

Liquefied hydrocarbons

OWNER	SITE	COUNTRY	SERVICES	PERIOD
TOTAL E&P France	Carresse	France	Specific engineering and research studies	2009
JOGMEC	Namikata	Japan	Casing Inspection	2009
JOGMEC	Namikata	Japan	LPG and water quality analyses	2009
SK GAS	Ulsan	South Korea	Specific study for a pumping test	2009
SHELL	Petit-Couronne	France	Definition and implementation of technical follow-up at an LPG underground storage site in a mined rock cavern	2009
JOGMEC	Namikata	Japan	Technical assistance to LPG underground storage project in mined rock caverns	2009
PRIMAGAZ	Lavéra	France	Assistance to storage operation.	2009/2011
TOTAL	Donges	France	Revision of risk analysis study for a propane underground storage site in a mined rock cavern	2009
SOMAS	Sidi larbi	Morocco	Basic design for the construction of an additional leached salt cavern for butane storage	2009
SOMAS	Sidi larbi	Morocco	Inspection and maintenance operations and brine/LPG interface measurements on a leached salt cavern	2009
DRAGON GAS	Qingdao	China	Revision of basic design for an LPG storage project in mined caverns	2009
GEOSTOCK US for ONEOK	Des Moines	USA	Hydrogeological and surface facilities audit of an LPG mined rock cavern	2009
PRIMAGAZ	Lavéra	France	Training of the site manager	2008
HPCL	Mangalore	India	Detailed feasibility study of an LPG mined cavern storage	2008
TOTAL E&P France	Carresse	France	Specific studies and research for abandonment of LPG storage in leached salt caverns	2008
BPNH LPG	Ningbo	China	Feasibility study to store LPG mix in a propane cavern	2008
JOGMEC	Namikata	Japan	Technical assistance to construction of an LPG underground storage in mined caverns	2008
SALPG	Visakhapatnam	India	Assistance to operation of a mined storage facility	2008
TOTAL	Donges	France	Project management of decennial inspection for a propane mined storage cavern	2008
GEOSTOCK US for CONOCOPHILIPPS	Mount Vernon	USA	Hydrogeological follow up of an underground LPG mined storage cavern	2008
GEOSTOCK US for MUD	Omaha (Nebraska)	USA	Workover assistance for an LPG mined storage facility	2008
SALPG	Visakhapatnam	India	Assistance to commissioning and start-up.	2008

Liquefied hydrocarbons (cont'd)

OWNER	SITE	COUNTRY	SERVICES	PERIOD
SK GAS	Ulsan	South Korea	Hydrogeological study for an LPG storage in mined cavern	2007
SOMAS	Mohammedia	Morocco	Training of Maintenance and HSE Manager	2007
SOMAS	Mohammedia	Morocco	Hazard study	2007
JOGMEC	Namikata	Japan	Technical assistance to construction of an LPG underground storage in mined caverns	2007
TOTAL	Donges	France	Decennial Inspection Program for underground propane mined cavern	2007
JOGMEC		Japan	Technical assistance to preparation of technical standards for LPG mined caverns storages	2007
INA	Rijeka	Croatia	Technical Assistance for Site Investigation of LPG underground storage in mined cavern	2007
SALPG	Visakhapatnam	India	Development of Cavern Operation & Maintenance Procedures	2007
TOTAL E&P France	Carresse	France	Technical assistance to abandonment of LPG storage in salt-leached cavern	2007
BUTAGAZ	Sennecey-le-Grand	France	Technical Assistance to Decennial Inspection	2007
SOMAS	Mohammedia	Morocco	Inspection and maintenance operations	2007
HPCL	Mangalore	India	Detailed Feasibility study for the setting up of a mined LPG cavern.	2007
SALPG	Visakhapatnam	India	Training of operators	2007
TOTAL		India	Participation to a project technical review	2007
SK GAS	Ulsan	South Korea	Hydrogeological Training	2007
E1	Inchon	South Korea	Hydrogeological Training	2007
SIGAS	Sines	Portugal	Technical assistance during hydrogeological investigation	2007
FLUXYS	Antwerpen	Belgium	Backfilling of a mined storage cavern	2007
E1	Inchon	South Korea	Water curtain additional borehole	2007
GEOSTOCK US for MUD	Omaha	USA	Audit of a propane mined cavern	2007
JOGMEC		Japan	Monitoring System study	2007
JOGMEC		Japan	Risk study	2007
JOGMEC		Japan	Cryogenic storage feasibility study	2006
JOGMEC		Japan	Technical Assistance	2006
GEOSTOCK US for BP	Griffith	USA	Qualification study of an existing cavern	2006
TOTAL	Donges	France	Additional hazard study	2006

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
JOGMEC		Japan	Cryogenic storage preliminary study	2006
SK GAS	Ulsan	South Korea	Water curtain additional borehole	2006
CONOCOPHILIPS	South Killingholme	United Kingdom	Cavern Inspection	2006
JOGMEC		Japan	JOGMEC Standards preparation	2006
BUTAGAZ	Sennecey-le-Grand	France	2005 Decennial inspection program of the propane mined storage cavern	2006
TOTAL	Donges	France	Seismic monitoring	2006
SHELL	Petit-Couronne	France	Renewal of the administrative operation permission	2006
TOTAL	Donges	France	General training for operation of mined storage caverns	2006
PRIMAGAZ	Lavéra	France	2007 Decennial inspection program of the propane mined cavern storage	2006
JOGMEC	Namikata Kurashiki	Japan	Preparation of technical standards for LPG mined caverns storages based on European Safety Regulations	2006
TOTAL	Carresse	France	Assistance to LPG salt caverns storage abandonment procedures	2006/...
CALOR GAS	South Killingholme	United Kingdom	Three-year agreement for assistance to operation of an LPG mined storage facility	2006/...
JOGMEC	Namikata Kurashiki	Japan	Study on long-term evolution of LPG quality in mined caverns storages	2006
BUTAGAZ	Sennecey-le-Grand	France	Hazard study (modifications)	2006
SK GAS	Ulsan	South Korea	Technical assistance to the drilling of additional boreholes	2005
SOMAS	Mohammedia	Morocco	Feasibility study for creating a third LPG salt leached cavern	2005
TOTAL GAS & POWER INDIA	Visakhapatnam	India	Project Technical Review	2005
TOTAL	Carresse	France	Assistance to LPG storage abandonment	2005
TOTAL	Viriat	France	Additional services for underground storage of LPG in salt leached caverns	2005
TOTAL	Donges	France	Implementation of a seismic monitoring system	2005
SOMAS	Mohammedia	Morocco	New truck loading bays study for an LPG storage facility in salt leached caverns	2005
COGEL	Shantou	China	Assistance and technical follow-up to LPG mined storage facility	2005/...
JOGMEC	Namikata Kurashiki	Japan	Review of LPG mined cavern basic design	2005

Liquefied hydrocarbons (cont'd)

OWNER	SITE	COUNTRY	SERVICES	PERIOD
SOMAS	Mohammedia	Marocco	Technical assistance to operation for a salt leached caverns LPG storage	2005/...
TOTAL	Donges	France	Engineering and assistance to level equipment implementation in an LPG mined storage cavern operation shaft	2005
GEOGAZ	Lavera	France	Engineering, construction management and realization supervision of a concrete plug injection in an operated storage.	2005
GEOVEXIN	Gargenville	France	Engineering, construction management and supervision of a water injection system improvement on an existing site	2005
JOGMEC	Namikata Kurashiki	Japan	Study of underground monitoring parameters during operation of an LPG mined storage facility	2005
SHELL	Petit-Couronne	France	Safety study for underground part	2005
CHIYODA for JOGMEC	Namikata	Japan	Hazop study of an LPG mined storage facility	2005
JOGMEC	Namikata	Japan	Remote operation study of an LPG mined storage facility	2005
JOGMEC	Namikata	Japan	Study of underground monitoring parameters during operation of an LPG mined storage facility	2005
GEOSTOCK US for CONOCOPHILLIPS	Mt Vernon	USA	Well workover project management of an LPG storage in mined cavern	2004
TOTAL	Donges	France	Shaft equipment study	2004
JNOC	Namikata Kurashiki	Japan	Basic design changes for an LPG storage in mined caverns	2004
SK GAS	Ulsan	South Korea	Hydrogeological follow-up	2004 / ...
TOTAL	Carresse	France	Abandonment brief of LPG storage in salt leached caverns	2004
TOTAL	Donges	France	Hazard study update of a propane mined storage facility.	2004
E1	Yosu/Inchon	South Korea	Hydrogeological follow-up	2004 / ...
Multiclients study			LPG mined cavern benchmarking	2004
JOGMEC	Namikata	Japan	Development of standards	2004
TOTAL	Viriat	France	FMEA Study	2004
TOTAL	Viriat	France	Geotechnical underground stability studies	2004
COSTIEROGAS LIVORNO	Leghorn	Italy	Assistance to operation monitoring	2004
SK GAS	Ulsan	South Korea	Assistance to the drilling of additional boreholes	2004
BPNH LPG	Ningbo	China	Hydrogeological follow-up and seismic monitoring of LPG mined storage facility	2004
QINGDAO DRAGON GAS	Qingdao	China	Assistance to design and construction of an LPG storage in mined caverns	2004
GEOSTOCK US for CONOCOPHILLIPS	Mt Vernon	USA	Hydrogeological monitoring	2004
TOTAL	Viriat	France	Hazard study for an ethylene storage facility in salt leached cavern	2004
GEOVEXIN	Gargenville	France	Review of hazard study (in compliance with Seveso II Directive)	2004
GEOVEXIN	Gargenville	France	Study on storage decommissioning and abandonment methods	2004

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
GEOVEXIN	Gargenville	France	Prefeasibility study of propane storage conversion into jet fuel storage	2004
GEOGAZ	Lavera	France	Engineering study on inspection methods or neutralization of an access tunnel manhole	2004
GEOGAZ	Lavera	France	Upgrading and change of the logistic and products inventory information system	2004
GEOGAZ	Lavera	France	Review of hazard study (in compliance with Seveso II Directive)	2004
TOTAL	Donges	France	Installation of downhole safety valves	2004
TOTAL	Donges	France	Engineering study of neutralization or abandonment of a level measurement casing	2004
OBAYASHI	Namikata Kurashiki	Japan	Royalties for the construction of an LPG underground storage in mined caverns.	2003
GEOSTOCK US	Bushton	USA	Leaching program for a new LPG leached salt cavern	2003
SOMAS	Mohammedia	Morocco	Assistance to DCS construction	2003
GEOSTOCK US	Bushton	USA	Basic design for the leaching of a new salt cavern for the storage of LPG and cavern pre-plugging program	2003
TOTAL	Donges	France	Engineering study for installation of downhole safety valves	2003
SHELL	Petit-Couronne	France	Inspection of 3 wells	2003
EAEPF	Carresse	France	Assistance for cavern trapping	2003
TOTAL	Donges	France	Technical assistance	2003
FLUXYS	Anvers	Belgium	Butane storage re-commissioning study	2003
TOTAL	Donges	France	Project management of an additional borehole drilling	2003
OBAYASHI	Namikata	Japan	Royalties for the construction of an LPG underground storage in mined caverns.	2003
SHELL	Petit-Couronne	France	Inspection of shaft equipment for LPG caverns.	2003
SK GAS	Ulsan	South Korea	Assistance to the drilling of additional boreholes	2003
OBAYASHI	Namikata	Japan	Technical assistance to construction of an LPG underground storage in mined caverns	2003
GEOSTOCK US for CONOCOPHILIPPS	Wood River	USA	Hydrogeological assessment of an LPG storage in mined cavern	2003
EPDC	Namikata	Japan	Safety study	2003
OBAYASHI	Namikata	Japan	Hydrogeological study	2003
SALPG	Visakhapatnam	India	Assistance to construction of an LPG underground storage in mined caverns	2003
JNOC	Namikata	Japan	Operators training	2003
TOTAL	Donges	France	Shaft equipment study	2003
SALPG	Visakhapatnam	India	Assistance to EPC selection	2003
GEOVEXIN	Gargenville	France	Installation of a downhole safety valve	2003
GEOVEXIN	Gargenville	France	Engineering study for securing electric room in a hazardous area	2003
GEOGAZ	Lavera	France	DCS replacement project management	2003

Liquefied hydrocarbons (cont'd)

OWNER	SITE	COUNTRY	SERVICES	PERIOD
SIGAS	Sines	Portugal	Technical assistance to operation of an LPG mined storage facility.	2002/...
TOTALFINAELF	Donges	France	Compliance with "Seveso 2" directive.	2002
OBAYASHI		Japan	Technical assistance for LPG mined storage facility development.	2002
ELGAS	Sydney	Australia	Assistance to operation of propane mined storage facility.	2002
COGEL	Shantou	China	Technical assistance to new control wells drilling for an LPG mined storage facility.	2002
SK GAS	Pyongtaek	South Korea	Improvement of the water curtain system of an LPG mined storage facility.	2002
TOTALFINAELF	Carresse	France	Abandonment study.	2002
ATOFINA	Vauvert	France	Technical audit of the brine pipeline.	2002
PRIMAGAZ	Lavera	France	Training of operators of an LPG mined storage facility.	2002
SOMAS	Mohammedia	Morocco	Salt leached cavern inspection.	2002
SIGAS	Sines	Portugal	Technical assistance to new control wells drilling for an LPG mined storage facility.	2002
BUTAGAZ	Sennecey	France	Risk study update for an LPG mined storage facility.	2002
LG-CALTEX GAS	Yosu/Inchon	South Korea	Hydrogeological monitoring of LPG mined storage facilities.	2002
CONOCO	Humber	United Kingdom	Assistance to well inspection.	2002
GEOSTOCK US for CONOCO	Mt Vernon	USA	Operation monitoring evaluation.	2002
BPNH LPG	Ningbo	China	Technical assistance to operation of an LPG mined storage facility.	2002/...
EPDC	Namikata Kurashiki	Japan	Expert review of LPG mined storage facility design studies.	2002
BP CHINA	Zhuhai	China	Feasibility study of an LPG mined storage facility.	2002
BPNH LPG	Ningbo	China	Assistance to construction of an LPG mined storage facility.	2002
SOMAS	Mohammedia	Morocco	Assistance to storage operation.	2002
GEOGAZ	Lavera	France	Decennial inspection of the propane cavern operation shaft.	2002
GEOGAZ	Lavera	France	Engineering studies for distributed control system upgrading.	2002
GEOGAZ	Lavera	France	Inspection study of propane cavern access tunnel manhole.	2002
GEOGAZ	Lavera	France	Extension of the operation contract for liquefied hydrocarbon mined caverns storage facility.	2002
BUTAGAZ	Sennecey	France	Operation contract renewal for liquefied hydrocarbon propane mined cavern storage facility	2002
GEOVEXIN	Gargenville	France	Downhole safety valve installation on a propane mined cavern facility event line.	2002
TOTALFINAELF	Donges	France	Storage clogging studies.	2002
TOTALFINAELF	Donges	France	Assistance to operation contract renewal for propane mined storage facility.	2002
ELF ANTAR FRANCE	Donges	France	Design of a seismic monitoring system for a propane mined storage facility.	2001

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
WEATHERFORD		United Kingdom	Assistance to well logging	2001
OBAYASHI		Japan	Technical assistance for design of an LPG mined storage facility.	2001
BPNH LPG	Ningbo	China	Feasibility study of seepage water treatment.	2001
PETROGAL/BP/ BOREALIS	Sines	Portugal	Assistance to commissioning and start-up.	2001
SK GAS	Ulsan	South Korea	Hydrogeological study.	2001
ELF ANTAR FRANCE	Gargenville	France	Conversion study.	2001
HUNTSMANN-ICI	Saltholme	United Kingdom	Leaching program.	2001
SIGAS	Sines	Portugal	Assistance to preparation of operating documents.	2001
BPNH LPG	Ningbo	China	Training of operators.	2001
OBAYASHI		Japan	Technical assistance for design of an LPG mined storage facility.	2001
LG-CALTEX GAS	Yosu/Inchon	South Korea	LPG mined storage facilities hydrogeological monitoring.	2001
BPNH LPG	Ningbo	China	Feasibility study of a propane mined storage conversion into bupro storage.	2001
COSTIEROGAS LIVORNO	Leghorn	Italy	Installation of downhole level measurement device and pressure gauge.	2001
SEASTOK	Trieste	Italy	Complementary site investigation for LPG mined storage facility.	2001
GLOBIMPEX KFT	Dunallmas	Hungary	Prefeasibility study of an LPG mined storage facility.	2001
ELGAS	Sydney	Australia	Assistance to storage operation.	2001/...
ATOFINA	Carresse	France	Feasibility study of conversion to storage.	2001
OBAYASHI	Namikata	Japan	Expert review of an LPG mined storage facility design studies.	2001
SK GAS	Ulsan	South Korea	Hydrogeological assistance to operation.	2001
OBAYASHI		Japan	Technical assistance for design of an LPG mined storage facility.	2001
TRACTEBEL ASIA		South Korea	Due diligence on mined storage assets evaluation.	2001
EPDC		Japan	Survey of mined storage facilities.	2001
GEOSTOCK US pour TEXACO	Sorrento	USA	Geomechanical study on LPG salt leached storage facility.	2001
ELF ANTAR FRANCE	Donges	France	Hydrogeological study.	2001
UGS		Germany	Peer Review of documents.	2000
SUBURBAN PROPANE	York	USA	Storage revamping.	2000
COSTIEROGAS LIVORNO	Leghorn	Italy	Assistance to operation of the facility.	2000
GEOGAZ	Lavera	France	Study for general upgrading of centralized control system.	2000
ELF ANTAR FRANCE	Donges	France	Technical and administrative assistance for operation permit renewal.	2000
COGEL	Shantou	China	Assistance to operation of the facility.	1999/...
SK GAS	Pyongtaek	South Korea	Assistance to operation of the facility.	1999
LG-CALTEX GAS	Inchon	South Korea	Assistance to operation of the facility.	1999/...

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
PRIMAGAZ	Lavera	France	Operators training.	1999
PRIMAGAZ	Lavera	France	Major risks analysis.	1999
OBAYASHI	Tokyo	Japan	Technical assistance for design and construction of mined storage facility.	1999
HUNTSMANN-ICI	Wilton	United Kingdom	Works on shaft (salt caverns).	1999
ICI CHEMICALS	Cheshire Brinefield	United Kingdom	Operating study for salt cavern storage facility.	1999
ICI CHEMICALS	Cheshire Brinefield	United Kingdom	Technical audit of wells for salt cavern storage facility.	1999
ELF ANTAR FRANCE	Donges	France	Assistance to operation. Hydrogeological survey. Hazop study.	1999
GAZ ORIENT EGYPT	Zeit Bay	Egypt	Site selection, prefeasibility and feasibility studies for storage facility in salt caverns.	1998/1999
SCANA PROPANE SERVICE	Tirzah	USA	Feasibility study for reactivating one cavern.	1998
PRIMAGAZ	Lavera	France	Assistance to operation of the facility.	1998/...
ELF ANTARGAZ	Carresse	France	Study for storage installations changes.	1998
PEBE TAROLO KFT	Multisites	Hungary	Preliminary and feasibility studies for LPG mined storage facility.	1998
ELF ATOCHEM/BP CHIMIE/GEOSSEL	Manosque	France	Feasibility study for ethylene storage in salt cavern.	1998
BP CHIMIE	Lavera	France	Preliminary evaluation for ethylene storage.	1998
BP NINGBO HUADONG	Ningbo	China	Construction of a 500 000 m ³ LPG mined storage facility (2 caverns: 250 000 m ³ propane and 250 000 m ³ butane) Preliminary and feasibility studies. Basic and detailed designs. Assistance to tendering procedure, construction and commissioning.	1998/2002
GEOSSEL	Manosque	France	Preliminary studies, basic design for reconversion of crude oil salt leached caverns into propane storage (1 M m ³).	1997/1998
GASCO	Lo Aguirre	Chile	Feasibility study for mined storage facility.	1997
ESSO	Lavera	France	Feasibility study for loading propylene.	1997
GEOGAZ	Lavera	France	Owner's representative and management construction of propane cavern safety improvement.	1997/2000
PETROGAL/BP/BOREALIS	Sines	Portugal	Construction of an 80 000 m ³ propane mined storage facility (1 cavern). Site investigation. Basic design. Assistance to detailed design and tenders. Construction supervision and commissioning.	1997/2001
MOBIL	Zhuhai	China	Preliminary and feasibility studies for mined storage facility.	1996/1998
KNOC	Pyongtaek	South Korea	Assistance to commissioning of facility.	1996
REPSOL BUTANO	Cartagena	Spain	Preliminary and feasibility studies for mined storage facility.	1996
REPSOL BUTANO	Bodovalle	Spain	Preliminary study for conversion of Bodovalle mine (Bilbao) to storage.	1996
TRANSETHYLENE	Manosque	France	Operating study. Rerouting of pipelines crossing TGV high speed train lines.	1996
BUTAGAZ	Sennecey-le-Grand	France	Operation of the facility.	1996/...

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
REPSOL BUTANO	Cartagena	Spain	Prefeasibility and feasibility studies. Basic design and construction manager for a LPG mined storage facility (120 000 m ³ butane and 80 000 m ³ propane).	1996/...
SALPG Hindustan Petroleum / TOTAL	Visakhapatnam	India	Construction of a 120 000 m ³ LPG mined storage facility. Preliminary and feasibility studies. Basic and detailed designs. Assistance to tendering procedure.	1996/...
COSTIEROGAS LIVORNO	Leghorn	Italy	Survey on cavern safety.	1996/1997
ELF ANTAR FRANCE	Lavera	France	Operating study on possibilities of LPG direct loading for barges loading at Lavera.	1995
ELF AQUITAINE	Carresse	France	Cavern stability and dimensional analyses.	1995
COGEL	Shantou	China	Construction of a 200 000 m ³ LPG mined storage facility (2 caverns: 100 000 m ³ propane and 100 000 m ³ butane). Preliminary and feasibility studies. Basic and detailed designs. Supervision of construction, acceptance tests, commissioning and start-up. Training of operators and preparation of operating documents.	1995/2000
BHARAT PETROLEUM CO	Multisites	India	Prefeasibility studies for mined storage on several sites.	1995
PETROLEUM AND ENERGY INFRASTRUCTURES	Gazer	Israël	Prefeasibility study for mined storage.	1995
LG CALTEX GAS	Inchon	South Korea	Construction of a 480 000 m ³ LPG mined storage facility (2 caverns: 345 000 m ³ propane and 135 000 m ³ butane). Preliminary and feasibility studies. Basic design. Supervision of construction, acceptance test and commissioning.	1994/2000
REPSOL BUTANO	Tarragona	Spain	Preliminary and feasibility studies for mined storage facility.	1994/1995
EDF	Casamozza	France	Geological, geophysical and hydrological surveys for a mined storage facility.	1994
PRIMAGAZ	Lavera	France	Construction of a 98 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic and detailed design. Construction management. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1994/1997
ARCO	Fos sur Mer	France	Capital cost estimates.	1994
INDIAN OIL	Multisites	India	Prefeasibility studies for mined storage on several sites.	1994
ICI CHEMICALS	North Tees	United Kingdom	Preliminary study for salt caverns storage.	1994
INA / TOTAL	Rijeka	Croatia	Prefeasibility study for an LPG mined storage facility.	1993
REPSOL BUTANO	Tarragona	Spain	Preliminary study on LPG mined storage possibilities.	1993
BP/TOTAL	Lavera	France	Feasibility study for butane transfers.	1993
CONOCO	Multisites	Netherlands	Prefeasibility study, geological study.	1993
CONOCO	Teeside	United Kingdom	Prefeasibility study for salt cavern storage facility.	1993
SONATRACH	Hassi R'Mel Hassi Messaoud	Algeria	Prefeasibility study for a two potential LPG salt cavern storage facility.	1992
ECOPETROL	4 sites	Colombia	Preliminary study for LPG mined storage facility.	1992

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
SK-GAS	Pyongtaek	South Korea	Construction of a 270 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic design. Assistance to detailed design and procurement. Supervision of construction, acceptance tests, commissioning and start-up. Assistance to operation.	1992/1998
ELF France	Lavera	France	Operating study for propane supply to naphtha chemical plant.	1992
BUTAGAZ	Sennecey-le-Grand	France	Construction of an 8 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic and detailed designs. Construction management. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1992/1996
EDF	Serra di Fiumorbo	France	Supervision of geological investigations. Prefeasibility and feasibility studies for a propane mined storage facility.	1992
SRPP	Le Port (Reunion Island)	France	Prefeasibility study for a butane mined storage facility.	1992
EDF	Martigues	France	Prefeasibility study for a propane mined storage facility.	1992
SOCIETE DES ALKYLATS DE MEDITERRANEE	Lavera	France	Operating study on possibilities for supplying chemical-grade butane to alkylation unit.	1992
CONOCO	Multisites	Netherlands	Preliminary study.	1992
ELGAS	Sydney	Australia	Construction of a 135 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic and detailed designs. Assistance to construction. Supervision of acceptance tests, commissioning and start-up. Assistance to operation.	1992/2000
GEOGAZ	Lavera	France	Management of inspection and maintenance of shaft equipment for propane and butane caverns.	1992 and 1997
KNOC	Pyongtaek	South Korea	Extension of a mined LPG storage to 420 000 m ³ . Assistance to basic design, detailed design and construction. Supervision of acceptance tests. Assistance to commissioning and start-up.	1991
YOSU ENERGY	Yosu	South Korea	Site exploration and feasibility study for an LPG mined storage facility.	1991
EDF	San Pellegrino	France	Site investigation and prefeasibility for a propane mined storage facility.	1991/1992
ESSO	Port Jerome	France	Exploration and feasibility studies for a butane mined storage facility.	1991
ARCO	Fos sur Mer	France	Feasibility study for butane and propylene mined storage facilities.	1991
PRIMAGAZ / IPRAGAZ	Dorthyol	Turkey	Prefeasibility and feasibility studies for an LPG mined storage facility.	1991
GEOGAZ	Lavera	France	Owner's representative and construction manager for terminal revamping and performance enhancement (site safety upgrading, replacement of obsolete equipment and additional surface installations).	1991/1993
IMP/PEMEX	Tuzandepetl	Mexico	Prefeasibility, feasibility and basic design for an LPG salt cavern storage.	1991/1992
PETROFINA/FINANESTE	Antwerpen	Belgium	Feasibility study for mined storage facility for propane, butane and propylene.	1990
DISTRIGAS	Antwerpen	Belgium	Decommissioning of two mined caverns for propane and butane.	1990/1991
DOW SPAIN	Tarragona	Spain	Preliminary study of storage possibilities.	1990

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OWNER	SITE	COUNTRY	SERVICES	PERIOD
BUTAGAZ	Messac (Rennes)	France	Exploration and feasibility studies for a 10 000 m ³ propane mined storage facility. Preparation of regulatory documents and environmental impact assessment. Basic design and safety review. Tendering and selection of a civil contractor for construction.	1990/1994
SAGF	Jarry (Guadeloupe)	France	Prefeasibility and feasibility studies for a 6000 m ³ mined storage facility.	1990/1993
CALOR GAS	South Killingholme	United Kingdom	Operational technical audit (two 120 000 m ³ caverns).	1990
CALOR GAS	South Killingholme	United Kingdom	Assistance to operation of the facility.	1990/...
SOLIGAZ	Varennes	Canada	Prefeasibility study, basic design, assistance to administrative authorizations for a mined storage facility (100 000 m ³ propane, 85 000 m ³ butane and 6 500 m ³ GTL).	1989
KNOC	Pyongtaek	South Korea	Supervision of acceptance tests, commissioning and start-up. Preparation of operating documents (2 caverns: 189 000 m ³ propane and 120 000 m ³ butane).	1989
BUTAGAZ	Sillery (Reims)	France	Site survey and feasibility study for a propane mined storage facility.	1989
RHONE-POULENC	Chalampé	France	Preliminary study of butadiene storage possibilities.	1989
SOMAS	Sidi Larbi	Morocco	Assistance to operation of the facility.	1989/...
BOTAS		Turkey	Survey of potential mined storage sites.	1989
SK-GAS	Ulsan	South Korea	Assistance to operation of the facility.	1988/...
KNOC	Pyongtaek	South Korea	Hydrogeological survey during construction of an LPG mined storage facility (2 caverns: 189 000 m ³ propane and 120 000 m ³ butane).	1988
SHELL	Lavera	France	Feasibility study for propane and butane pipelines connections between Berre and Lavera.	1988
MONTESHELL	Trieste	Italy	Prefeasibility and feasibility studies, basic design for an LPG mined storage facility (40 000 m ³ propane and 10 000 m ³ butane).	1988/1989
BUTAGAZ	Agen	France	Geological survey for a mined storage facility.	1987
TOTALGAZ	Fenouillet (Toulouse)	France	Planning study for construction of a small capacity LPG storage facility.	1987
ELF ANTARGAZ	Donges	France	Planning study for construction of a two-cavern refrigerated propylene mined storage facility.	1987
BUTAGAZ		France	Planning study for construction of small capacity storage facilities in mined or salt caverns.	1987
FLOGAS	West Thurrock	United Kingdom	Prefeasibility study for small-cavern storage facility in chalk.	1987
TEMIS	Koper	Slovenia	Prefeasibility study for mined storage facility.	1987
SICOGAZ	Le Havre	France	Comparison between three types of storage.	1986
MAHRUKAT		Syria	Technical and economic feasibility of an LPG underground storage facility in Syria.	1986
IMP/PEMEX	Around Mexico	Mexico	Preliminary and exploration studies for an LPG mined cavern storage facility.	1985/1986

Liquefied hydrocarbons (cont'd)

OWNER	SITE	COUNTRY	SERVICES	PERIOD
GASCO	Multisites	Saudi Arabia	Preliminary study for a 120 000 m ³ LPG mined storage facility.	1984
GEOGAZ	Lavera	France	Operation of the butane facility.	1984/...
LG CALTEX GAS	Yosu	South Korea	Assistance to operation of the facility.	1984/...
SK-GAS	Ulsan	South Korea	Construction of a 550 000 m ³ LPG mined storage facility (2 caverns: 310 000 m ³ propane and 240 000 m ³ butane) Preliminary and feasibility studies. Basic design. Assistance to detailed design and procurement. Supervision of construction, acceptance tests, commissioning and start-up.	1983/1988
SHELL	Petit Couronne	France	Assistance to operation of the facility.	1982/...
ELF ANTAR FRANCE	Donges	France	Preliminary study for a 30 000 m ³ butane mined cavern storage.	1982
LG CALTEX GAS	Yosu	South Korea	Construction of a 296 000 m ³ LPG mined storage facility (2 caverns: 173 000 m ³ propane and 123 000 m ³ butane). Preliminary and feasibility studies. Basic design. Assistance to detailed design and procurement. Supervision of construction, acceptance tests, commissioning and start-up.	1981/1983
CALOR GAS	South Killingholme	United Kingdom	Construction of a 240 000 m ³ LPG mined storage facility (2 caverns: 120 000 m ³ propane and 120 000 m ³ butane). Preliminary and feasibility studies. Basic and detailed designs. Supervision of construction, acceptance tests and commissioning.	1981/1986
SOMAS	Sidi Larbi	Morocco	Construction of a 119 000 m ³ salt cavern for butane storage. Feasibility study. Basic and detailed designs. Assistance to construction, acceptance tests and commissioning.	1981/1988
ELF / SHELL / MOBIL	Antifer	France	Feasibility study for an LPG mined storage facility.	1980/1981
GEOGAZ	Lavera	France	Construction of a 183 000 m ³ butane mined storage facility (1 commercial butane cavern and 1 chemical butane cavern). Preliminary and feasibility studies. Basic and detailed designs. Owner's representative and construction manager. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1979/1984
BP	Dunkerque	France	Prefeasibility study for a propane mined storage facility.	1979/1980
HYDROCARBON TRANSPORTATION	Morris (Illinois)	USA	Feasibility study for ethane mined storage facility.	1977
ELF ANTAR FRANCE	Donges	France	Assistance to operation of the facility.	1977/...
GEOVEXIN	Gargenville	France	Operation of the facility.	1977/...
SHELL	Larne	United Kingdom	Feasibility study for LPG salt cavern storage.	1976
SHELL	Peterhead	United Kingdom	Prefeasibility study for an LPG mined storage facility.	1975
SAARLAND REFINERY		Germany	Design study for an LPG mined storage facility.	1974
SHELL	Napoleonville	USA	Design study for LPG salt cavern storage.	1974
BP/SHELL/ELF/TOTAL	Bresse region	France	Design study for LPG salt cavern storage.	1974
ELF ANTAR France	Donges	France	Construction of an 80 000 m ³ propane mined storage facility (1 cavern) Preliminary and feasibility studies. Basic and detailed designs. Construction management. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1974/1977

Liquefied hydrocarbons (cont'd)

OWNER	SITE	COUNTRY	SERVICES	PERIOD
ELF	Gonfreville l'Orcher	France	Feasibility study for an LPG mined storage facility.	1973
ICI CHEMICALS	Teeside	United Kingdom	Feasibility study for ethylene storage in salt cavern.	1973
INDUSTRIEANLAGEN	Leipzig	Germany	Design study for ethylene mined storage facility.	1973
GEOVEXIN	Gargenville	France	Construction of a 130 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic and detailed designs. Owner's representative and construction manager. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1972/1977
GEOGAZ	Lavera	France	Operation of the propane storage facility.	1971/...
ICI / PIP		United Kingdom	Survey of potential storage sites.	1971
BUTANO	Utebo	Spain	Prefeasibility study for LPG storage in salt cavern.	1970
GEOGAZ	Lavera	France	Construction of a 123 000 m ³ propane mined storage facility (1 cavern). Preliminary and feasibility studies. Basic and detailed designs. Owner's representative and construction manager. Acceptance tests, commissioning and start-up. Assistance to administrative authorizations. Training of operators and preparation of operating documents.	1967/1971