A FEASIBILITY STUDY TO DETERMINE THE ECONOMICS OF INDUSTRIAL EMERGENCY SERVICES, L.L.C. PURCHASING AN EXISTING FIRE TRAINING ACADEMY IN AXIS, ALABAMA

STRATEGIC ANALYSIS OF EXECUTIVE LEADERSHIP

By: Robert C. Andrews, Jr., P.E.
President & Fire Chief
Industrial Emergency Services, L.L.C.
Corpus Christi, Texas

An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

October 2001
Revised May 2002
Appendices Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov/ to learn how to obtain this report in its entirety through Interlibrary Loan.
ABSTRACT

This research project evaluated the economics of Industrial Emergency Services, L.L.C. (IES) purchasing an existing fire training academy located in Axis, Alabama, which had been foreclosed upon by the lender (the Bank).

IES is a for-profit, private sector fire department that provides contract emergency response personnel (firefighters) to oil refineries and chemical plants. IES has a significant, legally mandated, live-fire training requirement which must provide for realistic training which reasonably prepares its employees to safely perform the emergency response actions required by the company.

In the Spring of 2000, IES had identified the need to develop its own proprietary fire training academy due to its projected growth and the lack of timely access to existing (public) fire training schools. Amongst its options, IES had considered building its own “grass roots” training academy, but had discounted its feasibility based upon capital cost, site selection, environmental permitting, and demand for IES senior staff time.

On August 7, 2000 IES learned that the subject facility was in receivership, and began efforts to negotiate an offer for the facility which would be acceptable to the Bank. IES believed that the opportunity to acquire an existing petrochemical fire training facility at a “distressed” price represented a tremendous opportunity.

Agreement was reached in principle to purchase the facility for $625,000 on 13 July 2001, and IES entered into a lease agreement with the Bank on 15 September 2001, whereupon IES could gain access to the site in order to conduct “due diligence”.
The purpose of this applied research project was to examine the financial aspects of the due diligence process. Specifically, whether Industrial Emergency Services, L.L.C. should purchase the subject fire training academy. The evaluative method was used. The following research questions were posed:

1. What will be the costs of operating the facility (both fixed and variable)?
2. What is IES’ use of the facility projected to be?
3. What outside use of the facility is expected?
4. What are IES current training costs?
5. Based upon the cost of the facility, the anticipated use of the facility, and current competitive costs, what is the break-even analysis for the facility?
6. Based upon the capital value of the facility, is its purchase a good investment?
7. Should IES buy the facility?

The questions were researched, mainly through IES internal documents, Bank documents, and information sources specific to the subject property. Fixed and variable costs were determined and a break-even analysis was conducted.

Based solely upon financial analysis, utilizing the assumptions that were included in the research process, the result of the research was that IES should not purchase the subject property.

However, the assumptions may have been too conservative, and there may have been additional, non-financial, compelling reasons to purchase the facility anyway. These issues are discussed, and due to the limitations on time available to complete the research, recommendations for continued research are offered.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>3</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>5</td>
</tr>
<tr>
<td>List of Tables</td>
<td>6</td>
</tr>
<tr>
<td>Introduction</td>
<td>7</td>
</tr>
<tr>
<td>Background and Significance</td>
<td>9</td>
</tr>
<tr>
<td>Literature Review</td>
<td>15</td>
</tr>
<tr>
<td>Procedures</td>
<td>17</td>
</tr>
<tr>
<td>Results</td>
<td>19</td>
</tr>
<tr>
<td>Discussion</td>
<td>29</td>
</tr>
<tr>
<td>Recommendations</td>
<td>32</td>
</tr>
<tr>
<td>Footnotes</td>
<td>35</td>
</tr>
<tr>
<td>References</td>
<td>36</td>
</tr>
</tbody>
</table>

## APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>38</td>
</tr>
<tr>
<td>Appendix B</td>
<td>44</td>
</tr>
<tr>
<td>Appendix C</td>
<td>48</td>
</tr>
<tr>
<td>Appendix D</td>
<td>49</td>
</tr>
</tbody>
</table>
# TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>19</td>
</tr>
<tr>
<td>Table 2</td>
<td>20</td>
</tr>
<tr>
<td>Table 3</td>
<td>21</td>
</tr>
<tr>
<td>Table 4</td>
<td>21</td>
</tr>
<tr>
<td>Table 5</td>
<td>22</td>
</tr>
<tr>
<td>Table 6</td>
<td>23</td>
</tr>
<tr>
<td>Table 7</td>
<td>24</td>
</tr>
<tr>
<td>Table 8</td>
<td>25</td>
</tr>
<tr>
<td>Table 9</td>
<td>26</td>
</tr>
</tbody>
</table>
INTRODUCTION

Industrial Emergency Services, L.L.C. (IES) provides “comprehensive In-Plant Emergency Response and Related Support Services for the refining, chemical, and high-hazard industries”.

The emergency response services performed by IES, require specific, and legally mandated training of IES employees. IES firefighters currently attend quarterly live-fire training involving the control and extinguishment of flammable liquid (hydrocarbon) and flammable gas (liquefied petroleum gas) fires.

Live-fire training is currently procured at outside (non-IES owned) fire training schools that offer petroleum/LPG firefighting props, such as Lamar University (Beaumont, Texas), and Louisiana State University (Baton Rouge, Louisiana).

There are significant costs associated with acquiring training at these fire schools. Additionally, the scheduling of training at these schools can be difficult, forcing IES to train at times not convenient to the company.

At the time of this study IES had identified several significant potential growth opportunities. The ability to train new IES firefighters was deemed to be a “critical-path” item in order to fulfill these new contracts. Said differently, IES management believed that if it did not develop a means to train recruit firefighters and the officers necessary to fulfill new contracts, IES would have to potentially pass on the additional work, significantly reducing IES’ profitability.

IES management had been discussing the options of building its own fire training academy, along with other options to improve access to firefighting training when it learned of a unique opportunity. Early in 2000, IES management learned of the
foreclosure of a fire training academy in Axis, Alabama. The academy had been purpose-built to train industrial firefighters of the Greater Mobile (AL) Emergency Preparedness Association (GMEPA, or “the Association”). A five- (5) year loan had been procured by GMEPA with a balloon payment at maturity. At maturity, GMEPA was unable to refinance the loan and Regions Bank (the lender) foreclosed on the property.

On 13 July 2001, IES entered into an “agreement in principle” to purchase the fire training academy from Regions Bank, concurrent to IES performing “due diligence” on the property, and IES being found to be “credit worthy” by Regions Bank.

On 15 September 2001, IES agreed to lease the training academy from Regions Bank through year-end 2001, in order gain access to the property to facilitate the performance of “due diligence”. Part of that due diligence was for IES to conduct a feasibility study to determine if the purchase of the training academy made good business sense for IES.

Thus, the problem that prompted this research project was that while IES management found the purchase of the fire training academy attractive in an operational sense, management did not know whether the purchase was attractive in a financial sense.

The purpose of this research was to evaluate whether Industrial Emergency Services, L.L.C. should purchase the subject fire training academy. The evaluative method was used. The following research questions were posed:

1. What will be the costs of operating the facility (both fixed and variable)?
2. What is IES’ use of the facility projected to be?
3. What outside use of the facility is expected?
4. What are IES current training costs?
5. Based upon the cost of the facility, the anticipated use of the facility, and current competitive costs, what is the break-even analysis for the facility?

6. Based upon the capital value of the facility, is its purchase a good investment?

7. Should IES buy the facility?

This applied research project was conducted to meet three requirements:

1. the corporate needs of Industrial Emergency Services, L.L.C.

2. the class requirements of Public Sector Finance (EFL-624) at Grand Canyon University (Phoenix, Arizona) where the author is pursuing a Master of Science Degree in Executive Fire Service Leadership.

3. the applied research requirement for Strategic Analysis of Executive Leadership as part of the National Fire Academy’s Executive Fire Officer Program.

The research required for the Grand Canyon University class was completed and the initial research published on October 1, 2001. Additional research was then conducted, especially a more comprehensive Literature Review, in order to meet the National Fire Academy applied research criteria. Thus, this report carries a revised publication date of May 2002. Due to the timing of this revision, in some cases, tense may appear awkward.

**BACKGROUND AND SIGNIFICANCE**

IES is a for-profit, private sector fire department that provides contract emergency response personnel (firefighters) to oil refineries and chemical plants. IES has a significant, legally mandated, live-fire training requirement which must provide for
realistic training which reasonably prepares its employees to safely perform the emergency response actions required by the company.

In the Spring of 2000, IES had identified the need to develop its own proprietary fire training academy due to its projected growth and the lack of timely access to existing (public) fire training schools. Amongst its options, IES had considered building its own “grass roots” training academy, but had discounted its feasibility based upon capital cost, site selection, environmental permitting, and demand for IES senior staff time.

In early Summer 2000, IES learned that the subject facility was in receivership, and began efforts to negotiate an offer for the facility which would be acceptable to the Bank. IES believed that the opportunity to acquire an existing petrochemical fire training facility at a “distressed” price represented a tremendous opportunity.

IES staff began researching the background of the subject facility and more importantly why it failed.

On 07 August 2000, IES Chiefs Andrews and Deonarine traveled to Mobile, AL to tour the subject facility and meet with representatives of Regions Bank.

On 07 August 2000, Andrews and Deonarine also met with Charles Moye of Ciba Specialty Chemicals Corporation USA, in Mobile AL. In addition to other business topics, Andrews and Deonarine inquired as to the past history of the site, and as to Mr. Moye’s opinion as to whether the original local participants in the training facility, would use the facility again if it were to be reopened. Mr. Moye responded in the affirmative.

On 11 August 2000, IES Sent a “Letter of Intent to Purchase Training Center” to Regions Bank (L. G. Deonarine, personal communication). The price offered was the foreclosed value of $691,000.
On 22 August 2000, Regions Bank responded, and indicated that it was their practice to "entertain only offers to purchase with earnest money deposits (B. E. Austin, Jr., personal communication).

On 18 September 2000, IES sent $6,910 (representing 1% of the offer price) as earnest money to Regions Bank (L. G. Deonarine, personal communication).

On 25 September 2000, Regions Bank countered with a sales price of $750,000 (B. E. Austin, Jr., personal communication).

On 29 September 2000, IES accepted the terms of Regions Bank’s counter-offer, with the conditions explained in “Attachment 1” (L. G. Deonarine, personal communication).

This 29 September 2000, submittal was significant as it contained a list of “due diligence” items that IES expected to have completed before any purchase was formalized. Additionally, it requested significant data and documents from Regions Bank. This entire correspondence can be found as “Appendix A” in this report.

On 07 November 2000, Andrews sent a request to Charles Moye of Ciba Specialty Chemicals (R. C. Andrews, Jr., personal communication). In the letter Andrews solicited Moye’s assistance in three areas as follows:

1. Inform the members of the Greater Mobile Industrial Association (GMIA) of IES’ interest in purchasing and reopening the training facility.

2. Inquire amongst the GMIA members of their interest of using the facility, if reopened.

3. Ask for assistance to rebuild the design and operational documentation for the facility.

This correspondence can be found as “Appendix B” in this report.
Negotiations with the bank got “bogged down” at this point, reportedly due to difficulty in meeting IES’ information request, as well as personnel changes at Regions Bank.

On 05 June 2001, negotiations resumed with Regions Bank advising that it had no documentation to produce for IES other than two surveys [appraisals] (M. Garner, personal communication).

On 05 July 2001, based upon the lack of facility documentation, IES resubmitted an offer to purchase the property at a price of $600,000.

On 09 July 2001, Regions Bank countered IES’ offer at $675,000.

An agreement was reached in principle to purchase the facility for $675,000 on 13 July 2001 (L. G. Deonarine, personal communication). This correspondence can be found as “Appendix C” in this report.

On 15 September 2001, IES entered into a lease agreement with the Bank, whereupon IES could gain access to the site in order to conduct “due diligence”. This lease agreement can be found as “Appendix D” in this report.

The significance of the negotiation process with the Bank at the time of this research was two-fold. First, there had to be agreement on price between the two parties (IES and the Bank). Second, IES had to conduct due diligence to determine if the facility was worth the money, and then develop a business model to determine if the facility was commercially viable.

Once IES had obtained commitment from the bank that it would sell the facility, IES could begin its cost modeling and marketing efforts in the Mobile, AL area.
This applied research project was significant to Industrial Emergency Services, L.L.C., as IES had to determine under what conditions it could afford to purchase and operate the facility.

Based upon the term of the lease, IES has until the end of 2001 to complete its due diligence. The Bank expects at the end of the year for IES to either make good on the purchase, or remove itself from the purchasing process.

The stated course goal of the Strategic Analysis of Executive Leadership (SAEL) is as follows:

“The chief fire executive will develop the ability to conceptualize and employ the key processes used by effective executive level managers.”

This applied research project, “A Feasibility Study to Determine the Economics of Industrial Emergency Services, L.L.C. Purchasing an Existing Fire Academy in Axis, Alabama” relates to the National Fire Academy SAEL Course in the following ways:

1. Leadership is required to champion major changes and new initiatives in the fire department. The purchase of the subject training academy would be a major new initiative for IES.

2. Major initiatives must be viewed in the context of “organizational subsystems” including technical, goals and values, managerial, structural, and psychosocial subsystems. This research included the impact of the training academy purchase on IES’ recruiting, training, human resources, marketing, business development, safety, work flow, career development, strategic goal-setting, and financial subsystems.
3. The chief fire executive must be proficient in managing multiple roles. As the “advocate” for the purchase of the training academy, and the principle investigator for the applied research, I had to manage the roles of Leader, Liaison, Monitor, Disseminator, Spokesperson, Entrepreneur, Resource Allocator, and Negotiator.

4. The effective chief fire officer can foster creativity and innovation. The potential purchase of a ready-built training academy represented an innovative approach to acquiring training. Traditionally, in the refining and chemical industry, this training is acquired from university fire schools.

5. A component of the SAEL course is the emphasis on “decision-making skills”. This applied research project utilized a formal financial “break-even analysis” to assist in the formal decision making process.

6. A component of the SAEL course is “planning for change”. The motivation for this research was based upon a real concern of Industrial Emergency Services, specifically the need to obtain training capacity in advance of the anticipated growth of the organization.

7. A component of the SAEL course is “evaluating”. The effective chief fire officer must be able to analyze complex situations and develop strategies to effect outcomes. This research reviewed myriad aspects of both the problem and the potential solution. As an example, the environmental risks of acquiring the facility were considered in addition to the financial risks.
LITERATURE REVIEW

This study set out to determine the financial feasibility of Industrial Emergency Services (IES) purchasing a fire training academy which had been foreclosed upon by a bank. The research conducted was very narrow in scope and was specific to IES. Review of “industry literature”, “prior research of others”, and “survey instruments” were not deemed to be useful, as this research was not “comparative”, but rather was “evaluative”.

Therefore, the literature review for this study focused upon documents and personal communications specifically related to this proprietary research. Examples of the literature and other information sources reviewed in the course of this research included:

a. Internal IES budget documents
b. Internal IES memoranda
c. Internal IES reports
d. Internal IES marketing reports and forecasts
e. Discussions with IES management
f. Discussion with Regions Bank
g. Documents from Regions Bank
h. Documents specific to the foreclosed upon facility (blueprints, drawings, photographs)
i. An independent appraisal report for the facility ³
j. Personal communications with IES’ bankers and other financial consultants
k. Personal communications with individuals possessing knowledge specific to the facility being evaluated.
Additional research was conducted in May 2002 in order to expand the literature review to satisfy the requirements of the Executive Fire Officer Program. This expanded literature review consisted of conducting a search of the Online Card Catalog of the Learning Resource Center (LRC) at the National Emergency Training Center (NETC).

The research was initiated by searching the Online Card Catalogue by “Keywords in Title”. Searches for “Training Academy Cost”, “Training Academy”, “Training Facility Cost”, and “Training Facility Economics” yielded no matches (“Records Retrieved: 0”).

The Online Card Catalogue search was expanded to include the broader topics of “Cost Benefit Analysis” which yielded 34 “matches”, “Economics” which yielded 82 “matches”, and “Training Facility” which yielded 39 “matches”.

A review of the 34 title matches for “Cost Benefit Analysis” yielded no titles specific to this research.

A review of the 82 title matches for “Economics” yielded no titles specific to this research.

A review of the 39 title matches for “Training Facility” yielded two matches where economics or justification was cited. Huber wrote an article in 1998 entitled “Justification for Goshen Fire Department’s live-fire training facility” as part of the EFO program. The article is not available from the LRC. Gorronda wrote an article in 1990 entitled “A training facility: is it necessary and can we afford it?”. This article is available from the LRC on Interlibrary Loan.
Due to the specificity of this applied research to Industrial Emergency Services, the two articles were not deemed to be relevant to this applied research project. However, citations for these two (2) articles are listed under the “footnotes” and “references” sections of this report to assist future researchers.

PROCEDURES

The chronology of events contained in the “Background and Significance” portion of this report was reconstructed by reviewing several IES project files, which contained myriad correspondence regarding the subject.

Fixed and variable costs (Question 1) for the proposed facility were determined, having either researched specific costs or by utilizing actual cost levels observed by the author while operating a similar facility in the past.

The projected use of the facility (Question 2) was determined by evaluating IES’ current and projected Live-fire Training, and Recruit School training requirements. Charts were created, citing the number of employees to be trained, and then multiplying the number of employees by the length of the respective class as reflected in Student Contact Hours (SCH).

IES management was interviewed to determine what outside use of the facility should be reflected in the study (Question 3).

IES internal billing records were reviewed to determine what its current training costs were (Question 4).

A break-even analysis was then conducted and a chart reflecting the “break-even point” created (Question 5). The chart was created using the example on page 109 of the course textbook.
Determination of whether the purchase of the facility was a good investment, from a capital funds utilization perspective (Question 6), was conducted by interviewing IES management, and by interviewing the Financial Controller of an European oil company subsidiary.

The recommendation to purchase or not purchase the facility was evaluative (Question 7). Assumptions provided by IES management to determine both costs and revenue for the subject facility were applied during the research, and the results then compared with IES’ goal for internal rate-of-return for capital employed.

Limitations

This study was limited due to the time available to meet the EFL 624 course schedule as set forth by Grand Canyon University.

Furthermore, this research project was not theoretical, but rather represented a current ongoing corporate initiative of Industrial Emergency Services, L.L.C. Subsequently, fact-finding and other research activities were being conducted by IES during the research period. Some of the data needed to support all of the conclusions and recommendations contained in this report was not yet acquired (or verified) by the deadline for this research. In other words, the timetable IES was using (including the work of others outside of IES’ direct control) to conduct this research to support its business initiative, and the timetable demanded of the University, were not always in sync.
RESULTS

1. What will be the costs of operating the facility (both fixed and variable)?

The annual fixed costs are estimated to be $225,000 per year. Details of these costs are contained in Table 1. The assumptions used to calculate the fixed costs are contained in the footnotes of Table 1.

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANNUAL FIXED COSTS</td>
</tr>
<tr>
<td>Debt Service (1)</td>
</tr>
<tr>
<td>Utilities</td>
</tr>
<tr>
<td>Electric (2)</td>
</tr>
<tr>
<td>Water / Sewer</td>
</tr>
<tr>
<td>Phone *</td>
</tr>
<tr>
<td>Insurance</td>
</tr>
<tr>
<td>General Liability (3)</td>
</tr>
<tr>
<td>Property</td>
</tr>
<tr>
<td>Maintenance</td>
</tr>
<tr>
<td>Property Taxes (4)</td>
</tr>
<tr>
<td>Personnel</td>
</tr>
<tr>
<td>Caretaker (5)</td>
</tr>
<tr>
<td>Mileage Reimbursement (6)</td>
</tr>
<tr>
<td>Sub-Total</td>
</tr>
<tr>
<td>Contingency – 5% (7)</td>
</tr>
<tr>
<td>Depreciation (8)</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

NOTES:
* Estimated
(1) $675,000 (Purchase Price) @ 8%.
(2) $500 / month average as reported in telephone conversation on September 25, 2001 with Russell Yarbrough of Alabama Power Company.
(3) Estimate from E-mail from Christine Scharmen with Borden Insurance.
(4) Estimated at 1% of $675,000.
(5) Based upon $29,000 annual salary plus 40% benefits.
(6) 10,000 personal miles reimbursed at IRS allowable rate of $0.345 / mile.
(7) 5% of Sub-Total
(8) Assumes 10 year average depreciation schedule on $675,000 purchase price.

Variable costs were defined to be $10.00 per Student Contact Hour (SCH). A Student Contact Hour is defined as one student in class for one hour. The $10.00 per
SCH variable cost was selected based upon the author’s experience in running the Refinery Terminal Fire Company Fire Training Academy in Corpus Christi, Texas.

2. What is IES’ use of the facility projected to be?

**Quarterly Live-fire Training**

IES intends to use the facility to conduct “Quarterly Live-Fire Training”, and “Recruit Training”.

Each IES employee assigned to “emergency operations” will receive 48 hours of In-Service training annually at the facility. This training is obtained by attending a 12-hour training session, four times per year. Table 2 shows the number of Student Contact Hours based upon IES employment levels.

**TABLE 2**

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>SCH (960)</th>
<th>SCH (1920)</th>
<th>SCH (2880)</th>
<th>SCH (3840)</th>
<th>SCH (4800)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>960</td>
<td>1920</td>
<td>2880</td>
<td>3840</td>
<td>4800</td>
</tr>
</tbody>
</table>
IES projects the following employment based upon successful marketing:

**TABLE 3**

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>NUMBER OF EMERGENCY OPERATIONS PERSONNEL</th>
<th>STATUS</th>
<th>SCH FOR QUARTERLY TRAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motiva Enterprises</td>
<td>15</td>
<td>Active</td>
<td>720</td>
</tr>
<tr>
<td>Marathon Ashland Petroleum</td>
<td>2</td>
<td>Active</td>
<td>96</td>
</tr>
<tr>
<td>Louisiana Headquarters</td>
<td>1</td>
<td>Active</td>
<td>48</td>
</tr>
<tr>
<td>Corporate Headquarters</td>
<td>1</td>
<td>Active</td>
<td>48</td>
</tr>
<tr>
<td>ExxonMobil</td>
<td>26</td>
<td>June 2002</td>
<td>1,248</td>
</tr>
<tr>
<td>Marathon Ashland Petroleum</td>
<td>11</td>
<td>June 2002</td>
<td>528</td>
</tr>
<tr>
<td>Louisiana Headquarters</td>
<td>2</td>
<td>June 2002</td>
<td>96</td>
</tr>
<tr>
<td>Port of Greater Baton Rouge</td>
<td>2</td>
<td>June 2003</td>
<td>96</td>
</tr>
<tr>
<td>St. James Parish Station</td>
<td>18</td>
<td>June 2003</td>
<td>864</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>78</strong></td>
<td></td>
<td><strong>3,744</strong></td>
</tr>
</tbody>
</table>

**Recruit School Training**

IES conducts its own recruit school training for new firefighters. While the entire recruit school curriculum is 1040 hours, 348 hours of instruction would be conducted at the proposed facility. The specific courses that would be conducted at the proposed facility are listed in Table 4. Table 5 shows the number of Student Contact Hours that are required based upon the number of firefighter recruits.

**TABLE 4**

<table>
<thead>
<tr>
<th>CLASS TITLE</th>
<th>TOTAL HOURS</th>
<th>% TRAINED AT PROPOSED FACILITY</th>
<th>ACTUAL HOURS TRAINED AT PROPOSED FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Operator FireFighting</td>
<td>8</td>
<td>100%</td>
<td>8</td>
</tr>
<tr>
<td>Defensive Fire Fighting – Petrochemical</td>
<td>56</td>
<td>100%</td>
<td>56</td>
</tr>
<tr>
<td>Offensive Fire Fighting – Petrochemical</td>
<td>56</td>
<td>50%</td>
<td>28</td>
</tr>
<tr>
<td>Interior Structural Fire Fighting</td>
<td>56</td>
<td>100%</td>
<td>56</td>
</tr>
<tr>
<td>HazMat Tech (NFPA 472)</td>
<td>56</td>
<td>100%</td>
<td>56</td>
</tr>
<tr>
<td>Combined Evolutions</td>
<td>48</td>
<td>50%</td>
<td>24</td>
</tr>
<tr>
<td>Industrial Confined Space &amp; High Angle Rescue (Rescue 1 &amp; 2)</td>
<td>80</td>
<td>100%</td>
<td>80</td>
</tr>
<tr>
<td>Rescue 3</td>
<td>40</td>
<td>100%</td>
<td>40</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>400</strong></td>
<td></td>
<td><strong>348</strong></td>
</tr>
</tbody>
</table>
IES annual use of the proposed facility is dependent upon the timing of hiring.

3. **What outside use of the facility is expected?**

IES senior management preferred justifying the purchase and operation of the proposed fire training academy without the need for outside participation. Thus, this study did not include outside use.

4. **What are IES’ current training costs?**

In general, IES is charged $30.00 per student contact hour by the schools it currently utilizes, such as Lamar University (Beaumont, TX) and Louisiana State University (Baton Rouge, LA).
5. Based upon the cost of the facility, the anticipated use of the facility, and current competitive costs, what is the break-even analysis for the facility?

A break-even analysis is shown in Table 7. Based upon the $225,000 per year fixed cost, and a $10.00 per Student Contact Hour variable cost, the break-even cost is $337,500 per year, requiring a training utilization of 11,250 SCH at a value of $30.00 per SCH.

The only way it appears feasible to have a training demand approaching 11,250 SCH in the first year of the facility's operation, is contained in the scenario depicted in Table 6.

**TABLE 6**

<table>
<thead>
<tr>
<th>TRAINING ACTIVITY</th>
<th>NO. OF EMPLOYEES</th>
<th>SCH EACH</th>
<th>TOTAL SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarterly Training - Motiva</td>
<td>15</td>
<td>48</td>
<td>720</td>
</tr>
<tr>
<td>Quarterly Training Command Staff</td>
<td>2</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>Recruit School – ExxonMobil</td>
<td>26</td>
<td>348</td>
<td>9,048</td>
</tr>
<tr>
<td>Quarterly Training – ExxonMobil</td>
<td>26</td>
<td>24</td>
<td>624</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>10,488</strong></td>
</tr>
</tbody>
</table>

NOTES FOR TABLE 7:

- 960 SCH = Quarterly Training for 20 Firefighters (48 X 20)
- 2208 SCH = Quarterly Training for 96 Firefighters (48 X 46)
- 10632 SCH = Quarterly Training for 20 Firefighters for full year (960) + Recruit School for 26 Firefighters of 9048 SCH (348 X 26) + Quarterly Training for 26 Firefighters for 1/2 year (624).
- 11250 SCH = Calculated break-even Point
- 12000 SCH = Arbitrary Point
- 13000 SCH = Arbitrary Point
TABLE 7

BREAK EVEN ANALYSIS

<table>
<thead>
<tr>
<th>STUDENT CONTACT HOURS / COST</th>
<th>Fixed Cost</th>
<th>Variable Cost</th>
<th>Fixed &amp; Variable Cost</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>960</td>
<td>225000</td>
<td>9600</td>
<td>234600</td>
<td>28800</td>
</tr>
<tr>
<td>2208</td>
<td>225000</td>
<td>22000</td>
<td>248100</td>
<td>65240</td>
</tr>
<tr>
<td>10632</td>
<td>225000</td>
<td>106320</td>
<td>331320</td>
<td>318960</td>
</tr>
<tr>
<td>11250</td>
<td>225000</td>
<td>112500</td>
<td>337500</td>
<td>337500</td>
</tr>
<tr>
<td>12000</td>
<td>225000</td>
<td>120000</td>
<td>345000</td>
<td>360000</td>
</tr>
<tr>
<td>13000</td>
<td>225000</td>
<td>130000</td>
<td>355000</td>
<td>390000</td>
</tr>
</tbody>
</table>

DOLLARS
The market value of the use of the proposed facility by IES for Quarterly Training is contained in Table 8. The market value of the use of the proposed facility by IES for Recruit School Training is contained in Table 9. Both Tables 8 and 9 use the number of Student Contact Hours multiplied by $30.00 per SCH to depict the value (internal revenue) of the training.

### TABLE 8

<table>
<thead>
<tr>
<th>Student Contact Hour</th>
<th>Value (at $30 / SCH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>960</td>
<td>$28,800</td>
</tr>
<tr>
<td>1920</td>
<td>$57,600</td>
</tr>
<tr>
<td>2880</td>
<td>$86,400</td>
</tr>
<tr>
<td>3840</td>
<td>$115,200</td>
</tr>
<tr>
<td>4800</td>
<td>$144,000</td>
</tr>
</tbody>
</table>

![Bar Chart](chart.png)
It appears that the only way for IES to continue to approach the SCH necessary to "break-even" is to annually conduct a Recruit School.

Based upon the 11,250 Student Contact Hours required to break-even, IES would have to have 235 employees assigned to emergency operations before it would not be required to conduct a recruit school to contribute to the SCH requirement (235 employees X 48 SCH / year = 11,280 SCH).

Thus, it is of concern, that if IES stops growing before it reaches 235 employees, that the proposed training facility WOULD NOT break-even.

Based upon this break-even analysis, it may be necessary for IES senior management to review / validate the assumptions included in calculating the facility’s fixed costs, as well as revisit the preference to not rely on “outside” business (revenue).
There may also be other justification to purchase the facility, even if from a financial perspective it does not break-even. These “soft-issues” can be found in the “Discussion” section of this report.

6. **Based upon the capital value of the facility, is its purchase a good investment?**

   The answer is “Possibly” (it’s a marginal case).

   The return on investment is dependent upon whether IES can produce the volume of training, on a consistent basis, necessary to cover the break-even costs. This is a BIG assumption. If IES can, then the debt service of 8% and a 10 year depreciation allowance is provided for.

   The assumption here is that an 8% return on internally employed capital is considered a “good investment” for IES (more about this can be found in the “Discussion” portion of this report). IES views the 8% return-on-investment goal this way: “If IES had $675,000 available for investment, what return (in today’s economy, including now the aftermath of the September 11, 2001 terrorist attacks) could IES expect to see?”. At the time of this study IES did not have sufficient capital available to consider purchasing the facility outright. Therefore, the 8% debt service cost is included in the fixed cost calculation. At that time, the cost of debt service (8%) and IES’ internal return-on-investment goal (8%) happens to match. In times of greater (national) economic prosperity, the two rates may not match.

   A discussion with J. de Bruyn (personal communication, September 11, 2001, Almere, The Netherlands) took place to determine the internal rate-of-return required by a multi-national for-profit company, for comparison purposes. J. de Bruyn advised that his company (for which he is the Financial Controller), SigmaKalon (formerly Sigma
Coatings), required a 20% annual return on capital employed. J. de Bruyn said that in his case, in order to approve a capital investment of $675,000 he would require a return of $135,000 annually (20%), AFTER all expenses were paid. He further advised that in the current economy, he would most likely require a two (2)-year payback (all of the investment would be recovered in 24 months).

SigmaKalon is a wholly owned subsidiary of TOTALFINA, the European oil giant. SigmaKalon has an annual turnover of $250 million (about the same budget as the Houston Fire Department). The fact that SigmaKalon believes that in order to be financially successful in today’s economy it must receive an internal rate-of-return of 20% is noteworthy. IES management could be well advised to evaluate their internal rate-of-return goal to assure it is adequate.

J. de Bruyn also cautioned that the liquidity (lack of) of the facility that IES was considering was also of concern to him. Due to the special purpose-built nature of the fire training academy, the facility is not readily sellable (liquid). This fact is validated as the subject facility has been in foreclosure for the past 2 years with no buyer (other than IES) identified. J. de Bruyn advised that due to the non-liquidity of the facility, SigmaKalon would not buy it unless there was a critical business purpose for the facility, and the 2-year payback could be achieved. He further suggested that, in this case, leasing would be preferable to purchase.

7. **Should IES buy the facility?**

IES, from a strictly financial perspective, based upon the assumptions contained in this research project, SHOULD NOT buy the facility.
DISCUSSION

The results were both disappointing and enlightening. IES management would very much have liked to purchase the facility at the beginning of this research project. However, based upon the assumptions used in this study, purchasing the facility seems like a really bad idea from a financial standpoint. This is disappointing. At the same time, the results of this research have been very enlightening, however, and may have prevented IES from making a seriously bad acquisition. This has been a case where management’s “hunch” or “intuitiveness” was not borne out by the facts.

This research was tied to certain specific assumptions, such as “outside training will not be relied upon to justify the purchase of the facility”. Obviously, if those assumptions (upon which the research was conducted) changed, it is quite possible that the results of this research would also change.

It will be up to IES management to either accept the findings of this report “as is” and “kill the project”, or having reviewed this report, decide which assumptions it believes to be unrealistic or unreasonable restrictive. Concurrent with the potential modification (liberalization) of the assumptions, IES senior management would be well advised to understand the commensurate risk often associated with the “watering-down” of assumptions (requirements, criteria, increased variability, etc.). IES should evaluate the subsequent risk associated with adherence to standards that were not set high enough to protect the company from a financial perspective.

Regardless of whether IES management decides to purchase the property based upon financial criteria, there are two (2) otherwise potentially “fatal” flaws to the facility. Those flaws reflect potential environmental liability.
First, written documentation from the Alabama Department of Environmental Management (ADEM), stating that IES will be allowed to restart and operate the facility is critical. A fire training academy that uses kerosene fuel for live-burns, emits smoke into the environment. Additionally, there is a wastewater treatment plant on-site that may require permitting before the outfall from the treatment plant can be discharged. IES must assure itself that ADEM will permit the new facility to operate.

Second, when the Bank foreclosed upon the property, several 55-gallon drums of unknown contents and condition were on the site, as were several other tank-type containers, and a vacuum truck. The contents of these containers must be determined, and the drums and associated containers removed from the site and disposed of in a compliant and legal manner.

The Bank has offered the property on an “As Is, Where Is” basis. IES should not purchase the facility without these environmental liabilities having been resolved. The short-term and long-term financial liability of the site related to these environmental concerns, can significantly affect the financial strength of IES, and IES management is advised in the strongest of terms to consider these two environmental liabilities as “deal-breakers”.

The property has an appraised “In Use Market Value of $1.4 million dollars” and an “Orderly Liquidation Value of $700,000”. IES in its most recent letter-of-intent has offered the Bank $675,000 for the facility, contingent upon IES completing its “due diligence” with a favorable outcome.

On the surface, it appears that IES is getting a really good deal, obtaining a facility at less that 50% of appraised value. The problem is that the “appraised” or
“market” value of the site is, in reality, only confirmed (or proved-up) by an actual sale. In other words, “a property is only worth what someone is willing to pay for it”. Thus far, IES has been the only credible bidder on the site. This may be because IES “got the inside track” on the facility (perhaps, more entities would have shown interest in the site, if Regions Bank had done a better job of marketing / advertising the site’s availability), or it may be that there is no market for the site. Thus, liquidity of the site should be of concern to IES management. Further, IES should not be tempted to (if purchased), place the property on the “IES books” for anything more than it actually paid.

Two circumstances (perhaps more) may create conditions where the facility would meet its appraised value, and these circumstances should be evaluated:

1. The facility is operating at a profit and the income stream, in combination with the asset value of the facility, is attractive for a purchaser. In this case, IES would have to take the dormant facility, return it to operating condition, develop a sustainable clientele, and then sell the entire operation (order book and fixed assets) at a profit.

2. IES as an entire entity is sold, with the fire training academy as an integral part of the company. In this case, the facility would have to be viewed as a necessary integrated part of IES, otherwise the purchaser of IES may require that either the facility be “carved-out of the deal”, or the value of the facility “deep discounted”.

In either case, IES management should evaluate the “cost of capital employed” during the period between the purchase of the facility and its eventual sale. At the time of sale, IES should have received at least the return on investment for its $675,000 (the purchase price) as it would have had it invested in a much less speculative instrument.
As mentioned previously, there may be some compelling, non-financial justification for purchasing the facility. One instance would be where IES has received a major contract for placing 26 firefighters in an oil refinery, but IES could not access non-IES controlled training schools due to scheduling conflicts. In this case IES management should consider the cost of losing or delaying the contract. A case could then be made by calculating the financial benefit to IES, of IES having its own (and immediately accessible) fire training facility.

Additionally, the immediate availability of the facility, and its relative value when compared to designing, permitting, and building a brand-new IES fire training academy should be weighed by IES management in its final evaluation.

Lastly, the synergistic benefit of having an IES presence in Mobile, AL should be considered. Mobile is a large petrochemical and chemical hub, and the presence of IES in that area through the training academy, may lead to other IES business in the greater Mobile area.

Often applied research projects raise more questions then they answer. This is one of those cases. Continued research is indicated. Additional research activities are contained in the “Recommendations” section of this report.

RECOMMENDATIONS

The results of this study indicate that based upon the assumptions used in this research, the proposed facility should not be purchased. However, should IES management desire to continue this study, the following additional research activities should be performed:
During the period of lease (15 September – 31 December 2001)

1. Occupy the facility and provide a temporary IES caretaker.

2. Have utilities (electric, water and sewer) activated.

3. Perform housekeeping activities for buildings and grounds (clean buildings, cut grass, and generally improve appearance).

4. Review “due diligence list” (see Appendix C) and perform those activities as practicable.

5. Contact the Alabama Department of Environmental Management (ADEM) to assure that environmental permits can be issued (or are not necessary). Obtain written response from ADEM.

6. Evaluate 55-gallon drums, and other containers, and make recommendation to Regions Bank for their proper disposal.

7. Initiate marketing effort to quantify potential business in the greater Mobile area.

8. Begin to obtain "real" cost data (for utilities, grounds keeping, etc.) while operating the facility in the interim (lease) period.

9. Validate fixed costs assumptions as used in this report. Lower fixed costs where possible.

10. Utilize the facility for non-fire related training (rescue, haz-mat, strategy & tactics, etc.), as soon as possible within the lease period, to generate income and validate the market.

11. Identify what start-up costs will be necessary to begin live-fire training.

12. Validate the other financial assumptions used in this report (such as required return-on-capital-employed).

13. Provide the Bank by 01 January 2002 a final offer. This offer may include:

   a. purchase of the property as offered by IES on 13 July 2001
   b. purchase of the property at a lowered price (to lower the break-even point).
   c. an offer to continue to lease the facility
Additional Recommendation for Researchers

At the beginning of this research, IES management intuitively believed that the purchase of the subject training academy was a “good deal”. Only after a formal, quantitative analysis was completed, was it determined that management’s “gut feeling” was wrong. In fact, should IES have proceeded with the purchase as originally agreed to with the bank, IES would have made a significant financial mistake.

Thus, while the specific recommendations of this report relate to the subject facility, one significant recommendation emerges applicable to any chief fire officer contemplating a significant purchase resulting from the desire to enter into a new area of service delivery. That recommendation is to take the time to conduct a formal economic analysis, and resist the temptation to move ahead based upon less formal evaluation processes (gut-feeling, group-think, etc.).
**Additional Recommendation for Researchers**

At the beginning of this research, IES management intuitively believed that the purchase of the subject training academy was a “good deal”. Only after a formal, quantitative analysis was completed, was it determined that management’s “gut feeling” was wrong. In fact, should IES have proceeded with the purchase as originally agreed to with the bank, IES would have made a significant financial mistake.

Thus, while the specific recommendations of this report relate to the subject facility, one significant recommendation emerges applicable to any chief fire officer contemplating a significant purchase resulting from the desire to enter into a new area of service delivery. That recommendation is to take the time to conduct a formal economic analysis, and resist the temptation to move ahead based upon less formal evaluation processes (gut-feeling, group-think, etc.).


REFERENCES

Appraisal Report (June 24, 2000), Fire Training Center, 82 acres – Salco Road, Axis, AL  36505. Mobile, AL: M. D. Bell Company, Inc.


Gorrondona, Earl B. (September 1990). A training facility: is it necessary and can we afford it?. Emmitsburg, MD. National Fire Academy.
