Establishment of an Industry-Driven Consortium Focused on Improving the Production Performance of Domestic Stripper Wells

Second Quarterly Technical Progress Report for the Period 01/01/2001 to 03/31/2001

By

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The Energy Institute

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ABSTRACT

The Pennsylvania State University, under contract to the U.S. Department of Energy, National Energy Technology Laboratory will establish, promote, and manage a national industry-driven Stripper Well Consortium (SWC) that will be focused on improving the production performance of domestic petroleum and/or natural gas stripper wells. The consortium creates a partnership with the U.S. petroleum and natural gas industries and trade associations, state funding agencies, academia, and the National Energy Technology Laboratory.

This report serves as the second quarterly technical progress report for the SWC. During this reporting period the SWC hosted its inaugural meeting in Pittsburgh, PA. The meeting was held on January 29, 2001 and drew 58 attendees. Thirty-one members had submitted their membership application and dues to the SWC prior to the meeting. The meeting focused on the following activities: 1) formalizing the SWC organizational structure, 2) discussing the technology research needs of industry in order that the SWC could formalize its request-for-proposals, 3) finalizing the time frame for releasing RFP’s and deadline for proposals, and 4) finalizing the meeting location for the Spring next meeting to hear proposals and select projects for funding.

By the close of this reporting period, the SWC membership had grown to 46 (42 full members and 4 affiliate members). The request-for-proposals was announced on February 12, 2001 and the proposal submittal deadline was on March 22, 2001. Twenty three proposals were submitted for consideration and distributed to the SWC Executive Council for their review.
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1.0 INTRODUCTION

The Pennsylvania State University, under contract to the U.S. Department of Energy (DOE), National Energy Technology Laboratory (NETL) is in the process of establishing an industry-driven stripper well consortium that will be focused on improving the production performance of domestic petroleum and/or natural gas stripper wells. Industry-driven consortia provide a cost-efficient vehicle for developing, transferring, and deploying new technologies into the private sector. The Stripper Well Consortium (SWC) will create a partnership with the U.S. petroleum and natural gas industries and trade associations, state funding agencies, academia, the National Energy Technology Laboratory, and the National Petroleum Technology Office.

Consortium technology development research will be conducted in the areas of reservoir remediation, wellbore clean up, and surface system optimization. Consortium members elected an Executive Council that will be charged with reviewing projects for funding consortium co-funding. Proposals must address improving the production performance of stripper wells and must provide significant cost share. The process of having industry develop, review, and select projects for funding will ensure that the consortium conducts research that is relevant and timely to industry. Co-funding of projects using external sources of funding will be sought to ensure that consortium funds are highly leveraged.

2.0 EXPERIMENTAL

A description of experimental methods is required by the DOE for all quarterly technical progress reports. In this program, Penn State is responsible for establishing and managing an industry-driven stripper well consortium. Technology development research awards are made on a competitive basis. Therefore, this section is not applicable to the Penn State contracted activities. Technical reports from the individual researchers will be required to contain an experimental discussion section and will be submitted to consortium members and DOE for their review.
3.0 **RESULTS AND DISCUSSION**

During the last reporting period, the following four activities were conducted: 1) the SWC organizational structure was adopted by the consortium membership, 2) proposals were solicited from and submitted by the SWC membership, 3) membership recruitment efforts were accelerated, and 4) the upcoming spring SWC was planned.

3.1 **Organizational Structure Finalized**

The organizational structure of the SWC was finalized during the January 29 inaugural meeting. The Technical Advisory Committee adopted the SWC Constitution and Bylaws and then elected a seven member voting Executive Council. The Executive Council voting members are responsible for selecting proposed research programs for funding. The elected voting Executive Council members are:

**One Year Term (2001)**
- Paul Herzing (EOG Resources, Inc.)
- John Holko (Lenape Resources, Inc.)
- John Papso (Cabot Oil & Gas Corporation)

**Two Year Term (2001-2002)**
- David Burnett (Texas A&M University)
- Bob Metzgar (North Penn Pipe & Supply, Inc.)
- Robert Watson (Penn State University)
- Dave Wozniak (Belden & Blake Corporation)

In addition to the seven elected Council members, the Executive Council also has three standing non-voting members. These members include: 1) Mr. Gary Covatch (NETL-Strategic Center for Natural Gas, 2) Mr. Dan Ferguson (NETL-National Petroleum Technology Office), and 3) Mr. Joel Morrison (Penn State-SWC Director).

Appendix A contains the SWC Constitution & Bylaws and the intellectual property rights statement. Full and affiliate membership application forms are provided in Appendix B.
3.2 Proposal Solicitation and Submission

Once each year, the SWC will solicit proposals from its membership for co-funding. Proposed and selected projects shall be consistent with the objective and goals of the SWC. Technology development will be focused on improving the production performance and shall include, but not limited to, the following areas:

- Reservoir remediation, characterization, and operations;
- Well-bore clean-up;
- Surface and collection optimization.

During the January 29 inaugural meeting, members were informed and agreed that the request-for-proposals would be submitted to the SWC membership on or about February 12, 2001 and were due to the SWC Director by 5PM on March 22, 2001. A standard proposal submission form was developed and is provided in Appendix C.

A total of 23 proposals were submitted to the SWC for co-funding consideration. A total of $921,000 is available for co-funding the SWC projects. Of these monies, the New York State Energy and Research Development Authority (NYSERDA) will provide $100,000. NYSERDA and Penn State are in the final negotiation stage for this co-funding agreement. The 23 proposals requested $1.97 million in co-funding from the SWC. The proposals were distributed to the SWC Executive Council for their review. Appendix D contains the proposal guideline evaluation forms that the Executive Council utilized to rank the 23 proposals. Table 1 contains a summary of the proposals that were submitted to the SWC.

3.3 Membership Recruitment

During this reporting period, Penn State completed its reallocation of support staff and office space for the SWC. A newly hired graphic/web design artist designed the SWC web site. The web site was designed so that existing and potentially new members could be kept up-to-date on the SWC activities. Potential members can conveniently download the SWC Constitution and Bylaws forms and the full and/or affiliate membership forms. Upcoming meeting
### Table 1. Stripper Well Consortium Proposal Summary

<table>
<thead>
<tr>
<th>#</th>
<th>Project Title</th>
<th>Amount Cost Shared</th>
<th>Amount Requested</th>
<th>Total Project Value</th>
<th>% Cost Share</th>
<th>Project Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Field expansion and well location optimization for low productivity tight gas reservoirs</td>
<td>$200,000</td>
<td>$74,315</td>
<td>$274,315</td>
<td>0.0%</td>
<td>Lead: Advanced Resources, Inc.</td>
</tr>
<tr>
<td>2</td>
<td>Developing methods to Identify Unstimulated and/or Ineffectively Stimulated Reservoirs Resulting From Multi-Stage Hydraulic fractures\ Treatment</td>
<td>$55,000</td>
<td>$100,000</td>
<td>$155,000</td>
<td>35.5%</td>
<td>Lead: Schlumberger Holditch Participants: Equitable Production</td>
</tr>
<tr>
<td>3</td>
<td>Wellhead Compressor Systems Technology</td>
<td>$265,577</td>
<td>$100,000</td>
<td>$365,577</td>
<td>72.6%</td>
<td>Lead: New York State Electric &amp; Gas</td>
</tr>
<tr>
<td>4</td>
<td>Chamber Lift: A Technology for Producing Stripper Oil Wells</td>
<td>$70,900</td>
<td>$53,162</td>
<td>$124,062</td>
<td>57.2%</td>
<td>Lead: Penn State Participants Breitne</td>
</tr>
<tr>
<td>5</td>
<td>Design, Development and In Well Testing of Two Prototype Tools For Enhanced In Recovery of Natural Gas</td>
<td>$72,284</td>
<td>$129,064</td>
<td>$201,348</td>
<td>36.0%</td>
<td>Lead: Brandywine Energy and Development Co. (BEDCO)</td>
</tr>
<tr>
<td>6</td>
<td>Passive Downhole Water Mitigation Assembly</td>
<td>$42,330</td>
<td>$90,081</td>
<td>$132,411</td>
<td>32.0%</td>
<td>Lead: Gasduct Technology</td>
</tr>
<tr>
<td>7</td>
<td>Analysis of the Taylorstown Injectivity Problem</td>
<td>$86,579</td>
<td>$77,141</td>
<td>$163,720</td>
<td>52.9%</td>
<td>Lead: Penn State Participant: East Resources</td>
</tr>
<tr>
<td>8</td>
<td>Identification of Bypassed Infill Reserves in Stripper Gas Fields</td>
<td>$29,980</td>
<td>$69,934</td>
<td>$99,914</td>
<td>30.0%</td>
<td>Lead: Advanced Resources International</td>
</tr>
<tr>
<td>9</td>
<td>On-Site Treatment of Brine</td>
<td>$31,301</td>
<td>$57,975</td>
<td>$89,276</td>
<td>35.1%</td>
<td>Lead: Hart Resource Technology Participant: Penn State</td>
</tr>
<tr>
<td></td>
<td><strong>Total (p.1)</strong></td>
<td><strong>$853,951</strong></td>
<td><strong>$751,672</strong></td>
<td><strong>$1,605,623</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1. Stripper Well Consortium Proposal Summary (cont’d)

<table>
<thead>
<tr>
<th>#</th>
<th>Project Title</th>
<th>Amount Cost Shared</th>
<th>Amount Requested</th>
<th>Total Project Value</th>
<th>% Cost Share</th>
<th>Project Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Advanced Reservoir Characterization with Hydrocarbon Microseepage Signatures</td>
<td>$35,333</td>
<td>$65,617</td>
<td>$100,950</td>
<td>35.0%</td>
<td>Lead: GMT/LATA</td>
</tr>
<tr>
<td>11</td>
<td>Advanced Technology for Infill and Recompletion Candidate Well Selection Application to the Cut Bank Field</td>
<td>$50,000</td>
<td>$115,120</td>
<td>$165,120</td>
<td>23.3%</td>
<td>Lead: Texas A&amp;M Participants: MGV Energy and Bastian, Quicksilver Resources</td>
</tr>
<tr>
<td>12</td>
<td>Optimization of Plunger Lift Performance in Stripper Gas Wells</td>
<td>$43,458</td>
<td>$95,261</td>
<td>$138,718</td>
<td>31.3%</td>
<td>Lead: Colorado School of Mines Participant: Marjo Operating Company</td>
</tr>
<tr>
<td>13</td>
<td>Applying and Developing New Approaches for maximizing Recovery in the Barnett Shale Gas Play: From Understanding Capillary Forces to Improving EUR’s</td>
<td>$55,746</td>
<td>$103,525</td>
<td>$159,270</td>
<td>35.0%</td>
<td>Lead: Republic Energy Participants: Texas A&amp;M</td>
</tr>
<tr>
<td>14</td>
<td>Analysis of the Wileyville Waterflood</td>
<td>$55,000</td>
<td>$59,054</td>
<td>$114,054</td>
<td>51.8%</td>
<td>Lead: Penn State Participants: East Resources</td>
</tr>
<tr>
<td>15</td>
<td>Liquid Lifting Device for Gas Wells</td>
<td>$100,870</td>
<td>$158,170</td>
<td>$259,040</td>
<td>39.0%</td>
<td>Lead: C-FFR Technologies</td>
</tr>
<tr>
<td>16</td>
<td>Advanced Decline Model for Stripper Well Production Analysis (METEOR)</td>
<td>$35,000</td>
<td>$80,000</td>
<td>$115,000</td>
<td>30.4%</td>
<td>Lead: Advanced Resources International Participants: Equitable production, Belden &amp; Blake</td>
</tr>
<tr>
<td>17</td>
<td>Synthesis of Tertiary Alkyl Primary Amines from Pennsylvania Crude oil for use in Well-Bore Clean-up</td>
<td>$35,663</td>
<td>$81,878</td>
<td>$117,541</td>
<td>27.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total (p,.2)</td>
<td>$411,070</td>
<td>$758,625</td>
<td>$1,169,695</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Table 1. Stripper Well Consortium Proposal Summary (cont'd)

<table>
<thead>
<tr>
<th>#</th>
<th>Project Title</th>
<th>Amount Cost Shared</th>
<th>Amount Requested</th>
<th>Total Project Value</th>
<th>% Cost Share</th>
<th>Project Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>New Technologies for Lifting Liquids From Natural Gas Wells</td>
<td>$98,198</td>
<td>$93,944</td>
<td>$192,142</td>
<td>51.1%</td>
<td>Lead: Colorado School of Mines</td>
</tr>
<tr>
<td>19</td>
<td>Dual-Fluid real-Time Stimulation System For Enhanced Completion</td>
<td>$54,728</td>
<td>$69,839</td>
<td>$124,567</td>
<td>56.1%</td>
<td>Lead: Real-Time Zone</td>
</tr>
<tr>
<td></td>
<td>Development of Diagnostic Techniques to Identify By-Passed Gas Reserves and</td>
<td>$29,820</td>
<td>$29,717</td>
<td>$59,537</td>
<td>50.0%</td>
<td>Lead: Innovative Discovery Technologies</td>
</tr>
<tr>
<td></td>
<td>Badly Damaged Productive Zones in Gas Stripper Wells in Rocky Mountain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Larmide Basins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Environment and regulatory Issues Relating to the utilization of recycled</td>
<td>$26,116</td>
<td>$56,649</td>
<td>$82,765</td>
<td>31.6%</td>
<td>Lead: Texas A&amp;M</td>
</tr>
<tr>
<td></td>
<td>Produced Water from Oil and Gas Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Systematic, Low, Cost Method for Remediation of Unwanted Flow in Stripper</td>
<td>$65,000</td>
<td>$125,000</td>
<td>$190,000</td>
<td></td>
<td>Lead: Cementing Solutions, Inc.</td>
</tr>
<tr>
<td></td>
<td>Wells</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Identification of Effective Fluid Removal Technologies for Stripper Wells</td>
<td>$36,460</td>
<td>$85,070</td>
<td>$121,530</td>
<td></td>
<td>Lead: James Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Total (p.3)</td>
<td>$310,322</td>
<td>$460,273</td>
<td>$770,595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Grand Total (p1, p2, and p3)</td>
<td>$1,575,343</td>
<td>$1,970,570</td>
<td>$3,545,913</td>
<td>42.1%</td>
<td></td>
</tr>
</tbody>
</table>
announcements are also posted. SWC members download proposal submission guidelines and review the executive summary of the 23 submitted proposals prior to the SWC spring meeting. The SWC web site can be accessed at the following address: http://www.energy.psu.edu/swc.

In this reporting period, the SWC membership grew from 19 (end of last reporting period) to 46. Of the 46 members, 42 were full and 4 were affiliate members. Several other companies are processing their membership applications in order that they can attend the SWC spring meeting.

3.4 Upcoming Spring Meeting

The upcoming SWC spring meeting will be held on April 9-10, 2001 at Toftrees Resort and Conference Center located near State College, Pennsylvania. The meeting will be dedicated to listening and reviewing the membership’s proposed research. The Executive Council will select the projects that the SWC will co-fund.

4.0 CONCLUSION

Since its birth in October 1, 2000, the SWC has grown to a membership of 46. This represents an average weekly growth of 1.7 new members/week. The organizational administrative foundation for the SWC is now in place and the membership has submitted 23 proposals for co-funding consideration. NYSERDA has verbally committed $100,000 to support the research activities of the consortium. The spring meeting is scheduled and the research activities of the consortium will begin during the early portion of the next reporting period.

5.0 REFERENCES

A listing of referenced materials is required by the DOE for each quarterly technical progress report. This technical progress did not utilize any reference materials.
APPENDIX A: CONSTITUTION, BYLAWS, AND INTELLECTUAL PROPERTY RIGHTS POLICY STATEMENT
CONSTITUTION FOR STRIPPER WELL CONSORTIUM

Article I
Name and Purpose:

Section 1. The name of this organization shall be the Stripper Well Consortium (SWC).

Section 2. The mission of the SWC is to assist in the development, demonstration, and commercialization of technologies to improve the production performance of the nation's natural gas and petroleum stripper wells. Its functions shall pertain to petroleum and natural gas science and engineering, and the dissemination of new information to the scientific community, industry and the general public.

The organization shall serve its Members by guiding, stimulating, and aiding their efforts to:

i) formulate research, development, and technology assessment goals;

ii) create a supporting infrastructure for conducting research and development that will increase knowledge of and expand the technological base for natural gas and petroleum; and

ii) promote and enhance the dissemination of research results and technology transfer to industry for the benefit of the nation.

Section 3. The SWC and Members who are not participants in a project are not liable in any way for any activities under a given project.

Article II
Membership:

Section 1. Membership in the SWC shall be at one of two Membership levels:

(i) Full Members are defined as those Members from any individual firm, partnership, university or corporation engaged in the production and service of the natural gas and petroleum industry, or individuals engaged in research and development technologies associated with petroleum or natural gas industry or is a user of petroleum or natural gas products and who have provided an annual membership fee to be determined by the Executive Council. Full Members are entitled to designate one (1) voting representative to the Technical Advisory Committee, receive periodic communications, to compete for a seat on the Executive Council, to sponsor or propose a project for Consortium funding,
and to receive quarterly and final technical reports. Full Members are eligible to have up to two (2) people in attendance at meetings. Only Full Members are eligible to receive research funding from the Consortium.

(ii) Affiliate Members are defined as those Members from associations and professional societies. Affiliate Members are entitled to designate one (1) voting representative to the Technical Advisory Committee, and to receive periodic communications. Affiliate Members are eligible to have up to two (2) people in attendance at meetings. Affiliate Members are not eligible to receive research funding from the Consortium, may not be elected to the Executive Council, nor are they eligible to receive technical reports. If however, an Affiliate member provides co-funding in support of a specific project, the Affiliate member is eligible to receive the technical reports associated with the specific project. The annual Membership fee for Affiliate Membership will be determined by the Executive Council.

Section 1a. Full or Affiliate Members may withdraw from the Consortium upon thirty (30) days written notice to the Consortium Director. Membership fees are nonrefundable.

Article III
Organization and Officers:

The SWC shall be governed and managed by an Executive Council and the Consortium Director.

Section 1. The Executive Council shall be the policy-making body of the Consortium. The Executive Council shall establish an overall research and development plan for the SWC; approve and issue requests for proposals from Full Members to fulfill research and development priorities; establish review procedures for research proposals; select proposals to be funded from Consortium funds based upon the relevance to the established goals and objectives of the Consortium; and perform the duties necessary to achieve the SWC mission. The Director and various committees derived from the Executive Council Membership shall be utilized as deemed necessary by the Executive Council to achieve these and other Executive Council goals.

Section 1a. The Executive Council shall be composed of:

(i) seven (7) Full Members elected by the Technical Advisory Committee;

(ii) the SWC Director, who shall be a non-voting member presiding over the Council;

(iii) a representative from NETL’s Strategic Center for Natural Gas (SCNG), who shall be a non-voting member of the Council;

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ii) promote and enhance the dissemination of research results and technology transfer to industry for the benefit of the nation.

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Membership:

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(iii) a representative from NETL’s Strategic Center for Natural Gas (SCNG), who shall be a non-voting member of the Council;
(iii) a representative from NETL’s National Petroleum Technology Office (NPTO), who shall be a non-voting member of the Council;
(iv) a minimum of one natural gas producer;
(v) a minimum of one petroleum producer;
(vi) a maximum of two universities;
(vii) council representation shall be such that a broad range of industrial interests is represented.

Section 1b. With the advice and consent of the Executive Council representatives, the SWC Director shall set the time, place and agenda of the Executive Council meetings and shall preside over these meetings. Whenever possible, telephone conferencing will be scheduled to conduct meetings. Executive Council Members shall be responsible for their own travel and other expenses associated with the performance of their responsibilities.

Section 1c. Representatives of the Executive Council who will be unable to attend the Executive Council meeting shall notify the Director as far in advance as possible. An Executive Council Member can vote in absentia provided it is done in a written form.

Section 2. The Technical Advisory Committee shall provide research ideas, and aid the Executive Council in developing and implementing technology transfer plans for the SWC. The Technical Advisory Committee shall advise both the Executive Council and the Director regarding the relevance and the scientific merit of the Consortium research and development programs.

Section 2a. The Technical Advisory Committee shall be composed of one (1) voting representative from each Full or Affiliate SWC Member.

Section 2b. The Technical Advisory Committee shall elect seven (7) industrial representatives to serve on the Executive Council. In the initial year, the Technical Advisory Committee shall elect four (4) representatives who shall serve a two-year term and three (3) who shall serve a one-year term. Thereafter, the Technical Advisory Committee shall elect three (3) representatives each year to replace outgoing representatives. No representative can serve two consecutive terms except for the one-year term representatives elected in 2001. The Technical Advisory Committee may also at any time elect a new representative to complete the term of a representative who is unable to finish his/her term.

Section 2c. With the consent of the Technical Advisory Committee, the Executive Council may be expanded to a nine (9) Members pending a 50% simple majority vote.

Section 2d. With the consent of the Technical Advisory Committee pending a 50% simple majority vote and unanimous approval of the SCNG and NPTO representatives, the Executive Council may be expanded to include those Affiliate member(s), which provide co-funding to the Consortium. The Affiliate member(s) shall be a non-voting member of the Executive Council. Terms of Affiliate
member(s) serving on Executive Council will be determined on a case-by-case basis by the SWC Director and Council Representatives from SCNG and NPTO.

Section 3. The SWC Director shall be the chief representative of the Consortium and shall be responsible for the administration of its affairs. The Director shall represent the Consortium in situations where a single representative of the Consortium is appropriate. The Director shall interact with public and private funding sources to secure and maintain funding necessary to meet the long-term goals of the Consortium.

Section 3a. As the SWC Administrator, the Director shall implement the decisions of the Executive Council, and oversee the daily operations of the Consortium. The Director will establish and enforce computerized and other necessary communication systems among all Consortium Members. Under the direction of the Executive Council, the Director in accordance with Article V, will operationally manage Consortium funding. The Director will have authority to establish and maintain research reporting procedures, using sponsor guidelines where applicable. The Director shall publicize the SWC and its research results utilizing publications, research reviews, and any other means approved by the Executive Council. The Director will make frequent formal recommendations to the Executive Council to aid it in setting policy for the SWC.

Section 3b. The Director is appointed by The Energy Institute with the approval of The Pennsylvania State University, and serves at the pleasure of The Pennsylvania State University.

Section 4. Administrative costs of the Director and Director's office will be borne by the Consortium in accordance with the budget.

Article IV

Amending the Constitution:

Section 1. The Constitution can be amended only by the Executive Council. All changes to the Constitution must be approved by a two-thirds majority vote of the Council.

Section 1a. Any Executive Council member may propose a change to the Constitution or Bylaws by petition to the Director. The Director shall submit the proposed amendment or change to each representative of the Executive Council at least thirty (30) days prior to the next meeting.

Section 2. Unless indicated otherwise in the Constitution or Bylaws, all decisions for and on behalf of the Consortium shall be by consensus vote of those present in an Executive Council meeting.
All votes shall be open ballot unless a majority of the Executive Council or Advisory committee prefers a closed ballot.

Article V

Program Funding:

Section 1. The SWC Director will solicit proposals from the Full Members of the Consortium on an annual basis. Membership dues must be current prior to accepting a proposal for review.

Section 2. The Consortium shall have no obligation or responsibility to consider any proposal requesting funding for third parties who remain outside of the Consortium. The Consortium does encourage collaboration among the SWC Members. Funding requests for third parties who remain outside the Consortium will be evaluated by the Executive Council on a case by case basis.

Section 3. Full Members are expected to provide a minimum of 30% in co-funding for each proposal submitted to the Consortium for review. All co-funding included must be supported by appropriate documentation and will be subject to review as part of the complete proposal package.

Section 4. The Director shall receive proposals from the Full Members and distribute the proposals to the Executive Council fourteen (14) days before the Consortium meeting.

Section 5. The Executive Council is the final decision making body for approval of all projects funded by the SWC.

Section 6. The SWC Director will notify all applicants of their funding status in writing within fourteen (14) days of the Executive Council decision.
BYLAWS FOR THE STRIPPER WELL CONSORTIUM

I. Purpose

These Bylaws are intended to promulgate the governing policies of the Consortium and shall be subject to and interpreted consistent with the Consortium Constitution.

II. Full and Affiliate Membership

1. Applications for Full and Affiliate Membership shall be submitted to the Director, whose responsibility it shall be to ensure their completeness and compliance with these Bylaws.

2. Upon receipt of Membership fee, the member(s) shall immediately exercise all rights, privileges and responsibilities of Membership.

3. Calendar year shall mean January 1 to December 31.

Any individual, firm, partnership, association, institution/university or corporation engaged in the exploration and production of natural gas and/or petroleum, or engaged in research and development of technologies associated with natural gas and/or petroleum, or is a user of natural gas and/or petroleum is eligible for Membership.

Membership in the Stripper Well Consortium entitles each Full Member to one (1) voting representative to the Technical Advisory Committee, periodic communications, eligibility of industrial Members to be elected to the Executive Council, eligibility to sponsor or propose a project, and eligibility to be awarded a research project from the Consortium. Affiliate Membership entitlements are as indicated in the constitution.

III. Director

The office of the Director shall be located on the campus of The Pennsylvania State University, whose responsibility it shall be to provide an office, staff and facilities for the conduct of his or her duties and responsibilities as provided in the Constitution and these Bylaws. The administrative costs of the Director’s office shall be borne by the budget of the Consortium.

The Executive Council shall meet at least twice a year at places and times set by the Director with the approval of the Executive Council representatives.

The Director shall prepare the agenda for Executive Council meetings from items submitted by the representatives of the Executive Council and the Technical Advisory Committee. He or she shall preside over Executive Council meetings and arrange for minutes of the meetings to be recorded and distributed to all Members.
The attendance of a majority of the representatives to the Executive Council shall constitute a quorum for the conduct of business at properly called meetings.

In the event that specific items of Consortium business require a vote of the Executive Council and it is impractical to convene a full Executive Council meeting, the Director will poll the Executive Council Membership by phone, computer, or other means.

IV. Publications and Conferences

The preparation, presentation and publication of overview articles for SWC projects shall remain the responsibility of The Pennsylvania State University. Full Members shall be provided with the opportunity to review any overview papers or presentations containing any of the results of the SWC funded projects. Full Members may present technical papers on their SWC funded projects provided that the Consortium is acknowledged for its funding.

The Director shall be responsible for the preparation of all guidelines for technical reports and publications that have been approved by the Executive Council.

The Director shall arrange for all technical meetings and conferences at times and places approved by the Executive Council.

V. Finances

The Pennsylvania State University will serve as fiscal agent for the Consortium. As such, The Pennsylvania State University will represent the Consortium in fiscal matters and have the ultimate accounting and financial reporting duties and the sole legal authority to enter into contracts and to administer and expend funds on behalf of the Consortium. The Members, acting solely upon their own behalf, may only subcontract with other Members, each likewise acting solely on its own individual behalf, for work conducted outside the member's institutions. The subcontracts will be carried out in accordance with the rules and regulations of research sponsors and standard internal subcontracting policies and procedures of the Members' institution as they may separately negotiate.
INTELLECTUAL PROPERTY RIGHTS POLICY FOR STRIPPER WELL CONSORTIUM

(Note: DOE Cooperative Agreement DE-FC26-00NT41025 was accepted by Penn State contingent upon the following language being incorporated in a subsequent modification.)

Pursuant to Chapter 18 of Title 35 of the United States Code, commonly known as the Bayh-Dole Act, as enacted by the Department of Energy (DOE) in DEAR 952.227-11, any domestic small business firm or nonprofit organization conducting research under Consortium funding (Research Party) may elect to retain title to any invention conceived of or first actually reduced to practice by its employees in the course of or under the research conducted with Consortium funding. Title to these inventions will be subject to DOE patent policy, including retention by the Government of a license for Government use and march-in rights, and U.S. competitiveness and manufacture requirements. The Consortium will petition the DOE for a class waiver of ownership rights to any inventions conceived or first actually reduced to practice by employees of entities other than domestic small business firms and nonprofit organizations. Information that results from the research and development conducted with Consortium funding and that would be trade secret or commercial or financial information that is privileged or confidential if the information had been obtained without Federal support, may be protected from public disclosure for up to five years after development of the information, but shall be available to Consortium Members during the period of projection.
APPLICATION FOR FULL MEMBERSHIP IN THE
STRIPPER WELL CONSORTIUM

1. Applicant hereby applies for membership in the Stripper Well Consortium (hereinafter referred to as "Consortium") as a Full member. Applicant acknowledges that it has received and reviewed the Consortium Bylaws, existing Constitution and Intellectual Property Rights Provisions currently in place. Applicant agrees to comply with the provisions of all said documents, and to maintain the confidentiality of the Stripper Well information, where it has been clearly marked "CONFIDENTIAL" and is not otherwise a part of the public domain. Applicant acknowledges that the Consortium Council may amend any of the above-referenced documents from time to time, as dictated by the best interests of the Consortium. Applicant will be notified of any changes in said documents. Applicant agrees to be bound by any such amendments should Applicant choose to remain a member of the Consortium. However, if Applicant deems such amendments to be unacceptable thereto, then Applicant shall have the right to withdraw as a full member of the Consortium pursuant to the provisions of Article II, of the Constitution.

2. By signing this agreement, Applicant warrants and represents that the information on the Full Member Application Form is a complete, true and correct statement as of the date of signing.

3. Applicant agrees that this application and agreement will become a binding membership contract between Applicant and the Consortium.

4. The term for full membership in the Consortium shall be for the calendar year for which membership is paid. Full membership will be automatically renewed unless either party notifies the other of its intent to terminate within thirty (30) days prior to the date of expiration of the initial calendar year period. After that date, this agreement shall automatically be renewed for successive calendar year terms, unless either party provides ninety (90) days notice of termination prior to expiration of that subsequent calendar year.

5. To the extent that the National Cooperative Research Act of 1984 or other appropriate laws and regulations would require the Consortium to prepare notices and filings, Applicant hereby authorizes the Consortium to take such actions. Applicant agrees to fully cooperate and provide any such necessary information to accomplish said actions. The Consortium shall provide Applicant with copies of any such notices of filings made by the Consortium.

6. Applicant agrees that as a Full Member of the Consortium, a remittance of $1,000 per year (or $2,500 for a three year commitment) will be made within 30 days. Succeeding calendar year membership dues are to be paid by January 15 of each succeeding year, unless Applicant membership is prepaid or withdraws as a member of the Consortium pursuant to the provisions of Article II, Section 1A of the Constitution.

7. Full Member understands that one of the goals of this Consortium is to create a group of technologies and related intellectual property necessary to develop a cost-efficient vehicle for developing, transferring, and deploying new technologies into the private sector.
8. Applicant acknowledges that it has read and understands the obligations it is undertaking herein and has caused this application and agreement to be signed in duplicate by its duly authorized representative on the date set forth below.

By an Authorized Official of PENN STATE UNIVERSITY

BY: ______________________

TITLE: ____________________

DATE: ____________________

By An Authorized Official of ____________________

(Sponsor)

BY: ______________________

TITLE: ____________________

DATE: ____________________
Stripper Well Consortium
Full Member Application Form

Company Address

Company Contact Person

Telephone Number

Fax Number

E-mail Address

Membership Type (please check)

☐ Annual Payment: $1,000 (Period: 01/01/01 to 12/30/01)

☐ Discounted Multi-Year Payment: $2,500 (Period: 01/01/01 to 12/30/03)

Make check payable to The Pennsylvania State University. Please send your remittance along with the 2 signed copies of the Membership Application Form to:

Mr. Joel Morrison
The Pennsylvania State University
C-211 CUL
University Park, PA 16802-2323

A fully executed copy will be returned to you upon processing.
APPLICATION FOR AFFILIATE MEMBERSHIP IN THE STRIPPER WELL CONSORTIUM

1. Applicant hereby applies for membership in the Stripper Well Consortium (hereinafter referred to as "Consortium") as Affiliate member. Applicant acknowledges that it has received and reviewed the Consortium Bylaws, existing Constitution and Intellectual Property Rights Provisions currently in place. Applicant agrees to comply with the provisions of all said documents, and to maintain the confidentiality of the Stripper Well information, where it has been clearly marked "CONFIDENTIAL" and is not otherwise a part of the public domain. Applicant acknowledges that the Consortium Council may amend any of the above-referenced documents from time to time, as dictated by the best interests of the Consortium. Applicant will be notified of any changes in said documents, Applicant agrees to be bound by any such amendments should Applicant choose to remain a member of the Consortium. However, if Applicant deems such amendments to be unacceptable thereto, then Applicant shall have the right to withdraw as affiliate member of the Consortium pursuant to the provisions of Article II, of the Constitution.

2. By signing this agreement, Applicant warrants and represents that the information on the Affiliate Membership Application Form is a complete, true and correct statement as of the date of signing.

3. Applicant agrees that this application and agreement will become a binding membership contract between Applicant and the Consortium.

4. The term for Affiliate membership in the Consortium shall be for the calendar year for which membership is paid. Affiliate membership will be automatically renewed unless either party notifies the other of its intent to terminate within thirty (30) days prior to the date of expiration of the initial calendar year period. After that date, this agreement shall automatically be renewed for successive calendar year terms, unless either party provides ninety (90) days notice of termination prior to expiration of that subsequent calendar year.

5. To the extent that the National Cooperative Research Act of 1984 or other appropriate laws and regulations would require the Consortium to prepare notices and filings, Applicant hereby authorizes the Consortium to take such actions. Applicant agrees to fully cooperate and provide any such necessary information to accomplish said actions. The Consortium shall provide Applicant with copies of any such notices of filings made by the Consortium.

6. Applicant agrees that as Affiliate Member of the Consortium, a remittance of $200 per year (or $500 for a three year commitment) will be made within 30 days. Succeeding calendar year membership dues are to be paid by January 15 of each succeeding year, unless Applicant membership is prepaid or withdraws as a member of the Consortium pursuant to the provisions of Article II, Section 1A of the Constitution.
7. Affiliate Member understands that one of the goals of this Consortium is to create a group of technologies and related intellectual property necessary to develop a cost-efficient vehicle for developing, transferring, and deploying new technologies into the private sector.

8. Applicant acknowledges that it has read and understands the obligations it is undertaking herein and has caused this application and agreement to be signed in duplicate by its duly authorized representative on the date set forth below.

By an Authorized Official of
PENN STATE UNIVERSITY

BY: ________________________
TITLE: _____________________
DATE: _____________________

By An Authorized Official of
(Sponsor)

BY: ________________________
TITLE: _____________________
DATE: _____________________
Stripper Well Consortium
Affiliate Member Application Form

Company Address
______________________________
______________________________
______________________________

Company Contact Person
______________________________

Telephone Number
______________________________

Fax Number
______________________________

E-mail Address
______________________________

Membership Type (please check)

☐ Annual Payment: $200 (Period: 01/01/01 to 12/30/01)

☐ Discounted Multi-Year Payment: $500 (Period: 01/01/01 to 12/30/03)

Make check payable to The Pennsylvania State University. Please send your remittance along with the 2 signed copies of the Membership Application Form to:

Mr. Joel Morrison
The Pennsylvania State University
C-211 CUL
University Park, PA 16802-2323

A fully executed copy will be returned to you upon processing.
APPENDIX C: PROPOSAL SUBMISSION GUIDELINES
REQUEST FOR PROPOSALS FOR THE
STRIPPER WELL CONSORTIUM

Eligibility
Competition is open to all current Full Members of the Stripper Well Consortium (SWC).

University employees eligible to serve as principal investigators for consortium projects are:
Full-time regular tenure-track and regular faculty
Persons with the title of Research Assistant, Associate, Scientist or Senior Scientist

Research Focus Areas
The mission of the SWC is to assist in the development, demonstration, and commercialization of technologies to improve the production performance of the nation’s natural gas and petroleum stripper wells. Proposals are being solicited from the SWC Full Members in the following three focus areas:

Reservoir remediation, characterization, and operations
Examples include, but are not limited to, the identification of by-passed reservoirs/zones, stimulation/recompletion of existing wells, and mitigation/reduction of water production

Well-bore clean-up
Examples include, but are not limited to, dewatering, down hole separation and injection, and removal of solids such as salts, scale, and hydrocarbon precipitation.

Surface and collection optimization
Examples include, but are not limited to, disposal/utilization of solid-liquid waste streams (e.g. brine), surface treatment/measurement of gas, and pipeline usage/maintenance and compression.

Awards
Awards will be made on an annual basis. Subcontracts will be issued from The Pennsylvania State University to the successful applicant. The period of performance for this year’s funding will be from May 15, 2001 to May 14, 2002. Members will be permitted to submit future proposals to extend the proposed work; however, this must be performed on an annual basis.

If additional documentation is required prior to issuance of a subcontract, a delay in submission of the May 15 start date may occur.
Submission

The final deadline for receipt of proposals is 5 PM on March 22, 2001. A signed original and twelve (12) copies should be submitted to the SWC Director at the following address:

Mr. Joel L. Morrison
Director, Stripper Well Consortium
The Pennsylvania State University
C-211 Coal Utilization Laboratory
University Park, PA 16802-2323

Proposal Format

The format for your SWC proposal follows. The proposal should be on standard 8 1/2" x 11" letter size paper with 1" margins, each copy to be three hole punched and clipped. Please do not staple the proposal. Each page of the proposal should be numbered at the bottom. The type size must be clear and legible, in standard size, 12 points. No smaller than 10 point font size will be accepted with double line spacing.

Sections of the Proposal

The proposal shall consist of the following sections in order.

Cover Sheet

See Attachment B

The cover sheet along with the executive summary will be distributed to the SWC membership as part of the proposal evaluation process.

Table of Contents

One (1) page maximum

Executive Summary

One (1) page maximum

Provide a one page summary of the proposed research. The executive summary will be distributed among the SWC membership. The summary should be written in the third person and include a statement of objectives and methods to be employed. It should be informative to other persons working in related fields and understandable to a scientifically or technically literate lay reader.

Project Description

Five (5) page maximum

The main body of the proposal should outline the plan of work, including the broad design of activities to be undertaken. At a minimum the following should be discussed:

- Statement of the problem;
- Objectives and expected significance of the research;
- Statement of the work plan;
- Relation of the proposed work to comparable work in progress;
• Description of available facilities and major items of equipment available for the work; and reference citations.

**Project Schedule**  One (1) page maximum
A plan which establishes the time schedule for accomplishing the work. The plan should include major milestones of the project in bar chart format and should cover the complete period of performance.

**Anticipated Results**  One (1) page maximum
Discuss the commercialization viability of the proposed project. Discuss how the project will improve the production performance of domestic natural gas/petroleum stripper wells. Identify any specific groups in the commercial sector that will use the projected results.

**Budget**  See Attachment C
The submission of a reasonable budget is an important part of the proposal.
Your budget may request funds under any of the categories listed on Attachment B so long as the item and amount are considered necessary to perform the work. Proposed equipment expenditures must be justified and are subject to program sponsor approval.

**Cost-Share Commitments**
A minimum of 30% cost-share is required. Applicants are encouraged to provide more than 30% cost share. The Executive Council will be tracking the level of cost share provided in each project. Cost share, which may be in the form of cash and third party in-kind, are acceptable as part of the matching if they meet the following criteria:
• Are verifiable, necessary and reasonable for proper and efficient accomplishment of the project;
• Are incurred within the project performance period, previously expended research, development, or exploration costs are unallowable.
• Are not included as contributions for any other federal project, are not paid by the Federal Government under another award, and be otherwise allowable in accordance with applicable Federal cost principles and DOE regulations governing cost sharing.
• The value of patents and data contributed to the project is unallowable as cost sharing.
All cost-sharing commitments must be supported by appropriate documentation. Failure to provide appropriate documentation can result in the proposal being returned without review.

**Biographical Sketches**  One (1) page per person maximum
Each vitae should include educational background, professional experience, research interest, honors and professional activities.

**Collaborative Work**
All collaborations with individuals not included in the budget should be described and documented with a letter from each collaborator.
OTHER

Letters of support from outside sources are encouraged, but not mandatory.

Treatment of Proprietary Information

Privileged or confidential commercial or financial information that the applicant does not want disclosed to the public or used by the Government for any purpose other than application evaluation, should be specifically identified by page on the proposal cover sheet.

Proposal Evaluation/Review Process

The SWC Executive Council will review and select projects for SWC funding. The SWC Director will notify all applicants within fourteen (14) working days of the SWC meeting, by letter, of the final decision regarding their proposals.

Reallocation of Funds/Project Modifications

Recipients of SWC Awards will have substantial discretion to reallocate funds should changing conditions demand it. Requests for budget revisions and/or project extensions shall be submitted in writing to the SWC Director.

Additional Information

Additional questions should be forwarded to the SWC Director. Questions should be submitted via e-mail to swc@ems.psu.edu or contact Mr. Joel Morrison at (814) 865-4802.
ATTACHMENT A - CHECKLIST

To assure that your application is complete, please complete and paper clip (one copy only) the checklist to the cover sheet of the original (signed) copy of the proposal. Be sure the following items are included in the following order.

- Cover page completed and signed by PI and authorized representative.
- Executive Summary (one page maximum)
- Detailed description of the work proposed (five page maximum)
- Project schedule (one page maximum)
- Anticipated results/commercial potential (one page maximum)
- Budget on specified form with justification as required
- Cost-Share Commitments
- Biographical Sketches (one page per person maximum)
- Collaborative Documentation
- Letters of Support (encouraged, not required)
- Required number of copies (original + 12)
ATTACHMENT B - COVER SHEET

Proposal Submitted to: Stripper Well Consortium
The Pennsylvania State University
C-211 Coal Utilization Laboratory
University Park, PA 16802-2308

Date of Submission _______________________

Title of Proposal ____________________________________________

Amount Requested from SWC $_________________________

Cost Share Commitments
Cash $______
In-Kind $______
(Minimum 30% Required)

Total Project Costs $_________________________

Principal Investigator ____________________________________________
Phone: __________ Fax: __________ Email __________
Address: ____________________________________________

Other Participants: ____________________________________________

PROPRIETARY INFORMATION: Does this proposal contain Proprietary or Confidential Information?
____ NO _____ YES (if yes, complete box below)

Notice of Restrictions on Disclosure and Use of Data

The data contained on pages __________ of this proposal are submitted in confidence and contain privileged or confidential commercial and/or financial information. Such data may be used or disclosed only for evaluation purposes. If funded, the Government would have the right or use or disclose data from this project to the extent provided the DOE/PSU Cooperative Agreement. This restriction does not limit the Government’s right to use or disclose data obtained without restrictions from any source, including the proposer.

Submitted by: _________________________ Approved by: _________________________

Signature of PI _________________________ Authorized Representative _________________________
**ATTACHMENT C - BUDGET**

Name of PI: __________________________

<table>
<thead>
<tr>
<th>Requested SWC</th>
<th>Cost-Share</th>
</tr>
</thead>
</table>

**Salaries and Wages**
List individually all personnel identified in the proposal.
Include title and percent of effort
$__________  $__________

NOTE: The use of undergraduate and graduate students is encouraged, and appropriate.
The basis for proposed percent of effort or labor hours should be identified (historical hours, engineering estimates).

**Fringe Benefits**
$__________  $__________

**Materials and Supplies**
List types required and estimated costs.
NOTE: State whether amounts proposed are based on catalog prices or other cost estimating.
$__________  $__________

**Equipment**
Items exceeding $5,000 and 1 year's useful life are defined as permanent equipment. List item and dollar amount for each amount. Justify and/or provide quotation.
$__________  $__________

**Travel**
State the type and extent of travel and its relation to the project. Itemize by destination and estimated costs.
$__________  $__________

**Publication/Information Dissemination**
Estimate costs of documenting, preparing, publishing and sharing research findings. Show estimates.
$__________  $__________

**Other Direct Costs**
Itemize and justify. (*See note below)*
$__________  $__________

$__________  $__________

**Facilities and Administration (F&A)**
Specify current rate(s) and base.
Note: A copy of the negotiated agreement should be included with the proposal. If none exists, a disclosure of the contents of the rate should be made.
$__________  $__________

**TOTALS**
$__________  $__________
Attach up to two additional pages of justification covering all items.

*NOTE:

(viii) Purchased Services, consulting or subcontracts proposed to non-consortium members shall not be more than 2.5% of the SWC requested funding without the prior approval of the SWC program coordinator.

(ix) Subcontracts to current consortium members must be less than 50% of the requested SWC funding. Budgets and work statements from each subcontractor, in the format above, should be included.

(x) Fees or profits will not be paid on any award resulting from this solicitation. Nor can fee or profit be considered as cost-sharing.
APPENDIX D: PROPOSAL EVALUATION FORM
PROPOSAL EVALUATION FORM

PROJECT TITLE:

1. **Mission Fit.** The mission of the Stripper Well Consortium is to co-fund projects that will improve the production performance of the nation’s natural gas and/or petroleum stripper wells. Projects should be focused in one or more of the following technical areas: 1) reservoir remediation, characterization and operations, and 3) surface and collection optimization.

The objectives or goals of the project with respect to clarity and consistency with SWC goals are:

1. Very Unclear
2. Unclear
3. Clear
4. Very Clear
5. Exceptionally Clear

2. **Anticipated Results.** The proposal should discuss the potential commercialization and impact of the proposed work. The potential commercialization and impact of the project is:

1. No impact
2. Very small impact
3. Moderate impact
4. High impact
5. Exceptional impact

3. **Project Achievability.** Projects should be achievable with respect to time and budget. Please refer to project budget and project milestone contained within the proposal. With the approach suggested and time and budget allotted, the objectives are:

1. Not Achievable
2. Possibly Achievable
3. Likely Achievable
4. Most Likely Achievable
5. Certainly Achievable
4. **Project Methodology.** Project methodology should be clear and easily understood. The quality of the project methodology displayed in the proposal is:

   1. Well Below Average
   2. Below Average
   3. Average
   4. Above Average
   5. Well Above Average

5. **Project Budget.** Projects require a minimum of 30% cost share and show commitment from the parties submitting the proposal. Given the budget request relative to the outlined work plan, the project is of:

   1. Very Low Value
   2. Low Value
   3. Average Value
   4. High Value
   5. Very High Value

6. **Project Presentation.** Members that request co-funding have been asked to make a brief presentation to the entire consortium membership. This is to allow the membership and program sponsors the opportunity to listen and ask questions about the proposed project. How would you rate the quality of the presentation and the ability of the presenter to address questions from the membership:

   1. Very poor
   2. Poor
   3. Acceptable
   4. Very good
   5. Exceptional

7. **Project Management.** Projects should contain a management structure that is technically and logistically capable of executing the proposed work plan. The project management structure of this project is:

   1. Very poor
   2. Poor
   3. Acceptable
   4. Very good
   5. Exceptional
### Project Score Tabulation

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<tr>
<th>Criteria</th>
<th>Relative Weighting</th>
<th>Rating</th>
<th>Project Score</th>
</tr>
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<tbody>
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<td>Mission Fit</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Anticipated Results</td>
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<tr>
<td>Project Achievability</td>
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<td><strong>Total</strong></td>
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Project Score = Relative weighting x Evaluator rating

#### Illustrative Example

<table>
<thead>
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<th>Criteria</th>
<th>Relative Weighting</th>
<th>Rating</th>
<th>Project Score</th>
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