

Appendix 8-2

Pipeline Cost Estimates

Pipeline Budget Level Cost Estimate

Data and Assumptions

The estimating basis utilized for Alaska Spur Gas Pipeline Study is consistent with the methodology utilized for the recent estimates prepared for the Alaska Natural Gas Development Authority (ANGDA) for their spur pipeline from Glennallen to Palmer. There are by necessity a significant number of assumptions required when estimating projects of this complexity without the benefit of field studies and final design. The cost estimates for the two routes are done on a consistent basis and the differential in cost between the two routes should be meaningful on a relative basis even though they may not be exact on an absolute basis. Cost is only one of a number of variables used to compare the two routes and a future decision on routes should not be made on cost alone.

The costs for the J-curve analysis (see discussion in Appendix 3-7) were done from preliminary estimates of the routes. These estimates were later updated as work on the project progressed. The biggest change to the estimate was in the area of pipeline steel cost. The relative relationships of the estimates did not change even though the exact cost value of each estimate did change.

Applicable Codes and Standards

- 49 CFR 192: Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards
- ASME B31.8 Gas transmission and distribution systems
- API 5LX - Specification for High Test Line Pipe
- API STANDARD 1104 - Standard for Welding Pipelines and Related Facilities

Ditch Backfill

Conventional trenching techniques will be used to install the pipeline. Once excavation has been conducted to the specified depth the trench will be backfilled with non-frost susceptible (classified fill) soils and compacted to engineering specifications. Backfill will be placed in the trench to the desired elevation and smoothed prior to placement of the pipeline. Classified fill will be placed around and above the pipeline to the specified width, thickness and compaction. Spoils from the excavation will be utilized in the trench if they comply with project specifications. Utilization of excavated spoils will minimize costs to the project.

Mounding of the remaining spoils, including higher-ice-content soils, over the top of the trench will limit the amount of settlement immediately over the pipe, yet preserve fine-grained and organic soils on the ground surface. Use of select coarse-grained backfill in the lower part of the pipe trench will reduce the amount of thaw settlement in the trench backfill and help prevent the formation of a surface trough along the pipeline. The berm will be seeded and fertilized after construction.

At the end of the first summer when the backfill mound has thawed for the first time, it may be necessary to regrade and shape the surface backfill mound, or to reseed and/or refertilize. Backfill will be mounded as steeply as possible directly over the pipe trench at the time of construction. Restoration at the end of the first summer will involve pulling

material inward toward the trench centerline to obtain a slightly positive backfill mound. Further backfill restoration will be undertaken as necessary to ensure berm stability, to prevent ponding of natural surface drainage, and to ensure pipeline integrity. Use of the original excavated trench material as the final capping layer is superior to backfilling only with gravel for the following reasons:

- Thermal Concerns: Fines and organics will minimize deepening of the active layer.
- Hydrologic Concerns: Following thaw settlement of the native spoil, a lower-permeability layer is present to help reduce entry of surface water into the trench.
- Revegetation: A surface mixture of peat and fine-grained soils provides a much superior medium for plant growth than gravel.
- Spoil Removal: Use of the excavated spoils as backfill avoids hauling and disposing of the excavated material.
- Visual Impact: Following settlement, restoration, and revegetation, surface appearance of the pipeline trench will be similar to the surrounding terrain.

Camp Locations and Storage Areas

Pipeline construction estimates were based on assumptions that included determination of the locations of the material sites and camps along the pipeline routes. These locations are based on historical knowledge of the routes and other available information such as satellite imagery. Alignment sheets (in Appendix 4-4) show the locations that were used for the construction estimates.

An assessment of the required number and location of camps and storage areas has been made for each of the two routes. Camp locations were selected to minimize the time for the construction crews to travel to the work site to ensure that a full 12 hour workday is achievable. Storage areas were sized predominantly based on pipe storage but the sites will be able to handle additional materials such as valves, fittings, casing, river weights, marker posts, etc. as required. For purposes of this study it was assumed the pipe would be coming from domestic US mills in the Lower 48. Both the camp and storage sites must be investigated for site preparation, soil conditions, terrain features, availability of site preparation materials and existing communication access.

Requirements and locations for camps and storage areas for each of the two routes are as follows (Refer to Appendix 4-1 for maps with mileposts):

Fairbanks Spur

Camps – Three locations are required with initial sites at MP 62 (Nenana area), MP 159 (Cantwell area) and MP 268 (Talkeetna Junction area). Personnel will be housed in the Fairbanks area for work from MP 0 to MP 40. Personnel will be housed in the Wasilla-Palmer area for work from MP 297 to MP 322.

Storage Areas - It was assumed that the material for this line segment would be shipped on train car barges to Seward and then railed to locations proximate to the storage areas where it would be unloaded.

Storage Areas along Fairbanks Route Mileposts 0 to 322

Storage Location (milepost)	Mileposts Served	Total Length (miles)
18	0 to 28	28
38	28 to 49.5	21.5
61	49.5 to 71.5	22
82	71.5 to 94.5	23
107	94.5 to 113.5	19
120	113.5 to 137.5	24
155	137.5 to 163.5	26
172	163.5 to 186	22.5
200	186 to 233	47
265	233 to 280	47
293	280 to 322	42

Delta Junction Spur

Delta Junction to Glennallen (MP 0 to MP 133)

Camps – Two locations are required with initial sites at Milepost (MP) 40 and MP 100. The locations of these two camps limit the driving distance to approximately 60 miles.

Storage Areas – The rationale for selection of storage areas is that the material would be shipped to Valdez and trucked to the storage areas. Six locations are required with initial sites as shown:

Storage Areas along Delta Junction Route, Mileposts 0 to 133

Storage Location (milepost)	Mileposts Served	Total Length (miles)
12	0 to 21	21
30	21 to 40	19
50	40 to 64	24
78	64 to 89	25
100	89 to 107.5	18.5
115	107.5 to 133	25.5

Glennallen to Palmer (MP 133 to MP 282)

Camps - Two locations are required with initial sites at MP 170 and MP 210. The locations of these two camps limit the driving distance to approximately 40 miles. Personnel will be housed in the Palmer/Wasilla area for work from MP 250 to MP 282.

Storage Areas – It was assumed that the material for this line segment would be shipped on train car barges to Seward and then railed to the Palmer area. The material would be unloaded at Palmer to trucks and transported to the storage areas. Six locations are required with initial sites as shown:

Storage Areas along Delta Junction Route, Mileposts 133 to 282

Storage Location (milepost)	Mileposts Served	Total Length (miles)
152	133 to 156	23
160	156 to 170	14
180	170 to 190	20
200	190 to 220	30
240	220 to 250	30
260	250 to 262	12

Cathodic Protection

Coffman Engineers, under subcontract to Michael Baker, developed preliminary engineering information regarding cathodic protection of the spur line. Coffman's report is contained in Appendix 9-1.

Cost Estimating Basis

The cost estimating basis for the DOE project was as follows:

1. Each route is defined to the extent possible through aerial photography and mapping. A route is chosen for the estimate basis without the benefit of a design or field investigations.
2. The distance for each DOT class location is defined so that the appropriate tonnage of pipe for that section can be estimated.
3. The terrain for each route is broken down on a percentage basis as rock ditch, tundra, swamp, flat/rolling, mountains and chop/deep ravines.
4. Based on the terrain percentages assigned a production rate is established for the route.
5. Production rates will vary by winter and summer construction seasons.
6. Pipe and coating costs are supported by a database of vendor estimates.
7. Crew sizes are established for each construction activity.
8. The labor rates for the crews are based on current union wage scales.
9. Equipment requirements are established for each construction activity.
10. Equipment rates are based on pricing obtained from construction contractors in this market.
11. Fuel, lubricants and operating supplies (FLOPS) are estimated from costs obtained from construction contractors in this market.

12. Valves for the pipeline are estimated on 20 mile spacing over the length of the pipeline.
13. Freight is estimated for pipe and materials from the Lower 48 to Alaskan ports and to the ROW.
14. Separate estimates are done for bored roads, open cut roads and stream/river crossings based on information available from aerial photography and mapping.
15. Indirect costs are estimated and include field supervision and support, mobilization/de-mobilization of equipment and personnel, safety & orientation training, drug testing, quality control and R&R.
16. Contractor mark-up, profit and overhead are estimated on a percentage basis of direct and indirect costs.
17. The estimate assumes that the contractor will work seven 12 hour work days per week.
18. Direct costs include construction costs, material costs and miscellaneous costs.
19. Miscellaneous costs include CP system, SCADA, Camp construction and relocation, mining cost for materials and contractor maintenance and warehouse facilities.
20. Based on the methodology utilized the cost estimates provide a total cost that is \pm 30 %.
21. There are no Ownership costs which include project management and cost of money in the estimates.
22. There is no contingency allowance in the estimates.

MICHAEL BAKER JR., INC.

Date: 17-Jul-06

Fairbanks to Wasilla**Client: Doe Spur Gas Pipeline**

Project: Construct 20" gas P/L, two seasons

Spread No.: 1 summer work

Comments: "Level 1" Cost Estimate

Revision #3: 8/22/2006

Summary of workbook estimate data/assumptions	Class 1	Class 2	Class 3		Work week	7-12's
Pipe location class, feet	1,005,840	11088	10560		Duration	294
Pipeline length	1,027,488				Feet	1,027,488
MAOP	2,500	2,500	2,500	PSI	Productivity	3500
Class factor (ANSI)	1500	1500	1500			
Pipe yield strength	X70	X70	X70	PSI		
Pipeline diameter	20	20	20	inch		
Pipe wall thickness	0.497	0.596	0.715	inch		
Pipe weight per foot	104	124	147	pounds		
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint lengths		Double jt.	40 foot		100% 60 foot	
Pipe joints	-	joints	-	joints	17,716	joints
Valve spacing		20 miles	10 Valves			
Installation season	summer					
Hydro test pressure		PSI	Minimum		Maximum	
Terrain type	rock ditch	Tundra	Swamp	Flat/rolling	Mountains	Chop/deep ravines
	15%			35%	35%	15%

Crew summary**Direct construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	feet	1,027,488	3,500	294		7
A2	ROW clear, brush & timber	feet	1,027,488	3,500	294		29
A3	Grade ROW	feet	1,027,488	3,500	294		17
A4	Machine ditch (Rocksaw)	feet	154,123	2,000	78		8
A5	Machine ditch (backhoe)	feet	783,365	4,000	196		8
A6	Drill/blast and backhoe ditch	feet	90,000	2,500	36		24
A7	Load, haul and string pipe	feet	1,027,488	3,500	294		15
A8	Bend and set-up	feet	1,027,488	3,500	294		14
A9	Weld procedures and test welders	each	40	4	10		28
A10	Line-up, automatic	feet	1,027,488	3,500	294		32
A11	Weld, automatic	feet	1,027,488	3,500	294		36
A12	UT mainline and x-ray tie-ins	feet	1,027,488	3,500	294		11
A13	Weld repair	feet	1,027,488	3,500	294		2
A14	Coat welds & repair holidays	feet	1,027,488	3,500	294		14
A15	Bedding padding	feet	1,027,488	3,500	294		19
A16	Lower-in	feet	1,027,488	3,500	294		26
A17	Tie-ins	feet	1,027,488	3,500	294		17
A18	backfill & cleanup	feet	1,027,488	3,500	294		19
A19	Fabricate valve assemblies	each	1,920	220	9		15
A20	Install valve vault, controls & house	each	10	0.25	40		21
A21	Install valve Assembly	each	10	1.00	10		20
A22	Install bored road x-ings	each	15	0.34	45		17
A23	Install open cut road x-ings	each	20	0.50	40		25
A24	Install river & stream crossings	each	9	0.25	36		31
A25	Clean, test & dry PL	each	8	0.25	32		30
A26	Final tie-ins	LS	8	1	8		21
A27	Erosion control & seeding	acre	1,770	10	177		12
A28	Board work pad & temporary bridges	feet	1,027,488	3,500	294		13
A29	"As Builts"	feet	1,027,488	3,200	322		3
A30	Install warning signs, Mp & line markers	each	526	10	53		6
A31	SWPPP Plan	feet	1,027,488	3,500	294		10
A32			-	1			
A33			-	1			
A34			-	1			
A35			-	1			
A36			-	1			
A37			-	1			
A38			-	1			
A39			-	1			
A40			-	1			
					Total	550	

Crew summary**Indirect construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	1,027,488	2,482	414		16
A2i	Maintenance and field support	feet	1,027,488	2,482	414		32
A3i	Mobilize & demobilize equipment	feet	1,027,488	11,417	90		25
A4i	Mob & demob people	each	633	633	1		
A5i	Safety, training & Orenintation	each	633	633	1		
A6i	Drug test	each	633	633	1		
A7i	Contractor QC	feet	1,027,488	2,482	414		10
A8i	R&R	each	633	633	1		
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
						Total	83
						Grand. Total	633

MICHAEL BAKER JR., INC. 1400 west Benson Blvd., Suite 200 Anchorage, Alaska 99508 Phone: (907) 562-1399 FAX: (907) 562-9901 Client: Doe Spur Gas Pipeline Project: Construct 20' gas P/L, two seasons Spread No.: 1 summer work												COST ESTIMATE SUMMARY "LEVEL 1 - ESTIMATE" COST PER FOOT, DIRECT CONSTR. = \$ 114.75 COST PER FOOT, INDIRECT CONSTR. = \$ 35.97 COST PER FOOT, MATERIAL = \$ 144.10 COST PER FOOT, CONTRACTOR MARKUP = \$ 30.14 COST PER FOOT, TOTAL = \$ 324.97											
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight Time	Wages Over-time	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT					
A1	Survey pipeline ROW	7	294	2058	642,802	168,350	289,931	200,878	38,568	92,610	60,858	-	32,634	-	29,400	\$ 1,556,031	106						
A2	ROW clear, brush & timber	29	294	8526	2,768,139	724,976	1,214,196	865,055	166,088	383,670	2,319,513	-	1,632,700	-	-	\$ 10,074,338	6,973						
A3	Grade ROW	17	294	4998	1,706,564	446,949	725,427	533,308	102,394	224,910	2,330,244	-	2,255,686	-	5,880	\$ 8,331,363	10,112						
A4	Machine ditch (Rocksaw)	8	78	624	212,453	55,642	90,156	66,393	12,747	28,080	582,387	-	615,108	-	-	\$ 1,662,965	5,117						
A5	Machine ditch (backhoe)	8	196	1568	533,857	139,817	226,545	166,833	32,031	70,560	860,342	-	861,263	-	-	\$ 2,891,248	6,612						
A6	Drill/blast and backhoe ditch	24	36	864	269,978	70,707	123,008	84,369	16,199	38,880	237,312	-	203,162	-	270,000	\$ 1,313,816	8,513						
A7	Load, haul and string pipe	15	294	4410	1,462,074	382,917	626,573	456,904	87,724	198,450	841,134	-	775,660	-	68,000	\$ 4,899,436	3,668						
A8	Bend and set-up	14	294	4116	1,291,918	338,353	571,818	403,730	77,515	185,220	506,709	-	338,835	-	1,200	\$ 3,715,299	1,459						
A9	Weld procedures and test welders	28	10	280	83,263	21,807	38,882	26,020	4,996	12,600	20,465	-	26,095	-	100,000	\$ 46,750	1,175						
A10	Line-up, automatic	32	294	9408	2,877,966	753,739	1,298,233	899,376	172,678	423,360	908,372	-	859,862	-	-	\$ 8,193,587	3,144						
A11	Weld, automatic	36	294	10584	3,124,185	818,224	1,438,224	976,321	187,451	476,280	959,322	2,568,820	1,003,451	-	191,100	350,000	\$ 12,093,379	2,877					
A12	UT mainline and x-ray tie-ins	11	294	3234	1,062,351	278,230	380,460	331,989	63,741	145,530	197,274	17,000	43,982	132,300	1,832,000	646,634	\$ 5,131,491	95					
A13	Weld repair	2	294	588	171,355	44,878	80,580	53,549	10,281	26,460	22,344	-	33,428	-	-	\$ 14,700	\$ 457,575	60					
A14	Coat welds & repair holidays	14	294	4116	1,316,650	344,831	582,967	411,458	78,999	185,220	445,469	-	429,211	-	-	\$ 123,299	\$ 3,918,102	1,269					
A15	Bedding padding	19	294	5586	1,826,657	478,402	800,221	570,838	109,599	251,370	3,894,765	-	1,792,841	-	-	\$ 9,724,694	6,953						
A16	Lower-in	26	294	7644	2,400,980	628,817	1,086,412	750,316	144,059	343,980	1,308,594	-	1,164,946	-	50,000	\$ 7,878,104	6,332						
A17	Tie-ins	17	294	4998	1,602,665	419,738	713,079	500,839	96,160	224,910	1,288,308	-	1,259,584	-	58,800	\$ 6,164,083	6,570						
A18	backfill & cleanup	19	294	5586	1,833,819	480,277	797,540	573,076	110,029	251,370	1,442,364	-	1,385,034	-	-	\$ 6,873,509	5,845						
A19	Fabricate valve assemblies	15	9	135	40,398	10,580	18,636	12,625	2,424	6,075	11,318	-	10,700	-	1,800	\$ 114,557	1,608						
A20	Install valve vault, controls & house	21	40	840	267,226	69,986	119,414	83,509	16,034	37,800	96,820	-	124,040	-	135,000	\$ 949,829	2,924						
A21	Install valve Assembly	20	10	200	62,449	16,355	28,006	19,516	3,747	9,000	20,525	-	19,899	-	3,500	\$ 182,997	3,371						
A22	Install bored road x-ings	17	45	765	238,264	62,401	108,011	74,459	14,296	34,425	160,403	-	124,632	-	15,750	\$ 832,640	3,644						
A23	Install open cut road x-ings	25	40	1000	328,426	86,015	144,288	102,634	19,706	45,000	176,452	-	149,572	-	14,000	\$ 1,066,092	6,075						
A24	Install river & stream crossings	31	36	1116	367,399	96,222	161,136	114,814	22,044	50,220	212,004	-	204,264	-	12,600	\$ 1,240,702	10,648						
A25	Clean, test & dry PL	30	32	960	315,679	82,676	138,509	98,651	18,941	43,200	165,936	-	131,776	-	4,109,952	56,750	\$ 5,162,069	4,063					
A26	Final tie-ins	21	8	168	54,371	14,240	24,063	16,991	3,262	7,560	30,116	-	30,103	-	-	2,800	\$ 183,506	5,553					
A27	Erosion control & seeding	12	177	2124	683,376	178,976	301,778	213,558	41,003	95,580	253,730	-	218,613	-	3,059,000	\$ 5,045,612	1,529						
A28	Board work pad & temporary bridges	13	294	3822	1,220,018	319,523	544,512	381,261	73,201	171,990	1,206,870	-	687,431	-	-	\$ 4,604,804	9,382						
A29	"As Builts"	3	322	966	311,477	81,576	136,090	97,338	18,689	43,470	70,357	-	19,481	-	-	\$ 778,477	53						
A30	Install warning signs, Mp & line markers	6	53	318	100,940	26,436	44,724	31,544	6,056	14,310	21,545	-	10,669	-	7,215	\$ 263,438	393						
A31	SWPP Plan	10	294	2940	881,506	230,866	409,248	275,474	52,890	132,300	-	-	-	-	235,200	\$ 2,217,485	-						
A32		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A33		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A34		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A36		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A37		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A38		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A39		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
SUB-TOTAL, DIRECT COSTS		550	5796	94542	30,059,205	7,872,506	13,262,667	9,393,626	1,803,552	4,254,390	20,651,850	2,585,820	16,444,662	132,300	6,233,052	5,208,278	117,901,907	126,123					
A1i	Field supervision	16	414.0	6624	2,627,873	688,240	794,880	821,221	157,672	298,080	465,957	-	1,312,628	-	207,000	\$ 7,373,552	4,787						
A2i	Maintenance and field support	32	414.0	13248	4,251,465	1,113,459	1,810,240	1,328,601	255,088	596,160	3,021,993	-	1,867,678	-	144,900	\$ 14,389,584	6,987						
A3i	Mobilize & demobilize equipment	25	90.0	2250	723,600	189,511	326,095	226,128	43,416	101,250	210,195	-	184,572	-	7,660,899	18,000	\$ 9,683,666	2,988					
A4i	Mob & demob people	1.0	-	-	-	-	-	-	-	-	-	-	-	-	949,500	\$ 949,500	-						
A5i	Safety, training & Orenintation	1.0	-	-	-	-	-	-	-	-	-	-	-	-	538,050	\$ 538,050	-						
A6i	Drug test	1.0	-	-	-	-	-	-	-	-	-	-	-	-	221,550	\$ 221,550	-						
A7i	Contractor QC	10	414.0	4140	1,552,748	406,665	496,800	485,240	93,165	186,300	271,170	-	185,472	-	-	\$ 3,677,560	460						
A8i	R&R	1.0	-	-	-	-	-	-	-	-	-	-	-	-	126,600	\$ 126,600	-						
A9i		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A10i		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A11i		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A12i		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
A13i		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
SUB-TOTAL, INDIRECT COSTS		83	1336	26262	9,155,687	2,397,874	3,428,015	2,861,190	549,341	1,181,790	3,969,315	-	3,550,351	-	7,882,449	1,984,050	36,960,063	15,222					
SUBTOTAL, DIRECTS & INDIRECTS		633	7132	120804	39,214,892	10,270,380	16,690,682	12,254,817	2,352,894	5,436,180	24,621,165	2,585,820	19,995,013	132,300	14,115,501	7,192,328	\$ 154,861,969	141,345					
MATERIAL																							
CONTRACTOR MARKUP, PROFIT, OH, ETC. (20% of direct and indirect costs)																							
TOTAL COST																							
COMMENTS:																							
CONTRACT NO.																							

MICHAEL BAKER JR., INC.

Date: 17-Jul-06

Client: Doe Spur Gas Pipeline

Project: Construct 20" gas P/L, two seasons

Project. Construct 20' gas line
Spread No. 1 summer work

Spread No.: I sum

Work sheet. Mat I

Note: pipe footage increased 2.5% for waste and elevation changes

Class 1, ft.	1,030,986
Class 2, ft.	11,365
Class 3, ft.	10,824

COMMENTS:

MICHAEL BAKER JR., INC.	Date:	17-Jul-06	
1400 west Benson Blvd., Suite 200	Loc. class 1	1,005,840 feet	
Anchorage, Alaska 99508	Loc. class 2	11,088 feet	
Phone: (907) 562-1399 FAX: (907) 562-9901	Loc. class 3	10,560 feet	
Fairbanks to Wasilla	total length	1,027,488 feet	
Client: Doe Spur Gas Pipeline	total length	194.6 miles	
Project: Construct 20" gas P/L, two seasons	MAOP	2500 psi	
Spread No.: 1 summer work	pipe dia.	20 inches	
ANSI 1500	API 5LX	70,000 psi	
	Class 1 wt/ft.	104 pounds	
	Class 1 wt/ft.	124 miles	
	Class 1 wt/ft.	147 feet	
	Duration	294 shifts	
COST SUMMARY	Revision #3: 8/22/2006		
CONSTRUCTION COSTS			
UNIT	DESCRIPTION	(\$m)	(\$)
1	Direct Contractor Construction Costs	\$ 117,902	\$ 114.75
2	Indirect Contractor Construction Costs	\$ 36,960	\$ 35.97
	Sub-total Contractor Construction Costs	\$ 154,862	\$ 150.72
3	Contractor Markup (20% overhead and profit)		
	Sub-total Contractor Markup	\$ 30,972	\$ 30.14
	Total Contractor Costs	\$ 185,834	\$ 180.86
MATERIAL COSTS			
1	Material (includes freight)		
	Total Material Costs	\$ 148,064	\$ 144.10
MISCELLANEOUS COSTS			
1	Cathodic system protection (allowance, \$18,000 per mile)	\$ 18,000	\$ 3,503
2	SCADA and Communications (allowance, \$3.00 per foot)	\$ 3.00	\$ 3,082
3	Camp Rental, mobilization, setup, & demobilize (subcontract, LS)	LS	12,000
4	Move camp (subcontract LS)	LS	2,500
5	Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @ 4.30	\$ 4.30	\$ 4,603
6	Air freight supplies, etc @ \$25.00 per cwt	29,400	\$ 735
7	Open pits, mine and process materials, cubic yards at \$12.50 per cubic yard	350,000	\$ 4,375
8	Contractor maintenance and warehouse facilities 300 days @ \$1300 per day	\$ 1,300	\$ 390
	Total Miscellaneous Costs	\$ 31,188	\$ 30.35
PROJECT INDIRECT COSTS			
	Cost per ft.		
1	Detailed Engineering	\$ 19.28	\$ 19,810
2	Surveying	\$ 3.00	\$ 3,082
3	Permitting	\$ 3.74	\$ 3,843
4	Quality Control	\$ 11.61	\$ 11,929
5	Project Management, etc.	\$ 25.48	\$ 26,180
6	Puchasing and expediting	\$ 3.74	\$ 3,843
	Total Project Indirect Costs	\$ 68,688	\$ 66.85
	SUB-TOTAL, TOTAL PIPELINE COSTS	\$ 433,774	\$ 422.17
OWNERSHIP COSTS			
	Project management	\$ -	\$ -
1	Cost of Money	\$ -	\$ -
2	Total Ownership Costs	\$ -	\$ -
CONTINGENCY ALLOWANCE			
	Contingency		
1	Total Contingency cost		\$ -
	TOTAL SUMMER CONSTRUCTION PIPELINE COSTS	\$ 433,774	\$ 422.17
	COST PER DIA.- INCH MILE \$	\$ 111,453	

MICHAEL BAKER JR., INC.						Date: 17-Jul-06	
Delta Junction to Glennallen			Comments: "Level 1" Cost Estimate Revised #2: 8/22/2006				
Client: Doe Spur Gas Pipeline							
Project: Construct 20" gas P/L, two seasons							
Spread No.: 1 summer work							
Summary of workbook estimate data/assumptions	Class 1	Class 2	Class 3		Work week Duration	7-12's	
Pipe location class, feet	485,760				Duration	116	
Pipeline length	485,760				Feet	485,760	
MAOP	2,500	2,500	2,500	PSI	Productivity	4200	
Class factor (ANSI)	1500	1500	1500				
Pipe yield strength	X70	X70	X70	PSI			
Pipeline diameter	20	20	20	inch			
Pipe wall thickness	0.497	0.596	0.715	inch			
Pipe weight per foot	104	124	147	pounds			
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy				
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy				
Pipe joint lengths		Double jt.	40 foot		100% 60 foot		
Pipe joints	- joints	- joints			8,376 joints		
Valve spacing	20 miles		5 Valves				
Installation season	summer						
Hydro test pressure		PSI	Minimum		Maximum		
Terrain type	rock ditch	Tundra	Swamp	Flat/rolling	Mountains	Chop/deep ravines	
	15%			35%	35%	15%	
Crew summary							
Direct construction crews							
Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	foot	485,760	4,200	116		7
A2	ROW clear, brush & timber	foot	485,760	4,200	116		29
A3	Grade ROW	foot	485,760	4,200	116		17
A4	Machine ditch (Rocksaw)	foot	72,864	2,000	37		8
A5	Machine ditch (backhoe)	foot	322,896	5,000	65		8
A6	Drill/blast and backhoe ditch	foot	90,000	2,500	36		24
A7	Load, haul and string pipe	foot	485,760	4,200	116		15
A8	Bend and set-up		31	1	4,200	1	14
A9	Weld procedures and test welders	each	40	4	10		28
A10	Line-up, automatic	foot	485,760	4,200	116		32
A11	Weld, automatic	foot	485,760	4,200	116		36
A12	UT mainline and x-ray tie-ins	foot	485,760	4,200	116		3
A13	Weld repair	foot	485,760	4,200	116		2
A14	Coat welds & repair holidays	foot	485,760	4,200	116		14
A15	Bedding padding	foot	485,760	4,200	116		19
A16	Lower-in	foot	485,760	4,200	116		26
A17	Tie-ins	foot	485,760	4,200	116		17
A18	backfill & cleanup	foot	485,760	4,200	116		19
A19	Fabricate valve assemblies	dia. Inch	960	220.00	5		15
A20	Install valve vault, controls & house	each	5	0.25	20		21
A21	Install valve Assembly	each	5	1.00	5		20
A22	Install bored road x-ings	each	10	0.34	30		17
A23	Install open cut road x-ings	each	6	0.50	12		25
A24	Install river & stream crossings	each	10	0.25	40		31
A25	Clean, test & dry PL	each	7	0.25	28		30
A26	Final tie-ins	LS	7	1	7		21
A27	Erosion control & seeding	acre	837	10	84		12
A28	Board work pad & temporary bridges	feet	485,760	4,200	116		13
A29	Install warning signs, Mp & line markers	each	249	10	25		6
A30	SWPP Plan	feet	485,760	4,200	116		13
A31	"As built"	feet	485,760	3,800	128		3
A32	Pipeline Crossings	each	3	1	3		
A33			-	1			
A34			-	1			
A35			-	1			
A36			-	1			
A37			-	1			
A38			-	1			
A39			-	1			
A40			-	1			
						Total 545	

data

Crew summary

Indirect construction crews

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	485,760	2,358	206		16
A2i	Maintenance and field support	feet	485,760	2,612	186		32
A3i	Mobilize & demobilize equipment	feet	485,760	5,397	90		25
A4i	Mob & demob people	each	628	63	1		
A5i	Safety, training & Orenintation	each	628	63	10		
A6i	Drug test	each	628	63	10		
A7i	Contractor QC	feet	485,760	3,017	161		10
A8i	R&R	each	628	628	1		
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
							Total 83
							Grand. Total 628

MICHAEL BAKER JR., INC. 1400 West Benson Blvd., Suite 200 Anchorage, Alaska 99508 Phone: (907) 562-1399 FAX: (907) 562-9901 Client: Doe Spur Gas Pipeline Project: Construct 20" gas P/L, two seasons Spread No.: 1 summer work												COST ESTIMATE SUMMARY Date: 17-Jul-06				"LEVEL 1 - ESTIMATE"				
																COST PER FOOT, DIRECT CONSTR. = COST PER FOOT, INDIRECT CONSTR. = COST PER FOOT, MATERIAL = COST PER FOOT, CONTRACTOR MARKUP = COST PER FOOT, TOTAL =				
																\$ 101.81	\$48.27	\$143.64	\$30.02	\$323.74
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight Time	Wages Overtime	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT		
A1	Survey pipeline ROW	7	116	812	253,622	66,424	114,395	79,258	15,217	36,540	24,012	-	12,876	-	-	11,600	\$ 613,944	106		
A2	ROW clear, brush & timber	29	116	3364	1,092,191	286,045	479,071	341,314	65,531	151,380	915,182	-	644,194	-	-	-	\$ 3,974,909	6,973		
A3	Grade ROW	17	116	1972	673,338	176,347	286,223	210,421	40,400	88,740	919,416	-	889,998	-	-	-	2,320	\$ 3,287,204	10,112	
A4	Machine ditch (Rocksaw)	8	37	296	100,779	26,394	42,766	31,494	6,047	13,320	276,261	-	291,782	-	-	-	-	\$ 788,842	5,117	
A5	Machine ditch (backhoe)	8	65	520	177,044	46,368	75,130	55,327	10,623	23,400	285,318	-	285,623	-	-	-	-	\$ 958,832	6,612	
A6	Drill/blast and backhoe ditch	24	36	864	269,978	70,707	123,008	84,369	16,199	38,880	237,312	-	203,162	-	-	-	270,000	\$ 1,313,616	8,513	
A7	Load, haul and string pipe	15	116	1740	576,873	151,083	247,219	180,275	34,612	78,300	331,876	-	306,043	-	-	-	68,000	\$ 1,974,281	3,668	
A8	Bend and set-up	14	1	14	4,394	1,151	1,945	1,373	264	630	1,724	-	1,153	-	-	-	1,200	\$ 13,833	1,459	
A9	Weld procedures and test welders	28	10	280	83,263	21,807	38,882	26,020	4,996	12,600	20,465	-	26,095	-	100,000	46,750	\$ 380,878	1,175		
A10	Line-up, automatic	32	116	3712	1,135,524	297,394	512,228	354,856	68,131	167,040	358,405	-	339,265	-	-	-	-	\$ 3,232,844	3,144	
A11	Weld, automatic	36	116	4176	1,232,672	322,837	567,463	385,215	73,960	187,920	378,508	1,214,520	395,920	-	75,400	350,000	\$ 5,184,414	2,877		
A12	UT mainline and x-ray tie-ins	3	116	348	114,033	29,865	41,426	35,636	6,842	15,660	75,400	17,000	16,658	34,800	648,000	291,485	\$ 1,326,804	93		
A13	Weld repair	2	116	232	67,609	17,707	31,793	21,128	4,057	10,440	8,816	-	13,189	-	-	-	5,800	\$ 180,540	60	
A14	Coat welds & repair holidays	14	116	1624	519,494	136,056	230,014	162,344	31,170	73,080	175,763	-	169,348	-	-	-	58,291	\$ 1,555,561	1,269	
A15	Bedding padding	19	116	2204	720,722	188,757	315,733	225,229	43,243	99,180	1,536,710	-	707,380	-	-	-	-	\$ 3,836,954	6,953	
A16	Lower-in	26	116	3016	947,326	248,105	428,652	296,043	56,840	135,720	516,316	-	459,638	-	-	-	50,000	\$ 3,138,640	6,332	
A17	Tie-ins	17	116	1972	632,344	165,611	281,351	197,610	37,941	88,740	508,312	-	496,979	-	-	-	23,200	\$ 2,432,087	6,570	
A18	backfill & cleanup	19	116	2204	723,548	189,497	314,676	226,112	43,413	99,180	569,096	-	546,476	-	-	-	-	\$ 2,711,997	5,845	
A19	Fabricate valve assemblies	15	5	75	22,444	5,878	10,354	7,014	1,347	3,375	6,288	-	5,945	-	-	-	1,000	\$ 63,643	1,608	
A20	Install valve vault, controls & house	21	20	420	133,613	34,993	59,707	41,755	8,017	18,900	48,410	-	62,020	-	-	-	67,500	\$ 474,915	2,924	
A21	Install valve Assembly	20	5	100	31,225	8,178	14,003	9,758	1,873	4,500	10,263	-	9,950	-	-	-	1,750	\$ 91,498	3,371	
A22	Install bored road x-ings	17	30	510	158,843	41,601	72,007	49,639	9,531	22,950	106,935	-	83,088	-	-	-	10,500	\$ 555,094	3,644	
A23	Install open cut road x-ings	25	12	300	98,528	25,804	43,286	30,790	5,912	13,500	52,936	-	44,872	-	-	-	4,200	\$ 319,828	6,075	
A24	Install river & stream crossings	31	40	1240	408,221	106,913	179,040	127,571	24,493	55,800	235,560	-	226,960	-	-	-	14,000	\$ 1,378,558	10,648	
A25	Clean, test & dry PL	30	28	840	276,219	72,342	121,195	86,320	16,573	37,800	145,194	-	115,304	-	2,006,400	51,750	\$ 2,929,096	4,063		
A26	Final tie-ins	21	7	147	47,574	12,460	21,055	14,867	2,854	6,615	26,352	-	26,340	-	-	-	2,450	\$ 160,568	5,553	
A27	Erosion control & seeding	12	84	1008	324,314	84,938	143,217	101,349	19,459	45,360	120,414	-	103,748	-	-	-	1,472,900	\$ 2,415,699	1,529	
A28	Board walk pad & temporary bridges	13	116	1508	481,368	126,070	214,841	150,429	28,882	67,860	476,180	-	271,231	-	-	-	-	\$ 1,816,862	9,382	
A29	Install warning signs, Mp & line markers	6	25	150	47,613	12,470	21,096	14,879	2,857	6,750	10,163	-	5,033	-	-	-	-	\$ 120,860	393	
A30	SWPP Plan	13	116	1508	481,368	126,070	214,841	150,429	28,882	67,860	476,180	-	271,231	-	-	-	92,800	\$ 1,909,662	9,382	
A31	"As built"	3	128	384	123,817	32,428	54,098	38,693	7,429	17,280	-	-	-	-	-	-	-	\$ 273,745	-	
A32	Pipeline Crossings	19	3	57	18,330	4,801	8,163	5,728	1,100	2,565	-	-	-	-	-	-	-	\$ 40,686	-	
SUB-TOTAL, DIRECT COSTS		564	2276	37597	11,978,229	3,137,098	5,308,878	3,743,247	718,694	1,691,865	8,853,764	1,231,520	7,031,501	34,800	2,829,800	2,897,496	49,456,891	135,450		
A33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SUB-TOTAL, INDIRECT COSTS		83	674	13108	4,545,114	1,190,365	1,728,111	1,420,367	272,707	589,860	1,905,210	-	1,748,945	-	8,386,222	1,661,900	23,448,803	15,222		
SUBTOTAL, DIRECTS & INDIRECTS		647	2950	50705	16,523,344	4,327,464	7,036,990	5,163,614	991,401	2,281,725	10,758,974	1,231,520	8,780,446	34,800	11,216,022	4,559,396	72,905,694	150,672		
MATERIAL																\$ 69,773,485				
CONTRACTOR MARKUP, PROFIT, OH, ETC. (20% of direct and indirect costs)																14,581,139				
TOTAL COST																\$ 157,260,318				
COMMENTS:																				
Sum of all rows above																				
CONTRACTOR AND 20 inch-Delta to Glennallen.xls																				
sheet: sprd. summer work																				
Page 3																				
9/15/2006																				

COMMENTS:

MICHAEL BAKER JR., INC.	Date:	17-Jul-06
1400 West Benson Blvd., Suite 200	Loc. class 1	485,760 feet
Anchorage, Alaska 99508	Loc. class 2	- feet
Phone: (907) 562-1399 FAX: (907) 562-9901	Loc. class 3	- feet
Delta Junction to Glennallen	total length	485,760 feet
Client: Doe Spur Gas Pipeline	total length	92.0 miles
Project: Construct 20" gas P/L, two seasons	MAOP	2500 psi
Spread No.: 1 summer work	pipe dia.	20 inches
	API 5LX	70,000 psi
	Class 1 wt/ft.	104 pounds
	Class 1 wt/ft.	124 pounds
	Class 1 wt/ft.	147 pounds
	Duration	116 shifts
	Revised #2: 8/22/2006	
COST SUMMARY	(\$m)	(\$)
CONSTRUCTION COSTS	Total Cost	Cost/ft.
UNIT	DESCRIPTION	
1	Direct Contractor Construction Costs	\$ 49,457 \$ 101.81
2	Indirect Contractor Construction Costs	\$ 23,449 \$ 48.27
	Sub-total Contractor Construction Costs	\$ 72,906 \$ 150.09
3	Contractor Markup (20% overhead and profit)	
	Sub-total Contractor Markup	\$ 14,581 \$ 30.02
	Total Contractor Costs	\$ 87,487 \$ 180.10
MATERIAL COSTS		
1	Material (includes freight)	
	Total Material Costs	\$ 69,773 \$ 143.64
MISCELLANEOUS COSTS		
1	Cathodic system protection (allowance, \$18,000 per mile)	\$ 18,000 \$ 1,656 \$ 3.41
2	SCADA and Communications (allowance, \$3.00 per foot)	\$ 3.00 \$ 1,457 \$ 3.00
3	Camp Rental, mobilization, setup, & demobilize (subcontract, LS)	LS \$ 12,000 \$ 24.70
4	Move camp (subcontract LS)	LS \$ - \$ -
5	Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @4.30	\$ 4.30 \$ 2,162 \$ 4.45
6	Air freight supplies, etc @ \$25.00 per cwt	11,600 \$ 290 \$ 0.60
7	Open pits, mine and process materials, cubic yards at \$12.50 per cubic yard	350,000 \$ 4,375 \$ 9.01
8	Contractor mainenance and warehouse facilities 190 days @ \$3100 per day	1,300 \$ 247 \$ 0.51
	Total Miscellaneous Costs	\$ 22,188 \$ 45.68
PROJECT INDIRECT COSTS	Cost per ft.	
1	Detailed Engineering	\$ 19.28 \$ 9,365 \$ 19.28
2	Surveying	\$ 3.00 \$ 1,457 \$ 3.00
3	Permitting	\$ 3.74 \$ 1,817 \$ 3.74
4	Quality Control	\$ 11.61 \$ 5,640 \$ 11.61
5	Project Management, etc.	\$ 25.48 \$ 12,377 \$ 25.48
6	Puchasing and expediting	\$ 3.74 \$ 1,817 \$ 3.74
	Total Project Indirect Costs	\$ 32,473 \$ 66.85
SUB-TOTAL, TOTAL PIPELINE COSTS		\$ 211,921 \$ 436.27
OWNERSHIP COSTS		
1	Project management	\$ - \$ -
2	Cost of Money	\$ - \$ -
	Total Ownership Costs	\$ - \$ -
CONTINGENCY ALLOWANCE		
1	Contingency	\$ -
	Total Contingency cost	\$ -
TOTAL SUMMER CONSTRUCTION PIPELINE COSTS		\$ 211,921 \$ 436.27
COST PER DIA.- INCH MILE \$		\$ 115,174

Glennallen to Palmer-Road Route

Comments: "Level 1" Estimate

Client: Doe Spur Gas Pipeline

Revision #2: 8/22/2006

Project: Construct 20" gas P/L, one season

Spread No.: 1 summer work

Summary of workbook estimate data/assumptions	Class 1	Class 2	Class 3		Work week	7-12's
Pipe location class, feet	328,944	67,584		Duration		114
Pipeline length	396,528			Feet	396,528	
MAOP	2,500	2,500	2,500	PSI		Productivity
Class factor (ANSI)	1500	1500	1500			3500
Pipe yield strength	X70	X70	X70	PSI		
Pipeline diameter	20	20	20	inch		
Pipe wall thickness	0.497	0.596	0.715	inch		
Pipe weight per foot	104	124	147	pounds		
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint lengths		Double jt.	40 foot		100% 60 foot	
Pipe joints	-	joints	-	joints	6,837	joints
Valve spacing		20 miles	4 Valves			
Installation season	summer					
Hydro test pressure		PSI	Minimum		Maximum	
Terrain type	rock ditch	Tundra	Swamp	Flat/rolling	Mountains	Chop/deep ravines
	15%			35%	35%	15%

Crew summary**Direct construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	feet	396,528	3,500	114		7
A2	ROW clear, brush & timber	feet	396,528	3,500	114		29
A3	Grade ROW	feet	396,528	3,500	114		17
A4	Machine ditch (Rocksaw)	feet	59,479	2,000	30		8
A5	Machine ditch (backhoe)	feet	247,049	5,000	50		8
A6	Drill/blast and backhoe ditch	feet	90,000	2,500	36		24
A7	Load, haul and string pipe	feet	396,528	3,500	114		15
A8	Bend and set-up	feet	396,528	3,500	114		14
A9	Weld procedures and test welders	each	40	4	10		28
A10	Line-up, automatic	feet	396,528	3,500	114		32
A11	Weld, automatic	feet	396,528	3,500	114		36
A12	UT mainline and x-ray tie-ins	feet	396,528	3,500	114		11
A13	Weld repair	feet	396,528	3,500	114		2
A14	Coat welds & repair holidays	feet	396,528	3,500	114		14
A15	Bedding padding	feet	396,528	3,500	114		19
A16	Lower-in	feet	396,528	3,500	114		26
A17	Tie-ins	feet	396,528	3,500	114		17
A18	backfill & cleanup	feet	396,528	3,500	114		19
A19	Fabricate valve assemblies	Dia. Inch	768	220.00	4		15
A20	Install valve vault, controls & house	each	4	0.25	16		21
A21	Install valve Assembly	each	4	1.00	4		20
A22	Install bored road x-ings	each	6	0.34	18		17
A23	Install open cut road x-ings	each	11	0.50	22		25
A24	Install river & stream crossings	each	10	0.25	40		31
A25	Clean, test & dry PL	each	7	0.25	28		30
A26	Final tie-ins	LS	7	1	7		21
A27	Erosion control & seeding	acre	683	10	69		12
A28	Board work pad & temporary bridges	feet	396,528	3,500	114		13
A29	"As built"	feet	396,528	3,000	133		3
A30	Install warning signs, Mp & line markers	each	204	10	21		6
A31	SWPP plan	feet	396,528	3,500	114		10
A32			-	1			
A33			-	1			
A34			-	1			
A35			-	1			
A36			-	1			
A37			-	1			
A38			-	1			
A39			-	1			
A40			-	1			
				Total	550		

Crew summary**Indirect construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	396,528	1,944	204		16
A2i	Maintenance and field support	feet	396,528	2,155	184		32
A3i	Mobilize & demobilize equipment	feet	396,528	4,406	90		25
A4i	Mob & demob people	each	633	633	1		
A5i	Safety, training & Orenintation	each	633	633	1		
A6i	Drug test	each	633	633	1		
A7i	Contractor QC	feet	396,528	2,494	159		10
A8i	R&R	each	633	633	1		
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
						Total	83
						Grand. Total	633

<p>MICHAEL BAKER JR., INC. 1400 West Benson Blvd., Suite 200 Anchorage, Alaska 99508 Phone: (907) 562-1399 FAX: (907) 562-9901 Client: Doe Spur Gas Pipeline Project: Construct 20" gas P/L, one season Spread No.: 1 summer work</p>												<p>COST ESTIMATE SUMMARY</p> <p>Date: 17-Jul-06</p> <p>"LEVEL 1 - ESTIMATE"</p>									
										<p>COST PER FOOT, DIRECT CONSTR. = \$ 123.44 COST PER FOOT, INDIRECT CONSTR. = \$ 57.58 COST PER FOOT, MATERIAL = \$ 148.35 COST PER FOOT, CONTRACTOR MARKUP = \$ 36.21 COST PER FOOT, TOTAL = \$ 365.59</p>											
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight Time	Wages Overtime	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT			
A1	Survey pipeline ROW	7	114	798	249,250	65,278	112,422	77,892	14,955	35,910	23,598	-	12,654	-	11,400	\$ 603,359	106				
A2	ROW clear, brush & timber	29	114	3306	1,073,360	281,113	470,811	335,430	64,402	148,770	899,403	-	633,088	-	-	\$ 3,906,376	6,973				
A3	Grade ROW	17	114	1938	661,729	173,307	281,288	206,793	39,704	87,210	903,564	-	874,654	-	-	\$ 3,230,528	10,112				
A4	Machine ditch (Rocksaw)	8	30	240	81,713	21,401	34,675	25,536	4,903	10,800	223,995	-	236,580	-	-	\$ 639,602	5,117				
A5	Machine ditch (backhoe)	8	50	400	136,188	35,668	57,792	42,559	8,171	18,000	219,475	-	219,710	-	-	\$ 737,563	6,612				
A6	Drill/blast and backhoe ditch	24	36	864	269,978	70,707	123,008	84,369	16,199	38,880	237,312	-	203,162	-	-	\$ 270,000	1,313,616	8,513			
A7	Load, haul and string pipe	15	114	1710	566,927	148,478	242,957	177,167	34,016	76,950	326,154	-	300,766	-	-	\$ 68,000	1,941,414	3,668			
A8	Bend and set-up	14	114	1596	500,948	131,198	221,725	156,548	30,057	71,820	196,479	-	131,385	-	-	\$ 1,200	1,441,361	1,459			
A9	Weld procedures and test welders	28	10	280	83,263	21,807	38,882	26,020	4,996	12,600	20,465	-	26,095	-	100,000	\$ 46,750	380,878	1,175			
A10	Line-up, automatic	32	114	3648	1,115,946	292,266	503,397	348,738	66,957	164,160	352,226	-	333,416	-	-	\$ 3,177,105	3,144				
A11	Weld, automatic	36	114	4104	1,211,419	317,271	557,679	378,573	72,685	184,680	371,982	991,365	389,093	-	74,100	350,000	\$ 4,898,847	2,877			
A12	UT mainline and x-ray tie-ins	11	114	1254	411,932	107,885	147,525	128,731	24,716	56,430	74,100	17,000	16,370	51,300	752,000	242,714	\$ 2,030,703	93			
A13	Weld repair	2	114	228	66,444	17,402	31,245	20,764	3,987	10,260	8,664	-	12,962	-	-	\$ 5,700	177,427	60			
A14	Coat welds & repair holidays	14	114	1596	510,538	133,710	226,048	159,545	30,632	71,820	172,733	-	166,429	-	-	\$ 47,583	1,519,038	1,269			
A15	Bedding padding	19	114	2166	708,296	185,503	310,290	221,345	42,498	97,470	1,510,215	-	695,183	-	-	\$ 3,770,800	6,953				
A16	Lower-in	26	114	2964	930,992	243,827	421,262	290,939	55,860	133,380	507,414	-	451,714	-	-	\$ 50,000	3,085,387	6,332			
A17	Tie-ins	17	114	1938	621,441	162,755	276,500	194,203	37,286	87,210	499,548	-	488,410	-	-	\$ 22,800	2,390,155	6,570			
A18	backfill & cleanup	19	114	2166	711,073	186,230	309,250	222,213	42,664	97,470	559,284	-	537,054	-	-	\$ 2,665,238	5,845				
A19	Fabricate valve assemblies	15	4	60	17,955	4,702	8,283	5,611	1,077	2,700	5,030	-	4,756	-	-	\$ 800	50,914	1,608			
A20	Install valve vault, controls & house	21	16	336	106,890	27,995	47,766	33,404	6,413	15,120	38,728	-	49,616	-	-	\$ 54,000	379,932	2,924			
A21	Install valve Assembly	20	4	80	24,980	6,542	11,202	7,806	1,499	3,600	8,210	-	7,960	-	-	\$ 1,400	73,199	3,371			
A22	Install bored road x-ings	17	18	306	95,306	24,961	43,204	29,783	5,718	13,770	64,161	-	49,853	-	-	\$ 6,300	333,056	3,644			
A23	Install open cut road x-ings	25	22	550	180,634	47,308	79,358	56,449	10,838	24,750	97,049	-	82,265	-	-	\$ 7,700	586,351	6,075			
A24	Install river & stream crossings	31	40	1240	408,221	106,913	179,040	127,571	24,493	55,800	235,560	-	226,960	-	-	\$ 14,000	1,378,558	10,648			
A25	Clean, test & dry PL	30	28	840	276,219	72,342	121,195	86,320	16,573	37,800	145,194	-	115,304	-	2,006,400	\$ 51,750	2,929,096	4,063			
A26	Final tie-ins	21	7	147	47,574	12,460	21,055	14,867	2,854	6,615	26,352	-	26,340	-	-	\$ 2,450	160,568	5,553			
A27	Erosion control & seeding	12	69	828	266,401	69,770	117,642	83,251	15,984	37,260	98,912	-	85,222	-	-	\$ 1,211,100	1,985,542	1,529			
A28	Board work pad & temporary bridges	13	114	1482	473,068	123,897	211,137	147,836	28,384	66,690	467,970	-	266,555	-	-	\$ 91,200	1,876,736	9,382			
A29	"As built"	3	133	399	128,654	33,694	56,211	40,205	7,719	17,955	29,061	-	8,047	-	-	\$ 321,545	53				
A30	Install warning signs, Mp & line markers	6	21	126	39,995	10,475	17,721	12,499	2,400	5,670	8,537	-	4,227	-	-	\$ 2,960	104,482	393			
A31	SWPP plan	10	114	1140	341,808	89,520	158,688	106,817	20,509	51,300	-	-	-	-	-	\$ 91,200	859,841	-			
SUB-TOTAL, DIRECT COSTS		550	2312	38730	12,319,140	3,226,383	5,439,260	3,849,783	739,148	1,742,850	8,331,372	1,008,365	6,655,828	51,300	2,932,500	2,653,287	48,949,217	126,121			
A41	Field supervision	16	204.0	3264	1,294,894	339,133	391,680	404,660	77,694	146,880	229,602	-	646,802	-	-	\$ 102,000	3,633,345	4,787			
A21	Maintenance and field support	32	184.0	5888	1,889,540	494,871	804,551	590,489	113,372	264,960	1,343,108	-	830,079	-	-	\$ 64,400	6,395,371	6,987			
A31	Mobilize & demobilize equipment	25	90.0	2250	723,600	189,511	326,095	226,128	43,416	101,250	210,195	-	184,572	-	7,660,791	\$ 18,000	9,683,558	2,988			
A41	Mob & demob people	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ 949,500	949,500	-			
A51	Safety, training & Orientation	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ 538,050	538,050	-			
A61	Drug test	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ 221,550	221,550	-			
A71	Contractor QC	10	159.0	1590	596,345	156,183	190,800	186,360	35,781	71,550	104,145	-	71,232	-	-	\$ 1,412,396	460				
A81	R&R	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
A91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
A10i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
A11i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
A12i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
A13i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	-	-			
SUB-TOTAL, INDIRECT COSTS		83	641	12992	4,504,380	1,179,697	1,713,126	1,407,637	270,263	584,640	1,887,050	-	1,732,686	-	7,882,341	1,671,950	22,833,769	15,222			
SUBTOTAL, DIRECTS & INDIRECTS		633	2953	51722	16,823,520	4,406,080	7,152,386	5,257,420	1,009,411	2,327,490	10,218,422	1,008,365	51,300	10,814,841	4,325,237	\$ 71,782,986	141,343				
MATERIAL																					
CONTRACTOR MARKUP, PROFIT, OH, ETC. (20% of direct and indirect costs)																					
TOTAL COST																					
COMMENTS:																					
CONTRACT NO.																					

MICHAEL BAKER JR., INC.

1400 West Benson Blvd., Suite 200
Anchorage, Alaska 99508
Client: Doe Spur Gas Pipeline
Project: Construct 20" gas P/L, one season
Spread No.: 1 summer work
Work sheet: Mat1
Identity: Material costs
Note: pipe footage increased 2.5% for waste

Date: 17-Jul-06

COMMENTS:

Cost Summary

MICHAEL BAKER JR., INC.	Date:	17-Jul-06	
1400 West Benson Blvd., Suite 200	Loc. class 1	328,944 feet	
Anchorage, Alaska 99508	Loc. class 2	67,584 feet	
Phone: (907) 562-1399 FAX: (907) 562-9901	Loc. class 3	- feet	
Glennallen to Palmer-Road Route	total length	396,528 feet	
Client: Doe Spur Gas Pipeline	total length	75.1 miles	
Project: Construct 20" gas P/L, one season	MAOP	2500 psi	
Spread No.: 1 summer work	pipe dia.	20 inches	
	API 5LX	70,000 psi	
	Class 1 wt/ft.	104 pounds	
	Class 1 wt/ft.	124 pounds	
	Class 1 wt/ft.	147 pounds	
	Duration	114 shifts	
COST SUMMARY	Revision #2: 8/22/2006		
CONSTRUCTION COSTS	(\$m)	(\$)	
UNIT	DESCRIPTION	Total Cost	Cost/ft.
1	Direct Contractor Construction Costs	\$ 48,949	\$ 123.44
2	Indirect Contractor Construction Costs	\$ 22,834	\$ 57.58
	Sub-total Contractor Construction Costs	\$ 71,783	\$ 181.03
3	Contractor Markup (20% overhead and profit)		
	Sub-total Contractor Markup	\$ 14,357	\$ 36.21
	Total Contractor Costs	\$ 86,140	\$ 217.23
MATERIAL COSTS	(\$m)	(\$)	
1	Material (includes freight)	\$ 58,826	\$ 148.35
	Total Material Costs		
MISCELLANEOUS COSTS	(\$m)	(\$)	
1	Cathodic system protection (allowance, \$18,000 per mile)	\$ 18,000	\$ 1,352
2	SCADA and Communications (allowance, \$3.00 per foot)	\$ 3.00	\$ 1,190
3	Camp Rental, mobilization, setup, & demobilize (subcontract, LS)	LS	12,000
4	Move camp (subcontract LS)	LS	-
5	Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @4.30	\$ 4.30	\$ 1,823
6	Air freight supplies, etc @ \$25.00 per cwt	11,400	\$ 285
7	Open pits, mine and process materials, cubic yards at \$12.50 per cubic yard	350,000	\$ 4,375
8	Contractor maintenance and warehouse facilities @ 140 days @ \$3100 per dayh	1,300	\$ 182
		\$	-
		\$	-
		\$	-
		\$	-
	Total Miscellaneous Costs	\$ 21,207	\$ 53.48
PROJECT INDIRECT COSTS	Cost per ft.	(\$)	
1	Detailed Engineering	\$ 19.28	\$ 7,645
2	Surveying	\$ 3.00	\$ 1,190
3	Permitting	\$ 3.74	\$ 1,483
4	Quality Control	\$ 11.61	\$ 4,604
5	Project Management, etc.	\$ 25.48	\$ 10,104
6	Puchasing and expediting	\$ 3.74	\$ 1,483
	Total Project Indirect Costs	\$ 26,508	\$ 66.85
SUB-TOTAL, TOTAL PIPELINE COSTS	(\$m)	(\$)	
		\$ 192,680	\$ 485.92
OWNERSHIP COSTS	(\$m)	(\$)	
1	Project management	\$ -	\$ -
2	Cost of Money	\$ -	\$ -
	Total Ownership Costs	\$ -	\$ -
CONTINGENCY ALLOWANCE	(\$m)	(\$)	
1	Contingency		
	Total Contingency cost		\$ -
TOTAL SUMMER CONSTRUCTION PIPELINE COSTS	(\$m)	(\$)	
		\$ 192,680	\$ 485.92

Cost Summary

COST PER DIA.- INCH MILE \$ \$ 128,282

MICHAEL BAKER JR., INC.

Date: 16-Jul-06

Fairbanks to Wasilla**Client: Doe Spur Gas Pipeline**

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

Comments: "Level 1" Cost Estimate

Revision # 3: 8/22/2006

Summary of workbook estimate data/assumptions	Class 1 670,560	Class 2	Class 3	Work week Duration	7-12's 160
Pipeline location class				Feet	670,560
Pipeline length	670,560 feet			Production	4,200
MAOP	2,500 PSI				
Class (ANSI)	1500				
Pipe yield strength	70,000 PSI				
Pipeline diameter	20 inch				
Pipe wall thickness	0.497				
Pipe weight per foot	104 pounds				
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy		
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy		
Pipe joint lengths	Double jt.	40 foot +/-		100% 60 foot +/-	
Pipe joints	- joints	- joints		11,562 joints	
Valve spacing	20 miles	7			
Installation season	Winter				
Hydro test pressure (high pressure = 96% of SMYS)	PSI	Minimum 3,125	Maximum	3,338	
Terrain type	rock	Rolling	F/R/swamp	Flat/rolling	Mountains/rolling
		85%		15%	Rolling/choppy

Crew summary**Direct construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	feet	670,560	4,200	160		9
A2	ROW clear, brush & small timber	feet	670,560	4,200	160		19
A3	Construct ice/snow work pad	feet	670,560	4,200	160		21
A4	Maintain ice/snow work pad	feet	670,560	4,200	160		9
A5	Machine ditch (Rocksaw)	feet	603,504	4,200	144		15
A6	Drill/blast and backhoe ditch	feet	67,056	2,000	34		11
A7	Load, haul and string pipe	feet	670,560	4,200	160		15
A8	Bend and set-up	feet	670,560	4,200	160		14
A9	Weld procedures and test welders	LS	1	0.1	10		28
A10	Line-up, manual	feet	670,560	4,200	160		35
A11	Weld, manual	feet	670,560	4,200	160		34
A12	UT mainline and x-ray tie-ins	feet	670,560	4,200	160		10
A13	Weld repair	feet	670,560	4,200	160		2
A14	Coat welds & repair holidays	feet	670,560	4,200	160		21
A15	Bedding padding	feet	670,560	4,200	160		19
A16	Lower-in	feet	670,560	4,200	160		24
A17	Tie-ins	feet	670,560	4,200	160		23
A18	backfill & cleanup	feet	670,560	4,200	160		17
A19	Fabricate valve assemblies	dia. Inch	1,344	220	7		15
A20	Install valve vault, controls & house	each	7	0.20	35		21
A21	Install valve Assembly	each	7	1	7		20
A22	Clean, test & dry PL (summer)	per sect.	6	0.25	24		30
A23	Final tie-ins	each	8	1	8		24
A24	Erosion control & seeding	acre	1,155	10	116		12
A25	Bored Road/RR crossings	each	2	0.30	7		17
A26	Install River and Stream crossings	each	12	0.25	48		31
A27	Fault Crossing-6 ft.wide ditch	feet	5,000	1,000	5		29
A28	SWPP Plan	feet	670,560	4,200	160		10
A29	Install warning signs, Mp & line markers	each	344	10	35		6
A30	"As Builts"	feet	670,560	3,800	177		3
A31		-	1				
A32		-	1				
A33		-	1				
A34		-	1				
A35		-	1				
A36		-	1				
A37		-	1				
A38		-	1				
A39		-	1				
A40		-	1				
				Total	544		

Crew summary**Indirect construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	670,560	2683	250		15
A2i	Maintenance and field support	feet	670,560	2916	230		32
A3i	Mobilize & demobilize equipment	feet	670,560	3048	220		26
A4i	Mob & demob people	each	625	625	1		
A5i	Safety, training & Orenintation	each	625	625	1		
A6i	Drug test	each	625	625	1		
A7i	Contractor QC	feet	670,560	3353	200		8
A8i	R&R	LS	625	625	1		
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
						Total	81
						Grand. Total	625

MICHAEL BAKER JR., INC. 1400 West Benson Blvd., Suite Anchorage, Alaska 99503 Phone: (907) 273-1600 Client: Doe Spur Gas Pipeline Project: Construct 20" gas P/L, one season Spread No.: Winter work												FIC= 12.64%		OT Factor = 0.2619		WC= 15.30%		Per diem= \$ 55.00		Footage= 670,560		Productivity= -		Duration= 160 Main crews		COST ESTIMATE SUMMARY						"LEVEL 0 - ESTIMATE"					
																								COST PER FOOT, DIRECT CONSTR. = \$ 104.40													
																		COST PER FOOT, INDIRECT CONSTR. = \$39.37						COST PER FOOT, MATERIAL = \$131.49													
																		COST PER FOOT, CONTRACTOR MARKUP = \$28.75						COST PER FOOT, TOTAL = \$304.02													
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight	Wages Overtime	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT																			
A1	Survey pipeline ROW	9	160	1440	441,754	115,695	202,867	138,050	30,923	79,200	46,560	-	63,776	-	-	16,000	\$ 1,134,825	138																			
A2	ROW clear, brush & small timber	19	160	3040	996,941	261,099	434,035	311,548	69,786	167,200	967,120	-	959,520	-	-	-	\$ 4,167,249	6,200																			
A3	Construct ice/snow work pad	21	160	3360	1,125,965	294,890	484,032	351,869	78,818	184,800	896,800	-	1,065,584	-	-	-	\$ 4,482,757	4,210																			
A4	Maintain ice/snow work pad	9	160	1440	486,835	127,502	205,939	152,138	34,078	79,200	395,600	-	478,736	-	-	-	\$ 1,960,029	2,017																			
A5	Machine ditch (Rocksaw)	15	144	2160	720,559	188,714	311,628	225,178	50,439	118,800	1,935,720	-	2,428,070	-	-	-	\$ 72,000	\$ 6,051,108	10,838																		
A6	Drill/blast and backhoe ditch	11	34	374	121,135	31,725	53,211	37,855	8,479	20,570	102,867	-	120,751	-	-	-	\$ 191,110	\$ 687,704	3,676																		
A7	Load, haul and string pipe	15	160	2400	795,686	208,390	340,992	248,655	55,698	132,000	450,800	-	500,640	-	-	-	\$ 68,000	\$ 2,800,862	3,578																		
A8	Bend and set-up	14	160	2240	703,085	184,138	311,194	219,717	49,216	123,200	293,680	-	339,664	-	-	-	\$ 1,000	\$ 2,224,893	1,515																		
A9	Weld procedures and test welders	28	10	280	83,263	21,807	38,882	26,020	5,828	15,400	9,965	15,000	11,915	1,000	50,000	\$ 46,750	\$ 325,831	959																			
A10	Line-up, manual	35	160	5600	1,747,680	457,717	789,581	546,157	122,338	308,000	446,512	-	485,536	-	-	-	\$ 4,903,521	2,910																			
A11	Weld, manual	34	160	5440	1,630,195	426,948	750,374	509,443	114,114	299,200	747,904	-	826,960	-	-	-	\$ 187,244	\$ 5,492,382	4,549																		
A12	UT mainline and x-ray tie-ins	10	160	1600	526,022	137,765	189,235	164,384	36,822	88,000	107,360	17,000	28,736	72,000	1,025,000	\$ 422,013	\$ 2,814,338	95																			
A13	Weld repair	2	160	320	93,254	24,423	43,853	29,142	6,528	17,600	12,160	-	21,824	-	-	-	\$ 6,720	\$ 255,505	60																		
A14	Coat welds & repair holidays	21	160	3360	1,069,824	280,187	475,891	334,324	74,888	184,800	390,544	-	431,568	-	-	-	\$ 40,320	\$ 3,282,346	2,083																		
A15	Bedding padding	19	160	3040	994,099	260,355	435,494	310,660	69,587	167,200	2,119,600	-	1,170,848	-	-	-	\$ 289,692	\$ 5,817,535	6,953																		
A16	Lower-in	24	160	3840	1,241,453	325,136	548,083	387,959	86,902	211,200	810,048	-	872,288	-	-	-	\$ 26,240	\$ 4,236,016	6,591																		
A17	Tie-ins	23	160	3680	1,198,080	313,777	537,984	374,405	83,866	202,400	691,760	-	807,504	-	-	-	\$ 3,722,880	\$ 5,592																			
A18	backfill & cleanup	17	160	2720	894,182	234,186	388,147	279,436	62,593	149,600	776,000	-	938,736	-	-	-	\$ 1,468,750	\$ 2,817,773	1,529																		
A19	Fabricate valve assemblies	15	7	105	31,421	8,229	14,495	9,819	2,199	5,775	10,210	-	16,887	-	-	-	\$ 1,400	\$ 100,435	1,720																		
A20	Install valve vault, controls & house	21	35	735	233,822	61,238	104,488	73,070	16,368	40,425	86,188	-	134,890	-	-	-	\$ 94,500	\$ 844,989	2,940																		
A21	Install valve Assembly	20	7	140	43,714	11,449	19,604	13,661	3,060	7,700	14,662	-	17,645	-	-	-	\$ 700	\$ 132,195	3,387																		
A22	Clean, test & dry PL (summer)	30	24	720	236,759	62,007	103,882	73,988	16,573	39,600	124,452	-	118,601	-	1,676,400	\$ 51,750	\$ 2,504,012	4,063																			
A23	Final tie-ins	24	8	192	60,217	15,771	27,045	18,818	4,215	10,560	27,128	-	28,025	-	-	-	\$ 800	\$ 192,579	4,894																		
A24	Erosion control & seeding	12	116	1392	447,862	117,295	197,775	139,959	31,350	76,560	166,286	-	171,935	-	-	-	\$ 1,468,750	\$ 2,817,773	1,529																		
A25	Bored Road/RR crossings	17	7	119	37,063	9,707	16,802	11,582	2,594	6,545	24,952	-	22,565	-	-	-	\$ 2,450	\$ 134,260	3,644																		
A26	Install River and Stream crossings	31	48	1488	489,865	128,296	214,848	153,085	34,291	81,840	282,672	-	326,822	-	-	-	\$ 16,800	\$ 1,728,518	10,648																		
A27	Fault Crossing-6 ft.wide ditch	29	5	145	48,234	12,632	20,576	15,073	3,376	7,975	67,328	-	48,313	-	-	-	\$ 512,540	\$ 736,048	10,334																		
A28	SWPP Plan	10	160	1600	479,731	125,642	222,720	149,918	33,581	88,000	73,280	-	56,176	-	-	-	\$ 128,000	\$ 1,357,048	455																		
A29	Install warning signs, Mp & line markers	6	35	210	66,658	17,458	29,534	20,831	4,666	11,550	14,228	-	8,456	-	-	-	\$ 4,810	\$ 178,191	393																		
A30	"As Builts"	3	177	531	171,216	44,841	74,807	53,506	11,985	29,205	38,675	-	13,912	-	-	-	\$ 438,147	53																			
A31		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A32		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A33		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A34		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A35		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A36		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A37		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A38		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A39		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
A40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$ -	\$ -																				
	SUB-TOTAL, DIRECT COSTS	544	3217	53711	17,216,576	4,509,021	7,588,000	5,380,252	1,205,160	2,954,105	12,131,058	32,000	12,516,883	73,000	2,751,400	3,649,589		70,007,044	113,558																		
	SUB-TOTAL, INDIRECT COSTS	81	904	18430	6,460,856	1,692,098	2,541,506	2,019,045	452,260	1,013,650	1,982,435	-	2,681,163	-	5,825,784	1,733,750		26,402,548	11,847																		
	SUBTOTAL, DIRECTS & INDIRECTS	625	4121	72141	23,677,433	6,201,120	10,129,506	7,399,296	1,657,420	3,967,755	14,113,493	32,000	15,198,046	73,0																							

MICHAEL BAKER JR., INC.
1400 West Benson Blvd., Suite 200
Client: Doe Spur Gas Pipeline
Project: Construct 20" gas P/L, one season
Spread No.: Winter work
Work sheet: Mat1
Identity: Material costs
Note: pipe footage increased 2.5% for wast

Date: 16-Jul-06

Note: pipe footage increased 2.5% for waste and elevation changes

Feet= 687324

MICHAEL BAKER JR., INC.

1400 West Benson Blvd., Suite 200

Anchorage, Alaska 99503

Phone: (907) 273-1600

Client: Doe Spur Gas Pipeline**Fairbanks to Wasilla**

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

MAOP 2500

Revision # 3: 8/22/2006

Date:	16-Jul-06
Location Class I	670,560 feet
Location Class 2	feet
Location Class 3	
ANSI class	1500
Pipe SMYS	70000 psi
pipe dia.	20 inches
Pipe w.t.	0.497 inches
Pipe wt/ft.	104 pounds
Length class 1	670,560 feet
Length class 2	0
Length	670,560 feet
Duration	160 shifts

(\$m)	(\$)
Total Cost	Cost/ft.
\$ 70,007	\$ 104.40
\$ 26,403	\$ 39.37

\$ 96,410	\$ 143.77
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\$ 19,282	\$ 28.75
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Total Contractor Costs	\$ 115,692	\$ 172.53
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MATERIAL COSTS

1 Material (includes freight)	\$ 88,174	\$ 131.49
Total Material Costs		

MISCELLANEOUS COSTS

1 Cathodic system protection (allowance, \$20,000 per mile)	\$ 20,000	\$ 2,540	\$ 3.79
2 SCADA and Communications (allowance, \$3.00 per foot)	\$ 3.00	\$ 2,012	\$ 3.00
3 Camp Rental, mobilization, setup, & demobilize (subcontract, LS)-2 camps required	LS	\$ 24,000	\$ 35.79
4 Move camp (subcontract LS)	LS	\$ -	\$ -
5 Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @4.30	694,171	\$ 2,985	\$ 4.45
6 Air freight supplies, etc @ \$25.00 per cwt	1,600	\$ 40	\$ 0.06
7 Open pits, mine and process material, cubic yards at \$12.50 per cubic yd.	200,000	\$ 2,500	\$ 3.73
8 Contractor maintenance and warehouse facilities 220 days @ \$1300 per day	\$ 1,300	\$ 286	\$ 0.43
Total Miscellaneous Costs			\$ 34,363 \$ 51.24

PROJECT INDIRECT COSTS

1 Detailed Engineering	\$ 19.28	\$ 12,928	\$ 19.28
2 Surveying	\$ 3.00	\$ 2,012	\$ 3.00
3 Permitting	\$ 4.00	\$ 2,682	\$ 4.00
4 Quality Control	\$ 11.61	\$ 7,785	\$ 11.61
5 Project Management, etc.	\$ 25.48	\$ 17,086	\$ 25.48
6 Purchasing and expediting	\$ 3.74	\$ 2,508	\$ 3.74
Total Project Indirect Costs			\$ 45,001 \$ 67.11

SUB-TOTAL, TOTAL PIPELINE COSTS	\$ 283,230	\$ 422.38
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OWNERSHIP COSTS

1 Project management	\$ -	\$ -
2 Cost of Money	\$ -	\$ -
Total Ownership Costs	\$ -	\$ -

CONTINGENCY ALLOWANCE

1 Contingency	\$ -
Total Contingency cost	\$ -

TOTAL CONSTRUCTION PIPELINE COSTS ("Level 1" cost estimate)	\$ 283,230	\$ 422.38
Cost per Dia.-inch mile \$	\$ 111,508	

MICHAEL BAKER JR., INC.

Date: 16-Jul-06

Delta Junction to Glennallen

Client: Doe Spur Gas Pipeline

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

Comments: "Level 1" Cost Estimate

Revison # 2: 8/22/2006

Summary of workbook estimate data/assumptions	Class 1 216,480	Class 2	Class 3	Work week Duration	7-12's 46
Pipeline location class				Feet	216,480
Pipeline length	216,480 feet			Production	4,800
MAOP	2,500 PSI				
Class (ANSI)	1500				
Pipe yield strength	70,000 PSI				
Pipeline diameter	20 inch				
Pipe wall thickness	0.497				
Pipe weight per foot	104 pounds				
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy		
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy		
Pipe joint lengths	Double jt.	40 foot +/-		100% 60 foot +/-	
Pipe joints	- joints	- joints		3,733 joints	
Valve spacing	20 miles	3			
Installation season	Winter				
Hydro test pressure (high pressure = 96% of SMYS)	PSI	Minimum 3,125	Maximum	3,338	
Terrain type	rock	Rolling	F/R/swamp Flat/rolling	Mountains/rolling	Rolling/choppy
		100%			

Crew summary

Direct construction crews

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	feet	216,480	4,800	46		9
A2	ROW clear, brush & small timber	feet	216,480	4,800	46		19
A3	Construct ice/snow work pad	feet	216,480	4,800	46		21
A4	Maintain ice/snow work pad	feet	216,480	4,800	46		9
A5	Machine ditch (Rocksaw)	feet	194,832	4,800	41		15
A6	Drill/blast and backhoe ditch	feet	21,648	2,000	11		11
A7	Load, haul and string pipe	feet	216,480	4,800	46		15
A8	Bend and set-up	feet	216,480	4,800	46		14
A9	Weld procedures and test welders	LS	1	0.1	10		28
A10	Line-up, manual	feet	216,480	4,800	46		35
A11	Weld, manual	feet	216,480	4,800	46		34
A12	UT mainline and x-ray tie-ins	feet	216,480	4,800	46		11
A13	Weld repair	feet	216,480	4,800	46		2
A14	Coat welds & repair holidays	feet	216,480	4,800	46		21
A15	Bedding padding	feet	216,480	4,800	46		19
A16	Lower-in	feet	216,480	4,800	46		24
A17	Tie-ins	feet	216,480	4,800	46		23
A18	backfill & cleanup	feet	216,480	4,800	46		17
A19	Fabricate valve assemblies	dia. Inch	576	220	3		15
A20	Install valve vault, controls & house	each	3	0.20	15		21
A21	Install valve Assembly	each	3	1	3		20
A22	Clean, test & dry PL (summer)	per sect.	2	0.25	8		30
A23	Final tie-ins	each	3	1	3		24
A24	Erosion control & seeding	acre	373	10	38		12
A25	Bored Road/RR crossings (not used)	each	-	0.30			
A26	Install River and Stream crossings	each	12	0.50	24		31
A27	Fault Crossing-6 ft.wide ditch (not used)	feet	-	1			
A28	SWPP Plan	feet	216,480	4,800	46		10
A29	"As built"	feet	216,480	4,100	53		3
A30	Install warning signs, MP & line markers	each	109	10	11		6
A31		-	1				6
A32		-	1				6
A33		-	1				
A34		-	1				
A35		-	1				
A36		-	1				
A37		-	1				
A38		-	1				
A39		-	1				
A40		-	1				
				Total	511		

Crew summary**Indirect construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	216,480	1592	136		15
A2i	Maintenance and field support	feet	216,480	1867	116		32
A3i	Mobilize & demobilize equipment	feet	216,480	2043	106		26
A4i	Mob & demob people	each	592	1	10		
A5i	Safety, training & Orenintation	each	592	1	10		
A6i	Drug test	each	592	1	10		
A7i	Contractor QC	feet	216,480	2518	86		8
A8i			-	1			
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
						Total	81
						Grand. Total	592

MICHAEL BAKER JR., INC.			FIC= 12.64%	OT Factor = 0.2619	COST ESTIMATE								"LEVEL 1 - ESTIMATE"								
1400 West Benson Blvd., Suite Anchorage, Alaska 99503 Phone: (907) 273-1600	WC= 15.30%	ST= 7.00%	Per diem= \$ 55.00	Footage= 216,480	38951	SUMMARY								COST PER FOOT, DIRECT CONSTR. = \$ 93.90							
Client: Doe Spur Gas Pipeline Project: Construct 20" gas P/L, one season Spread No.: Winter work	Productivity= -	Duration= 46	Main crews	Date: 16-Jul-06		COST PER FOOT, INDIRECT CONSTR. = \$ 73.00								COST PER FOOT, MATERIAL = \$ 131.79							
						COST PER FOOT, CONTRACTOR MARKUP = \$ 33.38								COST PER FOOT, TOTAL = \$ 332.06							
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight Time	Wages Overtime	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT			
A1	Survey pipeline ROW	9	46	414	127,004	33,262	58,324	39,689	8,890	22,770	13,386	-	15,281	-	-	4,600	\$ 323,208	138			
A2	ROW clear, brush & small timber	19	46	874	286,620	75,066	124,785	89,570	20,063	48,070	278,047	-	229,885	-	-	-	\$ 1,152,107	6,200			
A3	Construct ice/snow work pad	21	46	966	323,715	84,781	139,159	101,162	22,660	53,130	257,830	-	255,295	-	-	-	\$ 1,237,733	4,210			
A4	Maintain ice/snow work pad	9	46	414	139,965	36,657	59,208	43,740	9,798	22,770	113,735	-	114,696	-	-	-	\$ 540,568	2,017			
A5	Machine ditch (Rocksaw)	15	41	615	205,159	53,731	88,727	64,113	14,361	33,825	551,143	-	576,103	-	-	-	\$ 20,500	\$ 1,607,663	10,838		
A6	Drill/blast and backhoe ditch	11	11	121	39,191	10,264	17,215	12,247	2,743	6,655	33,281	-	32,556	-	-	61,697	\$ 215,849	3,676			
A7	Load, haul and string pipe	15	46	690	228,760	59,912	98,035	71,488	16,013	37,950	129,605	-	120,658	-	-	68,000	\$ 830,422	3,578			
A8	Bend and set-up	14	46	644	202,137	52,940	89,468	63,169	14,150	35,420	84,433	-	81,379	-	-	1,000	\$ 624,094	1,515			
A9	Weld procedures and test welders	28	10	280	83,263	21,807	38,882	26,020	5,828	15,400	9,965	15,000	9,925	1,000	50,000	46,750	\$ 323,841	959			
A10	Line-up, manual	35	46	1610	502,458	131,594	227,004	157,020	35,172	88,550	128,372	-	116,325	-	-	-	\$ 1,386,496	2,910			
A11	Weld, manual	34	46	1564	468,681	122,748	215,733	146,465	32,808	86,020	215,022	-	198,127	-	-	60,866	\$ 1,546,469	4,549			
A12	UT mainline and x-ray tie-ins	11	46	506	166,218	43,533	59,528	51,944	11,635	27,830	30,383	17,000	6,744	20,700	341,000	136,255	\$ 912,769	94			
A13	Weld repair	2	46	92	26,811	7,022	12,608	8,378	1,877	5,060	3,496	-	5,230	-	-	1,932	\$ 72,413	60			
A14	Coat welds & repair holidays	21	46	966	307,574	80,554	136,819	96,118	21,530	53,130	112,281	-	103,399	-	-	13,248	\$ 924,654	2,083			
A15	Bedding padding	19	46	874	285,804	74,852	125,205	89,315	20,006	48,070	609,385	-	280,513	-	-	93,528	\$ 1,626,677	6,953			
A16	Lower-in	24	46	1104	356,918	93,477	157,574	111,538	24,984	60,720	232,889	-	208,983	-	-	-	\$ 1,247,082	7,534			
A17	Tie-ins	23	46	1058	344,448	90,211	154,670	107,641	24,111	58,190	198,881	-	193,453	-	-	7,544	\$ 1,179,150	6,591			
A18	backfill & cleanup	17	46	782	257,077	67,329	111,592	80,338	17,995	43,010	223,100	-	224,912	-	-	-	\$ 1,025,354	5,592			
A19	Fabricate valve assemblies	15	3	45	13,466	3,527	6,212	4,208	943	2,475	4,376	-	6,030	-	-	600	\$ 41,837	1,720			
A20	Install valve vault, controls & house	21	15	315	100,210	26,245	44,780	31,316	7,015	17,325	36,938	-	48,174	-	-	40,500	\$ 352,502	2,940			
A21	Install valve Assembly	20	3	60	18,735	4,907	8,402	5,855	1,311	3,300	6,284	-	6,302	-	-	300	\$ 55,394	3,387			
A22	Clean, test & dry PL (summer)	30	8	240	78,920	20,669	34,627	24,663	5,524	13,200	41,484	-	32,944	-	541,200	51,750	\$ 844,981	4,063			
A23	Final tie-ins	24	3	72	22,581	5,914	10,142	7,057	1,581	3,960	10,173	-	8,758	-	-	300	\$ 70,465	4,894			
A24	Erosion control & seeding	12	38	456	146,713	38,424	64,788	45,849	10,270	25,080	54,473	-	46,934	-	-	342,050	\$ 774,581	1,529			
A25	Bored Road/RR crossings (not used)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A26	Install River and Stream crossings	31	24	744	244,932	64,148	107,424	76,642	17,145	40,920	141,336	-	136,176	-	-	8,400	\$ 837,024	10,648			
A27	Fault Crossing-6 ft.wide ditch (not used)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A28	SWPP Plan	10	46	460	137,923	36,122	64,032	43,101	9,655	25,300	21,068	-	13,460	-	-	36,800	\$ 387,460	455			
A29	"As built"	3	53	159	51,268	13,427	22,400	16,021	3,589	8,745	13,807	-	9,068	-	-	-	\$ 138,325	69			
A30	Install warning signs, MP & line markers	6	11	66	20,851	5,461	9,282	6,516	1,460	3,630	-	-	-	-	-	925	\$ 48,124	-			
A31	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A32	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
SUB-TOTAL, DIRECT COSTS			499	978	16191	5,187,402	1,358,581	2,286,627	1,621,085	363,118	890,505	3,555,171	32,000	3,081,308	21,700	932,200	997,544	20,327,241	99,202		
A11	Field supervision	15	136.0	2040	817,224	214,031	244,800	255,386	57,206	112,200	164,492	-	434,466	-	-	27,200	\$ 2,327,004	4,795			
A21	Maintenance and field support	32	116.0	3712	1,271,648	333,045	540,514	397,395	89,015	204,160	535,340	-	460,253	-	-	23,200	\$ 3,854,570	3,696			
A3i	Mobilize & demobilize equipment	26	106.0	2756	888,047	232,579	398,848	277,518	62,163	151,580	247,563	-	217,385	-	4,761,696	21,200	\$ 7,258,580	2,988			
A4i	Mob & demob people	592.0	-	-	-	-	-	-	-	-	-	-	-	-	-	888,000	\$ 888,000	-			
A5i	Safety, training & Orientation	592.0	-	-	-	-	-	-	-	-	-	-	-	-	-	503,200	\$ 503,200	-			
A6i	Drug test	592.0	-	-	-	-	-	-	-	-	-	-	-	-	355,200	-	\$ 355,200	-			
A7i	Contractor QC	8	86.0	688	255,472	66,908	82,560	79,836	17,883	37,840	45,064	-	30,822	-	-	-	616,385	368			
A8i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A9i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A10i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A11i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A12i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
A13i	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
SUB-TOTAL, INDIRECT COSTS			81	2220	9196	3,232,390	846,563	1,266,722	1,010,135	226,267	505,780	992,459	-	1,142,926	-	5,116,896	1,462,800	15,802,939	11,847		
SUBTOTAL, DIRECTS & INDIRECTS			580	3198	25387	8,419,792	2,205,144	3,553,349	2,631,220	589,385	1,396,285	4,547,630	32,000	4,224,234	21,700	6,049,096	2,460,344	\$ 36,130,180	111,049		
MATERIAL																					
CONTRACTOR MARKUP, PROFIT, OH, ETC. (20% of direct and indirect costs)																					
TOTAL COST																					
COMMENTS:																					
CONTRACT NO.																					

MICHAEL BAKER JR., INC.

1400 West Benson Blvd., Suite 200

Date: 16-Jul-06

Client: Doe Spur Gas Pipeline

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

Work sheet: Mat1

Identity: Material costs

Note: pipe footage increased 2.5% for waste and elevation changes

Feet= 221892

CODE	DESCRIPTION	UNITS	QTY.	UNIT COST	TOTAL COST	
Class 1 location-pipe						
p15	20 in x 0.497 wt, X-70 steel pipe	foot	221,892	\$ 69.88	\$15,505,097	
f13	Freight charge, 20 in x 0.497 wt, X-80 steel pipe	foot	221,892	\$ 44.00	\$9,762,468	
c9	FBE coating,20 in. pipe	foot	221,892	\$ 7.00	\$1,553,244	
c31	FBE coating material and holidays,20 in. pipe	joint	4,438	\$ 21.00	\$93,195	
v83	20 in. actuator/controller for remote valve	each	3	\$ 26,000.00	\$78,000	
v45	20 in. gate valve CI 1500, manual operated, weld ends	each	3	\$ 42,000.00	\$126,000	
t40	20x20 in. weld tee, class 1500, sch 80	each	6	\$ 3,880.00	\$23,280	
e92	6 in. weld ell class 1500, LR-sch 80	each	6	\$ 1,200.00	\$7,200	
e181	6 in. quick opening closure	each	6	\$ 1,600.00	\$9,600	
p6	6.625 in x 0.25 wt, X-65 steel pipe	foot	54	\$ 11.49	\$620	
f6	Freight charge, 6.625 in x 0.25 wt, X-65 steel pipe	foot	54	\$ 7.23	\$391	
m103	Aerial MP signs	each	5	\$ 145.00	\$725	
m104	Warning High Pressure Gas signs	each	21	\$ 125.00	\$2,625	
m105	Flexible Marker markers	each	83	\$ 95.00	\$7,885	
			-	\$ -		
			-	\$ -		
f28a	Misc. freight and material (5% of total)	LS	-	\$ -	1,358,516	
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	TOTAL AMOUNT				\$28,528,846	
COMMENTS:						

MICHAEL BAKER JR., INC.

1400 West Benson Blvd., Suite 200

Anchorage, Alaska 99503

Phone: (907) 273-1600

Delta Junction to Glennallen**Client: Doe Spur Gas Pipeline**

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

Revison # 2: 8/22/2006

	Date:	16-Jul-06
Location Class I	216,480	feet
Location Class 2		feet
Location Class 3		
ANSI class	1500	
Pipe SMYS	70000	psi
pipe dia.	20	inches
Pipe w.t.	0.497	inches
Pipe wt/ft.	104	pounds
Length class 1	216,480	feet
Length class 2	0	
Length	216,480	feet
Duration	46	shifts

COST SUMMARY**CONSTRUCTION COSTS**

UNIT	DESCRIPTION	(\$m)	(\$)	Total Cost	Cost/ft.
1	Direct Contractor Construction Costs	\$		20,327	\$ 93.90
2	Indirect Contractor Construction Costs	\$		15,803	\$ 73.00
	Sub-total Contractor Construction Costs	\$		36,130	\$ 166.90
3	Contractor Markup (20% overhead and profit)				
	Sub-total Contractor Markup			\$ 7,226	\$ 33.38
	Total Contractor Costs			\$ 43,356	\$ 200.28

MATERIAL COSTS

1	Material (includes freight)	\$		28,529	\$ 131.79
	Total Material Costs				

MISCELLANEOUS COSTS

1	Cathodic system protection (allowance, \$20,000 per mile)	\$	20,000	\$ 820	\$ 3.79
2	SCADA and Communications (allowance, \$3.00 per foot)	\$	3.00	\$ 649	\$ 3.00
3	Camp Rental, mobilization, setup, & demobilize (subcontract, LS)d	\$	LS	12,000	\$ 55.43
4	Move camp (subcontract LS)		LS	-	\$ -
5	Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @ 4.30		224,103	\$ 964	\$ 4.45
6	Air freight supplies, etc @ \$25.00 per cwt		4,600	\$ 115	\$ 0.53
7	Open pits, mine and process material, cubic yards at \$12.50 per cubic yd.		200,000	\$ 2,500	\$ 11.55
8	Constractor maintenance and warehouse facilities 90 days @ 3100 per day		90	\$ 279	\$ 1.29
	Total Miscellaneous Costs			\$ 17,327	\$ 80.04

PROJECT INDIRECT COSTS

1	Detailed Engineering	\$	19.28	\$ 4,174	\$ 19.28
2	Surveying	\$	3.00	\$ 649	\$ 3.00
3	Permitting	\$	4.00	\$ 866	\$ 4.00
4	Quality Control	\$	11.61	\$ 2,513	\$ 11.61
5	Project Management, etc.	\$	25.48	\$ 5,516	\$ 25.48
6	Puchasing and expediting	\$	3.74	\$ 810	\$ 3.74
	Total Project Indirect Costs			\$ 14,528	\$ 67.11

SUB-TOTAL, TOTAL PIPELINE COSTS

\$ 103,740 \$ 479.21

OWNERSHIP COSTS

1	Project management	\$	-	\$	-
2	Cost of Money	\$	-	\$	-
	Total Ownership Costs			\$ -	\$ -

CONTINGENCY ALLOWANCE

1	Contingency			\$	-
	Total Contingency cost				

TOTAL CONSTRUCTION PIPELINE COSTS ("Level 1" cost estimate)\$ 103,740 \$ 479.21
\$ 126,512

MICHAEL BAKER JR., INC.

Date: 17-Jul-06

Glennallen to Palmer-Road Route

Comments: "Level 1" Cost Estimate

Client: Doe Spur Gas Pipeline

Revision #2: 8/22/2006

Project: Construct 20" gas P/L, one season

Spread No.: Winter work

Summary of workbook estimate data/assumptions	Class 1	Class 2	Class 3		Work week Duration	7-12's
Pipe location class, feet	383,856				Duration	86
Pipeline length	383,856				Feet	383,856
MAOP	2,500	2,500	2,500	PSI	Productivity	4500
Class factor (ANSI)	1500	1500	1500			
Pipe yield strength	X70	X70	X70	PSI		
Pipeline diameter	20	20	20	inch		
Pipe wall thickness	0.497	0.596	0.715	inch		
Pipe weight per foot	104	124	147	pounds		
Pipe coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint coating	Fusion bonded epoxy	Fusion bonded epoxy	Fusion bonded epoxy			
Pipe joint lengths		Double jt.	40 foot +/-		100% 60 foot +/-	
Pipe joints	-	joints	-	joints	6,619	joints
Valve spacing	20 miles		4			
Installation season	Winter					
Hydro test pressure		PSI	Minimum		Maximum	
Terrain type	rock cyds	Tundra	Swamp	Flat/rolling	Rolling	flat/sligh/roll
	15%			15%	53%	32%

Crew summary**Direct construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1	Survey pipeline ROW	feet	383,856	4,500	86		5
A2	ROW clear, brush & small timber	feet	882	18	49		19
A3	Construct ice/snow work pad	feet	383,856	4,500	86		21
A4	Maintain ice/snow work pad	feet	383,856	4,500	86		9
A5	Machine ditch (Rocksaw)	feet	344,784	4,500	77		16
A6	Drill/blast and backhoe ditch	feet	57,578	2,000	29		11
A7	Load, haul and string pipe	feet	383,856	4,500	86		16
A8	Bend and set-up	feet	383,856	4,500	86		14
A9	Weld procedures and test welders	LS	1	0.1	10		28
A10	Line-up, automatic	feet	383,856	4,500	86		35
A11	Weld, automatic	feet	383,856	4,500	86		36
A12	UT mainline and x-ray tie-ins	feet	383,856	4,500	86		11
A13	Weld repair	feet	383,856	4,500	86		2
A14	Coat welds & repair holidays	feet	383,856	4,500	86		21
A15	Bedding padding	feet	383,856	4,500	86		19
A16	Lower-in	feet	383,856	4,500	86		24
A17	Tie-ins	feet	383,856	4,500	86		23
A18	backfill & cleanup	feet	383,856	4,500	86		17
A19	Fabricate valve assemblies	each	768	220.00	4		15
A20	Install valve vault, controls & house	each	4	0.20	20		21
A21	Install valve Assembly	each	4	1.00	4		20
A22	Clean, test & dry PL (summer)	per sect.	4	0.25	16		30
A23	Final tie-ins	each	4	1	4		24
A24	Erosion control & seeding	acre	882	10	89		12
A25	Bored Road crossings	each	7	0.30	24		17
A26	Install River and Stream crossings	each	16	0.25	64		31
A27	Open cut road crossings	each	12	1.00	12		25
A28	Install warning signs, Mp & line markers	each	198	8	25		6
A29	"As built"	feet	383,856	4,000	96		3
A30	SWPP Plan	feet	383,856	4,500	86		10
A31		-	-	1			10
A32		-	-	1			10
A33		-	-	1			
A34		-	-	1			
A35		-	-	1			
A36		-	-	1			
A37		-	-	1			
A38		-	-	1			
A39		-	-	1			
A40		-	-	1			
					Total		561

Crew summary**Indirect construction crews**

Crew Code	Description	Units	Quantity	Production Rate	Duration	Start Date	Personnel Quantity
A1i	Field supervision	feet	383,856	2181	176		15
A2i	Maintenance and field support	feet	383,856	2461	156		32
A3i	Mobilize & demobilize equipment	feet	383,856	4265	90		25
A4i	Mob & demob people	each	637	1	1		
A5i	Safety, training & Orenitnation	each	637	63	11		
A6i	Drug test	each	637	63	11		
A7i	Contractor QC	feet	383,856	2930	131		4
A8i			-	1			
A9i			-	1			
A10i			-	1			
A11i			-	1			
A12i			-	1			
A13i			-	1			
							Total 76
							Grand. Total 637

<p>MICHAEL BAKER JR., INC. 1400 West Benson Blvd., Suite 200 Anchorage, Alaska 99508 Phone: (907) 562-1399 FAX: (907) 562-9901 Client: Doe Spur Gas Pipeline Project: Construct 20" gas P/L, one season Spread No.: Winter work</p>												<p>FIC= 12.64% OT Factor = 0.2619</p> <p>WC= 15.30% Per diem= \$ 55.00</p> <p>ST= 7.00% Footage= 383,856</p> <p>Productivity= 4,500</p> <p>Duration= - Main crews</p> <p>Date: 17-Jul-06</p>										
												<p>"LEVEL 1 - ESTIMATE"</p> <p>COST PER FOOT, DIRECT CONSTR. = \$ 106.78</p> <p>COST PER FOOT, INDIRECT CONSTR. = \$43.68</p> <p>COST PER FOOT, MATERIAL = \$143.30</p> <p>COST PER FOOT, CONTRACTOR MARKUP = \$30.09</p> <p>COST PER FOOT, TOTAL = \$323.85</p>										
Unit No.	Crew Identity	No. Men	Wk. Days	Man Days	Wages Straight	Wages Overtime	Fringes	Payroll Burdens	Small Tools	Per Diem	Equip. Owner-Ship	Outside Rentals	Equip. FLOPS	Local Material	Sub-Contract	Supplies Consum. Misc.	TOTAL COST	Equipment Weight CWT				
A1	Survey pipeline ROW	5	86	430	135,198	35,408	60,578	42,250	9,464	23,650	12,513	-	14,285	-	4,300	\$ 337,646	69					
A2	ROW clear, brush & small timber	19	49	931	312,382	81,813	133,394	97,621	21,867	51,205	927,546	-	347,199	-	-	\$ 1,973,026	4,795					
A3	Construct ice/snow work pad	21	86	1806	622,707	163,087	260,580	194,598	43,589	99,330	482,030	-	477,291	-	-	\$ 2,343,213	4,210					
A4	Maintain ice/snow work pad	9	86	774	267,946	70,175	110,899	83,734	18,756	42,570	212,635	-	214,432	-	-	\$ 1,021,148	2,017					
A5	Machine ditch (Rocksaw)	16	77	1232	426,304	111,649	178,369	133,222	29,841	67,760	1,278,239	-	1,342,934	-	-	\$ 3,606,817	12,866					
A6	Drill/blast and backhoe ditch	11	29	319	105,319	27,583	45,595	32,913	7,372	17,545	85,304	-	79,414	-	-	\$ 164,098	565,143					
A7	Load, haul and string pipe	16	86	1376	463,837	121,479	195,791	144,951	32,469	75,680	269,395	-	252,496	-	-	\$ 68,000	1,624,097					
A8	Bend and set-up	14	86	1204	385,171	100,876	167,886	120,368	26,962	66,220	221,493	-	218,208	-	-	\$ 1,000	1,308,184					
A9	Weld procedures and test welders	28	10	280	87,632	22,951	38,894	27,385	6,134	15,400	9,965	-	9,925	-	98,000	\$ 46,750	363,037					
A10	Line-up, automatic	35	86	3010	979,070	256,418	424,916	305,963	68,535	165,550	223,316	-	201,266	-	-	\$ 2,625,034	2,790					
A11	Weld, automatic	36	86	3096	955,849	250,337	421,015	298,707	66,909	170,280	293,002	1,092,135	321,580	-	55,900	\$ 340,000	4,265,713					
A12	UT mainline and x-ray tie-ins	11	86	946	310,756	81,387	111,394	97,112	21,753	52,030	57,706	17,000	12,866	38,700	581,000	\$ 251,915	1,633,619					
A13	Weld repair	2	86	172	52,973	13,874	23,571	16,554	3,708	9,460	6,536	-	9,778	-	-	\$ 4,300	140,753					
A14	Coat welds & repair holidays	21	86	1806	584,370	153,047	257,030	182,618	40,906	99,330	202,693	-	174,288	-	-	\$ 46,063	1,740,344					
A15	Bedding padding	19	86	1634	547,228	143,319	234,491	171,011	38,306	89,870	1,139,285	-	524,437	-	-	\$ 2,887,947	6,953					
A16	Lower-in	24	86	2064	682,408	178,723	295,730	213,255	47,769	113,520	435,401	-	390,707	-	-	\$ 2,357,512	7,534					
A17	Tie-ins	23	86	1978	670,598	175,630	289,476	209,565	46,942	108,790	371,821	-	361,673	-	-	\$ 17,200	2,251,694					
A18	backfill & cleanup	17	86	1462	491,496	128,723	209,352	153,595	34,405	80,410	417,100	-	420,488	-	-	\$ 1,935,568	5,592					
A19	Fabricate valve assemblies	15	4	60	18,821	4,929	8,288	5,882	1,317	3,300	5,834	-	8,040	-	-	\$ 800	57,212					
A20	Install valve vault, controls & house	21	20	420	137,102	35,907	59,875	42,845	9,597	23,100	49,250	-	64,232	-	-	\$ 54,000	475,908					
A21	Install valve Assembly	20	4	80	26,131	6,844	11,207	8,166	1,829	4,400	8,378	-	8,402	-	-	\$ 400	75,757					
A22	Clean, test & dry PL (summer)	30	16	480	162,780	42,632	69,427	50,870	11,395	26,400	82,968	-	65,888	-	959,640	\$ 51,750	1,523,750					
A23	Final tie-ins	24	4	96	31,100	8,145	13,551	9,719	2,177	5,280	13,564	-	11,677	-	-	\$ 400	95,613					
A24	Erosion control & seeding	12	89	1068	349,751	91,600	152,169	109,299	24,483	58,740	127,582	-	109,924	-	-	\$ 598,300	1,621,846					
A25	Bored Road crossings	17	24	408	130,746	34,242	57,779	40,859	9,152	22,440	85,548	-	66,470	-	-	\$ 8,400	455,636					
A26	Install River and Stream crossings	31	64	1984	674,007	176,522	287,155	210,630	47,180	109,120	376,896	-	363,136	-	-	\$ 22,400	2,267,047					
A27	Open cut road crossings	25	12	300	101,591	26,607	43,387	31,748	7,111	16,500	52,936	-	44,872	-	-	\$ 4,200	328,952					
A28	Install warning signs, Mp & line markers	6	25	150	48,049	12,584	21,216	15,015	3,363	8,250	10,163	-	5,033	-	-	\$ 2,775	126,448					
A29	"As built"	3	96	288	94,436	24,733	40,573	29,512	6,611	15,840	25,008	-	16,426	-	-	\$ 253,138	69					
A30	SWPP Plan	10	86	860	257,856	67,532	120,744	80,581	18,050	47,300	39,388	-	25,164	-	-	\$ 68,800	725,414					
A31												-	-	-	-	-	-					
A32												-	-	-	-	-	-					
A33												-	-	-	-	-	-					
A34												-	-	-	-	-	-					
A35												-	-	-	-	-	-					
A36												-	-	-	-	-	-					
A37												-	-	-	-	-	-					
A38												-	-	-	-	-	-					
A39												-	-	-	-	-	-					
A40												-	-	-	-	-	-					
SUB-TOTAL, DIRECT COSTS		541	1813	30714	10,113,613	2,648,755	4,344,331	3,160,546	707,953	1,689,270	7,523,493	1,109,135	6,162,528	38,700	1,694,540	1,794,351	40,987,215	109,159				
A1i	Field supervision	15	176.0	2640	1,057,584	276,981	319,334	330,499	74,031	145,200	192,808	-	557,146	-	-	\$ 35,200	2,988,784					
A2i	Maintenance and field support	32	156.0	4992	1,648,407	431,718	682,307	515,134	115,389	274,560	706,290	-	603,361	-	-	\$ 31,200	5,008,366					
A3i	Mobilize & demobilize equipment	25	90.0	2250	748,850	196,124	326,743	234,019	52,420	123,750	210,195	-	184,572	-	4,878,000	\$ 18,000	6,972,673					
A4i	Mob & demob people		637.0	-	-	-	-	-	-	-	-	-	-	-	-	\$ 750,000	750,000					
A5i	Safety, training & Orientation		11.0	-	-	-	-	-	-	-	-	-	-	-	-	\$ 425,000	425,000					
A6i	Drug test		11.0	-	-	-	-	-	-	-	-	-	-	-	150,000	-	150,000					
A7i	Contractor QC	4	131.0	524	196,500	51,463	63,194	61,407	13,755	28,820	34,322	-	23,475	-	-	\$ 472,937	184					
A8i												-	-	-	-	-	-					
A9i												-	-	-	-	-	-					
A10i												-	-	-	-	-	-					
A11i												-	-	-	-	-	-					
A12i												-	-	-	-	-	-					
A13i												-	-	-	-	-	-					
SUB-TOTAL, INDIRECT COSTS		76	1212	10406	3,651,342	956,286	1,391,579	1,141,059	255,594	572,330	1,143,615	-	1,368,554	-	5,028,000	\$ 1,259,400	16,767,759	11,629				
SUBTOTAL, DIRECTS & INDIRECTS		617	3025	41120	13,764,954	3,605,042	5,735,910	4,301,605	963,547	2,261,600	8,667,108	1,109,135	7,531,082	38,700	6,722,540	3,053,751	\$ 57,754,974	120,788				
MATERIAL																						
CONTRACTOR MARKUP, PROFIT, OH, ETC. (20% of direct and indirect costs)																						
TOTAL COST																						
COMMENTS:																						
CONTRACT NO.																						

MICHAEL BAKER JR., INC.

1400 West Benson Blvd., Suite 200
Anchorage, Alaska 99508
Client: Doe Spur Gas Pipeline
Project: Construct 20" gas P/L, one season
Spread No.: Winter work
Work sheet: Mat1
Identity: Material costs
Note: pipe footage increased 2.5% for wastage

Date: 17-Jul-06

104

104

Feet= 393453

MICHAEL BAKER JR., INC.	Date:	17-Jul-06
1400 West Benson Blvd., Suite 200	Class	1 location
Anchorage, Alaska 99508	MAOP	2500 psi
Phone: (907) 562-1399 FAX: (907) 562-9901	pipe dia.	24 inches
Glennallen to Palmer-Road Route	Pipe w.t.	0.497 inches
Client: Doe Spur Gas Pipeline	Pipe wt/ft.	104 pounds
Project: Construct 20" gas P/L, one season	Length	72.7 miles
Spread No.: Winter work	Length	383,856 feet
	Duration	86 shifts
COST SUMMARY	Revision #2: 8/22/2006	
CONSTRUCTION COSTS		
UNIT	DESCRIPTION	(\$m)
1	Direct Contractor Construction Costs	\$ 40,987
2	Indirect Contractor Construction Costs	\$ 16,768
	Sub-total Contractor Construction Costs	\$ 57,755
		Total Cost Cost/ft.
3	Contractor Markup (20% overhead and profit)	\$ 11,551
	Sub-total Contractor Markup	\$ 30.09
	Total Contractor Costs	\$ 69,306
		\$ 180.55
MATERIAL COSTS		
1	Material (includes freight)	\$ 55,005
	Total Material Costs	\$ 143.30
MISCELLANEOUS COSTS		
1	Cathodic system protection (allowance, \$18,000 per mile)	\$ 18,000
2	SCADA and Communications (allowance, \$3500 per foot)	\$ 3.00
3	Camp Rental, mobilization, setup, & demobilize (subcontract, LS) 1 each @\$44,000,000 each	LS
4	Unload, haul and stockpile pipe & materials, based on pipe weight per cwt @4.30	\$ 4.30
5	Air freight supplies, etc @ \$25.00 per cwt	\$ 8,600
6	Open pits, mine and process material, cubic yards at \$12.50 per cubic yd.	\$ 418,704
7	Contractor maintenance and warehouse facilities 180 days @ \$3100 per day	\$ 3,100.00
	Total Miscellaneous Costs	\$ 17,256
		\$ 44.95
PROJECT INDIRECT COSTS		
1	Detailed Engineering	\$ 19.28
2	Surveying	\$ 3.00
3	Permitting	\$ 3.74
4	Quality Control	\$ 11.61
5	Project Management, etc.	\$ 25.48
6	Puchasing and expediting	\$ 3.74
	Total Project Indirect Costs	\$ 25,661
		\$ 66.85
SUB-TOTAL, TOTAL PIPELINE COSTS		
		\$ 167,228
		\$ 435.65
OWNERSHIP COSTS		
1	Project management	\$ -
2	Cost of Money	\$ -
	Total Ownership Costs	\$ -
CONTINGENCY ALLOWANCE		
1	Contingency	\$ -
	Total Contingency cost	\$ -
TOTAL CONSTRUCTION PIPELINE COSTS		
		\$ 167,228
		\$ 435.65
	Cost per dia. Inch mile	\$ 115,012