

**Status Report**  
**SUPPORT FOR INDEPENDENTS WITH**  
**URGENT PRODUCTION PROBLEMS**

by

Arfon H. Jones, Herb Carroll, and William I. Johnson

July 1995

Work Performed Under Contract No.  
DE-AC22-94PC91008

Prepared for  
U.S. Department of Energy  
Bartlesville Project Office

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# Support for Independents with Urgent Production Problems

## 1.0 BACKGROUND

America's oil producing industry is undergoing significant changes. Unstable and relatively low prices, increasing regulation, burdensome tax treatment, and current and future environmental liabilities threaten the existence of the U.S. petroleum industry. Major integrated and large independent companies first reacted to these problems by scaling down their domestic operations and refocusing their exploration, production, and research and development (R&D) activities on foreign resources. Although mid-size to smaller independent producers face the same dilemmas, most of the approximately 8,000 independent companies are confronted with only two viable options: producing from the domestic resource base or going out of business. However, many independents are increasingly taking advantage of the shift in operations and divestitures by the major producers by purchasing those producers mature fields and reservoirs.

Independent oil and gas producers recognize and accept that they are acquiring a potential wealth of oil and gas properties being abandoned or liquidated in the wake of the majors' exodus from the domestic resource base. To take advantage of this legacy, independents must gain access to and increase their understanding of existing and emerging improved recovery technologies and reservoir management practices essential to efficient and cost-effective petroleum production.

Since 1985, independent producers have accounted for more than half of all new oil and gas discoveries in the lower 48 states. Independents produce about 40% of oil production and 60% of natural gas output. As time goes on, independents will play an increasing role in domestic production and the addition of reserves, while the role of the major producers continues to decline. Although primary and limited secondary production techniques have been the province of both major and independent companies, advanced secondary and tertiary recovery has largely been left to the major companies.

Many of the same factors that prompted the major companies to move overseas are causing independent operators to reconsider their own futures in the domestic exploration and producing industry. Of particular concern are the effects of low crude oil price, various tax laws, uncertainties in the natural gas market, the threat of long-term future liabilities for producing and abandoned wells, and increasingly stringent regulations and reporting requirements—especially in the environmental area. Yet, while the major integrated companies have the flexibility and latitude to shift their operations to foreign resource bases and markets, independent oil and gas producers must choose between continuing to produce in an

increasingly regulated and costly environment or plugging and abandoning their wells and leaving the oil and gas producing business altogether.

At the same time independents are taking over many producing properties, economics and environmental regulations are forcing them to plug and abandon many wells. During the last decade, stripper wells have been abandoned at a rate of approximately 3.5% to 4% per year. The number of stripper wells has stayed at approximately 455,000 as declining production changes the status of many producing wells to stripper. This means that more and more U.S. wells are marginal. Of all wells, marginal wells are the most price sensitive and labor intensive. As a result, low prices put 75,000 jobs and up to 20% of domestic production at risk.<sup>1</sup>

Analyzing the status of production in the U.S., DOE, in a recent report, projected the abandonment of the remaining oil resource at various prices. DOE estimates that as much as 40% of the known remaining U.S. oil resource may already have been abandoned by 1988 and that as much as 60% could be effectively abandoned by the turn of the century.

For independents to accept and answer the challenge of assuming primary responsibility for the advanced recovery of the nation's known remaining oil and gas resources, an aggressive approach is required to make operators aware of and comfortable with the technologies currently available to them. This is necessary to sustain access to reservoirs and levels of production in the near term, and to plan and manage the most efficient development and maximum efficient production of their reservoirs over the longer term.

America's independent producers traditionally have not done technology research. The lack of in-house R&D capabilities has contributed to a lag in the use of technologies by independents and to skepticism about the potential of the technologies they are offered. Yet, for America's independents to fulfill the opportunity that the remaining oil resource base offers to the industry and to the nation, they must be aware of and be comfortable with implementing existing exploration and production technologies. Skilled use of field and reservoir data, and competence with current analytical tools are essential for independents to evaluate the potential of their reservoirs and to produce the resource most efficiently. Independents must also have easy access to new technologies and packaged solutions emerging from ongoing research activities. In addition, they need feedback channels through which they can inform the R&D community of their experience with new technologies as well as their latest technology needs. This "technology transfer" process is important, not only to sustain the domestic producing industry, but also to preserve the economic and energy security interests of the nation.

The U.S. Department of Energy (DOE) has recognized the need for continuing, focused R&D in oil production and has begun implementing refocused programs accordingly. Programs being implemented by BDM-Oklahoma for DOE's Bartlesville Project Office have focused on the technology needs for independent petroleum producers, as well as the requirements of major

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<sup>1</sup> Figures compiled by IPAA, *Petroleum Independent*, September-October 1994.

integrated companies. Among the projects being implemented is one entitled "Support for Independent Oil Producers with Urgent Production Problems."

## **2.0 INTRODUCTION**

DOE has defined a program element in its Domestic Natural Gas and Oil Initiative to share costs on projects designed to assist small independent petroleum operators with urgent production problems, and has assigned BDM-Oklahoma to implement the program. The objective of this program is to encourage small independents to develop, apply, and transfer technology that has proven effective in increasing operational efficiency and hydrocarbon production.

Technical and financial support will be provided to small independent operators to increase production by innovative field application of technology and to demonstrate the benefit to other operators. A solicitation has been developed and is open for an extended period so that applications can be made throughout the period. The size of the award is \$50,000 or less, with matching cost sharing by participant. Additional program requirements are as follows:

- The number of awards to one operator or to operators in a single field will be limited.
- The technology to be used must be publicly available and subject to validation by independent experiments.
- Results of the work must be made available for analysis and reporting.
- The types of technology are not limited and include broad areas of assistance such as reservoir characterization, well drilling, completion or stimulation, environmental compliance, artificial lift, well remediation, production management, and secondary and tertiary oil recovery processes.

BDM-Oklahoma's work focuses on three tasks:

- Task 1 involved program planning, establishing project evaluation criteria, and devising a simplified proposal format suitable for small independents.
- Under Task 2, the program announcement was prepared and published. The proposals received will be reviewed and awardees selected. Prior to the award, BDM-Oklahoma will make an environmental investigation in support of a National Environmental Policy Act (NEPA) determination.
- In Task 3 BDM-Oklahoma will review the work plans and monitor the work performance. BDM-Oklahoma will assist the independents to meet DOE reporting requirements. BDM-Oklahoma will monitor progress and assist/advise contractors as necessary. In addition, the monitors will seek the expertise and/or assistance of other BDM-Oklahoma staff members, where appropriate, when there appears to be synergy between the laboratory research (e.g., fluids compatibility) being performed at NIPER and the contract being undertaken by an independent.

Reporting requirements have been a problem to independents. To overcome this problem, the BDM-Oklahoma program monitors will be responsible for preparing the reports for each project. To assist in preparing these reports, each awardee is to provide copies of daily reports describing work performed under the contract, maps of the lease(s) and site(s) at which work was undertaken, available geophysical logs, cores, well treatments histories, and production data (both pre- and post-treatments). Progress will be reported quarterly and annually. The annual report will have a brief qualitative evaluation of program success/impacts based on simple metrics of oil production, water production, or cost reduction. On completion of the project, a final report will be prepared and submitted to DOE.

### **3.0 PROGRAM INITIATION**

The initial effort focused upon the development and definition of the program plan, program announcement, proposal submission forms, and the criteria against which to evaluate the application made by potential participants (including the technology to be applied, the anticipated benefit to production, and the relevance and applicability to other small operators). The announcement developed by BDM-Oklahoma describes the procurement and awarding procedure for the cost-shared projects. To encourage response, the application format has been simplified. BDM-Oklahoma staff obtained the assistance of the Oklahoma Independent Producers Association in developing and reviewing the simplified proposal submission and evaluation criteria. The source selection criteria will be used to guide the evaluation of proposals and assist in contract selection.

### **4.0 PROGRAM SPECIFICATIONS**

BDM-Oklahoma developed the specifications for the program announcement as shown in Appendix A. The announcement contains information on the broad areas of technologies that will be considered for the program, a statement of evaluation criteria, a cost-sharing statement, the maximum award available from the DOE, eligibility criteria for small independent operators, environmental requirements, and monitoring of awardees by BDM-Oklahoma. Awards specified by the announcement to small independent petroleum operators will be \$50,000.00 or less, with matching cost-sharing from the operators.

### **5.0 INFORMATION REQUESTS**

The solicitation announcement was published during 1995 in several publications, including *Commerce Business Daily*, *American Oil and Gas Reporter*, *PTTC Newsletter*, state oil and gas association publications, regional petroleum society newsletters, and *Oil & Gas Journal*. Table 1 lists the various avenues used to announce the program.

Initial responses from these announcements were very slow in coming. During May 1995, *World Oil* published a brief article (Appendix B) on the announcement that apparently reached a large

segment of independents in the U.S. From this brief article, BDM-Oklahoma received approximately 75% of the responses to date, as shown in Table 2. This degree of response from the article suggests that *World Oil* is read by more independents than the other publications.

## **6.0 PROPOSAL SUBMISSION FORM**

The proposal submission form for small independent petroleum operators seeking awards of less than \$50,000 with matching funds has been simplified by BDM-Oklahoma staff and the Oklahoma Independent Producers Association (Appendix C). The simplified proposal form allows small operators to easily apply for demonstration awards under this program while meeting the DOE requirement for projects. It allows easy access and timely evaluation by BDM personnel participating in the proposal evaluation process. The proposal form contains questions on production, production problems, producing reservoir for the demonstration project, project costs and economics, extent of the problem in similar reservoirs in the area, statement of work by the operator, technology transfer plans, environmental programs and conditions on the proposed project site, and project personnel. Proposal submission forms for projects have been provided upon request.

## **7.0 COST-SHARED PROPOSAL**

Table 3 lists proposals received to date. As may be seen from the table entries, some operators have multiple submissions. Generally the proposals address production improvements to operating leases. However, a few address methodology developments. Small independent operators have considered the technology transfer aspects and agreed to demonstrate the projects funded in this program to other small independent operators. In some cases, drilling horizontal wells are proposed within an approximate cost-shared arrangement of 15% DOE funds and 85% independent producer funds.

## **8.0 EVALUATION CRITERIA**

Evaluation criteria for selecting demonstration projects under this procurement by small independent petroleum operators were developed by BDM-Oklahoma and the Independent Producers Association (Appendix D). Applications for cost-sharing projects by independent operators will be evaluated, and project selections will be made on an ongoing basis during 1995. Qualified BDM-Oklahoma staff will evaluate the applicant's proposed technology, ability of the operator to accomplish/supervise the proposed work, technology transfer plan, current environmental program of the operator, and economics of the project based only on the application. These factors will be evaluated in detail and given a numerical rating by the evaluators. Selection of projects for funding will be based on the numerical score of the evaluation. The evaluation varies from 0 for clearly not acceptable to 10 for excellent.

## 9.0 SUMMARY

As a result of the program announcement, significant interest was generated within the small independent producer groups in 30 states. The results from the announcements give an insight into the publications most often reviewed and read by independent producers. Applications by independents who responded to the announcement give a fair indication of the types of problems that impact production and the types of technologies that independents are willing to consider for a solution when cost sharing is offered by DOE. Response to the program announcement was slow, but increased significantly after the article in *World Oil*. Interest in this program by small independents is expected to increase as cost-sharing awards are granted.

The proposals represent a broad assortment of problems associated with producing marginal wells and stripper wells. Applications from 12 independent producers were received by June 1, 1995. These proposals represented technologies such as horizontal wells as producers and injectors in sandstone and carbonate reservoirs, profile modification in a mature waterflood, production management software development, and hydraulic fracturing. All proposals concerning field operations provided information on mechanical integrity testing for injection wells with no mention of other conditions on their leases. This provides a significant insight into which of the environmental regulations is considered most important by small independents out of the 11 federal environmental regulations impacting hydrocarbon operations. More environmental data from leases awarded cost-sharing contracts are needed to complete a NEPA investigation prior to project funding and implementation.

**Table 1 Associations and Companies in Whose Publications the Program Was Announced**

	Association or Company	Address
1	Alaska Oil and Gas Association	121 W. Fireweed Ln., Ste. 207, Anchorage, AK 99503
2	American Petroleum Institute	1220 L Street, N.W., Washington, DC 20005
3	California Independent Petroleum Association	22800 Savi Ranch Pkwy, Ste. 210, Yorba Linda, CA 902686
4	Florida Petroleum Council, First Florida Tower	Ste. 800, 215 S. Monroe St., Tallahassee, FL 32301
5	Illinois Oil & Gas Association	Box 788, Mount Vernon, IL 62864
6	Independent Connecticut Petroleum Association	621 Farmington Ave., Hartford, CT 06105
7	Independent Oil & Gas Association of New York	37 Franklin St., Ste. 210, Buffalo, NY 14202
8	Independent Oil & Gas Association of West Virginia	22 Capitol St., 2nd Flr., Charleston, WV 25301
9	Independent Petroleum Association of America	1101 16th Street, N.W., Washington, DC 20036
10	Independent Petroleum Association of Mountain States	1214 Denver Club Bldg., 518 17th St., Denver, CO 80202
11	Indiana Oil Producers Tri-State, Inc.	116 Mulberry St., Evansville, IN 47713
12	Kansas Independent Oil and Gas Association	105 S. Broadway, Ste. 500, Wichita, KS 67202
13	Kentucky Oil & Gas Association	3520 New Hartford Pike, Ste. 403, Owensboro, KY 42303-1709
14	Louisiana Association of Independent Producers and Royalty Owners	One American Place, Ste. 1020, Box 4229, Baton Rouge, LA 70821
15	Louisiana Mid-Continent Oil and Gas Association	333 Laurel St., Ste. 740, Baton Rouge, LA 70801
16	Maryland Petroleum Council (Division of Petroleum Institute)	60 W. St., Ste. 403, Annapolis, MD 21401
17	Michigan Oil and Gas Association	1610 Michigan National Tower, Box 15069, Lansing, MI 48901
18	Michigan Petroleum Association	700 Michigan National Tower, Lansing, MI 48933
19	Mid-Continent Oil & Gas Association	1919 Pennsylvania Ave., N.W., No. 503, Washington, DC 20006
20	New Mexico Oil & Gas Association	320 Galisteo, Ste. 100, Santa Fe, NM 87501
21	North Texas Oil & Gas Association	801 Petroleum Bldg., Wichita Falls, TX 76301

## Associations and Companies in Whose Publications the Program Was Announced

Association or Company	Address
22 Northwest Petroleum Association	2345 Rice St., Ste. 173, St. Paul, MN 55113
23 Ohio Oil & Gas Association	118 Columbus Rd., S.W., Box 535, Granville, OH 43023
24 Oklahoma Independent Petroleum Association	308 NW 13th St., Ste. 200, Oklahoma City, OK 73103
25 Oklahoma-Kansas, Mid-Continent Oil & Gas Association	Service Rd., 320 Triad Ctr., 501 W. Interstate 44, Oklahoma City, OK 73118
26 Pacific Oil Conference	555 Capitol Mall, Ste. 530, Sacramento, CA 95814
27 Panhandle Producers and Royalty Owners Association	2201 Civic Circle, Ste. 404, Amarillo, TX 79109
28 Pennsylvania Oil and Gas Association	412 N. Second St., Harrisburg, PA 17101
29 Pennsylvania Petroleum Association, Inc.	Ste. 121, Bldg. 2., 2001 N. Front St., Harrisburg, PA 17102-2190
30 Permian Basin Petroleum Association	Box 132, Midland, TX 79702
31 Texas Independent Producers and Royalty Owners Association	515 Congress Ave., Ste. 1910, Austin, TX 78701
32 Texas Mid-Continent Oil & Gas Association	1115 San Jacinto Blvd., Ste. 275, Austin, TX 78701-1906
33 Virginia Oil & Gas Association, Inc.	Box 1837, Wise, VA 24293
34 West Central Texas Oil & Gas Association	241 Pine St., Ste. 1-A, Box 2332, Abilene, TX 79604
35 West Virginia Oil & Gas Association, Inc.	Box 3231, Charleston, WV 25332
36 West Virginia Petroleum Council	1250 One Valley Square, Charleston, WV 25301
37 Western States Petroleum Association	505 N. Brand Blvd., Ste. 1400, Glendale, CA 91203
38 Commerce Business Daily	5959 S. Harlem, Chicago, IL 60638
39 American Oil & Gas Reporter	P.O. Box 343, Derby, Kansas 67037
40 Oil & Gas Journal	Penwell Pub., 1421 S. Sheridan Rd., Tulsa, OK 74112
41 PTTC Newsletter	1101 16th Street N.W., Ste. 1-C, Washington, D.C. 20036-4803

**Table2 Request for Program Information**

	Company	Contact	Address	Date Mailed	Letter #
1	Editor, Shale Shaker	Mr. William E. Jackson	2021 Forest Road, Edmond, OK 73003	1/30/95	7669
2	Anadarko Basin Production Service	Mr. Foy St.man	P.O. Box 1652, Chickasha, OK 73023	1/30/95	7668
3	University of Wyoming, Dept. of Chem & Petroleum Engineering	Bill Iverson	Faxed to Laramie, WY (307) 766-6777	2/13/95	TM
4	Spring Energy Company	G. Nan Polleys	330 W. Edmond Rd., Edmond, OK 73003	2/20/95	TM
5		Gilbert Wood	1119 May Ln., Bartlesville, OK 74006	2/21/95	TM
6	Ross Oil Company		Rt, Box 245, Oblong, IL 62449	2/22/95	TM
7	Terralog Technologies USA, Inc.	Mike Bruno/Helen Qian	332 E. Foothill Blvd., Ste. B., Arcadia, CA 91006	2/22/95	TM
8		Melvin Acott II	P.O. Box 575, Hominy, OK 74035	2/23/95	1400
9	Tom D. Mooney & Associates, Inc.	Tom. D. Mooney	955 Dairy Ashford, Ste. 124, Houston, TX 77079	3/1/95	TM
10	Improved Petroleum Recovery, Inc.	W. Robert Wilson, P.E.	MacArthur Plaza, 5525 MacArthur Blvd., Irving, Texas, 75038	3/2/95	TM
11	Profile Control Services, Inc.	Sam M. Dabbous	4907 S. Country Rd. #1305, Odessa, TX 79765	3/3/95	TM
12		Mr. Ronnie Matteson	804 West Rogers, Skiatook, OK 74070	4/10/95	1481
13		Mr. Don Greenwood	2807 74th St., Lubbock, TX 79423-6014	4/17/95	2021
14	Dravis Brothers	Mr. Skip Honeyman	1 William Center, Ste. 2000, Tulsa, OK 74172	4/23/95	1459
15		Mr. Greg Williamson	HC 67, Box 130, Skiatook, OK 74070	4/23/95	1458
16		Mr. John Turnbow	233 South Detroit, Ste. 301, Tulsa, OK 74120	4/23/95	1457
17	Sandia Oil & Gas Corporation	Lee T. Billingsley	8610 N. New Braunfels, Ste. 602, Energy Plaza, San Antonio, TX 78217	4/25/95	TM
18	Hayden Energy, Inc., Mid-Town Building	Mr. Kevin Hayden	920 Frederica St., Ste. 309, Owensboro, KY 42301	4/28/95	2058
19	True Oil Company	Mr. Kyle True	Box 2360, Casper, WY 82602	5/4/95	2074
20		Mr. Butch Ford	15621 Blue Ash, Ste. 309, Houston, TX 77090	5/4/95	2070
21	TerraTek	Dr. Robert Bereskin	420 Wakara Way, Salt Lake City, UT 84108	5/5/95	2081
22		Mr. Jim Ferley	34, 475 West 263 St., Paola, KS 66071	5/5/95	2078
23		Mr. Les Ferley	P.O. Box 936, Pierre, SD 57501	5/5/95	2077

### Request for Program Information

	Company	Contact	Address	Date Mailed	Letter #
24	Transpecto Engineering	Atrn: Betty	625 Market St., Ste. 100, Shreveport, LA 71101	5/9/95	2087
25	Embrey Oil Production Company	Mr. T.G. Embrey	P.O. Box 270, Sutherland Spring, TX 78161	5/9/95	2085
26	Chambers & Hendricks	Mr. Everett Hendricks	P.O. Box 545, Skiatook, OK 74070	5/9/95	2084
27	Cobbs Engineering	Mr. Jim Cobbs	5350 E. 46th St., Tulsa, OK 74135	5/9/95	2083
28		Mr. Tom Nutt	P.O. Box 328, Catlett, VA 22019	5/10/95	2090
29	Graward Operating	Mr. John Graham	121 S. Broadway, Ste. 851, Tyler, TX 75702	5/10/95	2089
30	G&D Oil	Mr. Gregg Mallow	Route 2, Box 100, Walters, OK 73572	5/10/95	2088
31	OTC Petroleum Corporation	Sandra Hopewell	2601 Northwest Expressway, Ste. 804W., Oklahoma City, OK 73112	5/12/95	2099
32	Vintage Petroleum Inc.	Mr. Al Smith	4200 One William Center, Tulsa, OK 74172	5/12/95	2098
33	CHRISTEVE Company	Mr. Henry Cullins	4422 FM 1960 West, Ste. 425, Houston, TX 77068	5/12/95	2097
34	Speir Operating	Mr. Leroy Speir	P.O. Box 203, Albion, IL 62806	5/12/95	2096
35	Technology and Management Services	Mr. Feridun Albayrak	18757 N Frederick Rd., Gaithersburgh, MD 20879	5/12/95	2095
36	Aminex USA, Inc.	Mr. David Clark	1606 Headway Cir., Ste. 205, Austin, TX 78754	5/15/95	2103
37	Sands Oil Company	Mr. Bill Fulton	P.O. Box 373, Billings, MT 59103	5/15/95	2102
38	Curtis Oil Inc.	Mr. Randy Curtis	694 Main St., Duke Center, PA 16729	5/15/95	2100
39	Harbor Operating, LLC	Kelton Cloud	602 S. Harbor Ct., Granbury, TX 76048	5/15/95	TM
40		Mr. John Stewart	P.O. Box 63, Crab Orchard, TN 37723	5/16/95	2106
41	EiDorado Resources	Matt Dillon	5104 Granite St., Bakersfield, CA 93313	5/16/95	TM
42	Argent Petroleum Company	Mr. Mike Adams	P.O. Box 1047, Henderson, TX 75653	5/17/95	2109
43	Keener Oil & Gas Company	Dewey F. Bartlett, Jr.	320 S. Boston, Ste. 1026, Tulsa, OK 74103-3701	5/17/95	2108
44	Security Properties, Inc.	Mr. Bill Bennett	1201 Third Ave., Ste. 5400, Seattle, WA 98101	5/17/95	TM
45	Canyon Resources	Matt Dillon	5105 Granite St., Bakersfield, CA 93313	5/17/95	TM
46	Energy Industries, Engineering Division	Mr. Tommy Lovelace	P.O. Box 7120, Corpus Christi, TX 78467	5/18/95	2113

### Request for Program Information

	Company	Contact	Address	Date Mailed	Letter #
47	Texas Prairie View A&M University	Dr. Adel Elmessidi	Box 473, Cypress, TX 77429	5/18/95	TM
48	Alpha Environmental	J.T. Portwood	P.O. Box 20643, Oklahoma City, OK 73156	5/19/95	TM
49	Frontier Exploration	Mr. Andy Pierce	3006 S. Highland Drive, Salt Lake City, UT 84106	5/23/95	3126
50		Mr. Jerry Alexander	P.O. Box 1714, El Dorado, AR 71731	5/23/95	3125
51	Bulldog Tool		P.O. Box 5961, Hobbs, NM 88241	5/23/95	3124
52	Cross Timbers Oil	Mr. Jerry Stadulis	810 Huston St., Ste. 2000, Fort Worth, TX 76102	5/23/95	3123
53	Technodyne		Unit B, 740 South Van Buren St., Placentia, CA 92670	5/23/95	3122
54	Renegade Resources Corporation	Mr. Carl Welch	5335 Cedarwood Drive, Reno, NV 89511	5/24/95	3128
55	Cypress Operating, Inc.	Theresa. G. Antee	400 Travis, Ste. 1604, Shreveport, LA 71101	5/25/95	TM
56		Mr. Gordon Gray	P.O. Box 232, Snyder, TX 79550	5/26/95	3133
57	Venoco Incorporated		Ste. 300, 217 State St., Santa Barbara, CA 93101	5/26/95	3132
58	Servo-Dynamics, Inc.	Charlotte Fay	P.O. Box 6679, Santa Barbara, CA 93160	5/30/95	TM
59		Mr. Pat Scudder	P.O. Box 268, Route 1, Dewey, OK 74029	5/31/95	3138
60	Kiska Oil Company	Mr. Don Bradshaw	320 South Boston, Ste. 1800, Tulsa, OK 74103	6/1/95	3141
61	Geological Survey of Alabama	Mr. Bob Mink	420 Hackberry Ln., P.O. Box O, Tuscaloosa, AL 35486-9780	6/6/95	3143
62	Carlow Corporation	Mr. Frank Agor	P.O. Box 11148, Midland TX 79702	6/9/95	3151
63		Joe Clifton	P.O. Box 340, Ridgely, TN 38080	6/9/95	Cheri
64		Lloyd Jones	2029 Ebbtide Ln., Dallas TX 75224/214-339-4493	6/12/95	3155
65	ERC Tigriss	John Ward	11200 Westheimer, Ste. 200, Houston, TX 77042	6/14/95	3161

**Table 3 Proposals Received for Support to Independents with Urgent Production Problems Program**

<b>Proposal Title</b>	<b>Company</b>	<b>Contact</b>	<b>Date Received</b>
Plug Back Open Hole Section & Drill Two Horizontal Laterals - SE Pauls Valley	Robert J. Spring, 330 W. Edmond Rd., Edmond OK 73003, 405-340-6811, FAX 405-340-6899	Robert J. Spring	4/3/95
Gel Lignosulfonate Treatments	Oak Resources, Inc., 4515 S. Yale, Ste. C, Tulsa, OK 74135, 918-627-8012	Mr. Kenneth D. Oglesby	4/17/95
Commercial Production Forecasting Software	James Engineering, Inc., 231 Third Street, Marietta, OH 45750, 614-373-9521	Gene Huck	5/1/95
North Richland Field Project	Buttwood Petroleum, Inc., 9 E. 4th Street, Ste. 1000, Tulsa, OK 74103	Stanley M. Scott	5/1/95
Geomechanical Analysis of Induced Stress Changes to Determine Optimum Refracture Well Candidates	Crutcher-Tufts Production Co., 5500 Ming Ave., Ste. 210, Bakersfield, CA 93309, and Terralog Technologies USA, Inc., 332 E. Foothill Blvd., Ste. B, Arcadia, CA 91006	Mr. Chuck Dobie / 805-835-1894 (Crutcher/Tufts) or Dr. Mike Bruno / 818-305-8460 (Terralog)	5/1/95
Schardein Lease - Horizontal Well	BecSul Energy, Inc., 6815 NW 10th St., Ste. #1, Oklahoma City, OK 73127	Benny E. Bechtol	5/1/95
Improved Production and Reservoir Management in Tight, Light Oil, and Gas Condensate Reservoirs	Stanton Mineral Development, 800 Brazos, Ste. 1010, Austin, TX 78701, 512-476-6271, FAX 512-476-6274	Wm. Stanton McDonald	5/12/95
Swab Clean-up & Install Anerobic Bacteria	Speir Operating, P.O. Box 203, Albion, IL 62806	Leroy Speir	5/22/95
Build a Rechargeable Battery Package That Will Allow Pumping Units to Run on Time Clocks	Golden Gas Production Co., 2250 East 73rd St., Ste. 450, Tulsa, OK 74136, 918-491-9027, FAX 918-494-4068	Alan R. Staab	5/23/95
Squeeze and Circulate Cement, Isolate and Cleanup Zones, and Use Anerobic Bacteria	Speir Operating, P.O. Box 203, Albion, IL 62806	Leroy Speir	5/22/95
Anerobic Bacteria	Speir Operating, P.O. Box 203, Albion, IL 62806	Leroy Speir	5/22/95
Acid Stimulation	SP Energy Development Company, 1201 Third Ave., Ste. 5400, Seattle, WA, 98101-3031, 206-628-8002	William S. Bennett	5/23/95

**Appendix A**  
**PROGRAM ANNOUNCEMENT**



BDM-Oklahoma (BDM), Management and Operating Contractor for DOE's National Oil and Related Programs under prime contract DE-AC22-94PC91008, is soliciting firm-fixed price proposals to a requirement generally entitled "Research and Development by Small, Independent Petroleum Operators to Provide Solutions Towards Production Problems." Responses to this Research Opportunity Announcement (ROA) number OKL-5027-01 will be considered for a one year period: February 1, 1995 through January 31, 1996. Proposals will be evaluated and award determinations will be made throughout the one year response period. Responses must be sent to: BDM-Oklahoma, Inc., Todd Martinez, PO Box 2565, 220 N. Virginia Avenue, Bartlesville, OK 74005. Responses should reference the ROA number OKL-5027-01 on the exterior of the shipping container. This announcement is an expression of interest only and does not commit BDM to pay for any response preparation costs. Due to the nature of the required work, this procurement is set-aside for small independent petroleum operators operating onshore in the lower contiguous 48 states. Small independent petroleum operators are further defined as having (1) no affiliation with a major oil or gas producer (domestic or foreign) and (2) no more than 50 full time company employees or contractors. BDM is not required to return any proposal that is not selected for award. Proposal preparation costs shall not be included within the price/cost proposal. BDM reserves the right to select for award any, all, or none of the responses received. It is BDM's intention to award multiple contracts for this effort. The number of awards to one operator or to operators in a single field will be limited. Late proposals will be handled in strict accordance with FAR 15.412. The selection of one or more sources for contract award will be based on a scientific and engineering evaluation of the responses (technical and price/cost) to determine the relative merit of the approach taken in response to this announcement. New and innovative concepts, ideas, and approaches are of primary interest and will be ranked highest in the evaluation process. Proposals aimed at applying proven concepts should not be submitted. Price/cost is ranked as the second order of priority. The technical and price/cost responses will be evaluated concurrently. The estimated funding from BDM is \$50,000 per award or less. Cost sharing with BDM is required at an amount of not less than 50% of the total proposed amount and may consist of in-kind contributions. Questions on technical issues may be referred in writing to Herb Carroll, fax (918)337-4558. Contractual issues and price/cost response format questions should be referred in writing to Todd Martinez, fax (918)337-4504. BDM seeks proposals for research and development integrating solutions towards production problems experienced by small independent petroleum operators. Proposed efforts must incorporate innovative field technologies for use by small independent petroleum operators to increase production, reduce operational costs, reduce environmental concerns, or any combination thereof. The types of technologies to be considered are not limited to but may include reservoir characterization, well drilling, completion or stimulation, environmental compliance, artificial lift, well remediation, secondary and tertiary oil recovery, and production management. Upon request, the contractor shall provide BDM with any or all data pertinent to this effort. With the assistance of BDM, the contractor will be required to submit monthly, quarterly, and annual progress reports. BDM will provide assistance to the contractor in the preparation of the progress reports. BDM will be responsible for preparing a final report for each project. To assist in preparing the final report, the contractor will be required

to provide BDM with copies of daily production reports, maps of the lease and site at which the work is to be done, available geophysical logs, cores and core data, well treatment history, and project pre-treatment and post-treatment production data. This data to be provided by the contractor represents the required deliverables under the contract. Prior to selection for award, an environmental investigation of the offeror may be made by BDM in support of a National Environmental Policy Act (NEPA) determination. As an integral part of its proposal, the contractor will be required to demonstrate and implement an aggressive technology transfer plan primarily targeted for small independent petroleum operators. The proposal shall consist of a fully completed and executed "Proposal Submission Form". The Form is approximately 6 pages in length and is in a "fill in the blank" format. The Proposal Submission Form may be obtained by contacting Todd Martinez at the address indicated above. Faxed requests for the Proposal Submission Form are acceptable if faxed to (918)337-4504. All proprietary portions of the proposals should be clearly identified and will be treated in the strictest confidence. Proposals shall contain a statement of validity for 180 days beyond the date of submission, a statement authorizing BDM's employees and authorized DOE personnel to evaluate the proposals, and the signature of an official duly authorized to commit the organization in business and financial affairs. An original and 3 copies of the proposals must be submitted to BDM. Faxed proposals will be not be accepted. The period of performance is anticipated to be up to 24 months. Proposals with a shorter period of performance are acceptable. Award decisions will be based upon an evaluation of the technical merit as well as price/cost reasonableness and realism in conjunction with the availability of funds. Unless stated otherwise herein, no additional written information is available (with the exception of the Proposal Submission Form) nor will a formal Request for Proposal or other solicitation regarding this announcement be issued. If a responder wishes to restrict the proposal, the responder should mark the title page with the following legend: "This data shall not be disclosed outside BDM or DOE and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate the proposal, provided that if a contract is awarded to this ROA responder as a result of or in conjunction with the submission of this data, BDM or DOE shall have the right to duplicate, use, or disclose the data to the extent provided in the contract. This restriction does not limit BDM's or DOE's right to use information contained in the data if it is obtained from another source without restriction. The data subject to this restriction is contained on page \_\_\_\_". The ROA responder shall mark each sheet of data that is to be restricted with the following legend: "Use or disclosure of ROA response data is subject to the restriction on the Title Page of this proposal.

**Appendix B**  
**WORLD OIL ARTICLE**  
**(*World Oil*, May 1995, P.13)**



**Lackluster gas prices depress drilling outlook.** Due to sluggish natural gas wellhead prices, Baker Hughes Inc. has lowered its U.S. 1995 drilling outlook, although a slow recovery is expected to keep the rig count from falling sharply. The company forecasts 742 average active rigs, down from previous estimates of 761 rigs. This current projection falls below the actual U.S. rig count average of 775 for 1994. For 1994 and early 1995, rigs drilling for natural gas have outnumbered those drilling for oil by a substantial margin, but with recent rig counts and new 1995 projections, the number of oil and gas rigs are likely to be somewhat equal.

**Namibia continues second round.** Namibia has extended the second bidding round for exploration permits to November 30 from July 31. The tender, which opened in October, covers offshore Namibe, Walvis, Luderitz and Orange basins, along with the Walvis ridge and onshore Owambo/Etosha and Nama basins. The Namibian government has changed its model agreement and promises flexibility in negotiating.

**Alaskan North Slope legislation.** Alaska Governor Tony Knowles has introduced legislation to encourage marginal oil and gas field developments on Alaska's North Slope by adjusting royalty rates. Known in the Alaska Legislature as Senate Bill 101 and House Bill 207, the proposal grants the Department of Natural Resources (DNR) commissioner increased discretion in adjusting royalty rates, which currently run as high as 20%. If passed, this will be the first reduction of Alaskan oil and gas royalty rates.

**Legislation proposed to chasten Iran.** In addition to the already proposed legislation for a total trade embargo against Iran, U.S. Senate Banking Chairman Alfonse D'Amato (R-New York) has introduced legislation geared towards penalizing Iran by placing sanctions on foreign companies that trade with the country. If the legislation prevails, foreign oil companies will find themselves faced with an ultimatum: trade with the U.S. or trade with Iran. Russia, France and China include some of the countries the U.S. risks alienating because of the countries' hopes for profitable business opportunities in Iran and Iraq. The existing embargo bars U.S. refiners from importing Iranian oil, but does not regulate their foreign subsidiaries.

**Funding available for current production concepts.** Small independent operators working onshore in the lower 48 states may receive a procurement of \$50,000 or less from the U.S. Department of Energy (DOE) if new and innovative concepts toward production problems increase production, reduce operational costs or reduce environmental concerns. Types of technologies to be considered are not limited to, but may include: reservoir characteristic drilling; completion or stimulation; environmental compliance; artificial lift; well remediation; secondary and tertiary recovery; and production management. The management and operating contractor for DOE national oil is BDM Oklahoma, Inc., which will be the soliciting firm. For more information contact Herb Carroll at 918-336-2400, and for proposal admission contact Todd Martinez at 918-337-4385 or fax BDM at 918-337-4365.

**China expresses interest in foreign participation.** International cooperation is sought by China for on- and offshore oil exploration, especially in Xinjiang, the western area of the country encompassing three of the largest basins—Junggar, Tarim and Turpan-Hami, which, according to China National Petroleum Corp. (CNPC), will reach annual production of 20 million tons by 1997. Recent forecasts, such as DRI/McGraw Hill's energy forecast report, foresee Asia as the largest energy consuming region early in the next century, with energy demand predicted to soar by more than two and a half times by 2015.

**Area-wide lease sales to continue.** The U.S. Minerals Management Service (MMS) of the Department of the Interior (DOI) has decided to continue annual area-wide lease sales in the central and western Gulf of Mexico (GOM), bringing to a close a 19-month period of studies which might have ushered in a new type of leasing system in the GOM. The main concern with the existing program was that MMS was not receiving maximum values for tracts, but area-wide leasing has promoted increased competition on the U.S. outer continental shelf (OCS) and created opportunities for high-risk ventures, according to National Ocean Industries Association (NOIA) President Bob Stewart. Area-wide leasing has provided bonuses, rents, royalties and taxes to federal government.

**Irish oil at last.** The Porcupine basin, which lies 60 to 150 mi offshore Ireland, may be the country's first commercial oil field, if extended well tests by Aran Energy PLC prove economical viability. The company estimates some 20–50 million bbl of proved and probable reserves in the Connemara field. Fixed platforms were ruled out due to water depths ranging from 300 to 2,000 m (984–6,560 ft); however, enhanced technology, lower Irish exploration taxes and more flexible financing terms, may now allow drilling for oil in the harsh Irish waters. The only production fields offshore Ireland have so far been gas. wo



**Appendix C**  
**PROPOSAL SUBMISSION FORM**



**PROPOSAL SUBMISSION FORM**

**OFFEROR:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Field Name:** \_\_\_\_\_ **Proposed \$ Amount:** \_\_\_\_\_

**Lease Name:** \_\_\_\_\_ **Legal Description:** \_\_\_\_\_

**Number of Producing Wells:** \_\_\_\_\_ **Producing Formation/Depth:** \_\_\_\_\_

**Lithology:** \_\_\_\_\_ **Thickness/Perforations** \_\_\_\_\_

**Current Recovery Technology (In Project Area):** \_\_\_\_\_

**Prior Recovery Technology Implemented (In Project Area):** \_\_\_\_\_

**Monthly Gross Production Per Lease:** Oil \_\_\_\_\_ bbls. Gas \_\_\_\_\_ MCF  
Water: \_\_\_\_\_ bbls.

**Monthly Gross Production Per Well:** Oil \_\_\_\_\_ bbls. Gas \_\_\_\_\_ MCF  
Water: \_\_\_\_\_ bbls.

**Daily Gross Production Per Lease:** Oil \_\_\_\_\_ bbls. Gas \_\_\_\_\_ MCF  
Water: \_\_\_\_\_ bbls.

**Projected Improvements in Monthly Gross Production Per Lease After Treatment:**

Oil \_\_\_\_\_ bbls. Gas \_\_\_\_\_ MCF  
Water: \_\_\_\_\_ bbls.

**Projected Improvements in Monthly Gross Production Per Well After Treatment:**

Oil \_\_\_\_\_ bbls. Gas \_\_\_\_\_ MCF  
Water: \_\_\_\_\_ bbls.

**Qualified Personnel:**

**Employee** \_\_\_\_\_ **Title** \_\_\_\_\_

**Responsibilities** \_\_\_\_\_ **Qualifications** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Employee** \_\_\_\_\_ **Title** \_\_\_\_\_

**Responsibilities** \_\_\_\_\_ **Qualifications** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Employee** \_\_\_\_\_ **Title** \_\_\_\_\_

**Responsibilities** \_\_\_\_\_ **Qualifications** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Employee** \_\_\_\_\_ **Title** \_\_\_\_\_

**Responsibilities** \_\_\_\_\_ **Qualifications** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Employee** \_\_\_\_\_ **Title** \_\_\_\_\_

**Responsibilities** \_\_\_\_\_ **Qualifications** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Anticipated Operational Cost Reduction Of Treatment:**

**Operator Cost:** \_\_\_\_\_

\_\_\_\_\_

**Statement of Production Problem:** \_\_\_\_\_

\_\_\_\_\_

**How Common is Problem in Region?** \_\_\_\_\_

\_\_\_\_\_

**Usual Treatment for Problem:** \_\_\_\_\_

**Proposed Technology:** \_\_\_\_\_

\_\_\_\_\_

**How will it Overcome Problem?** \_\_\_\_\_

\_\_\_\_\_

**Has it been Tried in Adjacent Areas?** \_\_\_\_\_

\_\_\_\_\_

**Evaluation of Results:** \_\_\_\_\_

**How will Process Success be Determined:** \_\_\_\_\_

\_\_\_\_\_

**When will Results be seen?** \_\_\_\_\_

\_\_\_\_\_



**Cost of Project:** (Include Cost to BDM and Operator) \_\_\_\_\_

**Cost Share Portion** (Description & Estimated Value): \_\_\_\_\_

**Proposed BDM Portion:** \_\_\_\_\_

**Authorization for Expenditure of Project:** (Attachment) \_\_\_\_\_

**Proposed Length of Project:** \_\_\_\_\_

### ENVIRONMENTAL STATEMENT

**Environmental Applications and Permits:**

**Current:** \_\_\_\_\_

\_\_\_\_\_

**Historical** \_\_\_\_\_

\_\_\_\_\_

**Number of Produced Water Disposal Wells:** \_\_\_\_\_

**Number Of Waterflood Injection Wells:** \_\_\_\_\_

**Mechanical Integrity Test Results:** \_\_\_\_\_

\_\_\_\_\_

**Environmental Impact for Implementation of Project:** (Groundwater, Surface, Waste Disposal, Increased Water, Decreased Water, Endangered Species, etc.) \_\_\_\_\_

\_\_\_\_\_

**Technology Transfer Plan** (use additional pages as needed): How will the operator assure that the project results will be conveyed to other operators?

**Appendix D**  
**EVALUATION CRITERIA**





**EVALUATION CRITERIA**

**Number Rating System:**

10	Excellent	3	Poor
7	Good	0	Clearly Not Acceptable
5	Fair		

**PROPOSED TECHNOLOGY**

EVALUATION CRITERIA	NUMBER RATING
Commercial availability of proposed technology	
Technology suitable for problem	
Proposed technology being implemented nearby proposed project site	
Problem widespread in proposed project area (other fields)	
<b>TOTAL SCORE</b>	

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**ABILITY TO ACCOMPLISH/SUPERVISE PROPOSED WORK**

**(Including Professional Staff)**

EVALUATION CRITERIA	NUMBER RATING
Qualified Staff	
Previous Implementation of This or a Similar Technology	
Methodology for Evaluation of Project (Process)	
<b>TOTAL SCORE</b>	

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**TECHNOLOGY TRANSFER PLAN**

EVALUATION CRITERIA	NUMBER RATING
Capability to Transfer Technology to Other Operators	
Technology Transfer Methodology	
<b>TOTAL SCORE</b>	

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**CURRENT ENVIRONMENTAL PROGRAM**

EVALUATION CRITERIA	NUMBER RATING
MIT Results	
Groundwater Protection	
Surface Conditions	
Waste Disposal	
Environmental Benefit of Process (Project)	
<b>TOTAL SCORE</b>	

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**ECONOMIC EVALUATION**

EVALUATION CRITERIA	NUMBER RATING
Equity in Cost Sharing	
Cost Benefit of Project	
<b>TOTAL SCORE</b>	

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_



