



HEALTH, SAFETY, SECURITY & ENVIRONMENT MANAGEMENT SYSTEM MANUAL

中国石油集团东方地球物理勘探有限责任公司国际部
BGP INTERNATIONAL, CNPC



AUTHORIZED FOR ISSUE BY THE HSSE COMMITTEE

DOCUMENT AUTHORIZATION

Document Authority
Zhai Lixin
President

May 2019

Document Custodian
Zhang Xiaojun
HSSE Manager

May 2019

Document Author
HSSE Department

REVISION HISTORY

The following is a brief summary of three most recent revisions to this document. Details of all revisions prior to these are held on file in the HSSE Department of BGP International.

Version No.	Date	Author	Scope/Remarks
3.0	Apr. 2019	HSSE Dept.	<ul style="list-style-type: none">- Updated according to the change of organization & business scope.- Updated the risk matrix according to IOGP 432.- Updated the standards and guidelines section.- Replaced sub-element "Regulatory Compliance" with "Visible & Felt Leadership".- Rearrangement of elements MoC and Emergency Response.- Added element (5.1.4) of "land transportation safety management".- Updated all management procedures.- Incorporated into BGP's Life-saving Rules.- Added "Acronym". Health management guidelines (011a).
2.6	Mar. 2016	HSSE Dept.	<ul style="list-style-type: none">- Update organization chart.- Add the sub-element of "3.2 Resources".- Add 7 new procedures, No: 051,052,053,054,055,056,057.- Procedure No.015, 024,032,040,041are updated.- Add the description of critical HSE equipment.- Modified some incorrect description in BGP HSSE Function Allocation table and Risk Matrix table.- Modified some incorrect or less rigorous description in the main text.
2.5	Mar. 2015	HSSE Dept.	<ul style="list-style-type: none">- Update organization chart.- Update of policies on driving policy, lone worker policy and smoking policy.- Add SSE and BBS procedures and 10 new procedures for TZ operation.- Procedure No.009,012,015,016,017,020,022,024,026,027,029,032,036,039,040,044,045,047,049 are updated.- Update the risk matrix.- Modified incorrect or less rigorous description in the main text.



NOTES TO USERS:

This updated version of HSSE MS for BGP International is based upon the latest HSE-MS (Version H) of BGP Inc., published on as well as current relative standards and guidelines from IAGC, IOGP.

The requirements stated in this document are mandatory for compliance. Non-compliance is an exception and is only authorized on case-by-case basis by senior management through Management of Change procedures.

A controlled copy of the most current version of this document is held in the HSSE Department of BGP International. Hence, before making reference to this document, it is the user's responsibility to ensure that any hard copy, or electronic copy, is current. For assistance, please contact the Document Custodian.



TABLE OF CONTENTS

INTRODUCTION	6
1 LEADERSHIP AND COMMITMENT	7
1.1 Visible & Felt leadership	7
1.2 “Zero” Incident Culture	7
1.3 Incentive Program	7
2 POLICIES AND OBJECTIVES	8
2.1 HSSE Policies	8
2.2 HSSE Objectives and Targets	8
3 ORGANIZATION, RESPONSIBILITIES AND RESOURCES	8
3.1 Organization and Responsibilities	8
3.1.1 Crew Management - Organization	9
3.1.2 Company/Country Management	9
3.1.3 Crew Management – HSSE Function	11
3.2 Resources	11
3.3 Training and Competency	11
3.4 Regulatory and Contract Requirements	11
3.5 Sub-Contractors & Suppliers	12
3.6 Communication	12
3.6.1 HSSE Briefing	13
3.6.2 Orientation	13
3.6.3 HSSE Meeting	13
3.6.4 Routine Reporting	14
3.7 Community and Public Relations	15
3.8 Documentation	15
4 RISK MANAGEMENT	16
4.1 Hazard Identification	16
4.1.1 Hazard Register	16
4.2 Risk Assessment	17
4.3 Risk Control	19
5 PLANNING AND PROCEDURES	22
5.1 Standards & Guidelines	22
5.1.1 Industry Standards & Guidelines	23
5.1.2 Environmental Management	23
5.1.3 Occupational Health & Medical Management	24
5.1.4 Land Transportation Safety Management	24
5.1.5 Security Management	25
5.2 HSSE Plan	25
5.2.1 Project HSSE plan	25
5.2.2 Development of a Project HSSE plan	26
5.3 Safe Working Procedures	27
5.4 Emergency Response Planning	27



6	IMPLEMENTATION AND MONITORING	28
6.1	Implementation of Project HSSE Plan	28
6.1.1	Non-Compliance and Corrective Action Tracking System	28
6.1.2	Risk Management Program	29
6.1.3	Emergency Drills and Exercises	30
6.1.4	Inspection and Maintenance Program -- Facilities, Equipment	30
6.1.5	Routine HSSE Reporting	30
6.2	Asset Integrity	30
6.3	Performance Measuring and Monitoring	31
6.4	Operating Records	32
6.5	Incidents, Near-Misses and Unsafe Situations	32
6.5.1	Classification	32
6.5.2	Reporting	33
6.5.3	Investigation	33
6.6	Management of Change	33
6.7	Clients and Products	33
7	REVIEW AND IMPROVEMENT	34
7.1	HSSE Audit & Inspection	34
7.1.1	Internal Audit Program and Procedures	34
7.1.2	Third-Party Audit	35
7.1.3	Client Audit	35
7.2	Compliance Assessment	36
7.3	Management Review	36
7.3.1	Headquarters Review	36
7.3.2	Country Management Review	37
7.3.3	Crew Management Review	37
7.3.4	HSSE Review Procedures	38
	Annex1: BGP's Life-saving Rules	39
	Annex2: Acronym	41
	Annex3: List of reference document	42

INTRODUCTION

Purpose of the HSSE MS Manual

The BGP International (BGPI) manual on Health, Safety, Security and Environment Management System (HSSE MS) is one of the key documents governing the programs and practices for its worldwide operations.

Individual crew and operating unit are required to demonstrate positive compliance with the HSSE MS by having a project-specific or unit-specific HSSE Plan. All BGPI Senior Managers, Party Chiefs, and Section Heads should be familiar with the contents of the HSSE MS, and will be responsible for their own safety and health as well as the safety and health of their subordinates. Therefore, they should integrate HSSE programs and practices into their daily activities to foster a self-conscious safety culture, to achieve the company and individual crew's annual HSSE goals and objectives, and to comply with all the applicable HSSE laws, regulations and requirements as stipulated by the local governments and contracts.

The Project HSSE Plan is the application of this system in its field operations while sub-contractors are expected to have their own HSSE MS. If a sub-contractor does not have an HSSE MS acceptable by BGPI, this system will be used by BGPI to manage that party.

This HSSE MS provides processes to ensure that all parties within the same contract and the client can work together without contradicting with each other.

Applicability of the HSSE MS Manual

This HSSE MS applies to the following personnel and properties for BGPI operations:

- All current employees.
- All properties owned or managed by BGPI.
- All land operations.
- All sub-contractors, client representatives and other third parties who may be on a land crew or who may work on a project.

Elements of the HSSE MS

The updated HSSE MS is based on the key guidelines from IAGC, IOGP, other relevant industry guidelines, BGP's current HSE-MS (Version as well as previous versions of BGPI HSSE MS. It includes seven (7) elements as follows:

- Leadership and Commitment.
- Policies and Objectives.
- Organization, Responsibilities and Resources.
- Risk Management.
- Planning and Procedures.
- Implementation and Monitoring.
- Review and Improvement.

1 LEADERSHIP AND COMMITMENT

The management of BGPI is committed to implementing the HSSE MS for all the operations. They will provide the leadership and resources necessary to ensure that the HSSE MS is updated and practical to foster a proactive safety culture in the work place, to meet the requirements of local governments and clients, and to enable the company to achieve its annual HSSE goals and objectives. BGPI management is also convinced that good HSSE performance will result in a successful and profitable operation.

The leadership and its commitment are demonstrated in at least the following three areas:

1.1 Visible & Felt leadership

The top management is the core of driving the HSSE MS to run effectively. The management of BGPI is committed to advocating the MS and will not compromise on implementation and execution. The managers at all levels should demonstrate their visible and felt leadership through measurable actions:

- Communicate the vision of how BGPI's commitment and policy will be realised in their area of control.
- Do what they say they will do and foster an environment in which people provide feedback openly.
- Plan and make crew visits to engage with the staff and contractors about HSSE.
- Exercise visible leadership through consistent involvement in current HSSE issues.
- Lead or actively participate in HSSE meetings, training, audits, incident investigations, HSSE programmes and campaigns.

1.2 "Zero" Incident Culture

BGPI management will undertake practical and consistent actions to engender a "zero" incident culture. Typical actions and programs are as follows:

- Include HSSE as an integral part of all business planning and project operations.
- Demonstrate personal exemplary behaviour by receiving required HSSE training and conducting regular on-site HSSE visit/audit.
-
- Ensure all employees accept individually-defined HSSE roles and responsibilities.
- Instil the conviction that HSSE is everyone's responsibility.
- Encourage active participation and involvement by all employees in HSSE issues.
- Incidents are widely shared among employees.
- Promote two-way communication throughout the company as well as with local communities, clients and sub-contractors.

1.3 Incentive Program

BGPI management has established an incentive program to commend good HSSE performance with reward and recognition on regular basis. Hence, both individual and group HSSE performance will be assessed periodically based upon pre-determined HSSE targets, as well as establishing the corresponding award and/or recognition from the results of such



appraisal. Every BGPI seismic crew shall set up its own incentive program with clear criteria and implement it according to a pre-determined time schedule.

2 POLICIES AND OBJECTIVES

2.1 HSSE Policies

BGPI will implement eight policies as follows:

- Health, Safety and Environment Policy.
- Transportation Policy.
- Drug and Alcohol Policy.
- Smoking Policy.
- Right to Stop Work Policy.
- Security Policy.
- Driving Policy.
- Lone Worker Policy.

Reference Document

[BGPI HSSE_002 BGPI HSSE Policies](#)

To promote safety behaviour at workplace, BGP has issued the “Life-saving Rules” in 2018 according to IOGP #459. The Rules focus on modifying worker and supervisor behaviours in the workplace by raising awareness of activities which are most likely to result in fatalities.

It is important and mandatory requirement that the Rules should be communicated to all workers, preferably as part of each new worker induction, safety culture campaign, toolbox meeting, etc. Refer to annex 1.

2.2 HSSE Objectives and Targets

During the early part of the first quarter of each year, after a thorough review and assessment of the requirements of BGP Inc. as well as the HSSE performance of BGPI of previous year, management of BGPI will set respective annual HSSE objectives and targets for its operation, while allowing the flexibilities for each operating country to draft its own. The draft will be submitted to the BGPI for review and approval before taking into effect. The approved objectives and targets will be cascaded to seismic crews within that country for implementation. The performance against these objectives and targets will be reviewed by different levels of management during their regular management review meeting.

3 ORGANIZATION, RESPONSIBILITIES AND RESOURCES

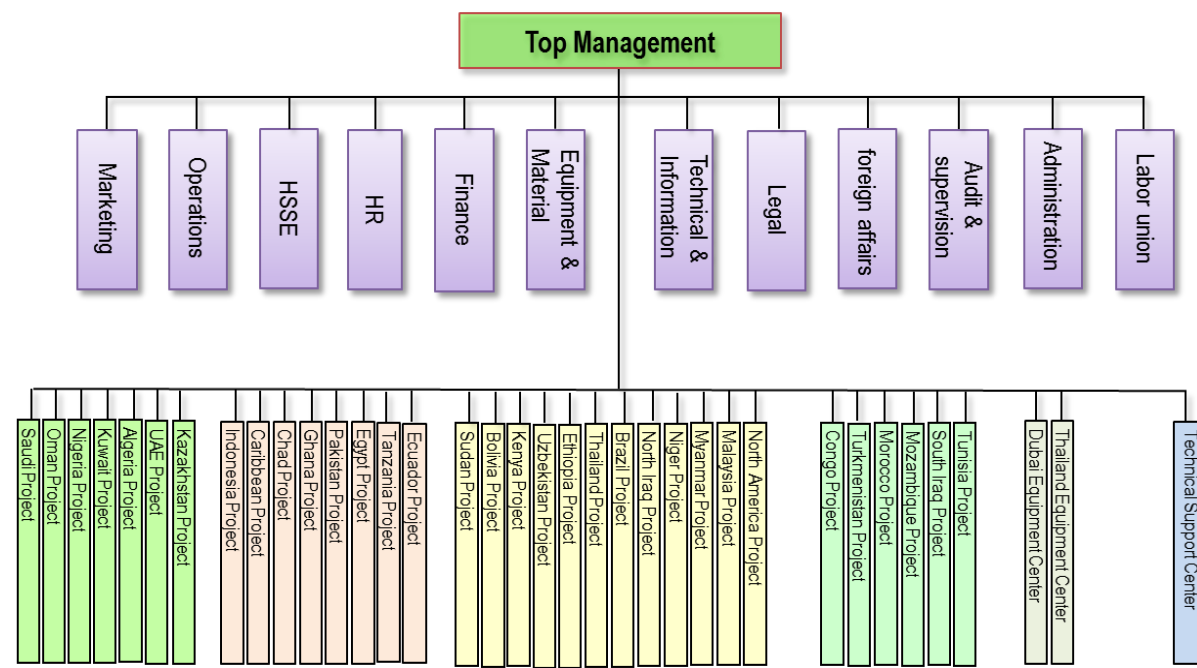
3.1 Organization and Responsibilities

BGPI's headquarters is in Zhuozhou, a suburb of Beijing, where all the senior management is located.

To facilitate operations worldwide, BGPI has established country based organization for overseas operations.

BGPI has established an organizational structure based on its strategic objectives, production, operational activities and businesses development. Hence a Three-layer management system is adopted to assign and implement HSSE management functions:

BGP INTERNATIONAL ORGANIZATION CHART



3.1.1 Crew Management - Organization

The reference document below is a generic crew organization only which reflects line management responsibility, and it will vary from project to project on as-needed basis.

Reference Documents

[BGPI HSSE 003 Crew Organization Chart](#)

Key HSSE roles and responsibilities for executive management and senior managers are defined in the BGPI's Human Resources Manual. Their specific functions to implement HSSE-MS are defined in Table 1 below.

3.1.2 Company/Country Management

The reference documents below provide a list of key HSSE functions for:

- BGPI Company Management.
- Country Management.



Reference Document

[BGPI HSSE 004 Key HSSE Responsibilities](#)

[BGPI HSSE 005 BGPI Departmental HSSE Responsibilities](#)

Table 1 BGPI HSSE MS Function Allocation

Elements in Management System		President	Administration	Human Resources	Finance Accounting	Legal affair	Marketing	Operation	Equip. & Procurement	HSSE	Foreign Affair	Audit & Supervision	Employee Workers Union	Technical & IT	Overseas Branches & Units
1 Leadership & Commitment	1.1 Visible & Felt Leadership	★	▲	○	○	○	○	○	○	△	○	○	○	○	○
	1.2 "Zero" Incident culture		○	○	○	○	○	○	○	△	○	○	▲	○	○
	1.3 Incentive program		○	△	△	○	○	○	○	▲	○	○	○	○	○
2 Policy & Objective	2.1 HSSE policies 2.2 HSSE objectives & targets	★	▲	○	○	○	○	○	○	△	○	○	○	○	○
3 Organization, Responsibilities and Resources	3.1 Organization and Responsibilities	★	○	▲	○	○	○	○	○	○	○	○	○	○	○
	3.2 Resources		○	▲	○	○	○	○	△	○	○	○	○	○	○
	3.3 Training and competency		○	▲	○	○	○	○	○	△	○	○	○	○	○
	3.4 Regulatory and Contract Requirements		○	○	○	▲	○	○	○	△	○	○	○	○	○
	3.5 Sub – Contractors & suppliers		○	○	○	△	○	▲	▲	△	○	○	○	○	○
	3.6 Communication	★	○	○	○	○	○	○	○	▲	○	○	○	○	○
	3.7 Community and Public Relations	★	○	○	○	○	○	▲	○	○	○	○	○	○	○
	3.8 Documentation		△	△	△	△	△	△	△	▲	△	△	△	△	○
4 Risk Management	4.1 Hazard identification		○	○	○	○	○	△	○	▲	○	○	○	○	○
	4.2 Risk Assessment		○	○	○	○	○	△	○	▲	○	○	○	○	○
	4.3 Risk Control		○	○	○	○	○	△	△	▲	○	○	○	○	○
5 Planning and Procedures	5.1 Standards & Guidelines		○	○	○	○	○	○	○	▲	○	○	○	○	○
	5.2 HSSE Plan		○	○	○	○	○	△	○	▲	○	○	○	○	○
	5.3 Safe Working Procedures		○	○	○	○	○	△	△	▲	○	○	○	○	○
	5.4 Emergency Response Planning		△	○	○	○	○	○	○	▲	○	○	○	○	○
6 Implementation and monitoring	6.1 Implementation of Project HSSE Plan		○	○	○	○	○	▲	○	△	○	○	○	○	○
	6.2 Asset Integrity		○	○	○	○	○	○	▲	○	○	○	○	○	○
	6.3 Performance measuring and monitoring		○	○	○	○	○	○	○	▲	○	○	○	○	○
	6.4.Operating Records		○	○	○	○	○	○	○	▲	○	○	○	○	○
	6.5 Incidents, Near-Misses and Unsafe Situations		○	○	○	○	○	○	○	▲	○	○	○	○	○
	6.6 Management of Change		△	▲	○	△	○	▲	▲	△	○	○	○	○	○
	6.7 Clients and Products		○	○	○	○	▲	○	○	○	○	○	○	○	○
7 Audit and Review	7.1 HSSE Audit & Inspection		○	○	○	○	○	○	○	▲	○	△	○	○	○
	7.2 Compliance Assessment		○	○	○	▲	○	○	○	△	○	△	○	○	○
	7.3 Management Review	★	○	○	○	○	○	○	○	▲	○	○	○	○	○

★ Responsible Person

▲ Responsible dept.

△ Related dept.

○ Implementing Unit



3.1.3 Crew Management – HSSE Function

The reference document below is a description of HSSE functions for key positions in a seismic crew.

Reference Documents

[BGPI HSSE 006 Job Description Manual](#)

3.2 Resources

BGPI Senior management will allocate sufficient resources to ensure the effective operation of the HSEMS, taking account of advice from line management and HSE specialists. The resources include but not limit to necessary equipment and facilities, human resources, financial resources, specialized skills, technologies, information and other resources. The resources allocation will be reviewed regularly as part of the management review of the HSEMS.

3.3 Training and Competency

All BGPI employees will receive specific job-related training according to BGPI's minimum HSSE training requirements referenced below. For short service employees for BGPI operations, a specific program has been developed as referenced below.

Sub-contractors are responsible for ensuring that their employees have received valid certificates required by land operations.

Management at all levels has the responsibility to ensure an individual's competence is adequate for the job assigned. It is expected that senior management will use HSSE competence assessment guidelines to assist line management in assessing the competence of their employees, and to define their training requirements where competence is unsatisfactory. The crew Party Chief has to ensure that required training has been conducted with records kept such as appropriate certificates, if any, for certain types of workers -- drivers, welders, electricians, crane operators, fork lift operators, etc.

Reference Documents

[BGPI HSSE 008 Proposed HSSE Competence assessment training guidelines](#)

[BGPI HSSE 049 Short Service Employee \(SSE\) Program](#)

3.4 Regulatory and Contract Requirements

BGPI will comply with all applicable regulatory requirements of the local and national governments where we operate, as well as the requirements stipulated in the contract between BGPI and the client.

Changes or impending local regulatory requirements will be monitored and reported by the management of all levels, including the Country Manager and crew Party Chiefs. All

identified “non-compliance” items will be recorded in the project/crew RWP (Remedial Work Plan) for timely corrective actions.

If the local regulatory standards are deemed as being less stringent than BGPI requirements for the prevention of injury and/or environmental damage/pollution, BGPI will maintain its own HSSE standards in order to ensure a safe working environment.

During the tender preparation stage, a joint effort by BGPI Legal Department, HSSE Department and project team will review and document all relevant country and international laws, codes of practices, and standards and guidelines. After receiving the contract award and prior to the start of the operation, the contract requirements will be thoroughly reviewed by project management to ensure compliance with its terms and conditions through preparation and implementation of the Project HSSE Plan.

3.5 Sub-Contractors & Suppliers

All subcontractor personnel engaged by BGPI shall adopt BGPI standards and comply with all applicable regulatory requirements of the country where we operate. Subcontractors will be included in all HSSE work activities, programs and toolbox meetings to ensure that all planned activities are reviewed, that project-specific hazards are identified with controls established for the protection of health, safety and security of workers and the working environment.

Upon arrival on BGPI premises, all subcontractor personnel will receive HSSE orientation training.

Subcontractors are managed by the Party Chief and the Country/Project management according to the BGPI overseas project outsourcing management procedure referenced below.

As specific services, equipment, manpower provided by subcontractors vary from project to project in both scope and duration, therefore, BGPI project management will exercise extreme prudence in its selection and qualifying processes as well as supervision of subcontractors to ensure all services, equipment, manpower provided by subcontractors are acceptable by project management, and are planned, managed and incorporated into the entire project HSSE/Operation execution plan.

Reference Document:

[BGP-INTL/Q/CX8.4-2 Overseas project outsourcing management procedure](#)

3.6 Communication

It has been proven in the industry that regular dissemination, discussion, training and reporting of HSSE information and issues, along with frequent feedback from workers have increased workers’ HSSE awareness and enhanced their willingness to participate in activities, leading to their eventual ownership of HSSE responsibilities. BGPI management has been and will continue to devote much time and resources to foster and achieve such a proactive HSSE culture.

Additionally, frequent communications with local communities, related governmental agencies and other interested parties will facilitate the operations. BGPI’s programs as listed below will be used for such endeavour.



3.6.1 HSSE Briefing

BGPI requires that all visitors receive a briefing upon their arrival on BGPI's premises. The briefing is to be conducted by one member of the project's senior management with the following contents as a minimum:

- Site introduction.
- Major hazards communication.
- Emergency response plans.
- Other information upon visitors' request.

3.6.2 Orientation

BGPI requires that all new employees will receive a full HSSE orientation conducted by the HSSE Department of the crew soon after their arrival. The following are the minimum number of topics that will be included in such orientation:

- Company HSSE policies.
- Site specific hazard communication.
- Fire fighting and evacuation plan.
- Emergency response procedures.
- Job and associated hazards.
- Job description.

3.6.3 HSSE Meeting

BGPI management recognizes the importance of HSSE meetings in promoting and fostering a proactive HSSE culture. Hence, meeting requirements have been set to ensure a platform for frequent two-way communication. The crew will conduct the following types of meeting;

- Toolbox meeting--daily.
- Crew sectional HSSE meeting--weekly.
- Crew HSSE committee meeting--monthly.
- Whole crew meeting--held as required.

Additionally, headquarters/country/operations management will conduct the HSSE committee meeting as follows:

- Country management committee meeting--Quarterly.
- BGPI headquarters department HSSE meeting--Quarterly
- Headquarters HSSE committee meeting--Quarterly.

Except the daily toolbox meeting, all the meetings listed above will generate formal meeting minutes which will be distributed to all relevant personnel.

The toolbox meeting is extremely vital to the safe operation of a project as well as a golden opportunity for the Party Chief, Section heads to address key HSSE issues to their workers. Particular emphasis should be given to the identified risks of the day along with their controls and mitigating measures.

Other meetings will focus on a review of HSSE issues, including any incident reports or investigations, non-conformance items from client audit or inspection as well as HSSE performance. All participants in the meetings are encouraged to actively participate in the discussion.

3.6.4 Routine Reporting

Daily HSSE Report

Crew HSSE Advisor is responsible for collecting a specified set of HSSE statistics on daily basis based upon BGPI and contract requirements. This data will be kept by the respective project management team and is not reported to the Headquarters' HSSE Department. Refer to the reference document below for details.

The daily report will include at least the following key activities:

- Incidents/Accidents.
- Man hours worked.
- Medium or high risk hazards identified.
- Drills conducted.
- HSSE meetings.
- Number of audit/inspections conducted.
- Other reports required by law and/or contract.

Weekly HSSE Report

Crew HSSE Advisor is also responsible for preparing and submitting this report to the Headquarters' HSSE Department on a weekly basis. Specific activities and requirements are listed in the reference document below.

Reference Document

[BGPI HSSE 013 Weekly HSE Report](#)

Monthly HSSE Performance Analysis (Country Level Operations)

Country HSSE Manager along with the Country Manager will be responsible for conducting a thorough review of HSSE performance for all crews within that Country on quarterly basis as described in section 7.3.2 of this manual. The result of the review will be sent to the BGPI HSSE Department for review.

Others: Alerts, Awards, Recognition, etc.

Safety alerts from BGPI as well as other seismic companies and oil companies will be reviewed with workers at HSSE meetings and to share the “lessons learned”. These alerts are in addition to the information and reports communicated regularly to workers.

BGPI's incentive program provides individual and group awards/recognitions for excellent HSSE performance on regular basis. These awards/recognitions are based upon pre-established criteria set by each land crew and approved by its Country Management.

3.7 Community and Public Relations

All levels of BGPI management encourage feedbacks on HSSE management and performance from employees, sub-contractors, clients, relevant local and national governmental agencies where BGPI operates.

The Community/Public Relations coordinator, when available for the project, will help the Country Manager along with Project Manager, Party Chief to receive such feedbacks and prepare for appropriate and timely responses.

The project management team are also responsible for conducting education and consultation programs to help the local community better understand our operations, and to seek their support, if possible, for permit application, labor hiring, logistics and security assistance, etc.

Furthermore, senior management, along with Departments of Marketing, Operations, Equipment and Resources, and HSSE at BGPI Headquarters are included in the above communication loop to ensure that each crew has an effective program in place.

All the above feedbacks, responses and programs will be documented and kept on file by the relevant offices of Country Manager/Party Chief. These documents are available for review during audits by senior management, client, and BGPI hired third-party auditor as well as HSSE Department of BGPI Headquarters.

3.8 Documentation

Relevant documents listed in the HSSE MS as referenced below are kept for record with specific retention period as well as requirement for periodic maintenance.

Additionally, a list of key documents for each land crew is controlled and maintained by the crew HSSE Department.

HQ HSSE department responsible for management of all related HSSE resources: -

- External mandatory requirements, including applicable laws and regulations and other requirements;
- Internal MS related documents, including HSSE MS, standards, regulations and safe operation procedures, etc;
- Access to the latest industry management standards, guidelines.

Reference Document

[BGPI HSSE 014 Minimum HSSE Documentation](#)

4 RISK MANAGEMENT

Risk Management is the basis for proactively managing Health, Safety, Security and Environmental issues for BGPI operations.

Hazard identification, assessment and control/mitigating measures are implemented across all activities undertaken by BGPI. All significant hazards are controlled and/or mitigated to ensure that potential risks are reduced to as low as reasonably practicable (ALARP) level.

Assessment of significant risks for Health, Safety, Environment and Security for a specific project is routinely conducted and documented. If such an assessment has identified control and/or mitigating gaps, then these deficiencies are recorded in the project's or crew's RWP system for appropriate improvement actions to eliminate such gaps.

4.1 Hazard Identification

Each crew will maintain a project-specific Hazard Register along with their control measures which will be included in the “risk management plan” section of the Project HSSE Plan.

Project-specific HSSE hazards/risks identification activities will be conducted during project scouting, planning and mobilization stages by an experienced team of employees. This will become a daily activity for all workers once operation has commenced.

To help identify and eliminate hazards and risks caused by unsafe behaviour of workers, a behaviour based safety training program has been designed and implemented to all management and crew operation. Referenced below in Table 2 is one of the tools to implement such program.

Reference Documents

BGPI HSSE 050 Behavior Based Safety (BBS) Program

Table 2 HSE Observation Card

[illegible]

4.1.1 Hazard Register

All hazards/risks identified by project management during the scouting, planning and mobilization phase are to be recorded in the standard BGPI Hazard Register as referenced below.

Reference Document

[BGPI HSSE 015 General Hazard Register – Land Operations](#)

4.2 Risk Assessment

After project specific risks are identified by project team members, local experienced workers along with on-site client representatives, the Party Chief for each project is responsible for organizing a team of experienced personnel to conduct a thorough assessment of all such risks using the latest BGPI HSE RAM (Risk Assessment Matrix, Table 3 below) to determine the potential severity and probability of occurrence of each hazard/risk.

A separate Risk Matrix for security assessment is also used for each project.

If the result of an individual risk assessment falls within the Red Zone of the Risk Matrix, control measures must be implemented to reduce its potential risks so that the residual risk falls within the Orange Zone or preferably in the Yellow or White Zone if reasonably possible. This is documented in the Project HSSE Plan and is updated regularly as new risks are encountered.

Table 3 -- Risk Matrix

Severity	CONSEQUENCE				PROBABILITY				
	People	Assets (USD)	Environment	Reputation	A	B	C	D	E
					Never heard of in the industry operations	Has occurred in industry operations	Has occurred in geophysical operations or similar E&P operations	Happens about yearly in similar geophysical operations worldwide	Happens about monthly in similar geophysical operations worldwide
0	No health effect/injury/illness	No damage	No effect	No impact					
1	FAC	*Slight Damage, Loss<1000	*Slight effect	*Slight impact					
2	MTC/RWDC or LWDC<3days	*Minor damage, 1,000≤Loss<10,000	*Minor effect	*Limited impact					
3	LWDC≥3days or PPT	*Localized damage 10,000≤Loss<100,000	*Localized effect	*Considerable impact					
4	PTD or up to 3 Fatalities	*Major damage 100,000≤Loss<1,000,000	*Major effect	*National impact					
5	More than 3 Fatalities	*Extensive damage Loss≥1,000,000	*Massive effect	*International impact					

Risk classification and management response		
Very LOW	WHITE	Maintain existing risk control measures
LOW	YELLOW	Control at workplace level and manage for continuous improvement
MEDIUM	ORANGE	Requires constant management attention and incorporation of risk reduction measures
HIGH	RED	Very substantial risk reduction measures and seriously consider alternatives

Remarks:

Environment:

***Slight effect:** Slight environmental damage, environmental contamination (liters) <10, within the fence and /or contained within systems. Negligible financial consequences.

***Minor effect:** Sufficiently large contamination or discharge to damage the environment, environmental contamination (liters) $10 \leq \text{Loss} < 100$, but no lasting effect. Single breach of statutory or prescribed limit, or single complaint.

***Localized effect:** Limited discharges affecting the neighbourhood and damaging the environment. Environmental contamination is (liters) $100 \leq \text{Loss} < 1000$; repeated breaches of statutory or prescribed limit, or many complaints.

***Major effect:** Severe environmental damage. The company is required to take measures to restore the damaged environment. Environmental contamination is (liters) $1000 \leq \text{Loss} < 2,000$; Extended breaches of statutory or prescribed limits.

***Massive effect:** Massive environmental damage. The company is required to take extensive measures to restore the damaged environment. Environmental contamination is greater than (liters) 2,000; Extended breaches of statutory or prescribed limits, or widespread nuisance.

Reputation:

***Slight impact** –Public awareness may exist, but there is no public concern.

***Limited impact** –Some local public concern. Some local media and/or local political attention with potentially adverse aspects for company operations.

***Considerable impact** –Regional public concern. Extensive adverse attention in local media. Slight national media and / or local / regional political attention. Adverse stance of local government and/or action groups.

***National impact** –National public concern. Extensive adverse attention in the national media. Effect on regional / national policies with potentially restrictive measures and/or impact on grant of licenses.

***International impact** –International public concern. Extensive adverse attention in the international media. Effect on regional/national policies with potentially restrictive measures and/or impact on grant of licenses. Mobilization of action groups.

It is the responsibility of project/crew management to ascertain that all identified risks have been reduced to ALARP level before an operation can commence.

Levels of authority for risk control:

Levels of approval authority to commence work in BGPI shall be based on the Approval Matrix listed below.

BGPI's Approval Matrix for Level of Authority

Residual Risk Level	Approval Authority Level & Single Point of Accountability (SPA)
Yellow Zone	Party Chief of the crew
Orange Zone	Country Manager
Red Zone	V.P of HSSE of BGPI

4.3 Risk Control

BGPI will control all identified hazards/risks in accordance with the company's written standards and accumulated expertise by either reducing its probability of occurrence or reducing its effects or both. This may be achieved by using one or a combination of the following steps to reach ALARP level.

After the appropriate control measures have been selected, the "residual risk" has to be re-assessed using the RAM to ensure that the remaining risk is at ALARP level. Furthermore, evaluation will be made on the risk reduction measures as they may result in unintended harmful consequences to ensure secondary risks are reduced and/or minimized.

All identified hazards/risks are controlled and/or mitigated by using the following procedures and tools.

- **JSA Procedure**

Job Safety Analysis (JSA) is conducted routinely in order to systematically assess a particular task. The completed JSA is addressed during toolbox meeting and section meeting in order to ensure that all relevant workers are very familiar with the identified hazards/risks as well as control measures to be taken. Supervisors and/or foremen are responsible for implementing this procedure.

Reference Documents

[BGPI HSSE 018 JSA Procedure](#)

- **Safety Data Sheets (SDS)**

Each and every chemical and hazardous material used by BGPI operations requires an individual SDS provided by the supplier. Supervisors will train workers who handle and use these materials in accordance with instructions from the SDS with specific emphasis on safety, health and emergency response measures.

Reference Documents

[BGPI HSSE 019 SDS](#)

- **Manual of Permitted Operations (MOP)**

To prevent injury and minimize risks for a specific project, crew management will prepare a list of “permitted and not-permitted operations”, and review them with client representatives for their agreement. Upon approval, this list will be issued for implementation by crew operation. All workers will receive training on this and require them to comply with all the details for the duration of the project.

Since BGPI operates in many parts of the world with so many clients, the content of each MOPO will vary from project to project as detailed in the project specific HSSE Plan.

- **HSSE Signs**

Standard HSSE warning signs have been prepared as listed in the document below using international standards, mostly European and OSHA. English will be the basic language used while additional languages will be translated as appropriate for local workers.

Reference Document

[BGPI HSSE 043 HSSE Signs Program](#)

- **Simultaneous Operations**

To ensure that the actions of one job(s) do not have an adverse impact on another job(s) and that the execution of those simultaneous tasks has no significant impact on other activities, every BGP international project shall identify its own simultaneous operations/activities and implement the reference procedure below when it is necessary.

Reference Documents

[BGPI HSSE 021 Simultaneous Operations Procedure](#)

- **Lone worker Operations**

The BGPI project/crew will identify activities which are carried out by lone worker that may result in an increased level of risk to the worker, hence a lone worker procedure will be developed and implemented by the project/crew based on BGPI's Lone Worker Policy.

- **Lock-out/Tag-out (LOTO)**

BGPI has developed a general Lock-out/Tag-out procedure as referenced below which is used to work on electrical, mechanical, high pressure air, hydraulic equipment/systems and others where energy sources have to be depleted and/or isolated before work can commence.

[BGPI HSSE 023 Lock-out/Tag-out \(LOTO\) Procedure](#)

- **Permit to Work (PTW)**

A Permit to Work (PTW) system has been implemented in all BGPI international operations. Use of a PTW should be considered whenever it is planning to carry out any non-routine hazardous activities which may adversely affect the safety of personnel, the environment, the asset or reputation. BGPI has identified at least the following work activities that require a PTW;

- **Hot Work:** - welding, oxy cutting, grinding (portable hand grinding machine) outside the designated area.
- **Electrical Work:** - when working on any electrical system that requires power cut-off for whole camp or some camp units.
- **Confined Space Entry:** - any entry into a space where there may be oxygen deficiency
- **Working at Height:** - a worker is required to work on a surface that is more than 1.8 meters above ground.
- **Night Driving:** - all night vehicle transportation except those already approved for the routine night operation and working in urban area
- **Crane lifting.**
- **Ground Disturbance:** - any work that involves manmade cut, cavity, trench or depression in the earth's surface formed by earth removal which could result in a disturbance of 1.5 meters depth or more.
- **Towing Work.**

The PTW system is managed by the crew Party Chief, only the Party Chief/ or his designated alternate can approve a PTW.

Listed below are reference documents related to PTW.

Reference Documents

[BGPI HSSE 022 Permit to Work Procedure](#)

[BGPI HSSE 044 Working At Height Procedure](#)

[BGPI HSSE 045 Ground Disturbance Procedure](#)

[BGPI HSSE 046 Confined Space Entry Procedure](#)

[BGPI HSSE 047 Lifting Procedure](#)

● **Personal Protection Equipment (PPE)**

BGPI management is committed to providing all required PPE for workers, based upon the results of risk assessments conducted for each land project, as well as the specific requirements of each contract and local government. This is to protect workers from possible injuries and to mitigate the severity of potential risks as identified in the project. Minimum PPE requirements are listed in the reference document below for all types of operations. Workers will be given instructions on the proper use and maintenance of their PPE during their HSSE orientation along with additional training for specific PPE required for certain types of work.

Reference Document

[BGPI HSSE 012 PPE Management Procedure](#)

Most importantly, the section supervisors are responsible for reminding the individual group of the specific risks and control measures right before they begin each task; this is in addition to addressing the specific risks and control measures for the overall daily activities in the toolbox (or shift change for Marine operation) meeting.

5 PLANNING AND PROCEDURES

5.1 Standards & Guidelines

BGPI conducts its operations in line with the following key industry standards and guidelines: need to review and update all the following references:

S/N	Code	Title
International Association of Geophysical Contractors (IAGC)		
1	Edition 10 (2011)	Land Geophysical Safety Manual
2	Edition 10 (2010)	Environmental Manual for Worldwide Geophysical Operations
International Association of Oil & Gas Producers (IOGP)		
1	Report No. 510	Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry
2	Report No. 511	OMS in practice. A supplement to Report No. 510, Operating Management System Framework
3	Report No. 423	HSE management guidelines for working together in a contract environment
	423-01	Contractor HSE capability assessment and scoring system - Supplement to Report 423
	423-02	Guide to preparing HSE plans and Bridging documents - Supplement to Report 423
4	Report No. 420	Helicopter guidelines for land seismic & helirig operations
5	Report No. 459	Life-saving rules
6	Report No. 292	HSE competency management guidelines for the geophysical industry
7	Report No. 245	Guidelines for HSE auditing in the geophysical industry
8	Report No. 432	Managing HSE in a geophysical contract
	432-01	Guidance note on subcontractor management in geophysical operations
	432-02	Risk management in geophysical operations - Supplement to Report 432
9	Report No. 542	Temporary onshore accommodation - Design, layout, accommodation, facilities and services
10	Report No. 537	Effective guard force management - principles and guidelines
11	Report No. 537	Security management system - Processes and concepts in security management
12	Report No. 320	Firearms and the use of force
13	Report No. 472	Country evacuation planning guidelines
14	Report No. 555	Conducting security risk assessments (SRA) in dynamic threat environments
15	Report No. 6.88/307	Strategic health management: principles and guidelines
16	Report No. 343	Health management in the oil and gas industry
17	Report No. 307	Strategic health management: principles and guidelines
18	Report No. 398	Health aspects of work in extreme climates
19	Report No. 380	A Guide to Health Impact Assessments in the Oil & Gas Industry
20	Report No. 382	A guide to malaria management programmes in the oil and gas industry
21	Report No. 626	Managing fatigue in the workplace
22	Report No. 470	Fitness to Work
23	Report No. 588	Medical facilities assessment: checklist for medical professionals in the oil and gas industry

S/N	Code	Title
24	Report No. 575	Oil and gas contractor drug and alcohol testing guideline
25	Report No. 548	Health impact assessment - a guide for the oil and gas industry
26	Report No. 495	Managing psychosocial risks: a guide for expatriates in the oil & gas industry
27	Report No. 491	Prevention of heart attacks & other cardiovascular diseases
28	Report No. 397	A Guide to Food & Water Safety
29	Report No. 580	Understanding induced seismicity associated with oil and natural gas operations
30	Report No. 184	Oil and Gas Exploration and Production in Mangrove Areas - Guidelines for Environmental Protection
31	Report No. 2.49/170	Oil Industry Operating - Guideline for Tropical Rainforests
32	Report No.449	Environmental management in Arctic oil & gas operations - good practice guide
33	Report No. 507	Oil spill waste minimization and management
34	Report No. 413	Guidelines for waste management - with special focus on areas with limited infrastructure

5.1.1 Industry Standards & Guidelines

In addition to the above standards and guidelines, many other relevant industry publications are used as listed in the reference document below to facilitate company operations.

Reference Document

[BGPI HSSE 025 List of key Industry References](#)

5.1.2 Environmental Management

BGPI management is committed to the goal of “zero damage to the environment.” Hence, the BGPI Environmental Management Guidelines have been prepared that covers major aspects of BGPI operations as detailed in the reference document.

Based upon client’s project-specific EIA (Environmental Impact Assessment) report, the BGPI project team will use it to further assess the identified risks of the operation using the BGPI risk assessment process, and prepare a project-specific Environmental Management Plan (EMP), which is part of the Project HSSE Plan.

The EMP includes the control/mitigating measures for the above-identified risks and comply with the regulatory requirements of the specific country where we operate as well as stipulations of the contract with the client.

Operations such as line clearance, drilling, shooting, ground disturbance, vehicle movement, camp operation along with the wastes generated by the crew from base camp and operating areas are controlled and disposed of according to the project Environmental Management Plan in order to minimize its impact on the environment.

Reference Document

[BGPI HSSE 026 BGPI Environmental Management Guideline](#)

[BGPI HSSE 053 Template for Waste Management Plan](#)

[BGPI HSSE 054 General Guidelines for waste management](#)

5.1.3 Occupational Health & Medical Management

The BGPI's Occupational Health & Medical Management Guidelines referenced below is used for all operations.

BGPI management is committed to the goal of “no harm to people” with a healthy workforce and working environment. Therefore, the BGPI Occupational Health & Medical Management Guidelines have been issued for all planning purposes for occupational health & medical management. Additionally, all relevant requirements from the contract and local government will be included in the project-specific HSSE plan for implementation.

An occupational health risk assessment will be conducted using the guidelines referenced below, if necessary, by qualified personnel from either BGPI or an approved third party for a specific project. Recommendations from this assessment will be incorporated into the Project HSSE Plan for implementation.

All BGPI permanent employees, subcontractors and locally hired workers are required to pass both physical fitness and medical exam conducted either by a BGPI doctor or a third-party medical professional to ensure fitness to work. Additionally, some specific positions may require valid certificates by international health standards and/or equivalent governmental standards.

The project crew's medical staff, if necessary, will issue advise for appropriate actions for prevalent diseases in the project area as identified in the assessment report.

Reference Document

[BGPI HSSE 011 BGPI Guidelines for Occupational Health & Medical Management](#)

5.1.4 Land Transportation Safety Management

Driving related accidents have always been the main cause of injuries and fatalities in geophysical operations.

Based on this, BGPI has formulated driving and transportation policies as well as the management procedures to minimize the risk. It is the responsibility of every line manger to ensure that the effective control measures are in place as follows: -

- Conduct driving activities in compliance with all relevant local, national and contract requirements;
- Maintain all transport assets and equipment in safe operating conditions;
- Implement the Preventive Program of Maintenance (PPM) and conduct regular vehicle inspections;
- Implement driver selection process to ensure they are qualified and competent;
- Provide Defensive Driving Course (DDC) training and assessment to all drivers; only approved drivers are allowed to drive.
- Implement effective journey management system with:
 - Select the appropriate In Vehicle Monitoring System (IVMS);
 - Designated person to responsible for journey management;
 - Conduct regular analysis of driver's behaviour and implement the consequence management.

Reference Documents

[BGPI HSSE 058 Standard Vehicle Checklists](#)

5.1.5 Security Management

BGPI Management is committed to a secure working environment incorporating industry recognised best practice standards, to minimize risk in its entire business activities for staff, assets, stakeholders, processes, environment and brand reputation. Therefore, BGPI have developed Security Management Guidelines and Security Procedures Manuals referenced below.

The purpose of the BGPI Management Guidelines and Security Procedures provide the country management team with the framework, knowledge and confidence to develop their own unique respective security mitigation strategies, processes and procedures, based on the challenges of the diverse risk and threat environment they operate in.

The management guidelines and security procedures must be aligned taking into account, country specific host nation laws, and contractual regulatory compliance requirements. These requirements are captured and detailed in the security plan and must be implemented for the entire project duration.

Reference Documents

[BGPI HSSE 017 Security Management Manual](#)

[BGPI HSSE 017b BGPI Security Procedures Manual](#)

[BGPI HSSE 055 Guidelines on Explosive Remnants of War](#)

[BGPI HSSE 056 Security Provider Selection & Prequalification Guidelines](#)

[BGPI HSSE 057 Guidelines on Reducing Impacts of Religion On Operations](#)

5.2 HSSE Plan

5.2.1 Project HSSE plan

The Project HSSE Plan addresses project specific requirements (e.g. legal, contractual, environmental, and geographical) and identifies controls and mitigation measures to manage the risks identified in the Project Risk Assessment.

The main function of the Project HSSE Plan is to:

- Demonstrate that all involved parties have the necessary HSSE leadership, risk management procedures, operating instructions, emergency plans and controls in place to achieve the project programme without compromising HSE performance.
- Document and address project specific hazards and risk controls.
- Identify the project emergency response plans (including interfaces between parties and stakeholders) and recovery plans.
- Document available operational support such as medical resources and aircraft or helicopter landing sites.

- Identify legal requirements, such as reporting to external parties; specific environmental restrictions, etc.
- Provide assurance of the effective working of the interface between the HSEMS of client, contractor and subcontractors at the project level.

5.2.2 Development of a Project HSSE plan

The latest IOGP Report #432 plus the reference document below are used as guidelines by a Project/Crew Team to prepare a project specific HSSE plan.

The Project/Crew Team will begin by identifying and listing of all the operation's HSSE activities, all hazards/risks along with appropriate actions to facilitate a safe and efficient operation.

Then the Project/Crew Team will prepare, review and finalize the Project HSSE Plan and review it with on-site client representative if available.

After review of the Project HSSE Plan by the client, all project/crew management (Country/Project managers/Party Chiefs/supervisors) as well local workers will receive extensive pre-start up HSSE training based upon the Training Matrix specified in the Project HSSE Plan. This training will be conducted by either internal or external experts.

The HSSE plan is a project-specific plan as mentioned above that contains the following key sections:

- Section 1. Executive summary**
- Section 2. Introduction and Project HSSE plan objectives**
- Section 3. Scope of and schedule of work / activity / project**
- Section 4. Management system interfaces**
- Section 5. HSSE emergency response plans**

Additionally, the plan will include all stipulated HSSE requirements in the contract with the client as well as relevant requirements from national and local governments, if any.

If needed or required, a bridging document will be prepared (to be included in the Project HSSE Plan) that identifies the differences between the HSSE requirements of the contract and that of BGPI's HSSE MS, as well as an agreement with the client for a way-forward plan.

Reference Document

[BGPI HSSE 029 Project HSSE Plan Template](#)

A complete set of inspection checklists as referenced below have also been issued for the project/crew team to conduct a comprehensive inspection of the facilities and equipment before starting-up operations. This will allow the crew to be prepared and ready for a safe and successful operation.

Reference Document

[BGPI HSSE 030 Basic HSSE Standard Inspection Checklist](#)

5.3 Safe Working Procedures

BGPI has established a comprehensive set of SWP (Safe Working Procedure) for its seismic operations for both land and transition zone operations to ensure that workers are following the procedures to safeguard against injury, health, environmental impacts and associated risks.

Safe Working Procedures are designed to protect the following four key elements of the company as well as facilitating a safe and efficient operation:

- **People**
- **Equipment**
- **Materials**
- **Environment**

SWP are reviewed and updated on as needed basis while the project project/crew management is the first group to initiate any revision of a certain procedure if necessary. If an update or revision is required, then the Management of Change (MOC) procedure will be followed. This review will be documented with its record sent to the BGPI HSSE Manager.

Refer to the document below for a list of generic safe working procedures.

Reference Document

[BGPI HSSE 034 Generic Safe Working Procedures](#)

[BGPI HSSE 048 Generic Safe Working Procedures for Transition Zone Operations](#)

[BGPI HSSE 051 General Guidelines for Mountain Operations](#)

5.4 Emergency Response Planning

BGPI requires that an emergency response plan as referenced below has to be prepared and implemented for all BGPI operations. The plan will include all possible emergency situations for that specific project while complying with the local, national and contract requirements. This plan is part of the Project HSSE Plan. Additionally, each project / crew will have an emergency evacuation plan.

The plan is to ensure adequate, appropriate and rapid response to all possible emergency situations on site, to minimize personal injury, environmental impact and property loss, and to provide additional support if necessary to prevent an incident from escalating into an emergency situation.

The emergency response plan is based on the following goals:

- **Saving** human life.
- **Moving** to a safer place.
- **Saving** assets - (without endangering personnel).
- **Protecting** the environment - (without endangering personnel).

Emergency response planning is divided into three phases:

Phase 1: Assessment



Phase 2: Damage limitation

Phase 3: Recovery

Tabletop emergency drills and full scale exercises are routinely conducted for crew operations in accordance with the annual drills/exercise schedule for each project.

Emergency response organization for BGPI land operation consists of three layers as follows, with their detailed organization charts and functions stipulated in the reference documents.

- The Crew Emergency Response Plan.
- The Country Emergency Response Plan.
- The BGPI Emergency Response Plan.

Reference Documents

[BGPI HSSE 032 BGPI Emergency Response Plan](#)

6 IMPLEMENTATION AND MONITORING

BGPI's HSSE MS is implemented through a project-specific HSSE Plan by the crew. This plan provides key instructions and procedures to execute operations safely and successfully, and it ensures that:

- All workers are physically and medically fit, and have received required training to work safely.
- All the hazards/risks in the work environment have been identified, controlled and/or mitigated to ALARP level, and monitored for immediate corrective actions.
- The crew complies with the HSSE requirements of both the contract and the country where it operates.
- The safe working procedures are adequate and used by workers.
- The equipment and facilities used are following the schedule for inspection and maintenance as recommended by the suppliers/manufacturers.
- Appropriate HSSE emergency response and evacuation plans and measures are in place.
- The required documents/records are kept to facilitate the operation.

6.1 Implementation of Project HSSE Plan

The following activities are undertaken by each crew as they implement their Project HSSE Plan.

6.1.1 Non-Compliance and Corrective Action Tracking System

BGPI has established and implemented the Remedial Work Plan (RWP) system to record all deficiencies identified from all management visits, HSSE meetings, safety observations, audits, inspections, drills, incident investigations and compliance assessment during the stages of mobilization, pre-start-up and operation. Each responsible party handling a specific action item(s) in the RWP is designated by the Party Chief to ensure a timely reporting and closure of all required remedial actions in the RWP.

Each crew's RWP is submitted on weekly basis to HSSE Department of the Headquarters for its review and follow-up. Key action items selected from all RWPs are further reviewed by the HSSE Committee at Headquarters for follow-up.

The crew's HSE Advisor is responsible for maintaining and updating the RWP, and communicates regularly with the crew and country management as well as HSSE Department of the headquarters.

Reference Document

[BGPI HSSE 024 Remedial Work Plan \(RWP\) Form](#)

The BGPI HSSE Department is responsible for analyzing the RWPs for all projects for an in-depth understanding of what had happened, as well as noting the conspicuous and repeated trend of deficient areas on monthly, quarterly and yearly basis for all BGPI operation.

Effectiveness of the RWP system depends entirely on how each action item on the project/crew RWP list is "closed-out" as follows:

- Conciseness and clarity of description of each action item.
- The thoroughness and effectiveness of its control/mitigation measures.
- Ensure each action item is indeed closed properly when it is "closed" on the RWP spreadsheet.
- Outstanding action items on the RWP list are reviewed with urgency for prompt actions in the crew weekly HSSE meeting.
- The crew management is familiar with the items on RWP list, and is actively assisting the responsible parties to close out the action items.

6.1.2 Risk Management Program

A toolbox meeting is held each morning conducted by the Party Chief and/or crew supervisors to address and emphasize at least the following:

- Daily activities and the specific HSSE risks for that day as identified and recorded.
- Review specific control measures for the specific risks.
- Ensure all workers understand and are ready to take the appropriate control measures.

A weekly HSSE meeting is also held for the project/crew management to address at least the following issues:

- HSSE issues of last week with possible solutions.
- Plan for HSSE activities for the following week.
- Specific issues from operations.

6.1.3 Emergency Drills and Exercises

Scheduled emergency response drills and full scale exercises for first aid, fire, evacuation and Medevac (plus project-specific emergency) are planned and conducted, with observations noted and comments documented for improvement.

Emergency response team members will conduct more frequent drills and exercises among themselves to ensure they are ready to respond to an emergency.

6.1.4 Inspection and Maintenance Program -- Facilities, Equipment

BGPI has a complete program for inspection and maintenance of its facilities and equipment. Operating facilities along with all equipment will receive periodic inspections by crew management, applicable industry, certifying authority, etc. to ensure they are in safe operating condition.

The Chief Mechanic will be responsible for ensuring that a complete record is kept for all inspections and maintenance work, with deficiencies noted in the project's RWP for immediate action.

6.1.5 Routine HSSE Reporting

It is the responsibility of the HSSE advisor for each crew to ensure that the daily & weekly reports are prepared and submitted to the designated internal personnel/department and client representative.

6.2 Asset Integrity

All BGPI owned assets will be designed, procured, constructed, operated and maintained according to the guidelines listed below; and follow the applicable local laws and regulations plus contract requirements to ensure HSSE considerations are incorporated in all relevant aspects to warrant their integrity.

A preventative maintenance program shall be included and regularly updated, specific emphasis will be placed on all HSE-critical facilities and equipment. The seismic crew should have a HSE-critical facility and equipment list that includes at least vehicles, drilling rigs, vibrators, bulldozers, generators, crane& lifting equipments, gas container, fire fighting equipments, food storage, sewage treatment plant (STP),etc. should be considered as HSE-critical facilities and equipment.

Reference Document

[BGPI HSSE 038 Asset Integrity Management Procedure](#)

6.3 Performance Measuring and Monitoring

BGPI monitors the following proactive and reactive HSSE performance indicators as well as two management programs (Ranking and Trend Analysis) for each land project operation:

Proactive Indicators

- *Number of Senior Management Visits*
- *Number of Emergency Drills & Full Scale Exercises*
- *Number of HSSE Inspections/Audits by Crew or client*
- *Number of Third-Party HSSE Audits*
- *Number of Section/ Group HSSE Meetings*
- *Number of Crew HSSE Committee Meetings*
- *Percentage of RWP Completed*
- *Percentage of Training Targets Achieved by project/crew*
- *Number of HSSE Observation Cards*
- *Number of Near Misses---HiPo Incidents*
- *Number of Unsafe Acts*
- *Number of Unsafe Conditions*
- *Number of First Aid Cases – FAC*

Reactive Indicators

- *Number of Fatalities -- FAT*
- *Number of Lost Work Day Cases-- LWDC*
- *Number of Restricted Work Day Cases -- RWDC*
- *Number of Medical Treatment Cases -- MTC*
- *Number of Damage Incidents*
- *Number of Health Incidents*
- *Number of Security Incidents*
- *Number of Environmental Incidents*
- *Number of Motor Vehicle Crash --MVC*

Management Program

- *Project/Crew Ranking Program----Red, Yellow and Green Monitoring/Warning System*
- *HSSE Trend Analysis Program*

Other performance indicators may be added for a particular project operation, depending on the local requirements or client request.

All of the above indicators will be recorded in the project's Daily/Weekly HSSE Performance Monitoring report, and are used as a basis for continuous improvement.

6.4 Operating Records

HSSE operating records are essential to the success of a project as they serve as a collection of experiences for our workers to prepare and execute the next project. In addition to the required data to be recorded by BGPI, additional requests by the client and/or local government will be included in this record.

The crew HSSE Department is responsible for keeping this data updated on regular basis during the operation with a complete file prepared at the end of the project.

6.5 Incidents, Near-Misses and Unsafe Situations

6.5.1 Classification

Incidents are defined and classified according to IOGP and other applicable industry guidelines as follows. Refer to the referenced documents below for details.
(BGPI_HSSE_039)

Cat.	Definition
FAT	Fatality. Cases that involve one or more people who died as a result of a work-related incident.
LWDC	Lost Work Day Case. Any work-related injury, other than a fatal injury, which results in a person being unfit for work on any day after the day of occurrence of the occupational injury.
RWDC	Restricted Work Day Case. Any work-related injury other than a fatality or lost work day case which results in a person being unfit for full performance of the regular job on any day after the occupational injury.
MTC	Medical Treatment Case. Cases that are not severe enough to be reported as lost work day cases or restricted work day cases but are more severe than requiring simple first aid treatment.
FAC	First Aid Case. Cases that are not sufficiently serious to be reported as medical treatment or more serious cases but nevertheless require minor first aid treatment.
NM	Near Miss. An unplanned or uncontrolled event or chain of events that has not resulted in recordable injury or physical damage or environmental damage but had the potential to do so in other circumstances.
DAM	Damage incident involving primarily property loss.
ENV	Environmental incident.
SEC	Security incident.
HiPo	High Potential Event. Any incident or near miss that could have realistically resulted in one or more fatalities.

6.5.2 Reporting

The reporting of an incident is managed under a “No Blame” culture. BGPI encourages the reporting of all incidents in order to foster a proactive safety culture as well as facilitating the construction of a realistic company-specific incident profile and database. This information is used to plan for appropriate control / mitigating measures to prevent future injury, damage or environmental incidents.

6.5.3 Investigation

The most important reason for conducting an investigation is to prevent recurrence of the same or similar accident using the procedure as referenced below.

The investigation report will identify all causes (direct, indirect and root) of the accident, and provide recommendations for corrective actions to prevent reoccurrence of the accident. All corrective actions will be entered into the project’s Remedial Work Plan (RWP) for timely follow-up actions.

Reference Document

[BGPI HSSE 039 Incident Investigation and Reporting Procedure](#)

6.6 Management of Change

A Management of Change (MOC) procedure has been developed and implemented to ensure all significant changes to any aspect of the personnel/operation are reviewed and approved before the change is implemented. The review process includes a risk analysis which ensures that the proposed change does not introduce additional hazards, that processes and procedures for managing change are applied, and that HSSE standards and requirements are not compromised by the change. If new hazards are identified, additional controls will be implemented to reduce them to ALARP level.

The MOC process consists of four steps:

- 1) **Identification of change.**
- 2) **Evaluation of risks.**
- 3) **Implementation.**
- 4) **“Close-out”.**

Management of Change documentation is reviewed and approved by appropriate managers prior to implementation as detailed by reference document below.

Reference Document

[BGPI HSSE 037 Management of Change Procedure](#)

6.7 Clients and Products

BGPI's Marketing Department is the key contact with clients for communication and feedbacks on the overall performance.

Country/Project Manager and/or Party Chief will be the contacts with the client representative on regular basis to review HSSE performance, to coordinate all project activities and services, and to ensure that all HSSE related requests, issues and concerns are addressed on timely basis.

7 REVIEW AND IMPROVEMENT

7.1 HSSE Audit & Inspection

HSSE audit and inspection are conducted for the following key reasons and according to the procedures reference below:

- To ascertain that the Project HSSE Plan is in place, and that it is being implemented and functioning efficiently.
- To ensure compliance with current policies, local regulatory and client contract requirements, as well as relevant requirements of the BGPI's HSSE MS.
- To assist project management in the identification of deficient areas during implementation of the Project HSSE Plan, and to provide recommendations for improvement, hence enhancing the crew's HSSE performance.
- To decipher if the Project HSSE Plan and other applicable HSSE standards and procedures used are adequate for the specific operations; if not adequate, then recommendations for immediate actions will follow.

Audit: It is an independent examination and assessment of how the HSSE Management System is implemented and documented throughout the organization. Specifically, how the HSSE Plan for a specific project has been functioning over a period of time.

Inspection: It is a physical observation and/or examination of all or selected equipment or facilities, etc. used for a project. Inspection checklists issued by the HSSE Department of BGPI HQ are used for seismic operations.

7.1.1 Internal Audit Program and Procedures

BGPI has published a Visit/Audit/Inspection Procedures as referenced below for its operations. This is a program to standardize the quality, scope, content, frequency, activity and reporting of such visit/audit/inspection used by the operations.

Trained and experienced auditors are employed to ensure a thorough review and assessment of all HSSE aspects of the operation. A formal audit report shall be prepared at the conclusion of an audit, and submitted to BGPI management and project management for review and follow up actions. All the deficiencies and recommendations from this audit report are recorded in the project's RWP by the crew HSSE Advisor.

Reference Document

[BGPI HSSE 040 BGPI HSSE Visit/ Audit/ Inspection Procedures](#)



BGPI HSSE 040a BGPI HSSE MS Internal Audit Check list

7.1.2 Third-Party Audit

This is an audit conducted by a reputable consulting firm to assess how BGPI's HSSE MS is functioning in a specific project operation. Before conducting such an audit, the BGPI HSSE Department along with the senior management of project will decide on the following items with the consultant:

- Which project to audit -- BGPI management will decide.
- Detailed scope and agenda -- BGPI management & consultant will decide.
- Basis of the audit -- Using BGPI HSSE MS and Project HSSE Plan.
- HSSE documents that the consultant need to review--Consultant to provide advice.
- Project personnel and/or workers that the consultant needs to talk to during the audit.
- Date and duration -- BGPI management & consultant will decide.
- Audit team members -- Advised by consultant and approved by BGPI management.
- Logistics arrangements and PPE requirements--Provided by BGPI Project management.
- Contents of the audit report and its due date-- to be set by BGPI management.

An audit report is prepared by the consultant at the end of such audit and submitted to BGPI management within a specified time frame for review and required actions for improvement. Detailed deficiencies and recommendations in the report are noted in the project's RWP by the crew HSSE Advisor for follow up action.

7.1.3 Client Audit

Client may conduct an audit whenever notification of such activity is received by project management. Before conducting such an audit, the BGPI project management will discuss with the client representative(s) to ascertain the following items:

- Detailed scope, schedule and agenda.
- Basis of audit -- using the project's HSSE Plan and/or the client company's HSSE MS system.
- HSSE documents that the client plans to review.
- Project personnel and/or workers that the client plans to talk to, if any, during the audit.
- Field operations to visit.
- Audit team members.
- Logistics arrangements and PPE requirements.
- Audit report – specific information the project team needs to provide to the client to complete this report.
- Sharing of audit findings -- set the time frame that the project team will receive the final report from the client.

7.2 Compliance Assessment

A regular compliance assessment will be conducted by the Project /Crew management team with the help of Legal Department and third-party consultants. The time frame for such assessment may typically be as follows:

- For a project lasting over one calendar year, the assessment shall be carried out annually during the month of December.
- For a project lasting less than one calendar year, the assessment shall be carried out at the end of such project.

Furthermore, the compliance assessment may be conducted under the following circumstances:

- After a major HSSE incident.
- Changes in local laws, regulations, standards or contract requirements.
- Major non-compliance findings from client or internal HSSE audit.

The compliance assessment procedure below will be followed with all identified deficiencies recorded in the project/crew's RWP for timely corrective actions.

Reference Document

[BGPI HSSE 041 Compliance assessment procedure](#)

7.3 Management Review

7.3.1 Headquarters Review

The BGPI HSSE Committee will conduct a formal annual review and update of the HSSE Management System Manual as well as overall prior year HSSE performance during the early part of the year. President of BGPI along with HSSE Manager will organize this review according to the review procedures referenced below.

Additionally, the following activities and documents are reviewed quarterly during the BGPI HSSE Committee meeting to ensure all operations are operating in compliance with the specific regulatory and contractual requirements, and in accordance with the HSSE MS through the individual crew's Project HSSE Plan.

- HSSE performance for all operations and trend analysis.
- Status of communication and feedbacks from headquarters of clients, if any, along with issues to be addressed from client audits/inspections.
- Specific HSSE issues of current and pending projects.
- Specific legal and other issues from projects and/or contracts that cannot be resolved by Country level management.

- All major accidents along with status of implementation of remedial measures.
- Major RWP items that require this Committee's attention.
- Initiatives and new programs from IAGC, IOGP and other relevant industry associations that might affect BGPI operations.
- This review is documented and distributed to all Headquarters' Departments, BGP Country level management.

7.3.2 Country Management Review

The Country Management shall conduct their HSSE performance review on quarterly basis. The Country manager will organize this review.

The following activities and documents will be reviewed quarterly to ensure that they are operating in compliance with the regulatory and contractual requirements, and to provide needed support to all projects within that Country to ensure a safe and successful operation.

- Communication with the client representative(s) , and relevant governmental agencies and local communities, etc.
- Status of proposed actions/requests by each project management.
- Monthly HSSE performance and RWP statistics submitted by all projects within that Country along with the status of remedial actions.
- Specific issues raised by each project management.
- Status of implementation of corrective measures from audit/inspection/accident reports.
- Specific Country regulatory issues, if any.
- Specific issues relative to contract requirements raised by project management.

This review will be reported and documented for further review by BGPI headquarters and distributed to all the project management teams within the country.

7.3.3 Crew Management Review

On monthly basis, the crew Party Chief will organize a review meeting for their operation. Participation by client representative(s) is welcome but not necessary.

The following activities and documents will be reviewed by the crew management to ensure that they are operating in accordance with their Project HSSE Plan, contract requirements, local government and international industry guidelines. This review will be documented for further review by the Country Management.

- Daily and Weekly HSSE performance.
- Project RWP status.
- Major HSSE issues for the month plus HSSE meeting minutes for prior month.
- Identify and request needed support from Country management.



- Communication with project client representative(s), to ensure all agreed action items are clearly documented with timely close-out measures.
- Communication with local community and other relevant parties, to ensure a good working relationship with them.
- Results of Internal audit/inspection.
- Reports and statistics on unsafe act and unsafe condition.
- All incident reports, if any, along with the status of all action items from the reports.
- Specific issues on contract HSSE requirements, if any.
- Specific issues on operating procedures, if any.
- Review comments from Country Management, if any.

7.3.4 HSSE Review Procedures













The referenced procedures below are used by Project and Country Management to conduct a systematic review of HSSE performance and related subjects. The BGPI HSSE committee has already established its own procedures:

At the end of such review meetings, every issue discussed will accompany an appropriate remedial action(s) for continuous improvement. These actions are recorded in the RWP of Project Management and/or Country Management.

Reference Document

[BGPI HSSE_042 BGPI HSSE MS Review Procedures](#)


Annex1: BGP's Life-saving Rules

Category	Icon	Primary Text
Personal Safety		Use fall protection equipment correctly when working at height
		Must wear personal flotation device as required when working in water
		Forbid walking under a suspended load
Site Safety		Forbid use of alcohol or drugs (with anaesthetizing effect) while working or driving
		Forbid smoking in smoking-prohibited area
Control of Work		Must obtain a valid Permit to Work for non-routine work and high risk operation
		Implement isolation before inspection and maintenance of electrical system and other possible energy releasing equipment
Explosives Safety		When assembling explosives and detonators , all wires must be shunted during the entire process
		Must maintain required Safety Distance when assembling explosives and detonators as well as during its blasting operation
Driving Safety		Wear your seat belt correctly while driving or riding a vehicle
		When driving on a journey, follow approved Journey Management Plan
		When driving, forbid use of phone and prohibit driving that exceeds speed limit

The following procedures will be used to address worker's Violation of BGP's Life-saving Rules:

Life Saving Rules	First time Violation	Second time Violation	Third time Violation
	<ul style="list-style-type: none"> - Leave post for six months. - Receive retraining - Report to work after re-assessment. 		
  	Written Warning	<ul style="list-style-type: none"> - Leave post for six months. - Receive retraining - Report to work after re-assessment. 	



	Verbal Warning	Written Warning	<ul style="list-style-type: none">- Leave post for six months.- Receive retraining- Report to work after re-assessment.
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Note: All international operating entities are required to establish procedures and policies on violation of BGP Life-saving rules in compliance with local and/or national laws and regulations.

Annex2: Acronym

The following acronyms are used in this document:

Acronym	Description
ALARP	As Low As Reasonably Practicable
DAM	Damage
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ENV	Environment Incident
FAC	First Aid Case
FAT	Fatality
HiPo	High Potential Event
IVMS	In Vehicle Monitoring System
JSA	Job Safety Analysis
LOTO	Lock Out/Tag Out
LTIF	Lost Time Injury Frequency
LWDC	Lost Work Day Case
MOC	Management of Change
MOPO	Manual of Permitted Operations
MTC	Medical Treatment Case
MVC	Motor Vehicle Crash
MVCR	Motor Vehicle Crash Rate
PPE	Personnel Protective Equipment
PPM	Preventive Program of Maintenance
PTW	Permit To Work
RAM	Risk Assessment Matrix
RWDC	Restricted Work Day Case
RWP	Remedial Work Plan
SDS	Safety Data Sheets
SEC	Security Incident
SPA	Single Point of Accountability
SRA	Security Risk Assessment
SSE	Short Service Employee
STP	Sewage Treatment Plant
SWL	Safe Working Loads
SWP	Safe Working Procedure
TRCF	Total Recordable Case Frequency



TZ	Transition Zone
UXO	Un-eXploded Ordnance
VTs	Vehicle Tracking System

Annex3: List of reference document

Document No.	Reference Procedures
002	BGPI HSSE Policies
003	Crew Organization Chart
004	Key HSSE Responsibilities
005	BGPI Departmental HSSE Responsibilities
006	Job Description Manual
008	Proposed HSSE Competence assessment training guidelines
009	Overseas Project Outsourcing Management Procedure
011	BGPI Guidelines for Occupational Health & Medical Management
012	PPE Management Procedure
013	Weekly HSE Report
014	Minimum HSSE Documentation
015	General Hazard Register – Land Operations
017	Security Management Manual
017b	BGPI Security Procedures Manual
018	JSA Procedure
019	SDS
021	Simultaneous Operations Procedure
022	Permit to Work Procedure
023	Lock-out/Tag-out (LOTO) Procedure
024	Remedial Work Plan (RWP) Form
025	List of key Industry References
026	BGPI Environmental Management Guideline
029	Project HSSE Plan Template
030	Basic HSSE Standard Inspection Checklist
032	BGPI Emergency Response Plan
034	Generic Safe Working Procedures
037	Management of Change Procedure
038	Asset Integrity Management Procedure
039	Incident Investigation and Reporting Procedure



040	BGPI HSSE Visit/ Audit/ Inspection Procedures
040a	BGPI HSSE MS Internal Audit Check list
041	Compliance assessment procedure
042	BGPI HSSE MS Review Procedures
044	Working At Height Procedure
045	Ground Disturbance Procedure
046	Confined Space Entry Procedure
047	Lifting Procedure
048	Generic Safe Working Procedures for Transition Zone Operations
049	Short Service Employee (SSE) Program
050	Behavior Based Safety (BBS) Program
051	General Guidelines for Mountain Operations
053	Template for Waste Management Plan
054	General Guidelines for waste management
055	Guidelines on Explosive Remnants of War
056	Security Provider Selection & Prequalification Guidelines
057	Guidelines on Reducing Impacts of Religion On Operations
058	Standard Vehicle Checklists