

NOTES

[illegible][illegible]





F&G CAUSE AND EFFECT
DIAGRAM
DETECTION AREA-4
(1ST. & 2ND. STAGE GAS
COMPRESSOR AREA)

TOTALLY REVISED DO1		F&G CAUSE AND EFFECT DIAGRAM		DETECTION AREA-4 (1ST. & 2ND. STAGE GAS COMPRESSOR AREA)		CAUSE		EFFECT		ACTION		TAG		DESCRIPTION		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE		INITIATE	
---	--	------------------------------	--	---	--	-------	--	--------	--	--------	--	-----	--	-------------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--

- NOTES
1. (CONTROL ROOM MONITORING IS DEPICTED TO ALARMING ON F&G OPERATOR WORKSTATION.
 2. 2 DIFFERENT TONES TO BE SELECTED FOR HIGH AND BEACON ONE (NON-CONTINUOUS) AND ONE FOR FIRE DETECTION & FLAMMABLE/TOXIC GAS DETECTION (NON-CONTINUOUS).
 3. DIFFERENT COLORS TO BE SELECTED FOR LIGHTS OF BEACONS.
- RED FOR FIRE DETECTION
BLUE FOR TOXIC GAS DETECTION
YELLOW FOR FLAMMABLE GAS DETECTION
OR DETECTION

REFERENCE DRAWINGS	DATE
PROJ. DRAWING FOR PROJECT AREA	BR-CDS-PRD-01-20-0001
PROJ. DRAWING FOR FIRE & GAS DETECTION AND MONITORING SYSTEM	BR-CDS-PRD-01-20-0002
PROJ. DRAWING FOR FIRE & GAS DETECTION AND MONITORING SYSTEM	BR-CDS-PRD-01-20-0003
PROJ. DRAWING FOR FIRE & GAS DETECTION AND MONITORING SYSTEM	BR-CDS-PRD-01-20-0004

KEY PLAN

PROJECT NO.	971000
PROJECT NAME	BRINAK OILFIELD DEVELOPMENT/REPAIRS FACILITIES GAS COMPRESSION STATION
PROJECT NO.	971000
PROJECT NAME	BRINAK OILFIELD DEVELOPMENT/REPAIRS FACILITIES GAS COMPRESSION STATION
PROJECT NO.	971000
PROJECT NAME	BRINAK OILFIELD DEVELOPMENT/REPAIRS FACILITIES GAS COMPRESSION STATION

DATE	SCALE	DRAWING BY	CHECKED BY	DATE
DATE	SCALE	DRAWING BY	CHECKED BY	DATE
DATE	SCALE	DRAWING BY	CHECKED BY	DATE

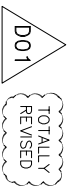


ACTION	EFFECT DESCRIPTION	TAG
INITIATE	LAMP FOR FIRE ALARM FOR AREA4	MATRIX PANEL IN CONTROL ROOM
INITIATE	LAMP FOR FLAMMABLE GAS ALARM FOR AREA4	F&G GRAPHIC DISPLAYS IN CONTROL ROOM
INITIATE	LAMP FOR TOXIC GAS ALARM FOR AREA1	
INITIATE	COMMON AUDIBLE ALARM	
INITIATE	CR-AREA4 UNCONFIRMED FIRE ALARM	BR-4001/2
INITIATE	CF-AREA4 CONFIRMED FIRE ALARM	BY-4001/2
INITIATE	CR-AREA4 UNCONFIRMED LOW FLAMMABLE GAS ALARM	BB-4001/2
INITIATE	CF-AREA4 CONFIRMED LOW FLAMMABLE GAS ALARM	NN-4001/2
INITIATE	CR-AREA4 UNCONFIRMED HIGH FLAMMABLE GAS ALARM	NN-4001/2
INITIATE	CF-AREA4 CONFIRMED HIGH FLAMMABLE GAS ALARM	
INITIATE	CR-AREA4 UNCONFIRMED LOW TOXIC GAS ALARM	
INITIATE	CF-AREA4 CONFIRMED LOW TOXIC GAS ALARM	
INITIATE	CR-AREA4 UNCONFIRMED HIGH TOXIC GAS ALARM	
INITIATE	CF-AREA4 CONFIRMED HIGH TOXIC GAS ALARM	
INITIATE	CR-AREA4 MANUAL CALL POINT ALARM	
INITIATE	ALARM RED FLASH LIGHT FOR FIRE DET.	
INITIATE	ALARM YELLOW FLASH LIGHT FOR FLAMMABLE GAS	
INITIATE	ALARM BLUE FLASH LIGHT FOR TOXIC GAS DET.	
INITIATE	ALARM SOUNDER WITH CONTINUOUS SOUND	
INITIATE	ESD REQUEST 1A	
INITIATE	ESD REQUEST 2A(TRAIN B)	
INITIATE	OPEN COMMAND TO DELUGE VALVE	DV-2303
		RPT RUN/TOTAL FOR PLANT TOTAL
		RPT RUN/TOTAL FOR PLANT TOTAL

[illegible]



(SUMP & PIG LAUNCHER AREA)

[illegible]

NOTES	
1. (PER)CONTROL ROOM MONITORING IS DELEGATED TO ALARMING ON FMS OPERATOR WORKSTATION.	
2. 2 DIFFERENT TONES TO BE SELECTED FOR HIGH AND SEASON ONE (NON-COMMUNIS) AND ONE FOR PER DETECTION & FLAMMABLE/ TOXIC GAS DETECTION HIGH ALARM(COMMUNIS).	
3. DIFFERENT COLOURS TO BE SELECTED FOR LIGHTS OF SEASONS.	
RED FOR TOXIC GAS DETECTION	
BLUE FOR TOXIC GAS DETECTION	
YELLOW FOR FLAMMABLE GAS DETECTION	
GREEN DETECTION	
DEPENDENCE DRAWINGS	
PRO LAYOUT FROM PROCESS DATA	HE-CAS-PI-PROCC-158-35-02-0000
OPERATION FOR PER & GAS SENSOR AND DETECTION	HE-CAS-PI-PROCC-158-35-02-0000
PER & GAS DETECTION DESIGN CONTROL	HE-CAS-PI-PROCC-158-35-02-0001
END LAYOUT VERIFICATION	HE-CAS-PI-PROCC-158-35-02-0003
LAYOUT	

KEY PLAN	
----------	--

PRODUCT NO.:	797000	DATE OF PURCHASE:	07/03/00
BRAND:	DAVID GREENE'S	QUANTITY:	1
ITEM NO.:	1001	ITEM NAME:	1001
ITEM NO.:	1002	ITEM NAME:	1002
ITEM NO.:	1003	ITEM NAME:	1003
ITEM NO.:	1004	ITEM NAME:	1004
ITEM NO.:	1005	ITEM NAME:	1005
ITEM NO.:	1006	ITEM NAME:	1006
ITEM NO.:	1007	ITEM NAME:	1007
ITEM NO.:	1008	ITEM NAME:	1008
ITEM NO.:	1009	ITEM NAME:	1009
ITEM NO.:	1010	ITEM NAME:	1010
ITEM NO.:	1011	ITEM NAME:	1011
ITEM NO.:	1012	ITEM NAME:	1012
ITEM NO.:	1013	ITEM NAME:	1013
ITEM NO.:	1014	ITEM NAME:	1014
ITEM NO.:	1015	ITEM NAME:	1015
ITEM NO.:	1016	ITEM NAME:	1016
ITEM NO.:	1017	ITEM NAME:	1017
ITEM NO.:	1018	ITEM NAME:	1018
ITEM NO.:	1019	ITEM NAME:	1019
ITEM NO.:	1020	ITEM NAME:	1020
ITEM NO.:	1021	ITEM NAME:	1021
ITEM NO.:	1022	ITEM NAME:	1022
ITEM NO.:	1023	ITEM NAME:	1023
ITEM NO.:	1024	ITEM NAME:	1024
ITEM NO.:	1025	ITEM NAME:	1025
ITEM NO.:	1026	ITEM NAME:	1026
ITEM NO.:	1027	ITEM NAME:	1027
ITEM NO.:	1028	ITEM NAME:	1028
ITEM NO.:	1029	ITEM NAME:	1029
ITEM NO.:	1030	ITEM NAME:	1030
ITEM NO.:	1031	ITEM NAME:	1031
ITEM NO.:	1032	ITEM NAME:	1032
ITEM NO.:	1033	ITEM NAME:	1033
ITEM NO.:	1034	ITEM NAME:	1034
ITEM NO.:	1035	ITEM NAME:	1035
ITEM NO.:	1036	ITEM NAME:	1036
ITEM NO.:	1037	ITEM NAME:	1037
ITEM NO.:	1038	ITEM NAME:	1038
ITEM NO.:	1039	ITEM NAME:	1039
ITEM NO.:	1040	ITEM NAME:	1040
ITEM NO.:	1041	ITEM NAME:	1041
ITEM NO.:	1042	ITEM NAME:	1042
ITEM NO.:	1043	ITEM NAME:	1043
ITEM NO.:	1044	ITEM NAME:	1044
ITEM NO.:	1045	ITEM NAME:	1045
ITEM NO.:	1046	ITEM NAME:	1046
ITEM NO.:	1047	ITEM NAME:	1047
ITEM NO.:	1048	ITEM NAME:	1048
ITEM NO.:	1049	ITEM NAME:	1049
ITEM NO.:	1050	ITEM NAME:	1050
ITEM NO.:	1051	ITEM NAME:	1051
ITEM NO.:	1052	ITEM NAME:	1052
ITEM NO.:	1053	ITEM NAME:	1053
ITEM NO.:	1054	ITEM NAME:	1054
ITEM NO.:	1055	ITEM NAME:	1055
ITEM NO.:	1056	ITEM NAME:	1056
ITEM NO.:	1057	ITEM NAME:	1057
ITEM NO.:	1058	ITEM NAME:	1058
ITEM NO.:	1059	ITEM NAME:	1059
ITEM NO.:	1060	ITEM NAME:	1060
ITEM NO.:	1061	ITEM NAME:	1061
ITEM NO.:	1062	ITEM NAME:	1062
ITEM NO.:	1063	ITEM NAME:	1063
ITEM NO.:	1064	ITEM NAME:	1064
ITEM NO.:	1065	ITEM NAME:	1065
ITEM NO.:	1066	ITEM NAME:	1066
ITEM NO.:	1067	ITEM NAME:	1067
ITEM NO.:	1068	ITEM NAME:	1068
ITEM NO.:	1069	ITEM NAME:	1069
ITEM NO.:	1070	ITEM NAME:	1070
ITEM NO.:	1071	ITEM NAME:	1071
ITEM NO.:	1072	ITEM NAME:	1072
ITEM NO.:	1073	ITEM NAME:	1073
ITEM NO.:	1074	ITEM NAME:	1074
ITEM NO.:	1075	ITEM NAME:	1075
ITEM NO.:	1076	ITEM NAME:	1076
ITEM NO.:	1077	ITEM NAME:	1077
ITEM NO.:	1078	ITEM NAME:	1078
ITEM NO.:	1079	ITEM NAME:	1079
ITEM NO.:	1080	ITEM NAME:	1080
ITEM NO.:	1081	ITEM NAME:	1081
ITEM NO.:	1082	ITEM NAME:	1082
ITEM NO.:	1083	ITEM NAME:	1083
ITEM NO.:	1084	ITEM NAME:	1084
ITEM NO.:	1085	ITEM NAME:	1085
ITEM NO.:	1086	ITEM NAME:	1086
ITEM NO.:	1087	ITEM NAME:	1087
ITEM NO.:	1088	ITEM NAME:	1088
ITEM NO.:	1089	ITEM NAME:	1089
ITEM NO.:	1090	ITEM NAME:	1090
ITEM NO.:	1091	ITEM NAME:	1091</

BPC CONTRACTOR 	BPC CONTRACTOR (CO) 	BANK OUTSIDE DEVELOPMENT SERVICES FACILITIES GAS COMPRESSION STATION	DATE		SCALE		DRAWN BY		CHECKED BY		PROJECT ENG.	
BPC CONTRACTOR: HERNIM BHERREY & ASSOCIATES 10000 15TH AVE. S.W. SUITE 100 BURNABY, BC V5C 3S7 TEL: 604-291-1111 FAX: 604-291-1112 WWW.HERNIMBHERREY.COM												
BPC CONTRACTOR (CO): PERITHOM DEVELOPMENT COMPANY 10000 15TH AVE. S.W. SUITE 100 BURNABY, BC V5C 3S7 TEL: 604-291-1111 FAX: 604-291-1112 WWW.HERNIMBHERREY.COM												
PAYING TITLE: PAY CARBON AND PROTECT DRAINAGE FOR PROJECT AREA												
NO CONSTRUCTION PERMITTED INSIDE DRAWING APPROVED												
APPROVED FOR CONSTRUCTION:												
BPC NO. 8221 BPC-CSP-PROJNO. 14-00-0069 N.Y.S. A3	SHEET NO. 1 OF 13	REV. 1 OF 1 9-30-07T-3144	PROJECT NAME ACTIVATED (REDACTED)	SHEET NO. 1 OF 13	DATE 7/26/2014	REVISION 1	REVISION 1	REVISION 1	REVISION 1	REVISION 1	REVISION 1	
VENDOR TITLE: MCC-274												



NOTES	
1. (OPERATIONAL ROOM MONITORING IS SPECIFIED TO ALARMING ON FIRE OPERATOR WORKSTATION.	
2. 2 DIFFERENT TONES TO BE SELECTED FOR MORN AND BEACON ONE (NON-COMMUNES) AND ONE FOR FIRE DETECTION & FLAMMABLE/TOXIC GAS DETECTION HIGH ALARM(COMMUNES).	
3. DIFFERENT COLORS TO BE SELECTED FOR LIGHTS OF BEACONS: RED FOR FIRE DETECTION BLUE FOR GAS DETECTION YELLOW FOR FLAMMABLE GAS DETECTION YELLOW DETECTION	
LEGEND	
REFERENCE DRAWING	DESI. No.
P&ID LAYOUT AND PROCESS DATA	HE-C02-PROCESS-185-3E-FI-00000
OPERATION PLAN FIRE & GAS SENSOR AND DETECTION	HE-C02-PROCESS-185-3E-FC-00000
FIRE & GAS DETECTION DESIGN CRITERIA	HE-C02-PROCESS-185-3E-FC-00000
AND LAYOUT, INSTRUMENT	HE-C02-PROCESS-185-3E-DC-00000
KEY PLAN	

[illegible]

