cut back for our operations, the OWA obtains permission from the company and then proceeds with the removal of their pipeline section at OWA expense. This cost arrangement is a standard industry practice.

In brief summary, pipelines that were cut back are listed as follows: 20 pipelines on sites licensed to Legacy Petroleum Ltd. (12 pipelines licensed EOG Resources Canada Company, seven to Legacy Petroleum Ltd. and one to Southport Resources Inc.), 19 pipelines at nine Condor Resources Ltd. orphan sites in Drayton Valley area, ten pipelines on the Lucinda Gold Corp orphan facility at 12-02-037-20W4, 14 pipelines on orphan sites licensed to five defunct companies (Bridges Energy, Big Valley Energy Corp., Legal Oil & Gas Ltd, Prior Resources and Katana Resources.)
Facility Decommissioning ($241k)

In 2009/10, facility decommissioning expenditures were $241k (18% decrease from $205k in prior year). As Site Remediation activities tripled over the year, there was a need to clean up sites by removing above ground and buried facilities and debris so that remediation and reclamation work was not delayed. Some larger facility decommissioning activities conducted this year are described below.

Four Carl Oil and Gas Ltd. orphan wells which were received in April 2009 had six licensed pipeline segments, one battery and three single well facilities on their sites. The facilities were decommissioned and the pipelines were abandoned prior to the rig moving on for well abandonment operations. The total expenditure on these facilities was $119k. Seven tanks (two foam spray coated) were emptied, steam cleaned and hauled for salvage. A treater, flare stack, separator, four pumping units, concrete bases, engines and shacks were cleaned then dismantled and removed for salvage. The sites contained an unusually large amount of plastic pipe, concrete, metal, wood, spare parts, and miscellaneous debris requiring a large labour component to clean up. Multiple trenches requiring extensive vacuum truck and hydrovac services were required to expose and remove underground facilities. Cathodic protection was also located and removed.

Activities at Legacy Petroleum Ltd. facility 10-21-039-16W4 ($28k) included removal of surface facilities such as tanks, sheds, buildings, meter runs, pipeline risers and debris, and extensive underground facilities. An unusual cement underground storage tank (UST) with a cement lid that was poured as part of the wall with re-bar, required more time then a normal steel tank to break apart and remove. Because ERCB records showed that the process fluid had 9,500 ppm H2S, a safety trailer (SABA) was used to
protect the workers when cleaning out the UST. This is because the fluids in the UST could potentially release H2S gas when they were agitated during removal. In addition the crew and hoe completed the removal of the buried facilities which included two meter runs, two large diameter drip pot systems (made up of nominal 304 mm lines) connected to the UST, two culvert style valve housings and various flow and drain lines.

Also of note is the removal of a large (10m x 10m x 3m) UST located at Legacy Petroleum Ltd. site 06-18-012-01W4 ($25k). Three days were required to break up, load and haul concrete. The concrete floor was thicker and the walls reinforced with more re-bar than is usually encountered. Extra trucking, labour and loading time was required to remove, load and transport styrofoam insulation. Dismantling required a large manual labour component to hand cut the tank with gas powered saws and to handle the re-bar, insulation and plastic gas piping. Seven tractor-trailer loads of concrete and two of debris were loaded and hauled for disposal.

Other facility decommissioning activities on other orphan sites included the cleaning, shearing and removal of a 750 bbl and a 200 bbl tank with foam coating, the cleaning and removal of a 50 barrel pop tank, buried drip pot, cables and cathodic protection and debris, the cleaning and removal of a 23 m³ steel UST for disposal, the removal of large steel pilings filled with cement, and the removal of surface and buried metal debris.
FINANCIAL HIGHLIGHTS

This section highlights additional information on the Financial Statements, Statement of Operations.

REVENUES ($43,410k)

Alberta Energy Government Grant ($30,000k)
As part of the Government of Alberta’s stimulus plan worth up to $1.5 billion to increase activity in the Alberta oil and gas industry, the OWA received a one time grant funding from Alberta Energy of $30,000k in June 2009. This government grant funding was contributed to the OWA as part of an incentive program with a view to reducing the “environmental footprint” of the energy sector in 2009/10 and 2010/11. The grant funding is to be used before the completion date of March 31, 2011 or the unexpended grant funding plus all interest or other returns, are to be returned to Alberta Energy.

As a condition of acceptance of the grant, the OWA agreed to make use of the grant funding in a manner parallel to the use of industry funding received by the OWA from the Orphan Fund levy to accelerate the abandonment and reclamation of orphan wells and sites. To meet this part of the Agreement, the OWA has determined that Operating Expenditures will be split so that 60% of Operating Expenditures is from the grant funding and 40% is from industry funding.

Orphan Fund Levy ($12,110k)
The ERCB collects the Orphan Fund levy from the upstream oil and gas industry on an annual basis. In 2009/10, the OWA received $12,110k from the ERCB for the Orphan Fund levy (0.2% increase compared to $12,067 in prior year). Each fall, the OWA prepares a budget for the next fiscal year and the industry members (CAPP and SEPAC) approve the OWA budget including the amount of the Orphan Fund levy. The OWA then requests the ERCB to levy industry to fund our operations for the upcoming fiscal year. In February 2010, the ERCB invoiced industry $12,000k for the Orphan Fund levy. The OWA received more monies than the levy amount invoiced by the ERCB because the ERCB invoices a 20% penalty to companies for late payments. All levy monies collected by the ERCB including penalties are remitted to the OWA.

First Time Licensee Fees and Board Directed Transfer Fees ($890k)
First Time Licensee Fee is a $10,000 fee which is required by the ERCB as part of the approval process of applications from new Licensees which are companies that apply to the ERCB for their first time approval to hold well, facility and pipeline licenses. A total of $880k was received through the ERCB in First Time Licensee Fees this year i.e. the ERCB granted the approval of 88 applications for First Time
Licensees (42% increase compared to $620k prior year) and remitted the funds to the OWA.

*Board Directed Transfer Fee* is a $10,000 fee required by the ERCB for non-routine transfers of licenses. These fees are for the transfers of well and facility licenses with breached Abandonment Orders from a defunct company to a viable company. A total of $10,000 was received through the ERCB in Board Directed Transfers Fees this year (compared to $0 prior year).

**Investment ($368k)**
A total of $368k was received in bank account interest and investment income from short-term investments (1% increase compared to $364k in prior year). Both the funds received from industry through the ERCB and the Alberta Energy government grant funds are invested in the best available rates in highly rated banker acceptances, money market instruments and short-term variable rate guaranteed investment certificates. Although the OWA had significantly more funds to invest this year, interest rates were at an all time low.

**Salvage Sales ($42k)**
Salvage sales of $42k were received this year (121% increase compared to $19k in prior year). Most of the salvage revenue was for tubing taken from three wells (00/04-30-098-02W6/0 licensed to Range Energy Inc. and 00/07-29-058-24W4/0 and 00/06-17-059-02W5/0 licensed to Prince Resources Corporation). The tubing from these wells were combined and used on other well abandonment operations in the area to save tubing rental charges. They were then inspected and repaired and the net value received was $23k for 276 joints of yellow, blue and red band. The remaining $19k salvage came from the wells and facility licensed to Carl Oil and Gas Ltd. for the sale of 450 rods and 342 joints of tubing all in poor or junk condition (red band), tanks, pumpjacks, wellheads, and scrap metal. The salvage credit received was offset by the costs of cleaning and hauling the material for sales or scrap.

**Enforcement Recoveries and Liability Licensee Rating Recoveries ($0)**
*Enforcement Recoveries* are received when the ERCB successfully recovers monies from a responsible party for enforcement activity conducted on designated orphan wells, pipelines or facilities. When this occurs, the OWA receives the monies through the ERCB. The ERCB can also remit any monies held in trust accounts to the OWA when the OWA has spent the amount held in trust on abandonment or reclamation activities on behalf of the defunct company. This year, $0 was received from the ERCB in Enforcement Recoveries (compared to $0 in prior year).

*Licensee Liability Rating (LLR) Recoveries* are received when the ERCB collects and holds a security
deposit from a Licensee as required by the ERCB’s LLR program. If the Licensee has properties, (i.e. wells, pipelines, facilities, or associated sites which are subsequently designated orphan) the ERCB turns the LLR deposit over to the OWA. The OWA is required to spend the amount held on deposit by the ERCB on behalf of the defunct company for abandonment and/or reclamation before receiving the LLR security deposit. This year, $0 in security deposits was received from the ERCB (compared to $0 in prior year).

**EXPENDITURES ($35,710k)**
Expenditures are comprised of Operating Expenditures and Other Expenditures. Total Expenditures in 2009/10 was $35,710 (208% increase compared to $11,613k in prior year).

**OPERATING EXPENDITURES ($34,972k)**
See previous Operating Highlights section for information on Site Reclamation, Well Abandonment, Pipeline Abandonment, and Facility Decommissioning Expenditures. Note that Operating Expenditures were more than triple the expenditures in prior year (211% increase compared to $11,240k in prior year) because of the availability of the Alberta Energy $30,000k government grant funding. As noted in the Operating Highlights, 60% of these expenditures, or $20,983k, is from the grant funding and 40% or $13,989k is from industry funding.

**OTHER EXPENDITURES ($738k)**
Other Expenditures are comprised of Fund Administration, reimbursements to industry for Working Interest Claims and reimbursements to the ERCB for ERCB Enforcement Activities. These expenditures increased this year (98% increase compared to $373k in prior year).

**Fund Administration ($477k)**
Fund Administration expenditure was $477k (44% increase compared $332k in prior year). These include fees for management, insurance, legal, accounting, clerical and an annual payment to the ERCB for administrative services including office space, facilities, equipment, building services and computer support services. Expenditures were increased from prior year because of an increase in management fees to compensate for the additional efforts required to administer the tripling of operating expenditures and due to an increase in building and computer support services for the additional staff hired to help administer and coordinate the increased expenditures.

**Working Interest Claims ($261k)**
A Working Interest Claim is a claim submitted by industry to the ERCB for the proportionate share of
abandonment and/or reclamation costs incurred on behalf of a defaulting working interest participant (WIP) when the abandonment and/or reclamation is complete. A WIP is any party under a joint operating or other agreement under which the party is entitled to a proportionate share of cash flows as well as the responsibility for the same proportionate share of costs.

Working Interest Claims can be submitted to the ERCB formally by letter in accordance with section 16.541 of the Oil and Gas Conservation Act. This supersedes the former process used in ERCB Informational Letter IL 95-03. Abandonment is considered completed when the well abandonment is completed as per Directive 20 and the ERCB Digital Data Submission (DDS) system is updated to indicate both surface and zonal abandonments. Reclamation is considered completed when a reclamation certificate has been issued on the site.

The ERCB reviews the Working Interest Claims and then gives them to the OWA to review for appropriate backup and to provide comment to the ERCB. The OWA requires backup documentation for all expenditures and salvage credits before claims are paid. Administration and overhead expenses are not reimbursed. GST is reimbursed.

When the OWA has completed its review and the ERCB determines that the claim is for a valid orphan, the ERCB can designate a particular property, (i.e. a well, pipeline, facility or associated site) as orphan for the purpose of reimbursement of a Working Interest Claim. The OWA can then proceed with payment directly to the company who made the Working Interest Claim.

This year, the ERCB approved seven reimbursement claims that were paid to industry by the OWA for the reclamation of three sites that have received reclamation certificates and for the abandonment of one well. Reimbursement amounts were $261k (537% increase compared to $41k in prior year). This amount shown in the financial statements does not include GST; however, the OWA does pay GST to industry on these claims. See Table 7 - 2009/10 Working Interest Claims below for details. Of note, the OWA is still anticipating a $1,000,000 reclamation claim from ConocoPhillips Canada for their defaulting working interest partner Joffre Oils Ltd. on 00/06-11-019-03W5/0.
Table 7 - 2009/10 Working Interest Claims

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<tr>
<th>Defunct Licensee</th>
<th>Working Interest Partner</th>
<th>Location and Description</th>
<th>% WIP</th>
<th>Working Interest Claim $</th>
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<td>Condor Resources Inc.</td>
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<td>04-23-048-08W5 Reclamation</td>
<td>33.3334%</td>
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<td>Brunyan Resources Ltd.</td>
<td>Penn West Petroleum Ltd.</td>
<td>06-24-048-08W5 Reclamation</td>
<td>33.3333%</td>
<td>22,190</td>
</tr>
<tr>
<td>Condor Resources Inc.</td>
<td>Penn West Petroleum Ltd.</td>
<td>04-24-048-08W5 Reclamation</td>
<td>33.3334%</td>
<td>26,554</td>
</tr>
<tr>
<td>Brunyan Resources Ltd.</td>
<td>Penn West Petroleum Ltd.</td>
<td>04-24-048-08W5 Reclamation</td>
<td>33.3333%</td>
<td>26,554</td>
</tr>
<tr>
<td>Roncott Resources Inc.</td>
<td>Bellatrix Exploration Ltd.</td>
<td>11-13-051-10W5 Abandonment</td>
<td>66.5174%</td>
<td>147,139</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>260,710</strong></td>
</tr>
</tbody>
</table>

ERCB Enforcement Activities ($0)

ERCB Enforcement Activities are amounts reimbursed to the ERCB for third party abandonment expenditures on properties (wells, pipelines and facilities) incurred by the ERCB during their enforcement actions. Reasonable attempts are made by the ERCB to have responsible parties abandon their oil and gas properties. Once it is determined that no responsible parties exist, cannot be located, or do not have the financial means to contribute to those costs as per s.70(2)(b)(iii) of the Oil and Gas Conservation Act, the ERCB can designate the property as an orphan. If a property is designated an orphan prior to abandonment and reclamation, the OWA conducts the abandonment and reclamation. If a property is designated an orphan after the abandonment work is conducted by the ERCB, the OWA will reimburse the ERCB for monies spent on the abandonment work. The OWA did not reimburse the ERCB for enforcement activities this year ($0 in prior year).
ALBERTA OIL AND GAS ORPHAN ABANDONMENT AND RECLAMATION ASSOCIATION

Financial Statements
March 31, 2010
ALBERTA OIL AND GAS ORPHAN ABANDONMENT AND RECLAMATION ASSOCIATION

Statement of Financial Position
As at March 31, 2010
(Thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$6,521</td>
<td>$4,013</td>
</tr>
<tr>
<td>Short-term investments</td>
<td>15,239</td>
<td>5,696</td>
</tr>
<tr>
<td>Accounts receivable from the ERCB</td>
<td>11,919</td>
<td>8,915</td>
</tr>
<tr>
<td>GST receivable</td>
<td>547</td>
<td>153</td>
</tr>
<tr>
<td>Prepaid expense and other receivables</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>34,233</strong></td>
<td><strong>18,787</strong></td>
</tr>
<tr>
<td><strong>Liabilities and net assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>$8,072</td>
<td>$326</td>
</tr>
<tr>
<td><strong>Net assets</strong></td>
<td>26,161</td>
<td>18,461</td>
</tr>
<tr>
<td></td>
<td><strong>34,233</strong></td>
<td><strong>18,787</strong></td>
</tr>
</tbody>
</table>

Commitment (Note 7)

See accompanying notes to financial statements.

Approved by the Board:

[Signatures]

Directors
## ALBERTA OIL AND GAS ORPHAN ABANDONMENT AND RECLAMATION ASSOCIATION

### Statement of Operations

Year ended March 31, 2010  
(thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alberta Energy government grant</td>
<td>$30,000</td>
<td>$–</td>
</tr>
<tr>
<td>Orphan Fund levy through the ERCB</td>
<td>12,110</td>
<td>12,087</td>
</tr>
<tr>
<td>First time licensee fees and board directed transfer fees through the ERCB</td>
<td>890</td>
<td>640</td>
</tr>
<tr>
<td>Interest income</td>
<td>368</td>
<td>364</td>
</tr>
<tr>
<td>Salvage sales</td>
<td>42</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td>43,410</td>
<td>13,110</td>
</tr>
<tr>
<td><strong>Expenditures</strong></td>
<td>34,972</td>
<td>11,240</td>
</tr>
<tr>
<td><strong>Operating</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site reclamation</td>
<td>25,839</td>
<td>8,140</td>
</tr>
<tr>
<td>Well abandonment</td>
<td>8,553</td>
<td>2,324</td>
</tr>
<tr>
<td>Pipeline abandonment</td>
<td>339</td>
<td>571</td>
</tr>
<tr>
<td>Facility decommissioning</td>
<td>241</td>
<td>205</td>
</tr>
<tr>
<td><strong>Total Operating Expenses</strong></td>
<td>34,972</td>
<td>11,240</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fund administration (Note 4)</td>
<td>477</td>
<td>332</td>
</tr>
<tr>
<td>Working interest claims (Note 5)</td>
<td>261</td>
<td>41</td>
</tr>
<tr>
<td><strong>Total Other Expenses</strong></td>
<td>738</td>
<td>373</td>
</tr>
<tr>
<td><strong>Total Expenditures</strong></td>
<td>35,710</td>
<td>11,613</td>
</tr>
<tr>
<td><strong>Excess of revenues over expenditures</strong></td>
<td>$7,700</td>
<td>$1,497</td>
</tr>
</tbody>
</table>

See accompanying notes to financial statements.
## Statement of Cash Flows

Year ended March 31, 2010

(Thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash provided by</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(used in)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess of revenues</td>
<td>$ 7,700</td>
<td>$ 1,497</td>
</tr>
<tr>
<td>over expenditures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in operating non-cash working capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Increase) decrease in accounts receivable from the ERCB</td>
<td>(3,004)</td>
<td>1,032</td>
</tr>
<tr>
<td>Increase in GST receivable</td>
<td>(394)</td>
<td>(41)</td>
</tr>
<tr>
<td>Decrease in prepaid expense and other receivables</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Increase (decrease) in accounts payable and accrued liabilities</td>
<td>7,746</td>
<td>(1,034)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12,051</td>
<td>1,455</td>
</tr>
<tr>
<td><strong>Investing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in short-term investments</td>
<td>(9,543)</td>
<td>(227)</td>
</tr>
<tr>
<td><strong>Net increase in cash</strong></td>
<td>2,508</td>
<td>1,228</td>
</tr>
<tr>
<td>Cash, beginning of year</td>
<td>4,013</td>
<td>2,785</td>
</tr>
<tr>
<td><strong>Cash, end of year</strong></td>
<td>$ 6,521</td>
<td>$ 4,013</td>
</tr>
</tbody>
</table>

During the year, the Association received interest of $238 (2008 - $364).

See accompanying notes to financial statements.
## Statement of Changes in Net Assets
March 31, 2010
(thousands of dollars)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, beginning of year</td>
<td>$18,461</td>
<td>$16,964</td>
</tr>
<tr>
<td>Excess of revenues over expenditures</td>
<td>7,700</td>
<td>1,497</td>
</tr>
<tr>
<td><strong>Balance of unrestricted net assets, end of year</strong></td>
<td><strong>$26,161</strong></td>
<td><strong>$18,461</strong></td>
</tr>
</tbody>
</table>

See accompanying notes to financial statements.
Note 1  Authority and purpose

The Alberta Oil and Gas Orphan Abandonment and Reclamation Association (OWA or the Association) operates under the authority of the Oil and Gas Conservation Act, Orphan Fund Delegated Administration Regulation, and the Societies Act, Chapter S-18, 1980, as amended. The OWA was created as a Delegated Administration Organization (DAO) under the delegated authority of the Alberta Energy Resources Conservation Board (ERCB) (formerly known as the Alberta Energy and Utilities Board) and was established to manage the abandonment and reclamation of Alberta upstream oil and gas orphan wells, pipelines, facilities and associated sites. The Members of the OWA are the Canadian Association of Petroleum Producers (CAPP), the Small Explorers and Producers Association of Canada (SEPAC), the ERCB and Alberta Environment (honorary non-voting Member).

Note 2  Significant accounting policies

(a) Short-term investments

Short-term investments consist of money market instruments and mutual funds which are recorded at fair value. Fair value is determined based on the quoted market value. The market value at year end was $15,239 (2009 - $5,696).

(b) Revenue recognition

The OWA follows the deferral method of accounting for contributions. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and the collection is reasonably assured. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred.

(c) Financial instruments

Financial instruments are any contract that gives rise to a financial asset of one party and a financial liability or equity instrument of another party. Financial instruments are identified by the Association through a review of typical transactions and risk management activities.

Financial instruments are measured at fair value on initial recognition of the instrument except in specific circumstances. Measurement in subsequent periods depends on classification of financial instruments into one of five categories: held-for-trading, held to maturity investments, loans and receivables, available for sale financial assets and other financial liabilities. Held for trading financial instruments are measured at fair value and all gains and losses are included in operating results in the period in which they arise. All financial instruments are measured in the balance sheet at fair value except for loans and receivables, held to maturity investments and other financial liabilities which are measured at amortized cost.

The OWA has made the following classifications of financial instruments held:
Cash Held-for-trading
Short-term investments Held-for-trading
Receivables Loans and receivables
Accounts payable and accrued liabilities Other financial liabilities

(d) Use of estimates
The preparation of the financial statements in conformity with Canadian generally accepted accounting principles, requires management to make estimates and assumptions which affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the year. Due to the inherent uncertainty involved with making such estimates, actual results reported in future years could differ from those estimates.

(e) Not for profit status
The OWA, as a not for profit organization, has no liability for income tax under the Income Tax Act (Canada).

(f) Changes in accounting policy
Effective April 1, 2009, the OWA adopted the following accounting standards issued by the Canadian Institute of Chartered Accountants ("CICA"). The adoption of these standards which are listed below has had no material impact to the Association's financial statements.

(i) Financial Statement Presentation By Not For Profit Organizations (Section 4400)
This section has been amended to permit a not for profit organization to present net assets invested in capital assets as a category of internally restricted net assets and clarification of presentation of revenue and expenses on a gross basis when the entity is acting as the principal in a transaction.

(ii) Disclosure of Related Party Transactions (Section 4460)
This section has been amended to align the definition of related parties to CICA 3840, Related Party Transactions.

(iii) Disclosure of Allocated Expenses by Not For Profit Organizations (Section 4470)
This section establishes disclosure standards for a not for profit organization that classifies its expenses by function and allocates its expenses to a number of functions to which the expenses relate.

This abstract requires the Association to use its own credit risk and the credit risk of the counterparty to assess and determine the fair value of financial assets and financial liabilities, including derivative instruments.

(v) Financial Instruments – Disclosures (amended) (Section 3862)

The amendments provide for additional disclosure requirements about fair value measurements of financial instruments and enhanced liquidity risk disclosure requirements. The additional required disclosures are included in Note 6.

Note 3 Economic dependence and contributions

The OWA receives substantially all of its revenue through the ERCB. The ERCB collects the Orphan Fund levy, First time licensee fees, Board directed transfer fees, Enforcement recoveries, and Liability licensee rating recoveries from industry. These funds are then contributed directly to the OWA. The annual revenue received by the OWA is subject to budget submission to the ERCB. The OWA also received a one time grant from Alberta Energy of $30,000 in 2010 as part of an incentive program for the energy sector for use in a manner parallel to the use of the Orphan Fund levy to accelerate the abandonment and reclamation of orphan wells and sites. This grant is to be used before the completion date of March 31, 2011 or the grant plus all interest or other returns are to be returned to Alberta Energy. At March 31, 2010 there was $9,241 in unexpended grant proceeds from this grant.

Note 4 Fund administration

Fund administration includes contract payments to management of $248 (2009 - $151). No remuneration and benefit payments were made to Board members for 2010 and 2009.

Note 5 Working interest claims

The OWA accepts claims from industry for defunct working interest partners. Working interest partners are any party under a joint operating or other agreement under which the party is entitled to a proportionate share of cash flows as well as costs. If a company has a defunct working interest partner with a well, facility or associated site that is deemed orphan by the ERCB, the OWA will reimburse the proportionate share of costs on behalf of the defunct working interest partner of the completed abandonment and/or the completed reclamation. Reclamation is considered completed and reimbursement can be made when a reclamation certificate has been issued on the site.

Note 6 Financial instruments

(i) Fair value of financial assets and liabilities
Fair value is the amount of consideration agreed upon in an arm's length transaction between willing parties who are under no compulsion to act. The fair values of accounts receivable from the ERCB, short-term investments and accounts payable and accrued liabilities are estimated to approximate their carrying values as of March 31, 2010 and 2009 due to their short-term nature.

Section 3862 of the CICA Handbook establishes a three-tier fair value hierarchy to reflect the significance of the inputs used in making the fair value of the Company's financial instruments.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed Investment Certificates</td>
<td>$13,116</td>
<td>$13,116</td>
<td>$-</td>
<td>$-</td>
</tr>
<tr>
<td>Mutual Funds</td>
<td>$2,123</td>
<td>$2,123</td>
<td>$-</td>
<td>$-</td>
</tr>
<tr>
<td>Short-term investments</td>
<td>$15,239</td>
<td>$15,239</td>
<td>$-</td>
<td>$-</td>
</tr>
</tbody>
</table>

The three levels of the fair value hierarchy established by Section 3862 are as follows:

Level 1
Unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2
Inputs, other than quoted prices, included in Level 1 that are observable for the asset or liability (directly or indirectly).

Level 3
Inputs for the asset or liability that are not based on observable market data (unobservable inputs).

Level 1
The Association values short term investments using the quoted market prices. Investments consisting of marketable securities classified as held for trading are valued using a market approach based upon unadjusted quoted prices for identical assets in an active market from securities exchanges. As a result, these financial assets have been included in Level 1 of the fair market value hierarchy.

Level 2 and Level 3
The Association does not hold any financial instruments to be classified in these categories.

(ii) Interest rate risk
The Association is exposed to interest rate risk principally as a result of floating rates of interest on its short-term investments. At March 31, 2010 a 1% decrease in interest rates would have decreased the excess of revenues over expenditures by approximately $150 assuming the change in interest rates occurred at the beginning of the year.

(iii) Credit risk
The Association is exposed to credit risk, which is the risk that counterparty will fail to perform an obligation or settle a liability, resulting in a financial loss to the Association. The Association’s accounts
receivable are primarily due from ERCB and are subject to normal credit terms. The maximum credit risk exposure associated with the Association's financial assets is the carrying amount.

(iv) Liquidity risk

The Association is exposed to liquidity risk which is the risk that the Association will be unable to generate or obtain sufficient cash to meet obligations as they fall due. Mitigation of this risk is achieved through the active management of cash and debt. The liquidity risk is assessed as low for the Association.

The contractual maturities of financial liabilities as of March 31, 2010 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Thereafter</th>
</tr>
</thead>
<tbody>
<tr>
<td>$8,072</td>
<td>$8,072</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$</td>
</tr>
<tr>
<td>$8,072</td>
<td>$8,072</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$</td>
</tr>
</tbody>
</table>

Note 7 Commitment

The ERCB provides administrative services to the OWA, including office space, facilities and equipment, building services, and computer support services. Contracted payments for 2011 are $35.

Note 8 Management of capital

The Association's objective when managing capital is to ensure it has adequate cash flow to maintain operations and fund abandonment and reclamation projects. The Association manages its capital structure and makes adjustments due to changes in economic conditions and the risk characteristics of the underlying assets. Excess cash is generally invested in short term money-market investments.