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MEMORANDUM

FROM NO.1. GROUP MANAGER
TO Agent/Manager, C/Whitfield Colliery ✓
Unit Mech. Engineer, C/Whitfield Colliery.
Subject C/Whitfield Methane Extraction and
Utilisation Plant: Scheme 1/666

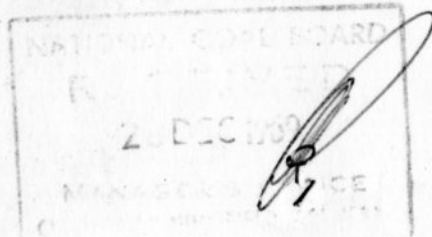
Our Ref. FD/CWH/EH.

Your Ref. _____

Date 23rd December, 1959.

I enclose for your information and retention copies of equipment schedules and schematic layouts drawing No.580/17M/CW, together with a copy of the Area Chief Engineer's memo dated 21st December, and a copy of my reply.

I should be pleased if you will particularly see to the clearance of the site in ample time for the preparation of the foundation, etc. which are due to start about mid-January.



F. Dilks
F. DILKS
NO.1. GROUP MANAGER

CW/SF/11

COPY

M E M O R A N D U M

From: Area Chief Engineer

Our Ref: SA/JS/MJB.

To: F.Dilks, Esq.,
Group Manager, C/Whitfield

Date: 21st Dec., 1959.

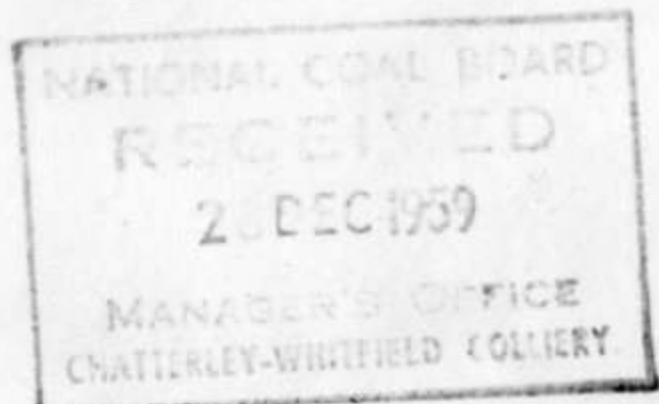
Subject: CHATTERLEY-WHITFIELD METHANE EXTRACTION AND
UTILISATION PLANT: SCHEME 1/666

In connection with the installation of the above, equipment schedules have now been completed and we enclose herewith three copies of same together with three copies of the schematic layout drawing No.580/17M/CW to which the schedule refers. These are for your distribution as required at group or colliery level.

As you are no doubt aware, several methane plants are already operating in this Area for which all the design work, plant and materials, requisitioning, supervision, etc., were carried out by the various Area Engineering departments concerned in close co-operation with the colliery and group staff. We suggest that a similar procedure operates in this case and shall be pleased to receive your agreement that this will be satisfactory to you. The building will, of course, come under the Area Civil department and tenders have already been invited for the work involved. It is anticipated that work will commence about mid-January 1960 and the site should be completely cleared as soon as possible to facilitate an immediate start.

Copies of both schedule and schematic drawings are available for sending to the Area departments concerned and your early agreement to the above proposals would be appreciated.

With regard to building and plant drawings, copies of those completed to date are now being prepared for forwarding to you and will follow in a few days.



S. ALLMAN
Area Chief Engineer

CW/JSF/1

MEMORANDUM

FROM No.1. Group Manager
TO Area Chief Engineer
Subject Chatterley-Whitfield Methane Extraction and
Utilisation Plant; Scheme 1/666

Our Ref. FD/CWH/EH.

Your Ref. SA/JS/MJB.

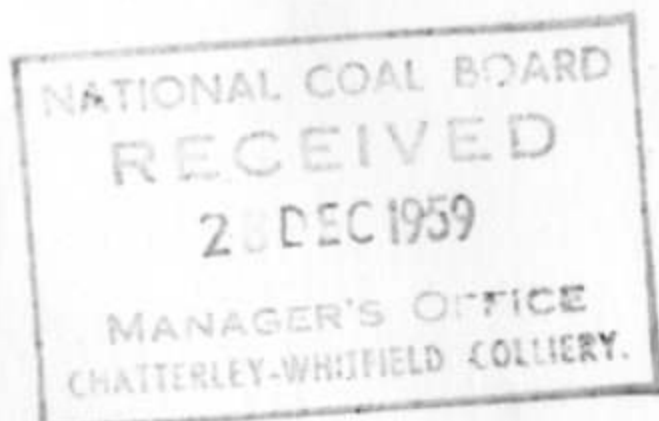
Date 23rd December, 1959.

I refer to your memo of the 21st inst. regarding the above and your suggestion that the Area Engineering Departments carry out all design work, plant and materials, requisitioning, supervision, etc., as on other plants installed throughout the Area.

I am in full agreement with this provided it is done in close co-operation with the Engineering Staff at Group and Colliery level as apparently has been the case on similar installations.

The sight has already been cleared of all material and arrangements are in hand for re-routing the rail tracks. This will be completed by mid-January.

F.DILKS
NO.1. GROUP MANAGER



National Coal Board

West Midlands Division

No.1 (North Staffs.) Area

Schedule of Equipment for Firedamp Utilisation and
Extraction Plant at Chatterley-Whitfield Colliery.

Scheme No. 1/666

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx Price each |
|------------------------------------|-----------|-------|--|--|---|--|
| <u>Inlet Calorimeter Equipment</u> | | | | | | |
| 1 | 2 | | $\frac{1}{2}$ " Hand-opening electrically maintained Safety Cut-out Valves, semi-automatic pattern, in flameproof coil housing (FLP Cert No. 1808/1) and with hand-opening gear and screwed female connections. For Rectifiers see Item Nos 101 onwards. | The Magnetic Valve Co.Ltd. 7, Kendall Place, Baker Street, London W.1 | Direction of flow; 1 type No.1 1 " " 3 Drg.No.3553 | £. s. d. 53 15 0 |
| 2 | 2 | | $\frac{1}{2}$ " Atmos Type Q1 Flame Arrestors with C.I. body and flame trap element 88/2160 Connection screwed $\frac{1}{2}$ " B.S.P.T. | Blundell & Crompton Ltd. West India Dock Road, London E.14. | | 5 15 0 |
| 3 | 2 | | Type RB4 Vacuum/Pressure Gas Circulating Pumps, each mounted on a channel baseplate and complete with pressure regulating valve, cooling fan, coupling and guard and driven by a $\frac{1}{3}$ H.P. Buxton-certified (Group I) FLP motor suitable for a power supply 550 volts, 3 phase, 50 cycles. Complete with one tin of No. 8A Vacuum Oil (Approx. 6 oz). Complete with Oiler Baffle A730 and Pressure Non-return Valve A.210/C/1, and Oil Drip Feed Lubricator complete with Gauze Filter. Motor to be complete with sealing chamber and armour gland, suitable for .007 sq.in. 3 core 660 volt cable S.W.A. | Edwards, High Vacuum Ltd., Crawley, Sussex. | Extra for baffle Extra N.R.V. Extra for Oil Feed. | 50 0 0 Nett plus carriage and packing 4 17 6 10 0 |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. Price Each |
|----------|-----------|-------|--|--|---------|---------------------|
| 4 | 1 | | Oil-filled 12" W.G. Vertical Manometer, all plastic and complete with spare capsule of oil. To be arranged for wall mounting. | Cumbustion Instruments Ltd. 61, Belsize Lane, London, N.W. 3 | | £. s. d. 10 10 0 |
| 5 | 1 | | $\frac{1}{2}$ " Pressure Relief Valve, adjustable to relieve at pressures 10" w.g. and 3 p.s.i. Branches screwed $\frac{1}{2}$ " B.S.P.T. | Geo. Waller & Son. Ltd. Phoenix Iron Works, Stroud, Glos. | | 18 15 0 |
| 6 | 1 | | No.7 Standard Sigma Specific Gravity Recorder complete with fortnightly charts scaled 0 - 100% methane, suitable for recording the methane content of methane/air mixtures at 60°F. and atmospheric pressure. To be fitted with a spring driven clock. | Sigma Instrument Co.Ltd., Letchworth, Herts. | | |
| 6A | 1 | | Back-pressure Governor for Item 6. | Sigma Instrument Co.Ltd., Letchworth, Herts. | | 3 6 0 |
| 7 | 2 | | Special lamps each fitted with an oxygen-detecting burner, steatite burner tube, fuse wire holder, C.I. aluminium sprayed electrode, air regulator, stainless steel ejector, clearing pin, nose clocks, governor and spare governor, all as shown on Drg. H.1236, together with weatherproof C.I. terminal box and mounting for Honeywell-Brown flame detecting electrode. | Whessoe Ltd., Darlington. | | 25 0 0 |
| 7A | 2 | | Thermocouple Flame Failure Devices, Type 31, each consisting of an electro-magnetic valve with $\frac{1}{4}$ " connections; operating thermocouple and push-button for starting. | Thermocontrol Installations Ltd. 2-10 Valentine Place, Blackfriars Road. London S.E.1 | | 4 8 0 |
| 7B | 1 | | Ventilated Cabinet Enclosures for Item 7. | Local | | 50 0 0 |

| Item No. | No Recd. | Description | Supplier | Remarks | Approx. price each | | |
|----------|----------|---|--|---|--------------------|-----|----|
| | | | | | £. | s. | d. |
| 8 | 2 | Type 5100 Protectoglo Relay to be mounted in a flameproof enclosure (Item 8A). For operation on 200/250 volts, 50 cycles. Load relay to provide double-pole double-throw switching action rated at 10 amps at 250 volts. | Honeywell-Brown Ltd. 1 Wadsworth Road, Perivale, Greenford, Middx. | Honeywell-Brown, Ref. 2/8827 | 28. | 0. | 0. |
| 8A | 2 | Flameproof enclosures for Item 8. Complete with 3 signal light windows and 5 glands for cables. | - do - | | 54. | 15. | 0. |
| 8B | 2 | 810D1D6 Terminal-heads and Electrode. Suitable for operation at max. temp. of 1150°C., non-oxidising atmosphere. | Honeywell-Brown Ltd., 1 Wadsworth Road, Perivale, Greenford, Middx. | For operation in conjunction with Item 8. | 5. | 10. | 0. |
| 8C | 30ft. | Shielded cable for connecting Items 8 and 8B | - do - | - | 2. | 0. | 0. |
| 9 | 1 | Cambridge 8" Vacuum/Pressure Gauge, Range -80/+20" W.G. with metal diaphragm. Wall mounting. To be fitted with adjustable electric alarm contacts arranged to close should the suction pressure exceed a predetermined value. Cable entry to be $\frac{3}{4}$ " E. T. if possible. Contacts for use on 24 volts D.C. | Cambridge Instrument Co. | - | | | |
| 10 | - | $\frac{1}{2}$ " pipework, valves, etc. All fittings to be Instantor type. | Colliery | Pipework to be in copper. | 100. | 0. | 0. |
| 11 | - | FLP Lighting fittings. See Items 101 onwards | | for lighting Calorimeter Room. | | | |
| 12 | 1 set | Brass nameplates $2\frac{1}{2}$ " x $\frac{3}{8}$ " with two holes for fixing and engraved as under in black lettering on a polished chromium-plated surface: SHAFT MAIN GAS PRESSURE SAMPLING LINE GAS PRESSURE | Local Supplier | | | | |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each |
|-----------------------|-----------|-------|--|--|--|--------------------|
| | | | | | | £. s. d. |
| 13 | | | Miscellaneous switches, relays, bells, electric cables, etc. | - | See Sched. Nos. 101 onwards. | - |
| 14 | 1 | | 10" Hand-operated valve. | Any | For fitting at top of shaft gas main. | 30. 0. 0. |
| 15 | 350ft | | 10" Pipes and Fittings. To be descaled internally followed by phosphate treatment and coated with red lead paint to B.S. 2523 | Stewarts & Lloyds. | Range from shaft to Exhauster Hse. | - |
| 16 | 1 | | B.E.N. 236a. $\frac{1}{2}$ " Moisture Separator | B.E.N. Patents Ltd., High Wycombe, Bucks. | - | 3. 5. 0. |
| 17 | 1 | | Receiver for smoothing gas pressure pulsations. Capacity not less than 0.25 cu.ft. | Colliery | To consist of 5 in. bore pipe 2' 0" long | 10. 0. 0. |
| 18 | 1 | | Type 125 Rotameter. Calibrated 5-60 cu.ft. per hour methane/air mixtures containing 70% CH ₄ . but to be capable of passing safely 150 cu.ft./hr. | Rotameter Mfg. Co. Ltd., 602, Purley Way, Croydon, Surrey. | To be fitted with copper or brass gauze at base of tube. | 14 5. 0. |
| 19 | 144ft | | 30" dia. pipes treated internally as Item 15. To be suitable for working pressure of 5 lbs p.s.i. absolute. | Stewarts & Lloyds or other | For receiver between Inlet Cal' and Exh' House. | 1400 0. 0. |
| Exhauster House 20 | 1 | | 1" W.G. max. differential head type RTE/CID integrating indicating and recording flow meter with direct reading rate of flow scale, decimal type counter and mechanical drive. Including 200 daily decimally divided daily disc type charts 12" diam., and one Orifice Plate designed to suit a 10" diam. pipe range with B.S. | Geo. Kent Ltd., Luton, Beds. | - | 300 0. 0. |

| Item No. | No. Reqd. | Dept. | Description. | Supplier. | Remarks. | Approx. price each. | | |
|----------|-----------|-------|---|--------------------------|--|---------------------|-----|----|
| | | | | | | £. | s. | d. |
| 20 | 1 | | Table 'D' flanges. To be suitable for a max. flow of 1,000 cu.ft./min. (at S.T.P.) of methane/air mixtures (mean 70% methane) at 65 F. and 13. 0 p.s.i. abs. pressure. To be fitted with metal bell. The scale to be marked 'SUCTION' and to be engraved with calibration conditions. To be arranged for panel mounting. | | | | | |
| 21 | 1 | | Cambridge combined Recording & Indicating Vacuum/Pressure Gauge range -80+40 in W.G. As Fig. 3, folder 47b. To be fitted with a mechanical clock, and to be arranged for panel mounting. To be complete with 500 24 hr. charts. | Cambridge Instrument Co. | | 38. | 15. | 0. |
| 22 | 2 | | Combined Indicating and Recording Thermometers scaled 30/180°F., with 10" weekly charts, and each with a spring-driven 7-day clock and capillary tubing terminating in a bulb connection screwed $\frac{3}{4}$ " gas with a stainless steel stem $6\frac{1}{2}$ " long. To be arranged for panel mounting. | Cambridge Instrument Co. | Length of capillary tube: 45 ft. | 42. | 0. | 0. |
| 23 | 1 | | 10" Electro-magnetic Safety Cut-out Valve. As Item 1, but with flanged connections to B.S. Table "D". Entry to be screwed $\frac{3}{4}$ " E.T. for Pyrotenax cable. For Rectifier see Item No.s. 101 onwards. | Magnetic Valve Co. | Direction of flow.- Type No. 4. Drg.No. 3555. | 476. | 0. | 0. |
| 24 | 1 | | Cambridge Combined Indicating & Recording Pressure Gauge as fig. 3 folder 47b, but range 0/10 lbs./sq.in. with 100 - 24 hr. charts. To be fitted with spring-driven clock. | Cambridge Instrument Co. | | 27. | 5. | 0. |

| Item No. | No. Reqd. | Dept. | Description. | Supplier. | Remarks. | Approx. price each. |
|----------|-----------|-------|--|--|--|---------------------|
| | | | | | | £. s. d. |
| 25 | 3 | | Size L6 "Nash Hytor" Vacuum Pumps in cast iron, bronze fitted, complete with check valve, galvanised M.S. vertical discharge separator fitted with ball-float valve and gauge glass mountings, vacuum gauge, pressure gauge and bed-plate to suit 40 h.p. motors. Complete with flex coupling. Stuffing Boxes to be fitted with Lantern Rings. | Norman Engineering Co., Ltd., Commerce Way, Purley Way, Croydon, Surrey. | To be fitted with bed-plates and so arranged that 60h.p. motors could be fitted if required. | 1058.0. 0. |
| 26 | 3 | | Squirrel cage Electric Motors 40 h.p. 740 r.p.m., for driving the pumps Item 25. To be Buxton-certified F.L.P. and to be suitable for direct-on starting with a power supply 500/550 volts, 3 phase, 50 cycles. | | See Items 101 Onwards. | 310. 0. 0. |
| 27 | 3 | | Direct-on Flameproof Contact- or Starters for Item 26. | - | See Items 101 Onwards. | |
| 28 | 4 | | 4" dial Vapour Pressure Thermometers, Model 108 range 40/180 F with stainless steel bulb 6" long having a union screwed $\frac{3}{8}$ " B.S.P. To be fitted with electric contacts adjustable over the whole range to close on rise of temperature. Contacts for use on 24 Volts D.C. Cable entry to be $\frac{3}{4}$ " E.T. if possible. | Coley Thermometers Ltd., Bryco Works, 2-4 London Road, Brentford, Middx. | Length of capillary required 45 ft. each. | 17. 0.0. |
| 29 | 3 | | Fig. 412E 2" Sight Flow Indicators each with mercury switch so fitted that it will make contact should flow fail. Cable entry to be $\frac{3}{4}$ " E.T. | Rhodes & Son, Ltd., Queen St., Romford, Essex. | | 30. 0.0. |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx price each |
|----------|-----------|-------|--|--|------------------------------|-------------------|
| 30 | - | | Relays, switches, bells, electric cables, etc. | - | See Sched. Nos. 101 onwards. | £. s. d. - |
| 31 | 1 set | | Engraved nameplates as Item 12 but engraved as under: NO. 1 PUMP OUTLET GAS TEMP. NO. 2 PUMP OUTLET GAS TEMP. NO. 3 PUMP OUTLET GAS TEMP. INLET GAS TEMP. OUTLET GAS TEMP. CIRCULATING WATER TEMP. INLET GAS PRESSURE. OUTLET GAS PRESSURE | Local Supplier | | |
| 32 | 1 set | | Nameplates as Item 31, but 4" x $\frac{3}{4}$ " and engraved as under: INLET GAS PURITY CONTROLS OUTLET GAS PURITY CONTROLS | -do- | | |
| 33 | - | | 6", 8" and 10" pipes and fittings. B.S. Table 'D' flanges. To be painted internally with red lead paint to B.S. 2523, or full treatment as for Item 15. | - | | 1500. 0; 0. |
| 34 | 3 | | 6" Hand-operated Valves Saunders type C100R 1050Q with Micro-switch unit for electric alarm. Flanges to B.S.T. 'D' | Saunders Valve Co. Limited. Cwmbran, Mon. | | 31. 0. 0. |
| 35 | 3 | | 10" Hand-operated Valve Saunders type C100R 1000Q with BS Table D Flange. | -do- | | 49. 0. 0. |
| 36 | 1 | | 8" as above | | | 35. 0. 0. |
| 37 | 1 | | Instrument Panel | Local | | |
| 38 | 3 | | 6" Hand-operated Valves as item 35. | as item 35 | | 18. 0. 0. |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each |
|----------|-----------|-------|--|---|--|--------------------|
| | | | | | | £. s. d. |
| 39 | - | | 1/2" make-up feed water pipe to circulating tank with ball float valve. | Colliery | Town Water | - |
| 40 | - | | FLP Lighting fittings See Items 101 onwards | - | For lighting Exhauster House. | - |
| 41 | 1 | | 8" Deadweight equilibrium Pressure Relief Valve with replaceable C.I. seat & synthetic rubber valve & stainless steel or chromium-plated bronze spindle. To relieve at pressures between 3 and 12 p.s.i. To be fitted with flanges to B.S. Table 'D' and with a water drain-cock on the underside. Valve to be suitable for future operation between 5 and 20 p.s.i. | Geo. Waller & Son, Stroud, Glos. | | 110. 0. 0. |
| 42 | - | | 1" Spirax-Ogden Vacuum Trap to be fitted with weighted valves which will remain closed at a positive pressure of 1 p.s.i. | Spirax-Sarco Limited, Charlton House, Cheltenham. | One of these traps must be fitted at each low point in the gas main on the suction side of the gas extractors. | 29. 0. 0. |
| 43 | - | | 2" galvanized steel pipes for seal water. | - | - | - |
| 44 | 3 | | 2" foot-valves and strainers | Any | For seal-water suction pipes. | 7.10. 0. |
| 45 | 1 | | 10" Special Diaphragm Type Non return valve having large size diaphragm casings, gun metal seats, valves, spindle and spherical washers, stainless steel diaphragm plates and composition seating. To be inside loaded and fitted with flanges to B.S. Table D. To be complete with auxiliary equipment as follows :- 1 - 1" non-return valve. 1 - 1" Delta Metal Jet, all suitable for working pressure of 10 lbs/sq. in. | Bryan Donkin Ltd. Chesterfield | | 242. 0. 0. |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each. |
|-------------------------------------|-----------|-------|--|--------------------------|---|------------------------|
| 46 | 1 | | Flow meter as Item 20, but to be calibrated for measuring the flow of gas at 19.5lbs/sq. in. ABS pressure. The scale to be marked "DELIVERY" and to be engraved with calibration conditions. | Geo. Kent, Luton, Beds. | | £. s. d. 300. 0. 0. |
| <u>Outlet Calorimeter Equipment</u> | | | | | | |
| 47 | 1 | | $\frac{1}{2}$ " FLP Electro-magnetic valve. For rectifier see Items 101 onwards. | Magnetic Valve Co. | As Item 1 Direction of flow - type No.3 Drg. No. 3553 | 53.15. 0. |
| 48 | 1 | | $\frac{1}{2}$ " Pressure relief valve. | G. Waller & Sons. | As Item 5 | 18.15. 0. |
| 49 | 2 | | $\frac{1}{2}$ " Flame Arrestors. | Blundell & Crompton Ltd. | As Item 2 | 5.15. 0. |
| 50 | 1 | | U-tube Gauge. | - | As Item 4 | 10.10. 0. |
| 51 | - | | Relays, switches, electric cables, etc. | - | See Sched. No. 101. | |
| 52 | - | | $\frac{1}{2}$ " pipework and valves. All fittings to be Instantor type. | Colliery. | Pipes to be in copper. | 50. 0. 0. |
| 53 | - | | FLP lighting fittings. See Items 101 onwards. | - | For Lighting of Calorimeter House | 15. 0. 0. |
| 54 | 1 Set | | Engraved nameplates as Item 12 but engraved as under: SAMPLING MAIN GAS PRESSURE SAMPLING GAS FLOW. | Local | - | |
| 55 | 1 | | B.E.N. $\frac{1}{2}$ " Moisture Separator. | B.E.N. Patents Ltd. | As Item 16. | 3. 5. 0. |
| 56 | 1 | | Type 125 Rotameter. | Rotameter Mfg. Co. | As Item 18. | 14. 5. 0. |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each. |
|----------|-----------|-------|---|---|--|----------------------|
| 57 | 1 | | $\frac{1}{2}$ " Graduated Needle Control Valve. Connections screwed B.S.P.T. Female. | Jeavons Engineering Co. Tipton, Staffs. | | £. s. d. 1.15. 0. |
| 58 | 1 | | $\frac{1}{2}$ " Jeavons H.P. Service Governor with neoprene valve seat, stainless steel valve seat in nozzle for operation in methane/air mixtures at atmospheric temperature. To suit inlet pressure of 3 - 10 p.s.i. and weight loaded to provide an outlet pressure of between 4" and 8" W.G. | - do - | | 4.10. 0. |
| 59 | 1 | | M.S.A. Combustible Gas Alarm in flameproof box containing power supply unit, combustion chamber and relays for operating an alarm of shut-down circuit, the contacts being arranged to open on fall of methane content. To be also fitted with a pressurestat arranged to indicate zero methane if gas ceases to flow through instrument. To be suitable for a supply 250 volts 50 cycles A.C. To be scaled 0-100% CH ₄ . Entry to be screwed $\frac{3}{4}$ " E.T. for Pyrotenax cable. | Mine Safety Appliances Co. Ltd. Queenslie Industrial Estate Glasgow, E.2. | Not to be ordered pending confirmation from H.Q. re Acoustic type of Methanometer. | 220. 0. 0. |
| 60 | 1 | | 6" Nalder Remote Indicator scaled 0-100% CH ₄ , the range 0-40% CH ₄ being marked in red. Entry to be screwed $\frac{3}{4}$ " E.T. for Pyrotenax cable. | - do - | - do - | 12. 0. 0. |
| 61 | 1 | | Mark II Sigma Recording Calorimeter complete with gas flow regulator and 12 monthly charts No.160/65% range 40-100% CH ₄ . For recording methane content of methane/air mixtures at 65°F. and 8 in W.G. pressure. To be fitted with a spring-driven 7-day clock and with electric switch arranged to close on fall of CH ₄ content. Entry to be screwed $\frac{3}{4}$ " E.T. for Pyrotenax cable. | Sigma Instruments Ltd. Letchworth. | | 125. 0. 0. |
| 61A | 1 | | Boys Calorimeter | | Future | |

| Item No. | No. Reqd | Dept | Description | Supplier | Remarks | Approx. Price Each. |
|--|----------|------|---|--|---|---------------------|
| 62 | 1 | | Floor mounting ventilated gas-tight cabinet for Item 61, and as shown on Sigma.Drg. G.1231. | Sigma Instruments Ltd. Letchworth | | £38.15. 0d |
| 63 | 1 | | Pressure Indicating Gauge 8" Dial Scaled 0-10 p.s.i. arranged for wall mounting. | Cambridge Instrument | | 13. 0. 0 |
| 64 | | | 1" Spirax F.T. 61 Air Trap suitable for a pressure of 6 lbs/sq. in. | Spirax-Sarco Ltd., Charlton House, Cheltenham. | One trap to be fitted at all low points in the gas main between gas extractors and gas governor valves. | 7. 5. 0 |
| 64A | | | Spirax Fig.6 Strainer for Item 64. | Spirax-Sarco Ltd. | | 2. 4. 0 |
| <u>External Pipework and Equipment</u> | | | | | | |
| 65 | 1 | | 10" Atmos type Q1 Flame Arrestor with C.I. Case and 4 Flame Trap Elements. Type A.88/1370. | Blundell & Crompton | | 110. 0. 0 |
| <u>Gas Cooling Plant</u> | | | | | | |
| 66 | 1 | | Type DSK 1366/1 Serck Gas Cooler with 70/30 Brass Fins and fitted with inspection doors to be tested to pressure of 100 p.s.i. and 30 p.s.i. on water and gas sides respectively. Test certificates to be supplied. | Serck Radiators Ltd. Birmingham, 11. | To be Transferred from Holditch. | |
| 67 | 1 | | P.63 Cooler complete with 550 volt 3 phase 50 cycle AC 2 h.p. 1430 r.p.m. Brook Motor. Complete with 1 pair brass cased thermometers. | Heenan & Froude Ltd., Worcester. | | 463. 0. 0 |
| 67A | 1 | | Flameproof Direct-on-Line Starter for Item 67. See Items 101 onwards. | | | |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. Price. Each. £. s. d. |
|-------------------------------|-----------|-------|---|--|--|----------------------------------|
| 68 | 2 | | KX 2½" Cast Iron End Suction Centrifugal Pumps with Ball & Roller Bearings. | Pulsometer Eng. Co., 39 Victoria St., London, S.W.1. | | 105. 0. 0 |
| 68A | 2 | | 2 H.P. FLP Squirrel Cage Brook Motor for Item 68. To be suitable for a supply 550/3/50. | - do - | | Included in 68 |
| 68B | 2 | | Flameproof Direct-on-Line Starters for Item 68A. See Items 101 onwards. | | | |
| 69 | | | 8" & 2½" Gas and Water Pipes. Gas pipes to be treated internally as Item 15. Water pipes to be galvanized. | Stewarts & Lloyds | For use in conjunction with items 66, 67 & 68. | |
| 69A | 4 | | 2½" Gate Valves | Local | - | - |
| 70 | 2 | | 8" Hand-operated Saunders Valves as Item 36. | Saunders | | 35. 0. 0 |
| 71 | 1 | | 8" Pressure Relief Valve as Item 41. | G. Waller | | 110. 0. 0 |
| 72 | 1 | | Mist Separator Approx. 4'6" dia. x 4'6" high. | Insull & Pointon, Tunstall. | - | 185. 0. 0 |
| <u>Delivery Side Gas Main</u> | | | | | | |
| 73 | - | | 8" Pipe range between Exhauster House and Governor House. To be treated as Item 15. B.S. Table 'D' flanges. Normal W.P.5 p.s.i. | Stewarts & Lloyds | | - |
| 74 | 4 | | 6" Hand-operated Valves. Flanges to B.S. Table 'D' | Any | For Gas Governor Valves. | 12. 0. 0 |
| 75 | 2 | | 6" Flanged (B.S. Table 'D') 'Jeavons Emco' high pressure balanced valve governors to suit an inlet pressure of 2 - 5 lbs/sq.in. and an outlet pressure (adjustable) of 5" - 10" W.G. with a tolerance of 10%. To be outside weight-loaded and to be fitted with Pilot Control Equipment. To be fitted with bronze insert valve seats, stainless steel link pins and weight spindle. | Jeavons Eng. Co., Ltd., Tipton, Staffs. | - | 140. 0. 0 |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each. |
|---------------------|-----------|-------|---|------------------------------|--|---------------------|
| | | | | | | £. s. d. |
| 76 | - | | 10" Pipe Range between Receiver and Header in Boiler House. To be treated as Item 15 and to have B.S. Table 'D' flanges. Normal W.P. 10 in. W.G. | Stewarts & Lloyds or other. | | - |
| 77 | 1 | | 8" Shand and Jurs Flame Arrestor with flanged connections. | Whessoe Ltd. Darlington. | Transferred from Stafford Colliery. | - |
| 78 | - | | 8" Pipes and fittings for vent range between gas header in Boiler House and the main vent range. | Stewarts & Lloyds or others. | | - |
| 79 | - | | Water sealed traps to drain vent ranges. | Colliery or other. | One to be fitted at each low point. Discharge of trap to be in open air. | - |
| 80 | 1 | | Gas Receiver having 10" or greater inlet and outlet flanged connections and also connection for drain. | Colliery. | Transferred (?) | - |
| 81 | 2 | | 10" Hand-operated Valve as Item 14. | Any | | 30. -. -. |
| 82 | 1 | | 1" Air Trap as Item 64 but suitable for a W.P. of 10 in W.G. For draining Item 80. | Spirax-Sarco Ltd. | - | 8. -. -. |
| 82A | 1 | | Spirax Fig. 6 Strainer for Item 82. | - do - | - | 2. -. -. |
| <u>Boiler House</u> | | | | | | |
| 83 | 1 | | 6" Diaphragm Type Pressure Relief Valve to relieve at 8"-12" W.G. (adjustable). Flanged connections to B.S. Table 'D'. To have replaceable C.I. seat, synthetic rubber valve and stainless steel or chromium-plated bronze spindle. | Geo. Waller & Son, Stroud. | To be transferred from Stafford. | - |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each. |
|----------|-----------|-------|---|---|---|-----------------------|
| 84 | 1 | | 1" Air Trap, as Item 82. | Spirax-Sarco Ltd. | One trap also to be fitted at all low points in the L.P. gas main. | £. s. d. 8. - . - |
| 84A | 1 | | Spirax Fig. 6 Strainer for Item 84. | - do - | - do - | 2. - . - |
| 85 | 1 | | 3" Hand-operated Valve. | Local | - | 6. - . - |
| 86 | 1 | | 2" Shand and Jurs Flame Arrester, with Flanged connections. | Whessoe Ltd. Darlington. | Transfer from Stafford. For Ignition burner feed line. | |
| 87 | - | | 4" Shand and Jurs Flame Arrester with flanged connections. | - do - | Transfer from Stafford. One required for each gas burner (Item 88). | |
| 88 | - | | Liptak Gako W.B. type Gas Burners, gas valves and refractory lining for 2 Lancs. boilers. | Liptak Furnace Arches Ltd., 68, Victoria St., London, S.W.1. | Approx. price for two boilers. | 2000. - . - (T.E.) |
| 88A | 2 | | F.D. Fans and Motors complete. | Keith Blackman Ltd. | Transfer from Stafford. | |
| 89 | - | | Lead Sulphide Type Flame failure controls together with air and gas pressure alarm and controls. <u>Note:</u> A certain amount of the equipment at Stafford Colliery may be suitable for transfer. | Thermo-control Installations Ltd. 2-10 Valentine Place, Blackfriars Rd. London S.E.1. | Approx. price for supplying & installing equipment for two boilers. | 1000. - . - (T.E.) |

| Item No. | No. Reqd. | Dept. | Description | Supplier | Remarks | Approx. price each. |
|---------------------|-----------|-------|--|----------|---|-------------------------|
| <u>Buildings</u> | | | | | | |
| 90 | 1 | | Combined Exhauster & Calorimeter House with external concrete water tank. Building about 67' 0" x 17' 6". Inclusive of chimney, compound and fencing | - | | £. s. d. 5500. -. -. |
| <u>Power Supply</u> | | | | | | |
| 91 | - | | Cable and switchgear to supply 200 KVA to Exhauster House. See Items 101 onwards. | - | Supply for 3 x 60 h.p. pumps in parallel. | - |

NOTES

1. The prices given in this Schedule are approximate only. They do not cover installation costs.
2. It may be desirable to fit explosion-relief doors in the boiler flues.

DECEMBER, 1959.

ARMA ENGINEERING DEPARTMENT.