

E-93
VOL. 2

APPENDIX A

**LIST OF INDIVIDUALS AND FIRMS
PREPARING THE ASSESSMENT**

FILE COPY

APPENDIX A

LIST OF INDIVIDUALS AND FIRMS PREPARING THE ASSESSMENT

1. **Mr. Vladimir Litvak**, World Bank., 1818 H Street NW, Washington DC
2. **Dr. Marat Khabibullov**, AGRA Earth & Environmental Limited, 119121 Zemledelcheski per. 3 - 26, Moscow, Russia
3. **Dr. Alexander Solokha**, AGRA Earth & Environmental Limited, 119121 Zemledelcheski per. 3 - 26, Moscow, Russia
4. **Mr. Anatoli Osipov**, AGRA Earth & Environmental Limited, 119121 Zemledelcheski per. 3 - 26, Moscow, Russia
5. **KazEcology**, Republic Science - Industrial and Information Center, Alma Ata, Kazakhstan, CIS
6. **Mr. Carl Warner**, AGRA Earth & Environmental Limited, 221 - 18th Street S.E., Calgary, Alberta, Canada
7. **Ms. Leslie Zilm**, AGRA Earth & Environmental Limited, 221 - 18th Street S.E., Calgary, Alberta, Canada
8. **Mr. Gordon Rozon**, AGRA Earth & Environmental Limited, 221 - 18th Street S.E., Calgary, Alberta, Canada

APPENDIX B

LIST OF SNIP

STANDARDS FOR APPROVAL

SNIP STANDARDS. APPROVED FOR USE BY KAZAKHASTAN
(as of January 1, 1994)

Section 1. Management and Economics of Construction Projects

Group

- 01-Defined Categories for Construction Projects
- 02-Methodologies and Economic Considerations for Design and Engineering Studies
- 03-Construction and Construction Management
- 04-Regulations for the Design and construction of Projects
- 05-Economics of constructing Projects
- 06-Regulations Governing the Management of Personnel for Construction Projects

Section 2. Designing Standards

Section 2. Group 01. General Design Standards

- SNIP .01-82 Climatology and Geophysics of Construction
- SNIP .02-85 Fire Prevention Standards
- SNIP II-3-7900 (publ. in 1986) Construction Heat Technology
- SNIP II-1-79 Natural and Artificial Lighting
- SNIP II-1-2-77 Anti-Noise Protection
- SN 528-80 List of Physical Value Units, Subject to Be Used in Constr.
- SNIP .02-85 Loads and Impacts
- SNIP II-7-81 (publ. in 1991) Construction in Seismic Areas
- SN 429-71 Guidelines on Disposition of Facilities to Be Constructed and Limitation of Building Storey Level in Seismic Areas
- SNIP II-8-78 Buildings and Structures on Prepared Territories
- SNIP .14-83 Calculation of Hydraulically Parameters
- SNIP .15-90 Engineering Protection of Territories, buildings and Structures Against Dangerous Geological Processes. Basic Design Provisions. (Effective since 01.01.92)
- SN 473-75 Fire Protection Standards for Designing Timber Yards
- SNIP .28-85 Design Provisions for Polygons. Used in Neutralizing and Landfilling Toxic Industrial Waste. Procedure for Working out, Agreeing upon and Approving Standards of Technological Designing

Section 2. Group 02. Bases and Foundations

- SNIP .01-83 Bases of Buildings and Structures

SNIP .02-85 Bases of Hydraulic Engineering Structures
SNIP .03-85 Piled Foundations
SNIP .04-88 Bases and Foundations on Permafrost Soil
SNIP .05-87 Foundations for Dynamic Load Machinery
SN 477-75 Interim Guidelines for Designing Buried Structural Walls to Prevent Seepage

Section 2. Group 03. Manufactured Structural Components

SNIP .01-84 (Publ. 1989) Concrete and Ferroconcrete Structural Components
SNIP .02-86 Dense Silicate Concrete and Ferroconcrete Structural Components
SNIP .03-85 Reinforced Cement Structural Components
SNIP .04-84 Concrete and Ferroconcrete Structural Components Used in Medium and High Temperature Environments
SNIP II-22-81 Stone and Reinforced Stone Structural Components
SNIP II-23-81 (Publ. in 1990) Steel Structural Components, Low volume Production of Rolled Metal Stock Used in Steel Structural Components
SNIP .06-85 Aluminium Structural Components
SNIP II-25-80 Wooden Structural Components
SNIP .09-85 Asbestos Cement Structural Components
SNIP II-26-76 Roofing
SNIP .11-85 Corrosion Protection for Structural Components
SN 497-77 Interim Guidelines for Designing, Assembling and Operating Air-Cushioned Pneumatic Structures
SN 428-74 Guidelines for Designing, Assembling and Operating Sectional Glass Structural Components
SN 478-75 Guidelines for Designing, Assembling and Operating Double Glass Panes
SNIP .13-88 Flooring
SNIP .07-85 Rules for Recording the Responsibility Degree of Buildings and Structures When Designing Manufactured Structural Components

Section 2. Group 04. Engineering Equipment for Buildings, Structures and External Systems (Utilities)

SNIP .01-85 Buildings' Internal Water Supply Lines and Sewerage
SNIP .02-84 Water Supply. External Systems and Structures
SNIP .02-85 Sewerage. External Systems and Structures
SN 496-77 Interim Guidelines for Designing Purification Systems for Surface Waste Water
SNIP .05-91 Heating, Ventilation and Air Conditioning
SNIP .07-86 Heating System
SNIP .08-87 Gas Supply
SNIP .09-84 Automatic Fire Monitoring System of Buildings and Structures
SNIP .12-86 Calculated Strength of Steel Pipelines
SNIP .14-88 Insulation Materials for Equipment and Pipelines
SN 437-81 Guidelines for Designing Pipelines Made of Tubular Glass
SN 527-80 Guidelines for Designing Steel Pipelines (up to 10 MPa WP)
SN 478-80 Guidelines for Designing and Assembling Water Supply and Sewage Plastic Piping Systems
SN 550-82 Guidelines for Designing Plastic Pipelines
SN 174-75 Guidelines for Designing Electric Power Supplies for Industrial Complexes
SN 357-77 Guidelines for Designing Electric Power and Lighting Appliances for Industrial Complexes
SN 510-78 Guidelines for Designing Water Supplies and Sewage Systems in Permafrost Areas (Note: Under review and re-issue as of Nov. - 94)
SNIP II-35-76 Boiler Equipment, Self-Contained (as Corrected in Bulletin of Construction Technology # 11, 1977, excluding Section 13)

Section 2. Group 05. Transportation and Support Facility Structures

SNIP II-39-76 Railway Gage (1520 mm)
SNIP .02-85 Motor Vehicles Roads
SNIP .03-84 Bridges and Pipes
SNIP II-40-80 (Publ. in 1990) Underground railway

SNIP II-44-78 Railway and Motor Vehicle Tunnels
SNIP .06-85 Trunk Pipelines
SNIP .07-85 (Publ. 1989) Industrial Transportation
SNIP .08-85 Airfields
SNIP .09-90 Tramway and Trolley Bus Lines
SNIP .11-83 Motor Vehicle Service Roads for Agricultural Complexes
SNIP .13-90 Oil Product Lines Laid in Towns and other Populated Areas
SN 449-72 Guidelines for Designing Railway and Motor Vehicle Road Beds

Section 2. Group 06. Hydro Engineering - Facilities, Irrigation Systems and Structures

SNIP .01-86 Hydro Engineering - Facilities, Basic Design Provisions
SNIP .03-85 Irrigation Systems and Structures
SNIP .04-82 (Publ. 1986) The Impact of loads on Hydro Engineering - Facilities (Ice, Waves from Navigable Vessels)
SNIP .05-84 Earth Dams
SNIP .06-85 Concrete and Ferroconcrete Dams
SNIP .07-87 Bulkheads, Navigable Locks, Fish Ladders and Protection Structures
SNIP .08-87 Concrete and Ferroconcrete Structural Components for Hydro Engineering Structures
SNIP .09-84 Hydro Engineering Tunnels
SN 517-80 Guidelines for Design and Construction of Avalanche Protection Structures
SN 518-79 Guidelines for Design and Construction for Mud Flow Protection Structures
SN 519-79 Guidelines for Design and Construction of Landslide and Cave-in Protection Structures
SN 522-79 Guidelines for Design, Construction and Operation of Hydro Engineering Structures
SNIP 11-58-75 Thermal Power-Stations
SNIP .14-85 Ground and Surface Water Protection for Mines
SNIP .15-85 Protection Engineering for Flooding and Rising Ground Water
SN 551-82 Guidelines for Design and Construction of Seepage Devices Made of Polyethylene Film for Man-Made Ponds

Section 2. Group 07. Urban Planning and Construction

SNIP .001-89 Urban Construction. Laying out and Building of Urban and Rural Settlements
SN 441-77 (Publ. in 1987) Guidelines for Designing Fencing Around Grounds & Land Plots of Enterprises, Buildings and Structures

Section 2. Group 08. Residential and Public Buildings

SNIP .01-89 Housing
SNIP .02-89 Public Buildings and Structures
SN 512-78 Guidelines for Design of Buildings and Premises for of Computers
SN 515-79 Guidelines for Designing Buildings and structures Adapted for Medicinal Establishments

Section 2. Group 09. Industrial Enterprises, Factory Buildings, Support and Storage Building Structures

SNIP II-89-80 General Layouts of Industrial Enterprises
SNIP .02-85 Production Buildings
SNIP .0385 Industrial Enterprises' Structures
SNIP .04-87 Administration and Service Buildings
SNIP II-94-80 Shaft Mining
SN 181-70 Guidelines for Designing Colour Finishing of Production Buildings' Interior of Industrial Enterprises

Section 2. Group 10. Agricultural Enterprises, Buildings and Structures

SNIP II-97-76 General Layouts of Agricultural Enterprises

SNIP .02-84 Buildings and Premises for Processing Agricultural Products
SNIP .03-84 Cattle-Breeding, Poultry and Fur Farming Facilities
SNIP .04-85 Greenhouses and Holbeds
SNIP .05-85 Buildings and Structures for Grain Storage and Processing

Section 2. Group 11. Warehouses

SNIP .01-85 Warehouse Buildings
SNIP .02-87 Refrigerators
SNIP .04-85 Underground Storage of Oil, Oil Products and Liquefied Gases
SNIP II-106-79 Storage of Oil and Oil Products
SNIP II-108-78 Warehouses of Dry Mineral Fertilisers and Chemical Means of Plants' Protection

Section 2. Group 12. Standards for Land Allotment

SN 452-73 Land Allotment Standards for Trunk Pipelines
SN 455-73 Land Allotment Standards for Commercial Fishery Enterprises
SN 456-73 Land Allotment Standards for Water Supply Mains and Sewerage Manifolds
SN 457-74 Land Allotment Standards for Airfields
SN 459-74 Land Allotment Standards for Oil and Gas Wells
SN 481-74 Land Allotment Standards for Communication Lines
SN 462-74 Land Allotment Standards for Drilling, Geological and Exploration Wells
SN 465-74 Land Allotment Standards for Electric Power Grids between 0.4-500 kv
(Now issued as Kazakh doc. SN 2.03.06.02-93)
SN 467-74 Land Allotment Standards for Motor Vehicle Roads
(Now issued as Kazakh doc. SN 2.03.05.02-93)
SN 468-74 Land Allotment Standards for Railways
SN 474-75 Land Allotment Standards for Irrigation Channels

Section 3. The Commissioning of Completed Construction Projects

Section 3. Group 01. General Regulations for Construction

SNIP .01-85 (Publ. in 1990) Construction Organisation
SNIP .03-84 Geodesic Works in Construction
SNIP .04-87 Basic Provisions for Commissioning of Constructed Facilities
SNIP II-4-80 (Publ. in 1989) Construction Safety
SNIP III-10-75 Landscaping

Section 3. Group 02. Bases and Foundations

SNIP .01-87 Earth Structures, Bases and Foundations
SNIP .03-84 Mine Shafts

Section 3. Group 03. Manufactured Structural Components

SNIP .01-87 Bearing and Enclosing Structural Components
SNIP III-18-75 Metal Structural Components
SNIP II-24-75 Industrial Furnaces and Brick Stacks

Section 3. Group 04. Protective, Insulating and Finishing Coatings

SNIP .01-87 Insulating and Finishing Coatings
SNIP .03-85 Corrosion Protection for Structural Components

Section 3. Group 05. Engineering, Process Equipment and Systems

SNIP .01-85 Internal Sanitary Engineering Systems
SNIP .02-88 Gas Supply
SNIP .03-85 Heating Systems
SNIP .04-85 Interconnecting Water Supply and Sewerage Systems
SNIP .005-84 Process Equipment and Pipelines

SNIP .06-85 Electric Mechanical Devices
 SNIP .07-85 Automatic Systems
 SNIP II-41-76 Overhead Electrical Contact Systems for Transport Equipment

Section 3. Group 06. Transportation and Support Facility Structures

SNIP III-38-75 Railways
 SNIP III-39-76 Tramway Gages
 SNIP III-42-80 Trunk Pipelines
 SNIP .03-85 Motor Vehicle Roads
 SNIP II-43-75 Bridges and Pipes
 SNIP II-44-77 Railway, Motor Vehicle and Hydro Engineering Tunnels.
 Underground Railways
 SNIP .06-88 Airfields
 SNIP .07-86 Bridges and Pipes. Examination and Testing Rules
 SN 322-74 Guidelines for Constructing and Commissioning in Urban Areas and in Industrial Enterprises of Manifold Tunnels Made by Tunnelling

Section 3. Group 07. Hydroelectric Facilities, Irrigation Systems and Structures

SNIP .01-85 Riverside Hydro Engineering Structures
 SNIP .02-87 Hydro Engineering Sea and Riverside Transport Structures
 SNIP .03-85 Irrigation Systems and Structures

Section 3. Group 08. Major Mechanical Equipment necessary for Construction Projects

SNIP .01-85 Mechanical Equipment for Construction Projects. Railway Gages of Column Cranes Provision on Tools and Implements Issues for Construction Projects

Section 3. Group 09. Manufactured and Pre-Fabricated Units, Components and Materials

SNIP .01-85 Production of Pre-Fabricated Ferroconcrete Units and Components
 SN 777-80 Guidelines for Making Units of Cellular Concrete
 SN 513-79 Interim Standards for Calculating Heat Consumption during Moisture Thermal Treatment of Plant Pre-Fabricated Concrete and Ferroconcrete Units

SN 525-80 Guidelines for Technology of Preparing Polymer concrete and Components Made of it.
 SN 529-80 Guidelines for Technology of Producing Units and Components of Dense Silicate Concrete
 SN 549-82 Guidelines for Designing, Producing and Using Components of Arbalite
 SN 290-74 Guidelines for Preparing and Using Slurry for Construction

Engineering Equipment Standards for Holders, Fasteners and Fittings

Provision on Standard Sets Delivery of Modular Buildings by the USSR Ministry of Special Fraction Works (Minmontazhspeksstroil)

List of Manufacturing Equipment Used for Producing Pre-Fabricated Ferroconcrete Products Approved by the USSR Ministry of Road Constructing Machines (Minstroidormash) for 1987-1990 (as of January 1, 1987)

Provision on Operation of Elevators When Constructing Multi-Storied Buildings

Section 4. Standards for Assessing Construction Costs

The Composition and Designation of Assessment Standards and Regulations established by the USSR June 19 1983 No. 162

Section 5. Standards for Material, Labour and Expenses

Group

01-Standards for Material Consumption

02-Standards for Required Implements, Tools and Equipment

03-Standards for the Payment of Pre-Engineering Investigations and Design Services

04-Standards for Labour and the payment of Labour Services for Construction Projects

NOTES: Abbreviations SNiP: S = Construction, N = Standards, i = And, P = Procedures / SN: S =Construction, N = Standards

New Kazakh SNiP and SN documents are listed under the CIS numbering system in BOLD text below the documents title.

APPENDIX C

**REGULATORY DEPARTMENTS AND
LICENSING PROCEDURES**

APPENDIX C.1

NORMATIVE SUPERVISION OF OIL AND GAS PROJECTS IN THE REPUBLIC OF KAZAKHSTAN

Organizationally, approval of legislative acts of the Republic, formation of independent government bodies and definition of their tasks, functions and rights is an exclusive authority of the Supreme Council. The government bodies of the Republic of Kazakhstan are:

- Ministries to establish general policy, provide for a normative supervision and control; and
- State committees to manage economic activity in the Republic (earlier they were responsible for activities and control of state enterprises).

As to the new legislative acts and normative documents, the Republic of Kazakhstan has, at the very start, established its authority and responsibility with regard to property rights and management of oil and gas geological exploration, extraction and processing within the Republic's boundaries. At present, Kazakhstan is in the process of establishing organizational structures and normative bases to manage oil and gas projects; provide for accident-free industry operations, environment protection and public health; and regulate the exploitation of natural resources. As of today, the offered normative basis is largely based on a number of new complex laws relative to depths, ecology and oil. However, with no new legislation, this normative basis is still being mostly defined by laws, normative documents and standards of the former USSR.

The specific departments and institutions authorized to manage exploitation of oil and gas resources, their extraction, environmental protection, public health and safety of operations, as well as to exercise the normative supervision in those areas in the Republic of Kazakhstan, are as follows:

- Ministry of Geology and Protection of Mineral Resources;
- Ministry of Ecology and Bioresources;
- State Supervision Committee on safe industry operations and mining (Gosgortekhnadzor); and
- Ministry of Public Health.

Following is a description of each department, with its internal organization structure, functions and responsibilities, as well as the legislation that establishes the authority and normative supervision applicable to the project under discussion.

C.1.1 Ministry of Geology and Protection of Mineral Resources

C.1.1.1 Legislative Authority

The legislative mandate to give the Ministry of Geology and Protection of Natural Resources the assigned authority has been provided, in particular, by the Republic of Kazakhstan Code of hydrocarbon and mineral raw materials processing (May, 1992). This law establishes the normative basis for mineral resource development (including hydrocarbons) in the Republic.

General objectives and tasks of the Ministry of Geology and Protection of Natural Resources with regard to the mineral resources exploitation are specified by Article 1 of the Mineral Resources Act and can be summarized as follows:

- regulate activities pertaining to ownership, development, processing and management of mineral resources in the interests of future generations;
- provide for a rational, complex and scientifically validated development and protection of hydrocarbons;
- protect the rights of industries, organizations, institutions and citizens; and
- strengthen the legitimacy in this area.

The Ministry's terms of reference in the sphere of development and protection of mineral resources are specified by Article 27 to include the following:

- development of relations in the sphere of hydrocarbon geologic explorations;
- state registration of hydrocarbon development for geologic surveys, extraction and processing of mineral raw materials or other purpose uses;
- state registration of explored mineral resources, composition and conduct of the state balance of resources, taxation and mineral raw material industrial wastes;
- expert examination and approval of conditions and minerals reserves;
- writing off the nonconfirmed reserves of minerals, liquidation and mothballing of enterprises involved in development of locally important deposits;
- expert examination of geologic exploration projects, technical and economic validations, extracting and processing enterprises and construction of underground water intakes;
- certification of geological, hydrogeological, geophysical and surveying operations, of testing and analytical projects;
- participation in developing an economic mechanism for hydrocarbons development and controlling the use of mineral resources protection and reproduction fund; and
- suspension or prohibition of operations in case the Code's rules are broken, with the materials on the subject be sent for investigation.

In addition, Articles 14 and 15 impose on the Ministry of Geology and Protection of Natural Resources the duty of preparing agreements for mineral resource development. The Ministry of Geology and Protection of Natural Resources is also charged with the

responsibility of registering the mineral resource developers. Finally, the Mineral Resources Act provides the Ministry of Geology and Protection of Natural Resources the authority to terminate almost any project dealing with mineral resources development (Articles 22 and 27).

C.1.1.2 Organizational Structure and Personnel - Republic Level

Below the republic level there are five territorial organizations that are responsible for Eastern, Central, Northern, Southern and Western Kazakhstan. The West Kazakhstan Territorial Department has a representative organization at the level of the Atyrauskaya Oblast, along with a number of other organizations at the oblast level. There are no organizations at a local (regional) level. The first level organizational structure of the Ministry of Geology any joint enterprise will have to deal with is located in Atyrau.

C.1.1.3 Laws and Normative Documents - Terms of Reference

The normative basis for realization of oil and gas projects in the Republic is now in the state of being actively developed. For some specific areas related to oil and gas projects, including protection and development of hydrocarbons, and protection and development of natural resources there is an authorization legislation, as it would be called in the USA. The executive normative basis to provide more specifications on programs and strategic directions is still under development. Besides, in many areas there are special "normative acts" and "state standards" (GOSTs) establishing detailed requirements for construction, development conditions and control. In other cases, the acts and normative documents are effective as approved by the former USSR and which, in many situations, are applied and considered necessary to be observed in accordance with current practices, without being formally approved by the Republic.

The principal law establishing thereby the normative basis for oil and gas projects is the Republic of Kazakhstan Code of Hydrocarbons and Mineral Raw Materials Processing approved in May, 1992. In the context of this law, hydrocarbons are defined as (that part of the natural environment) that may be used to satisfy the national economy needs and other needs by way of extracting (separating) its components, placing underground constructions, burying toxic materials and industrial wastes, as well as dumping effluents. In the same manner, the Republic of Kazakhstan minerals are defined as components of the hydrocarbons and include solid, liquid and gaseous substances which can be extracted, processed and used later for material production. Such a definition covers "hydrocarbons" (oil and gas) as well.

General provisions describe the scope of the law, while the above definitions specify the proprietary rights of the Republic as that of the resource owner. The principles of development, protection and processing of hydrocarbons and mineral resources are formulated as follows:

- special development of hydrocarbons;
- rational and complex development of hydrocarbons;

- encouragement of measures to increase the effectiveness of development and protection of hydrocarbons;
- employment of low waste and wasteless technologies;
- obligatory state ecological supervision of projects for development of hydrocarbons and processing mineral resources;
- consideration of national and international interests with regard to development and protection of hydrocarbons;
- supervision of the hydrocarbons development aftereffects on the national environment;
- observation of law requirements relating to development and processing of mineral resources.

Section 2 of the Law contains provisions regarding the development of hydrocarbons, including rights and other obligations, general order of hydrocarbons availability, signing of agreements for development, as well as reasons and the order of contract termination. The Law pays special attention to the environment protection measures by requiring an expert examination for each project from the Ministry of Ecology and the Ministry of Geology.

Section 3 of the Law establishes the terms of reference and responsibilities of state authority bodies of different levels, including the Supreme Council, local Soviets, government ministries and departments in general, and the Ministry of Geology in particular.

Details of a concrete procedure for project approval and the order of its registration have to be formulated more clearly, as does as the government's strategic line. The Law also covers such projects as burial of wastes and repumping in of used waters. However, projects of this type are not properly specified. Besides, costs and the order of payments for development of mineral resources are not specified either.

C.1.1.4 Authority for Expert Examinations and Projects Approval

The Mineral Resources Act provides the Ministry of Geology rather a wide authority on expert examinations and approval of oil and gas projects. According to the legislation:

- hydrocarbons are offered for development by the Ministry of Geology (Articles 13 and 15);
- any enterprise project has to pass the "state expert examination" with four departments: Ministry of Geology, Ministry of Ecology, Ministry of Public Health and Gosgortekhnadzor (Articles 14 and 27);
- based on "joint expert examination conclusions", an agreement shall be signed (Article 14);
- an agreement on terms of payment (time and costs) for development of hydrocarbons has to be reached (Article 6), which shall be quoted in the contract for development;

- development of hydrocarbons shall be registered with State bodies of the Republic (Article 27); and
- if burial of wastes (Article 3) and, potentially, repumping in of used waters are needed, such projects shall also be subject to the requirements for hydrocarbons development.

The Ministry of Geology is also charged with development of projects and publication of new normative documents (using revised editions of initial norms and regulations of the former USSR), pertaining to drilling and development operations in the oil and gas industry. Many of these are under the control of the Gosgortekhnadzor, with an obvious jurisdiction duplication of the two departments.

C.1.2 Ministry of Ecology and Bioresources

C.1.2.1 Legislative Authority

The Ministry of Ecology and Bioresources has been formed by the Republic of Kazakhstan Cabinet of Ministers' Decree (N216 on March 11, 1992). The Ministry has been established as a lawful successor of the State Committee of Ecology and Nature (Goscompriroda) of the former Kazakh Soviet Socialist Republic. The Ministry's principal objectives and tasks are to:

- control the activities of enterprises and other structures with regard to natural environment protection;
- provide protection of water, earth resources, atmospheric air, vegetation, flora, fauna and hydrocarbons;
- conduct a single (scientific and technical) state policy in the area of managing environmental protection and rational development of natural resources, establish their development priorities, and control the realization of various science and technical programs in this sphere;
- control works intended for realization of the Republic ecology programs, prepare industrial (economic) and social development forecasts, work out proposals to improve economic means (methods) of managing the natural resource development;
- coordinate creation of new nature reserves; conduct scientific, economic and environmental studies and protection activities in the reserves and other specially guarded territories; create and develop data banks on the nature environment status;
- organize and control the activities to disclose ecologically adverse zones; submit, together with other interested bodies, proposals to the Republic of Kazakhstan Cabinet of Ministers for declaring such areas "zones of ecological disaster"; and
- submit proposals for preparing interstate (international) agreements (contracts, accords) in the sphere of environmental protection, and participate in international ecological cooperation.

The Ministry of Ecology performs state control functions relating to:

- development and protection of earth (soil) resources;
- development and protection of water resources;
- utilization and reconstruction of vegetation resources and animal life (including forests);
- protection and reproduction of fishery reserves;
- consuming atmospheric air for industrial needs and observation of limits established for discharges of contamination sources;
- radioactive safety;
- storage of industrial, nonindustrial and other types of wastes;
- extraction and development of mineral resources; and
- use, storage, transportation and utilization of pesticides, mineral and other chemicals.

The Ministry approves limits and requirements for licences on discharge, exhaust and disposal of wastes, soils and hydrocarbons. It also performs the "state ecological expert examination", which is actually an analysis from the viewpoint of perspective ecological influence by a group of experts from government offices. The Ministry is authorized to:

- bring charges against violators of national protection laws and investigate administrative infringements;
- limit, suspend or prohibit economic activities, project works, construction or putting into operation of enterprises that violate environmental protection laws;
- develop and submit for approval fines for damages to environment; and
- engage enterprises and specialists to perform state ecological expert examination of ecology programs.

C.1.2.2 Organizational Structure and Personnel

Decree N345 (of April 20, 1992) establishes the following structural units of the Ministry of Ecology:

- Committee of Forest Economy;
- Chief Department of Fishery Reserves Protection;
- Chief Department of Animal Life Protection; and
- State Scientific and Production Association of Industrial Ecology.

At the republic level, the Ministry of Ecology and Bioresources organization includes the administrations proper of the Minister and the First Deputy Minister Chief State Inspector. Subordinate to this secondary administration is a developed network of the Ministry's organizations. Decree N345 establishes, as well, the units at the oblast, region and town levels organizationally structured in the same way as the republic level units. At the oblast and regional levels there are regional departments in charge of exercising the Ministry's policy.

C.1.2.3 Laws and Normative Documents - Terms of Reference

The environmental protection policy and legislative mandate are formulated by Decrees, Acts and normative documents which have come in force in 1991. The principal law that the whole policy in the subject sphere is based upon is the Environment Protection Act of the Kazakhstan Soviet Socialist Republic (effective as of August 1, 1991) which, like the Mineral Resources Act, establishes objectives and missions, authority and obligations relating to the nature development. The order of execution of this general law is determined by the Decree stating the order of coming into force of the Kazakhstan Soviet Socialist Republic Environment Protection Act (1991).

Two basic normative documents realize general principles of (1) ecological expert examination of projects to provide the environmental protection, and (2) regulation of natural resources development. The above-mentioned authorization acts providing authority for the Ministry of Ecology establish as an obligatory requirement the performance of an ecological expert examination of new, modernized or existing projects in progress. The regulation of state ecological expert examination issued by the Ministry of Ecology and Bioresources defines the order and basis for ecological expert examinations. This regulation states that expert examinations can be performed by organizations that are not included, as a matter of fact, into the state bodies structure. Decree N785, in effect as of December, 1991, has approved the Regulation of State control for the natural environment development and protection in the Republic of Kazakhstan to regulate the use and protection of natural resources. The latest normative document provides for introducing individual laws in separate oblasts.

C.1.2.4 Authority for Expert Examinations and Approval of Projects

The Ministry of Ecology is thereby authorized to perform expert examinations of ecological parts of projects, according to the order as envisioned by the Regulation of State ecological expert examination in the Kazakh Soviet Socialist Republic (1991). This authority is realized in the process of expert examinations of new or modified projects by departmental committees. For instance, the Natural Resources Act and the Environment Protection Act specifically state the requirement of making expert examinations. A project is liable for approval only after it has passed such expert examination. The authorization legislation in reference to the Ministry of Ecology establishes that oblast level ministry representatives, if requested by the proper Ministry administration, that can participate in republic level expert examinations and be entitled to sign the project's examination papers. However, local or regional level representatives do not have such an authority.

The authorization legislation, in particular, provides rights and authority to issue permits for the nature development projects: use of water, burial of solids and dangerous wastes, discharges into the atmosphere and drainage of effluents. At the oblast and republic levels, the Ministry is authorized to establish payments and allocations for the natural development activities. At the oblast level, the Ministry of Ecology is mandated to issue permits for projects.

C.1.3 State Supervision Committee on Industrial Activity and Mining Supervision (Gosgortekhnadzor)

C.1.3.1 Legislative Authority

The Gosgortekhnadzor is a department inherited from the former USSR, and its terms of reference and obligations have remained mostly unchanged, with the exception of the direct control over the development of hydrocarbons that has been transferred to the Ministry of Ecology.

In general, the Gosgortekhnadzor has been charged with controlling the enforcement of accident prevention regulations at working stations and implementation of preventive measures to avoid emergencies and accidents at the regional enterprises. The Tengiz RGTI (Regional Mining and Technical Inspection) is responsible for providing the enterprises of the region, no matter their departmental affiliation, with type regulations and norms, instructions and for developing standard safety measures. Furthermore, the Tengiz RGTI is responsible for providing the normative documents for drilling works, drilling master certification, control observation of accident prevention rules, norms and regulations relating to all aspects of the joint enterprise activities.

The RGTI authority has been formulated as stated by the above document and includes, among others, the following provisions:

- authority to inspect sites, equipment and documentation;
- authority to investigate accidents and take decisions to be implemented by managers of the enterprises; and
- authority to fine.

C.1.3.2 Organization Structure and Personnel

The Gosgortekhnadzor organization structure is from the republic level in Almaty to the department of the Regional Mining and Technical Inspection.

At the republic level the Gosgortekhnadzor is subdivided into two basic departments. One is responsible for the supervision of oil and mining industry operations. The other's responsibility extends to the supervision of metallurgical and chemical industry operations within the Republic's territory. Further, these departments have territorial or regional representations in North, South, Central, East and West Kazakhstan. At the oblast level, for instance, in Atyrauskaya oblast of West Kazakhstan the Gosgortekhnadzor has its representations as well. The RGTI is represented at regional or local levels. Inspectors and officials of these departments are in charge of controlling the observation of normative documents and for inspections.

C.1.3.3 Laws and Normative Documents - Terms of Reference

The Gosgortekhnadzor's terms of reference include the control for observing the "Instruction on safe operations during exploration and development of oil, gas and condensed gas deposits high in hydrogen sulfide".

C.1.3.4 Authority for Expert Examinations and Approval of Projects

Among the local level departments, the Gosgortekhnadzor representatives are the most involved in the process, having direct authority to make expert examinations and approve operating suitability of equipment assemblies, technological procedures, drilling operations and development of deposits. The Gosgortekhnadzor shall also provide "operational data certificates". Some technological operations have to be previously approved by the RGTI of the Gosgortekhnadzor. As to the equipment, its construction design shall be approved and the assembly inspected by the Gosgortekhnadzor local representatives. Each unit of the equipment or technological procedures shall be finally approved by getting an operational data certificate.

For field operations (to include drilling and arrangements thereby) the Gosgortekhnadzor's authority for expert examinations and approval as a leading body on the "acceptance commission" is provided by the regulation on the order of inspections before deep drilling of oil and gas wells issued by the Ministry of Geology and Mineral Resources Protection in AlmaAta in 1992.

Basic provisions of this document can be formulated as follows:.

- An expert commission called an "acceptance commission" shall be created to make expert examinations of drilling plans. The commission members should approve those plans before starting drilling operations. The commission will include the Chief Geologist, Chief Engineer, trade union representatives and other representatives of the enterprise. Included also will be a local RGTI representative. Within five days of presenting the documentation, the Gosgortekhnadzor shall provide its remarks and issue the permission to start drilling. If the Gosgortekhnadzor fails to respond in time, the enterprise is allowed to start operations under the condition that all related documents have been properly designed and submitted.
- The documents for the commission expert examination are as specified and shall include technical conditions for well drilling, mining allocation acts, general technical documentation for the drilling equipment, the well's test data and equipment specifications.
- All equipment should have been previously tested and correspond to the norms. A "inception meeting" should be called before the drilling begins.

The instructions for safe operations during exploration and development of oil, gas and condensed gas deposits high in hydrogen sulfide have the same requirements applicable to

the plans for development and completion of wells, which have to pass expert examination and be approved by the acceptance commission.

C.1.4 Ministry of Public Health

C.1.4.1 Functions and Responsibilities

The Ministry of Public Health terms of reference is therefore described in the basic legislation of the Republic of Kazakhstan. The Ministry of Public Health is responsible for:

- providing for the population health in general;
- providing for the working people's health;
- food sanitation;
- sanitation of food and meals factories;
- issuing published recommendations on preventive measures;
- establishing the terms for execution of the recommended preventive measures;
- maintaining the natural environment monitoring stations;
- establishing qualification indexes for laboratory works and providing for the quality of their working;
- establishing sanitary protective zones for enterprises; and
- establishing normatives and standards of threshold contaminants for air, soil and water.

C.1.4.2 Organizational Structure and Personnel

The Ministry of Public Health comprises, at the republic level, the Ministry administration and the Chief Sanitary and Epidemiologic Department. At the oblast level there are regional sanitary and epidemiologic divisions. At the regional level the Ministry is represented by Sanitary and Epidemiologic Stations (SES). The local services personnel are generally busy with environmental monitoring and protecting the health of the local population.

C.1.4.3 Laws and Normative Documents - Terms of Reference

The Ministry of Public Health's control function involves mainly providing for observation of quality standards of water and air. Two of the most important normative documents governing this area are:

- Sanitary Norms and Regulations for preventing contamination of surface waters, issued by the USSR Ministry of Public Health in 1988 (it has been officially confirmed that these norms are still in force and are accepted for use in the republic).
- List of Permissible Contaminations and Approximate Safe Levels of Contaminants in the air over populated areas, issued by the Republic of Kazakhstan Ministry of Ecology and Bioresources in 1992.

In addition, the Ministry of Public Health is responsible for a number of normative standards relating to "soil sanitation", one of which establishes permissible contaminant concentrations in soils. Sanitary norms are also being referred to by some other documents studied during this project, to include the norms for industrial construction projects (CH24571).

The Natural Environment Protection Act of the Kazakh Soviet Socialist Republic establishes the environment quality standards and mandates that establishing certain standards is a joint responsibility of the Ministry of Public Health, Ministry of Ecology and Ministry of Geology.

The Ministry of Public Health has the exclusive authority to establish permissible norms for noise, vibration, magnetic fields and other physically affecting harmful factors.

The Ministry of Public Health is responsible for establishing sanitary protection zones around the territory of the joint enterprise activities. The requirement to do so is provided by the following documents:

- Sanitary Norms for the Oil Industry (by the USSR Ministry of Public Health, 1986); and
- Unified Technical Regulations for well drilling of oil, gas and condensed gas deposits.

C.1.4.4 Authority for Expert Examinations and Approval of Projects

The Natural Environment Protection Act provides the Ministry of Public Health with the authority to perform expert examinations of projects for sanitary norms and protection of health. This authority is exercised by departmental committees in the process of expert examinations of new and modified projects. In particular, the Mineral Resources and Natural Environment Protection Acts contain provisions for the Ministry of Public Health to perform expert examinations. Thus, a project can be approved only after such an expert examination has been passed.

At the local SES level the Ministry of Public Health is authorized to perform expert examinations and approve any natural environmental monitoring programs based on normative document requirements mentioned herein above. In such situations, the most important circumstance is that the Ministry of Public Health is authorized to perform expert examinations and approve formation of sanitary protective zones surrounding the territory of the joint enterprise activities.

The Ministry of Public Health authority on expert examinations and approval of projects in relation to burials is defined, in particular, by the "Order of Storage, Transportation, Neutralization and Burial of Toxic Industrial Wastes" (Sanitary Norms as of December, 1984).

The following sanitary normative documents provide specific requirements to be considered for practical operations:

- Construction and filling of ranges for solid household wastes (CH 281183);
- Order of accumulation, transportation, neutralization and burial of toxic industrial wastes (CH 318384);
- Permissible toxic contents of industrial wastes in accordance with the toxic wastes classification (CH 317084);
- Permissible accumulated volumes of toxic industrial wastes allowed for storage in solid household waste ranges (CH389785); and
- Methodical instructions for sanitary epidemiologic services to control the observation of measures for environmental sanitary protection from toxic industrial wastes.

The Ministry of Public Health, in relation to expert examinations and approval of projects for various phases of waste burials in the ground, is thereby provided the authority to:

- Demand that a regulation be developed for collecting, storing and transporting wastes to define procedures obeying sanitary norms and rules not specifically mentioned, but which will provide the order of actions in case of an accidental discharge or during fire fighting. This order shall be approved by a local SES of the Ministry of Public Health;
- Require a description of waste volumes discharged daily and annually, in accordance with applicable classifications. Such volumes should be approved by the SES as well;
- Demand a waste range location to be approved by a local SES, local "fish protection organizations" and a local body of the Ministry of Ecology. In addition, there is an ecology certificate to be approved, which has to reflect background data on groundwater, air and soils at the location, as well as the waste classification. The certificate shall also define the applicable control methods.

APPENDIX C.2

LICENSING PROCEDURES

C.2.1 General

1. "Temporary procedure on grant of licenses for nature use" is elaborated in accordance with the Law of the Kazakhstan Republic "On Environmental Protection in the Kazakhstan Republic".

"A Procedure on Grant of Licenses for Nature Use" contains general requirements to organization, grant, preparation and contents of licenses for nature use and makes it possible to ensure a unified perfection and introduction of a system (order) of terms and grant of licenses for nature use by specially authorized nature protection organizations.

2. Any economic or other activity connected with the use of nature resources or affecting the environment is put into the conception of "nature use".

Ecological requirements and restrictions, connected with a fulfilment of concrete economic or other activity of the respective territory, are put into the concept of "terms of nature use".

A nature use license is a document certifying the right of a nature user to conduct the economic or other activity connected with the use of natural resources on the respective territory.

3. A license for nature use is granted by the Ministry of Ecology and Biological Resources of the Kazakhstan Republic, in accordance with the established level of competence.

Licenses for nature use are granted on the basis of a written petition (request) of an interested person to an appropriate organization on nature protection and the nature use coordination materials with the organization of state supervision, enumerated in the Appendix of the document.

A grant of nature use licenses should be preceded by an obligatory acceptance by a customer (developer) of designing estimates, positive conclusion of a state ecologic examination carried out by the Ministry of Ecology and Biological Resources.

A license on nature use for specially protected territories of republic significance is granted by the republic organizations for the territories in which they are located, on agreement with the Ministry of Ecology and Biological Resources.

A license nature use for a territory where, according to the affirmed program documents, the organization where specially protected objects (reservations, national parks, sanctuaries, memorials of nature) are planned, is granted by the Ministry of Ecology and Biological Resources.

4. A grant of licenses on concealment (storage) of industrial, natural and other wastes, on ejection of harmful substances into the atmosphere, special water use, submitting of mineral resources for geologic investigations use, on fauna and flora use, rests on the Ministry of Ecology and Biological Resources, in compliance with the Law of the Kazakhstan Republic "On Environment Protection in the Kazakhstan Republic".
5. The license contains the following:
 - a concrete list of quantitative and qualitative characteristics of the used resources and their consumption rates, and an evaluation of the environmental condition;
 - nature use conditions under which an economic activity (limits and standards of nature user, requirements on protection of concomitant nature resources and on adherence to the established guard controls, technical conditions securing safety of the territories and resources presented for use, methods and ways of use, and data on conclusion of the state ecological examination of the economic activities design, etc.);
 - payment rates for natural resources (use, protection and reproduction), payment standards for discharges (effluents) of contaminants into the atmosphere and arrangement of wastes;
 - effective period of licenses; and
 - other factors in compliance with characteristics of natural resources.

A list of ecological-economic standards established in the licenses for nature use is given in the document.

6. In granting of terms and licenses for nature use, as well as in case of their cancellation and change, the Ministry of Ecology and Biological Resources is governed by:
 - legislation of the Kazakhstan Republic on nature protection and efficient use of natural resources;
 - nature protection norms, rules and standards affirmed by the Ministry of Ecology and Biological Resources, Ministry of Health, and other specially authorized organizations in the sphere of environmental protection; and
 - standard documents on the development and arrangement of the branches of the national economy and productive forces of the republic, and on complex use and natural resources protection.

7. A license for nature use is drawn up according to the established form, signed and stamped by an official.

A license for nature use should be kept as follows: first copy to nature user, additional copies to the organization who granted the license, local authorities and management at the place of the natural resources' and objects' location, and the branch of the Ministry of Ecology and Biological Resources exercising direct control of the nature user's activity.

8. A question on grant of terms and licenses on nature use should be discussed by every authorized organization within one month from the moment all necessary documents are assembled.

In case of refusal of a license for nature use, an exact wording of the reason for refusal is given.

The Ministry of Ecology and Biological Resources keeps records on granting of licenses for nature use and refusals, with indication of reasons, in special record logs.

9. A user has the right to use natural resources from the day of a license grant and his right comes to an end at the term given in the license for nature use.

Tentative forms of licenses for different kinds of nature use are given in the Appendices to a document.

Before the expiration of the established term of a license validity (but not later than one month before the end of the term), a user must address the branch of the Ministry of Ecology and Biological resources that granted the license with a petition to prolong the terms. In prolonging a term, a check of fulfilment of the nature use conditions established in the previous license is carried out.

10. In the case of using natural resources or affecting the environment without a special license, and also in the case of infringement of the nature use terms established in the license, the sanctions determined in the legislation of the Kazakhstan Republic are applied to the guilty parties.

The leaders of the enterprises, organizations, legal and natural persons planning and exercising nature use, and nature protection organizations authorized to grant the respective licenses, bear responsibility for adherence to the established order on granting licenses for nature use.

11. Differences arising during granting, reviewing or cancellation of a license for nature use are settled by superior bodies in compliance with their competence. In case of disagreement, disputes are settled by arbitration.

12. In compliance with a grant for nature use, a payment for natural resources and payment for discharges (effluents) of contaminants, and for the arrangement of wastes are collected within the established order both from enterprises, associations and organizations (irrespective of their department subordination and property rights), and persons using natural resources or affecting the environment.
13. Verification of compliance with nature use conditions, established in the license, is exercised by local bodies of the Ministry of Ecology and Biological Resources, and also by the bodies of state supervision in compliance with the legislation.
14. Disputes arising between a use and the state control authority with control over the use of the environment and natural resources are settled in the established order by the Supreme arbitration court.

C.2.2 Procedure on Agreement of Terms and Granting of Licenses for Nature Use for Designed Projects

Designed projects means the projects of national economy and kinds of economic activity planned for construction, expansion, reconstruction, technical re-equipment and liquidation.

A selection of a site (route) for construction is carried out in the region or post determined by a diagram or a feasibility study (in case of absence of a decision in a diagram), adhering to soil, water, forest and other legislation connected with the environmental protection on the basis of the materials of a complex engineering survey carried out for these purposes. In this case, a study of the construction conditions on all probable or tentative sites (routes) is performed.

1. A customer of a designed project, who is interested in removal or submitting the plots of land, petitions the local administration for preliminary consideration of the design arrangement.
2. In compliance with the customer's order, a designing organization—a general designer (feasibility study developer) directs, for consideration, the materials of the planned decisions connected with selection of a site (route) for construction to the organizations and bodies of state supervision and control whose representatives should take part in selection of a construction site (route).
3. According to the submitted materials, including an act of selection of a site (route) for construction, a state ecological examination for the right of nature use is conducted (or in case of impossibility of nature use).
4. In the conclusion for the right of nature use, the ecological requirements and limits for running the planned economic or other activity on the given territory are established. The following are submitted for fulfilment in the process of design:

- limits of discharges and pollutants in the environment;
 - an area of probable lands alienation;
 - permissible volumes of surface and underground water production;
 - permissible volume of removal of faunal and floral resources;
 - temporary restrictions of an economic activity (within the periods of mass migrations, breeding, hibernation of animals, etc.);
 - requirements on protection of specially protected natural territories, species of animals and plants;
 - requirements on compensation of the expected detriment to natural resources (in case of necessity);
 - approximate payment size for natural resources; and
 - other restrictions and terms.
5. A customer of a design project ensures a development of the feasibility study (TEE) for its construction (including an assessment of the effect of economic activity on the environment), taking into account the granted terms for nature use.
6. The feasibility study (TEE) of a designed project undergoes a state ecological examination within the order established by the Ministry of Ecology and Biological Resources for a construction period.

A positive conclusion of the state ecological examination (a presence of which makes it possible to finance a construction project) is a base for making an agreement and granting a license for nature use.

For drawing up a license for land use, a customer (or a design developer, on his order) makes a petition on grant of license to the territorial branch of the Ministry of Ecology and Biological Resources.

7. Attached to a petition on grant of license for nature use are the following:
- a license log (three copies);
 - a conclusion of the state ecological examination on the feasibility study (TEE) of the designed project (or on his agreement with the state body on nature protection); and
 - additional information (on the change of conditions of the resources use within a construction period) which was not given in the conclusion of the state ecological examination.
8. A term of a license validity propagates through the normative construction period.
9. For a project putting into operation a license for nature use for a period of its operation is given on the request of a customer, after signing a state act on

putting this project into operation. It is regulated for all kinds of nature use as a single document.

APPENDIX D

WELLSITE ASSESSMENT

FIELD DATA SHEETS

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

DEFINITIONS AND LEGEND FOR SITE SKETCHES

Severity of Disturbance

Low: < 2 m²
Medium: 2 - 25 m²
High: > 25 m²

Soil Texture

C: Clay
CL: Clay Loam
L: Loam
LS: Loamy Sand
SCL: Sandy Clay Loam
SL: Sandy Loam
SiC: Silty Clay
SiCL: Silty Clay Loam
SiL: Silt Loam

Legend



Producer Well



Injection Well



Biophysical Sampling Site



Line Heater



Transformer



Oil/Free Product Spill



Oil Stained Soil



Mounded Soil/Berm



Sump Fluid



Drilling Mud



Produced Water

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date March 31, 1994

Location

Wellsite Identification : 7309

Production Block within the Field : 1

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Tun Karakshi Depression - Lower slope

Slope : 3%

Aspect : SE

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical		X	
Erosion: Water		X	
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 10%

Comments: Production fluids actively leaking from stuffing box.
A few water eroded channels in the vicinity.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 7309

SOILS

Parent Material : Sandstone

Surface Expression : Slightly Inclined

Modifying Processes : Erosion

Depth to Water Table : >100 cm

Effective Rooting Depth : 15 cm

SOIL TEXTURE / COLOR		Depth
		C cm
SICL 10YR 6/4		15 cm
SICL 10YR 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-15 cm	5	2
15-100 cm	50-75	5-10

VEGETATION

Species	% Cover
Artemisia	40
Stipa grass	5

HBT AGRA Limited

Engineering and Environmental Services

221 - 15th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 7309

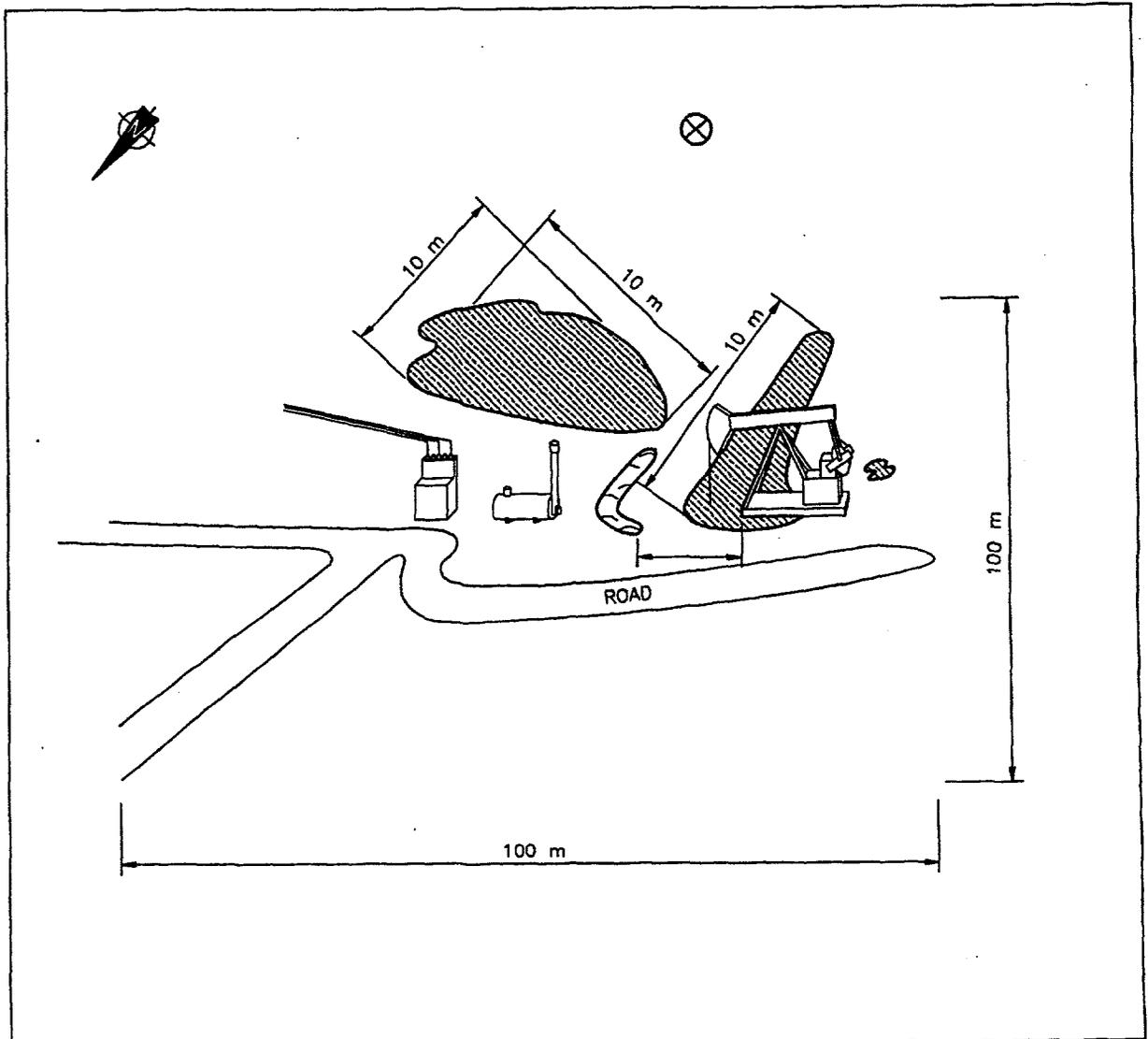


Photo / Sample Record :

Photos - Roll/Frames
C3/11-14
L6/4,5

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

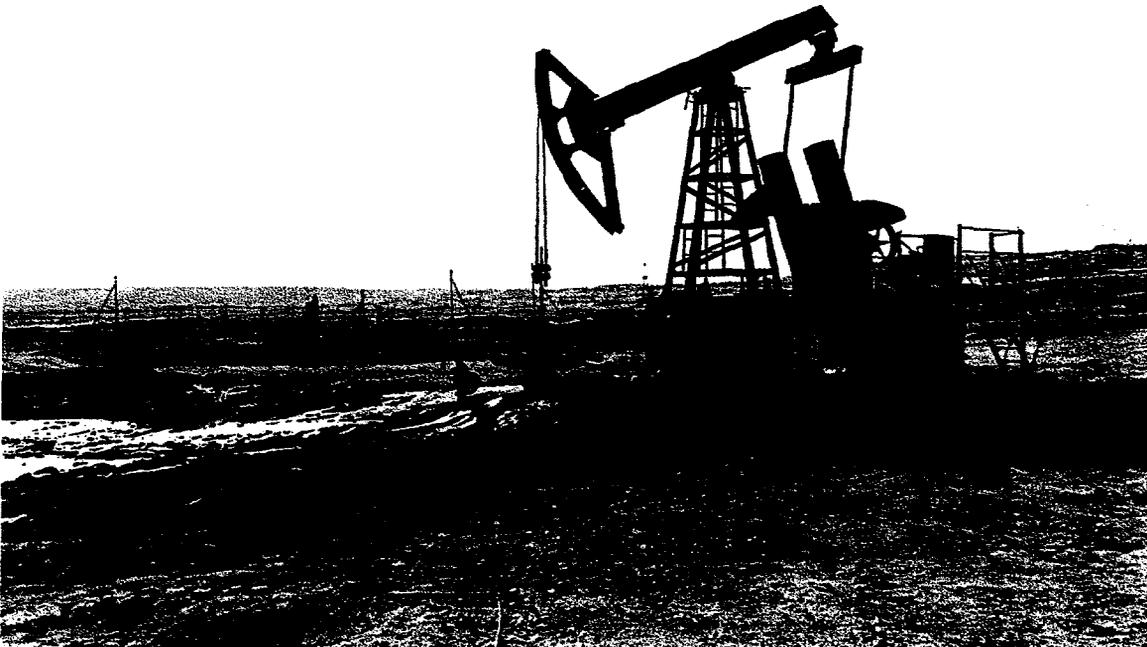
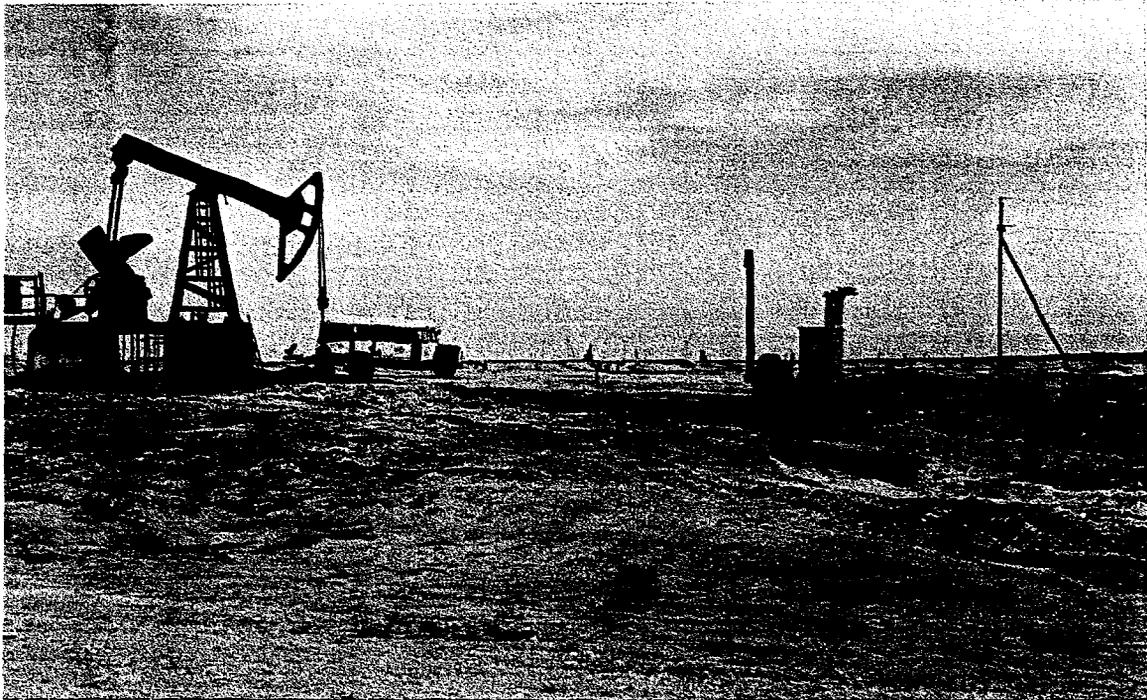
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 7309



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Assessment Date

March 31, 1994

Location

Wellsite Identification : 9312

Production Block within the Field : 1

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 75 m

Site Physiography

Topographic Position : Tun Karakshi Depression - Mid slope

Slope : 10%

Aspect : E

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water			X
Wind		X	
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : <1%

Comments: A pipeline failure upslope of the wellsite is the source of a major gully passing nearby the wellhead. Substantial amount of oil on the surface along the gully. Evidence of both wind and water erosion in the area. Soil samples taken nearby of 20-yr old oil spill.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 9312

SOILS

Parent Material : Sandstone

Surface Expression : Inclined

Modifying Processes : Erosion

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR	
SL 10YR 6/4	Depth 0 cm
	100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-100 cm	5	<1

VEGETATION

Species	% Cover
Artemisia	<1

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 9312

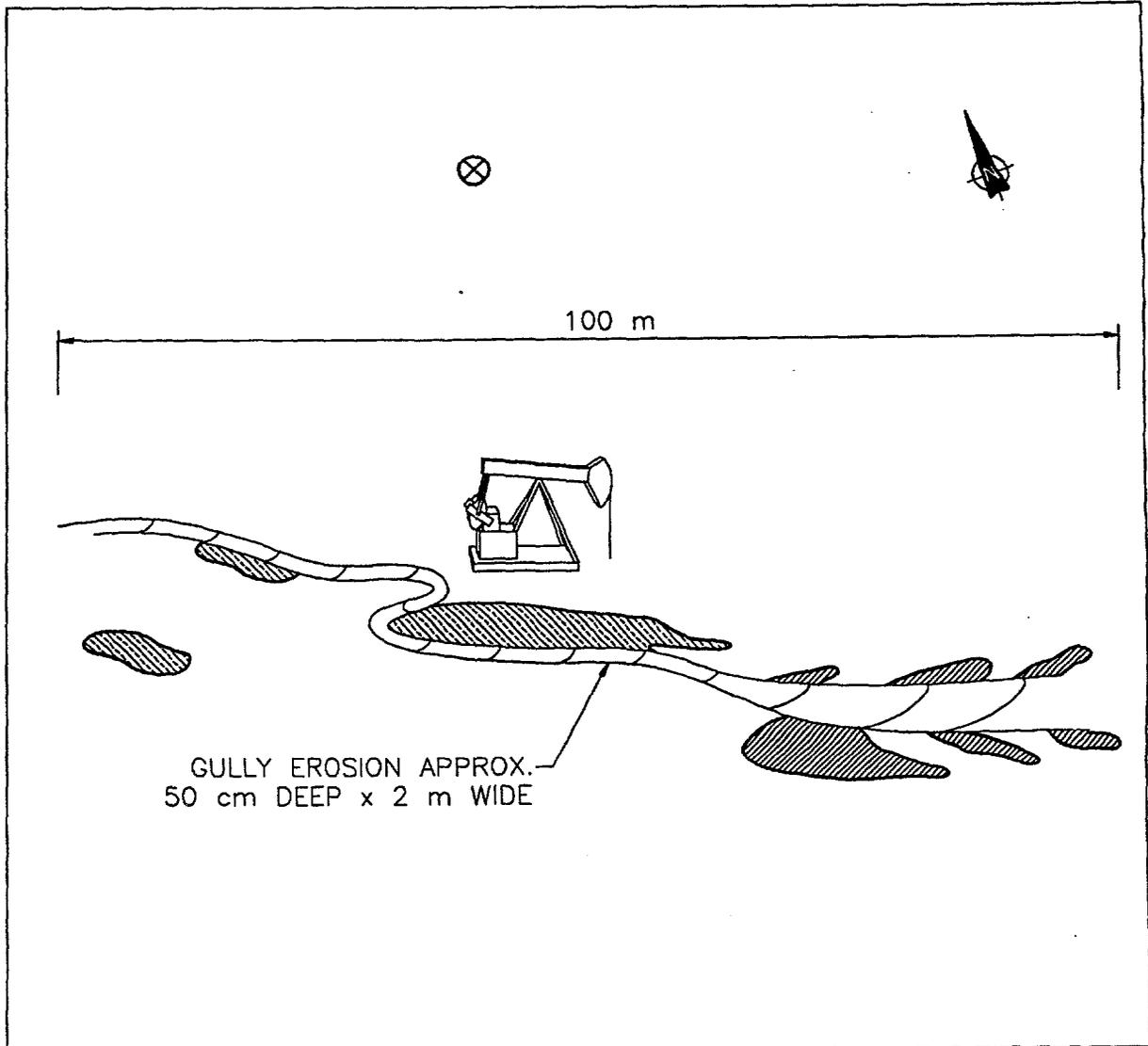


Photo / Sample Record :

Photos - Roll/Frames
C3/9,10
L6/1-3

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
		OS-1	0-15
		OS-2	15-30

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

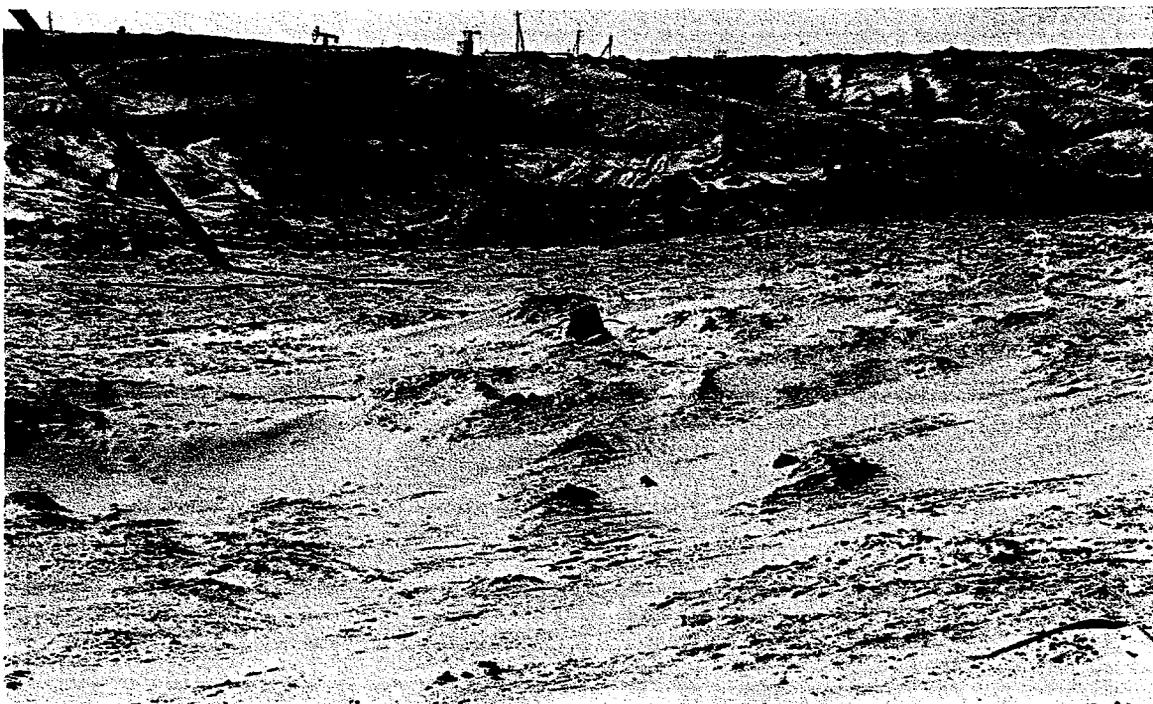
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 9312



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 1, 1994

Location

Wellsite Identification : 2663

Production Block within the Field : 2

Current Wellsite Status : Active

Wellsite Type : Injector

Distance to Nearest Wellsite : 100 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill		X	
Mechanical / Physical		X	
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 15%

Comments: Main disturbance on site is mechanical from vehicle tracks and mounding of soil. Brine dribbling from valve on wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 2663

SOILS

Parent Material : Limestone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm

<u>SOIL TEXTURE / COLOR</u>		Depth C cm
SiC 10YR 6/6		50 cm
SL 10YR 7/4		75 cm
LIMESTONE		100 cm

<u>Coarse Fragment Content</u>		
Layer	% Volume	Size (cm)
0-50 cm	<5	1-2
50-75 cm	25-50	5-10

VEGETATION

Species	% Cover
Salsola	25

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 2663

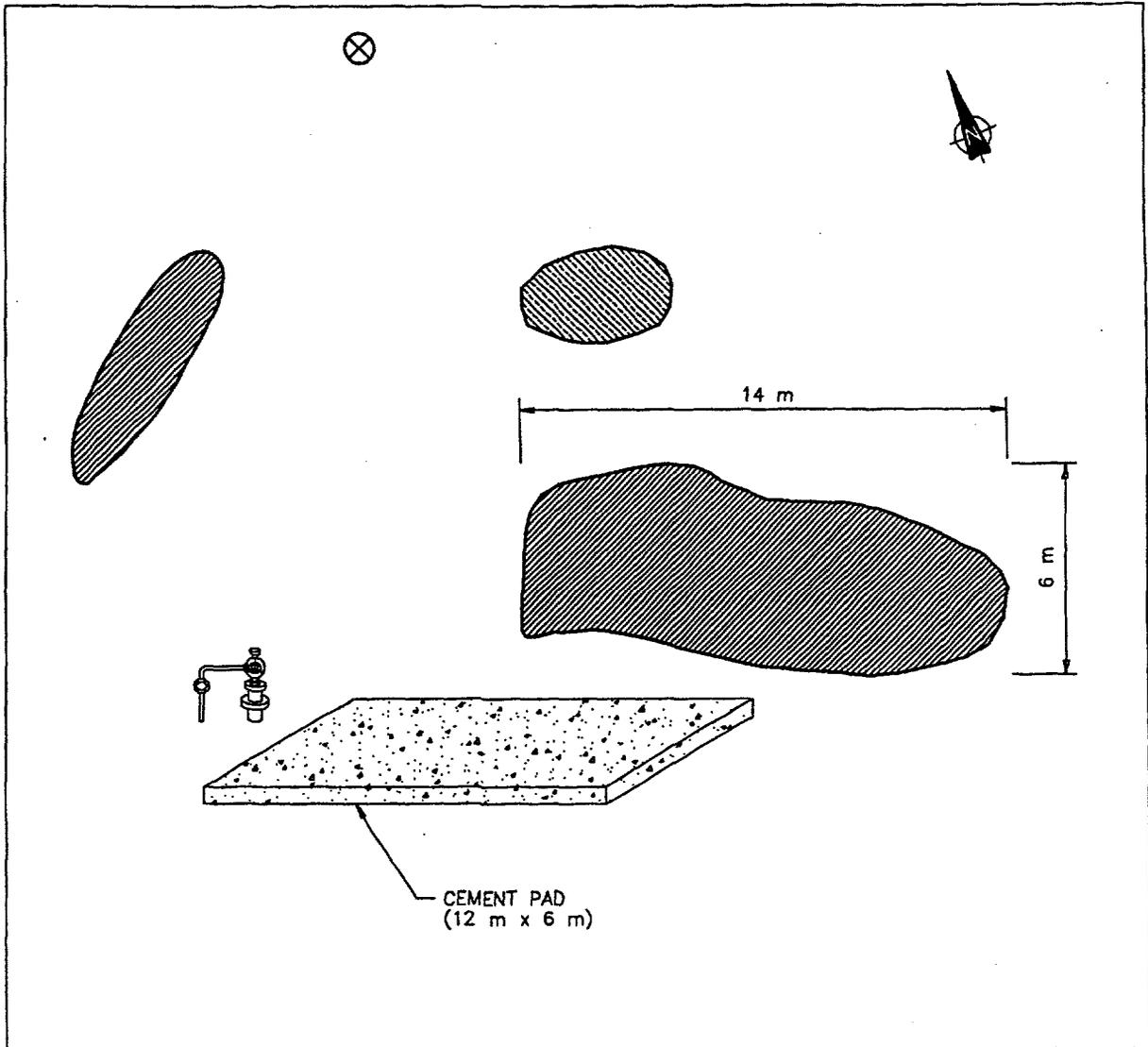


Photo / Sample Record :

Photos - Roll/Frames
C3/15,16
L6/8-12

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		2663	0-15

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : 2663



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date March 31, 1994

Location

Wellsite Identification : 2206

Production Block within the Field : 5

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 300 m

Site Physiography

Topographic Position : Uzen Depression - 100 m from toe of escarpment

Slope : 2%

Aspect : S

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
			X

Percentage Vegetation : 5%

Comments: A substantial amount of refuse left on site such as drill stem, cable and rotary hose. Attempt to control oil spill by constructing a berm was unsuccessful.

HBT AGRA Limited
Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance
Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 2206

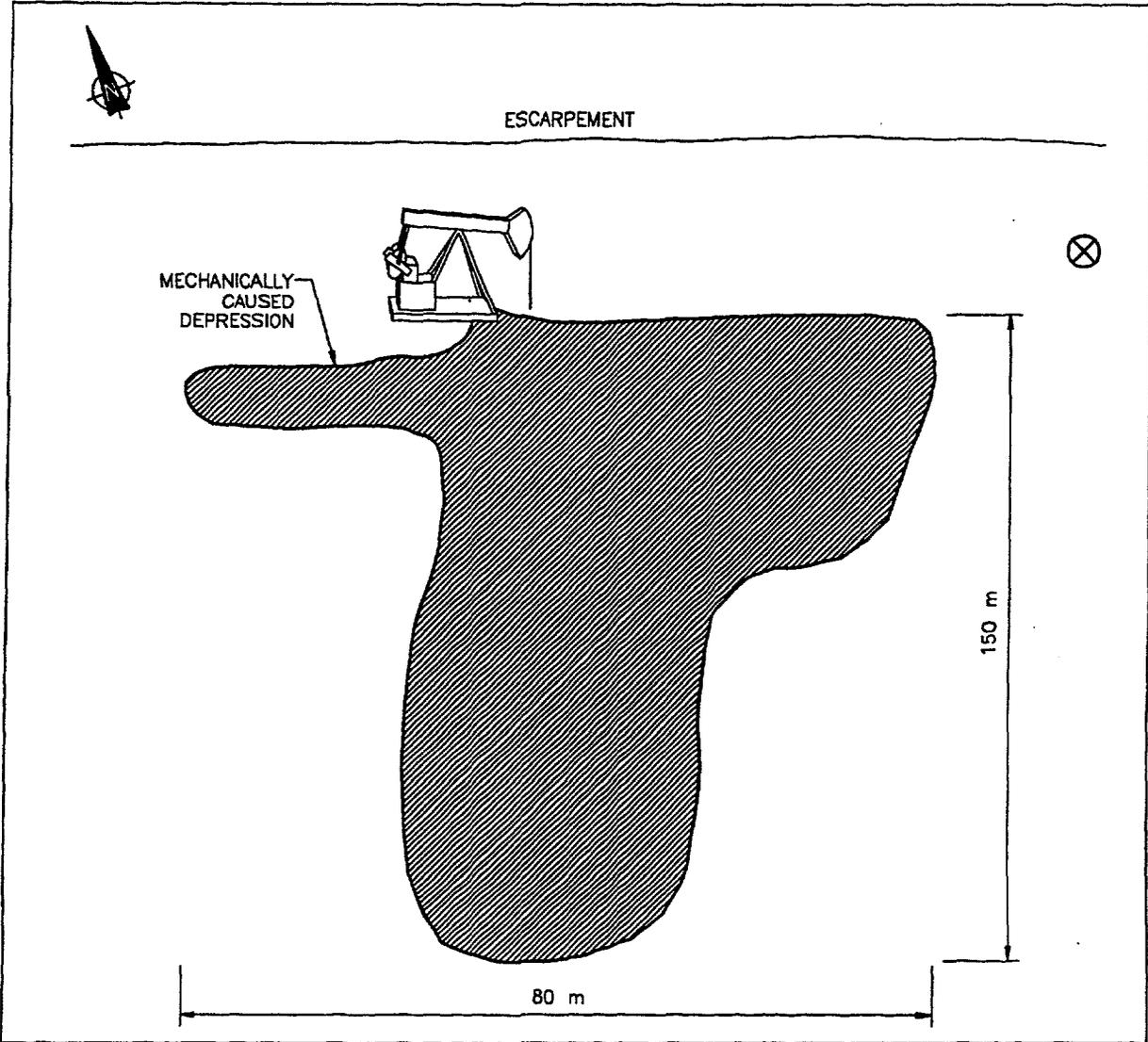


Photo / Sample Record :

Photos - Roll/Frames
L5/17-19

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 2206

SOILS

Parent Material : Limestone

Surface Expression : Slightly Inclined

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 15 cm

SOIL TEXTURE / COLOR		Depth
		0 cm
SiCL 10YR 6/4		40 cm
SiL 10YR 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-40 cm	15-25	2-10
40-100 cm	5-10	2-10

VEGETATION

Species	% Cover
Salsola	20

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

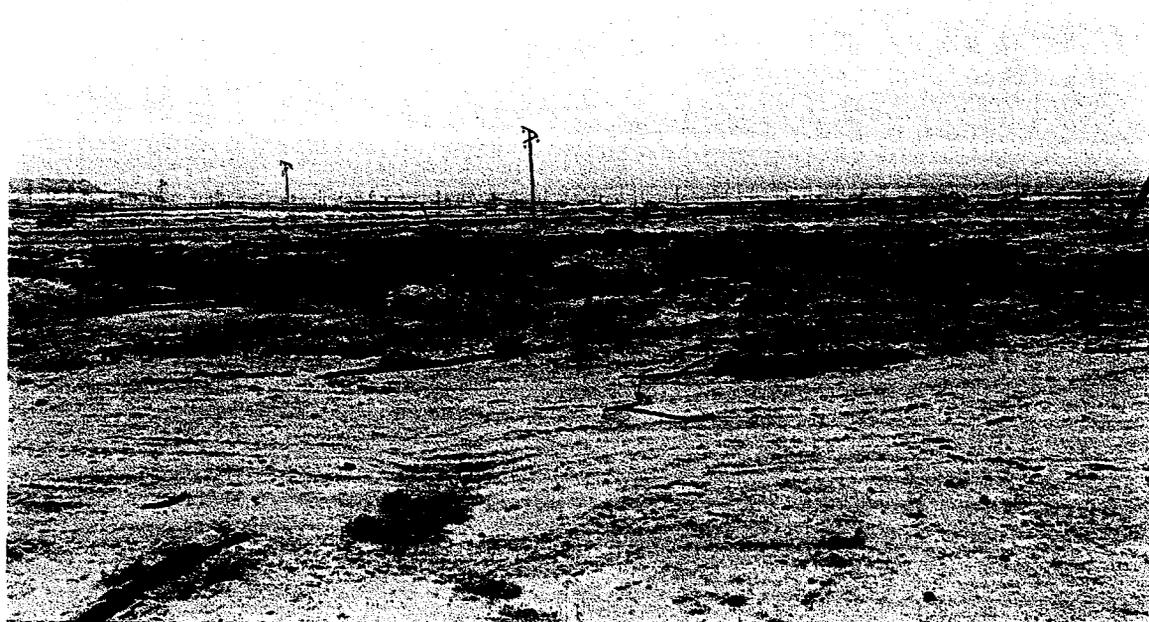
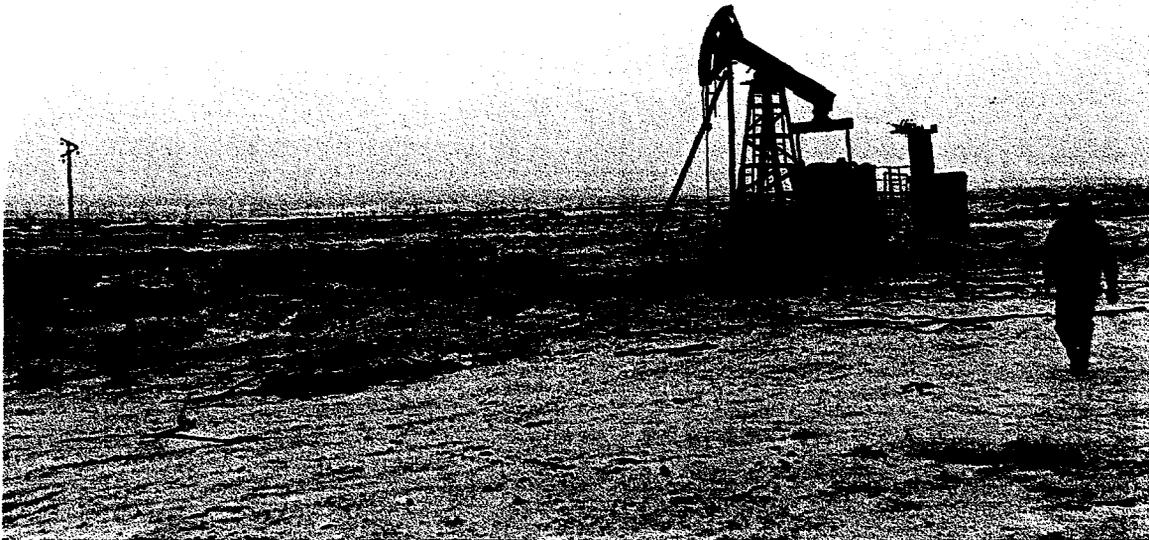
Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Photos

Wellsite Identification : 2206



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 3447

SOILS

Parent Material : Sandstone
 Surface Expression : Level
 Modifying Processes : None
 Depth to Water Table : > 100 cm
 Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth C cm
CL 7.5YR 6/3		50 cm
SL 7.5YR 7/6		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-50 cm	<1	<1
50-100 cm	10	5

VEGETATION

Species	% Cover
Artemisia	20

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 4, 1994

Location

Wellsite Identification : 3447

Production Block within the Field : 3

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 1 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : <1%

Comments: Immediately adjacent to an injector well.

HBT AGRA Limited

Engineering and Environmental Services

221 - 15th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 3447

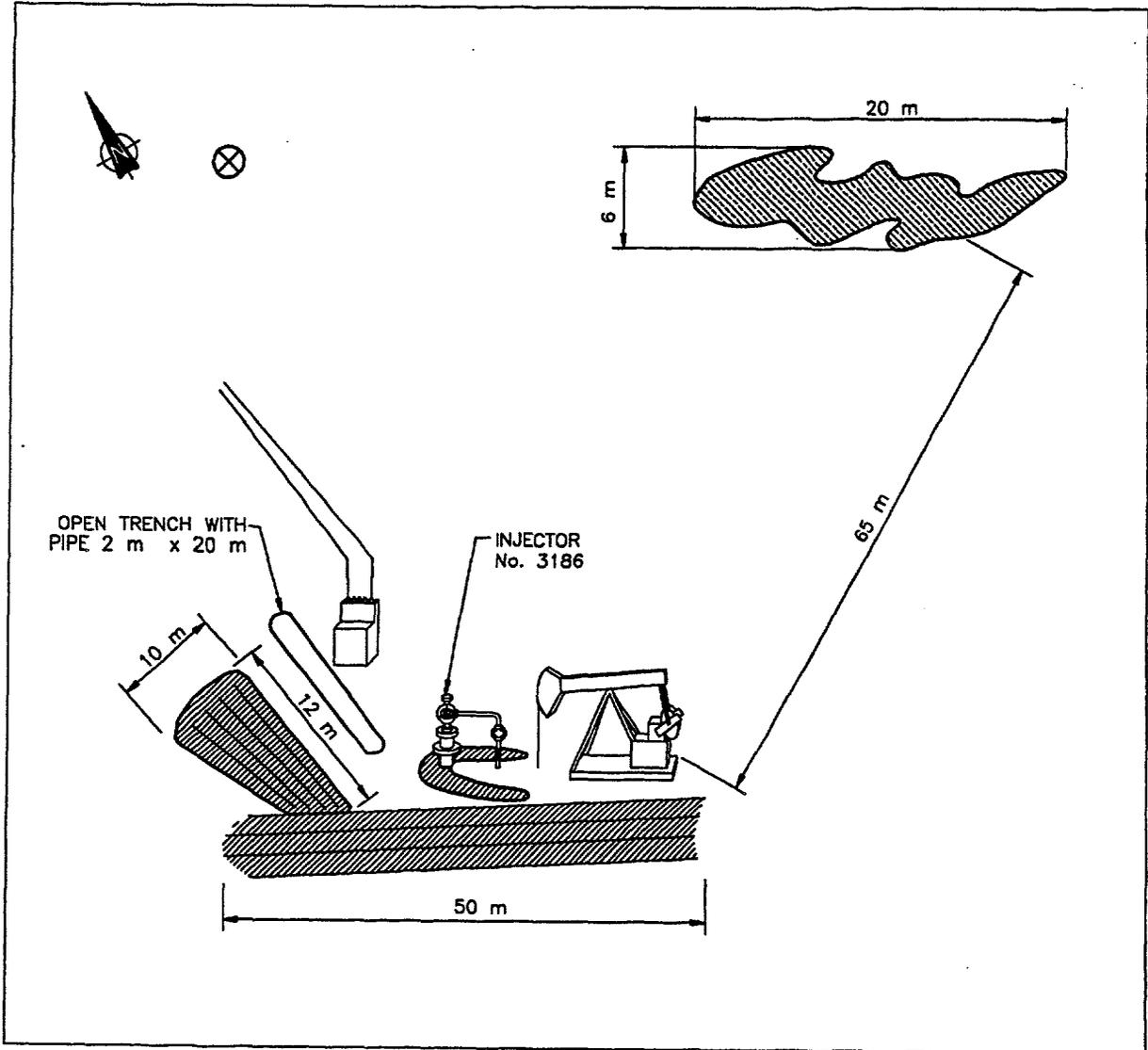


Photo / Sample Record :

Photos - Roll/Frames
LB/13,14

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

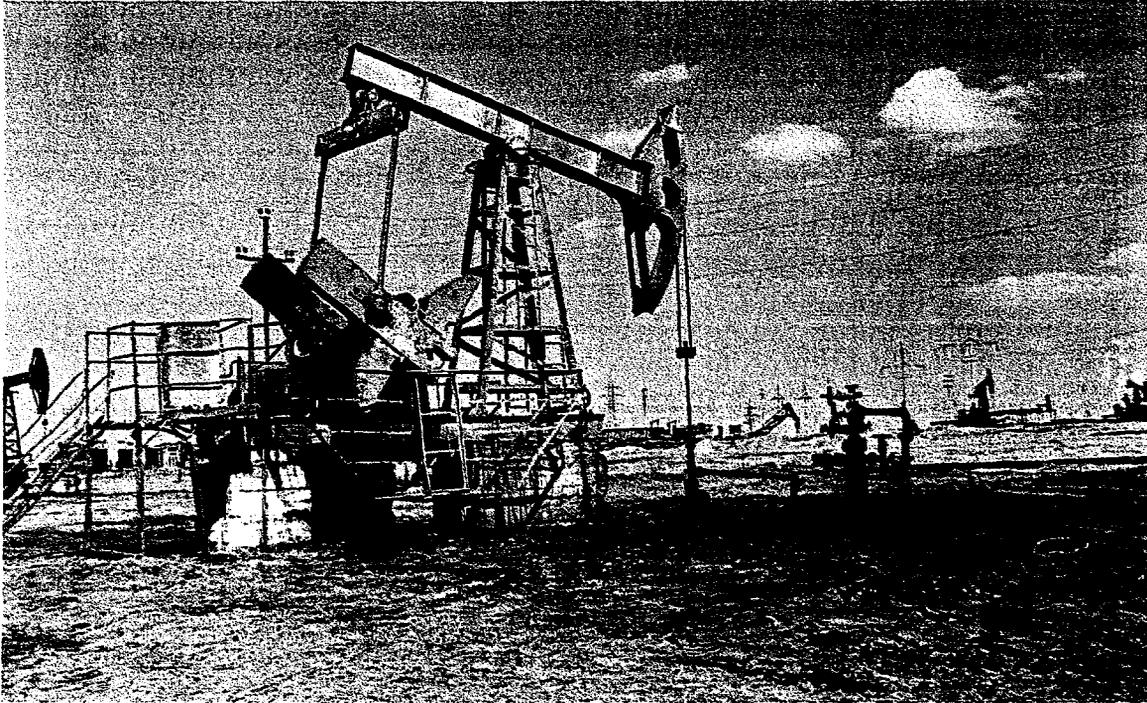
Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Photos

Wellsite Identification : 3447



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : Unknown - 100 m south of 4082

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : > 100 cm

Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth
CL 10YR 6/4		0 cm 30 cm
L 10YR 7/3		90 cm
SANDSTONE		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-30 cm	10	2
30-90 cm	25	2

VEGETATION

Species	% Cover
Salsola	20
Artemisia	10

HBT AGRA Limited
 Engineering and Environmental Services
 221 -- 15th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 4, 1994

Location

Wellsite Identification : Unknown - 100 m south of 4082

Production Block within the Field : 3

Current Wellsite Status : Active

Wellsite Type : Injector (or free flowing Producer)

Distance to Nearest Wellsite : 100 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 25% (Saltbrush)

Comments: Well occurs in what appears to be an injector run.
However, the amount of spilled oil near the wellhead
suggests that this could be a free flowing producer.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : Unknown - 100 m south of 4082

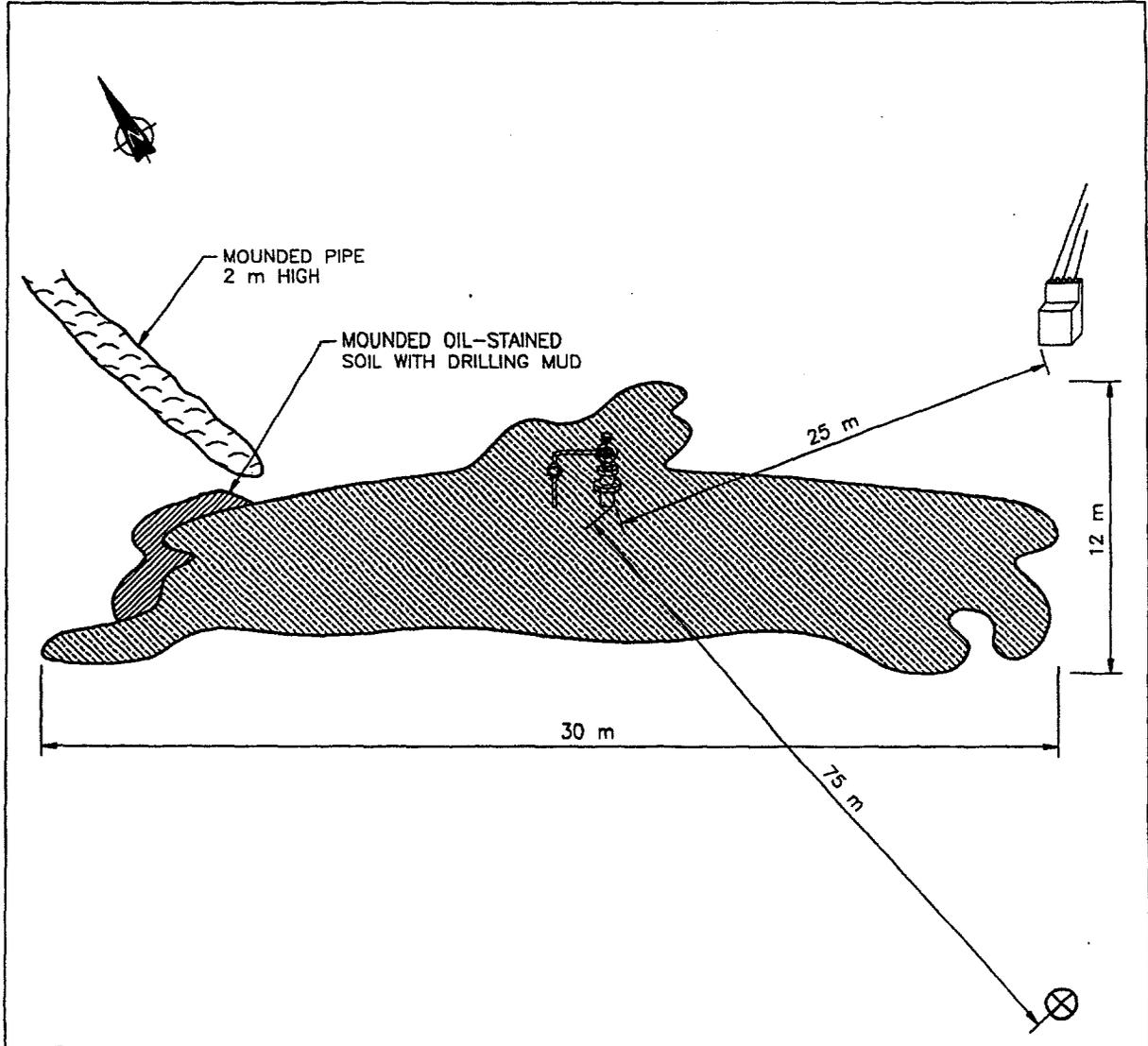


Photo / Sample Record :

Photos - Roll/Frames
L8/18,19

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
4082-1	0-15	None	
4082-1	60-100		

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

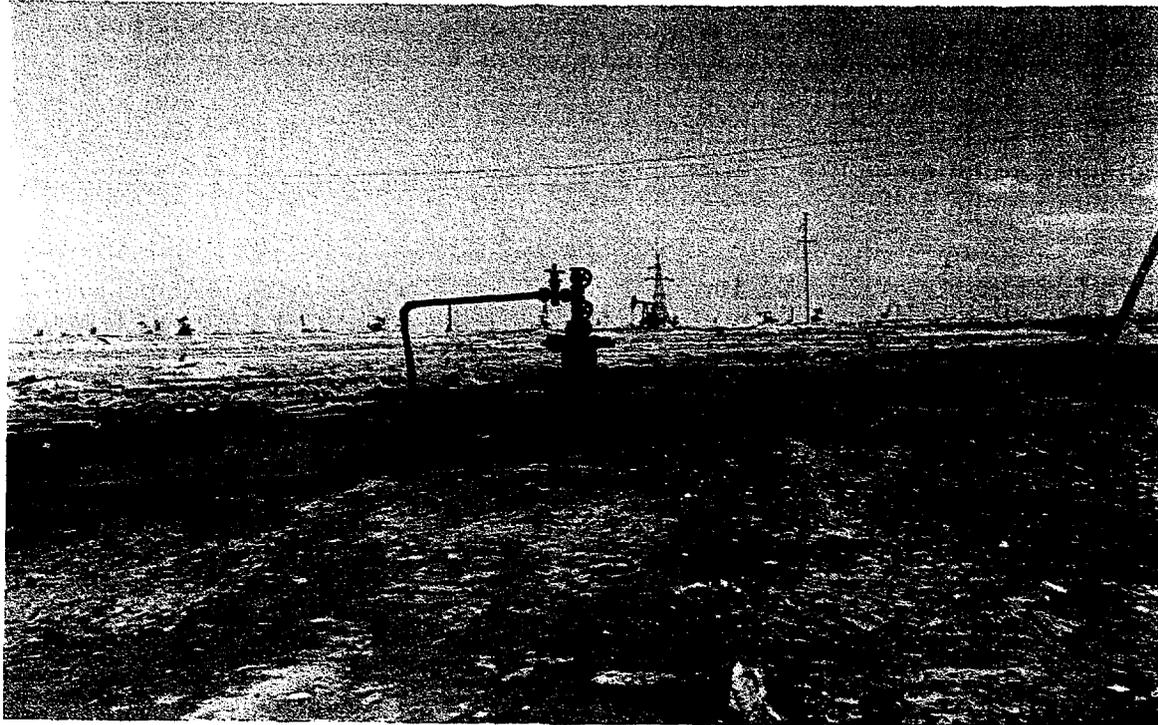
Tel: (403) 248-4331

Fax: (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : Unknown - 100 m south of 4082



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Assessment Date

April 4, 1994

Location

Wellsite Identification : 4083

Production Block within the Field : 3

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 75 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : 5%

Comments: Minimal paraffin accumulation on wellhead.
Appears to be no direct road access to wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 4083

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : > 100 cm

Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth C cm
CL 10YR 6/4		50 cm
SL 10YR 7/3		80 cm
SANDSTONE		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-50 cm	<5	2
50-80 cm	<75	>15

VEGETATION

Species	% Cover
Salsola	50
Artemisia	10

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 4083

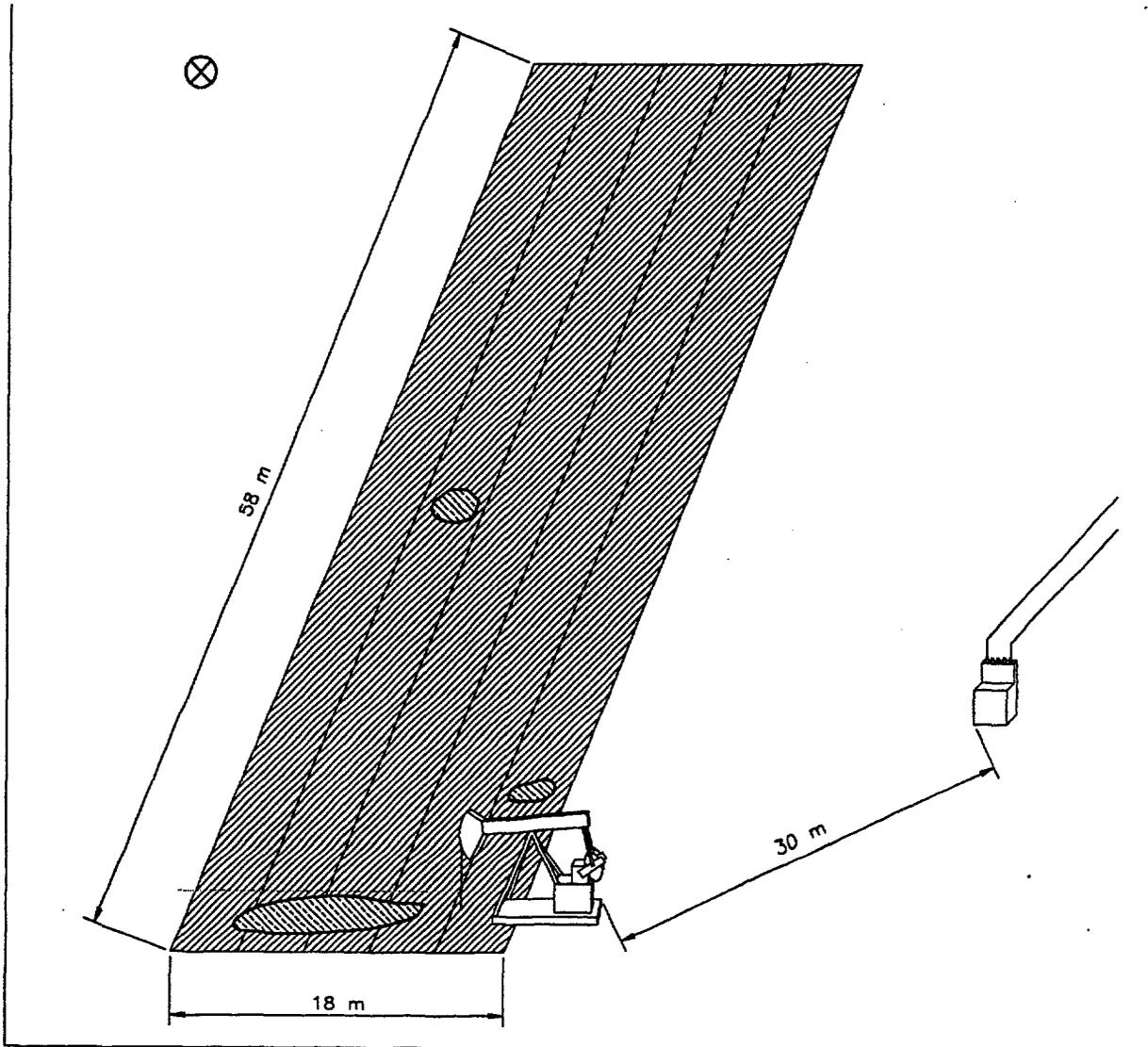


Photo / Sample Record :

Photos - Roll/Frames
L8/22-24

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
4083-2	0-15	4083-1	0-15

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

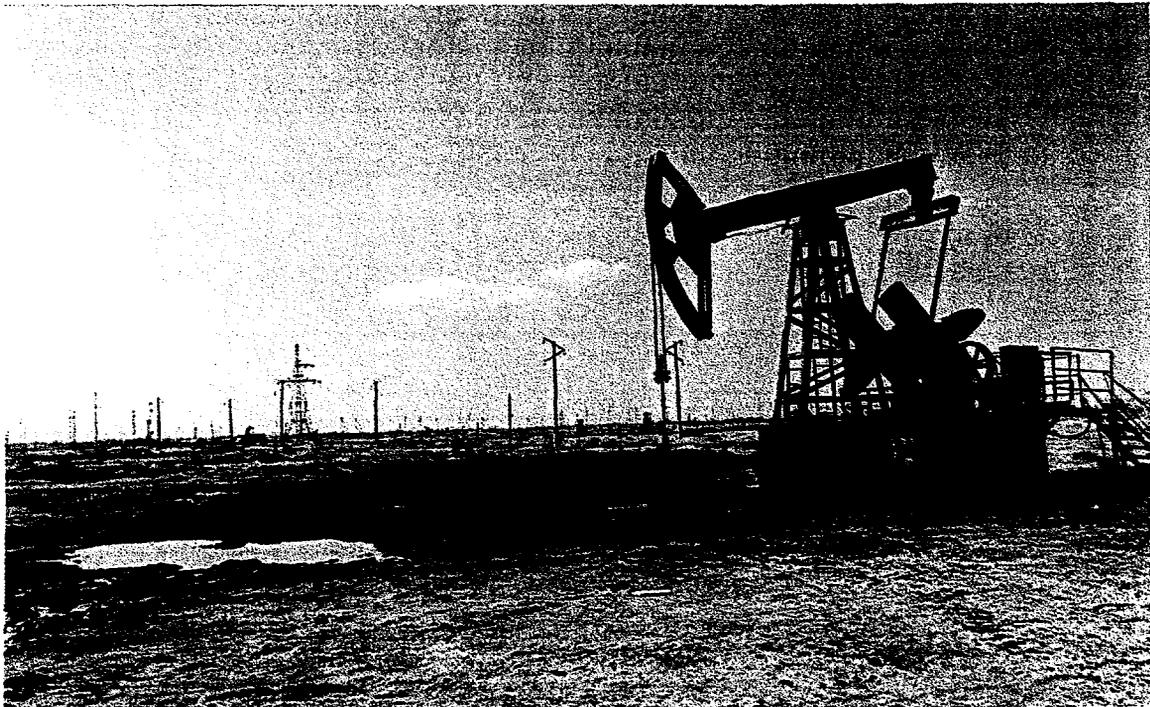
Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance
Uzen Rehabilitation Project

Site Photos

Wellsite Identification : 4083



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 16th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date

April 1, 1994

Location

Wellsite Identification : 4094

Production Block within the Field : 3

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 50 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : <1%

Comments: Substantial amount of mechanical damage including
 vehicle tracks and mounded soil.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 4094

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : <10 cm

SOIL TEXTURE / COLOR		Depth
CL 10YR 6/4		0 cm
		30 cm
SL 10YR 8/4		
		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-100 cm	<1	<1

VEGETATION

Species	% Cover
Salsola	25

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 4094

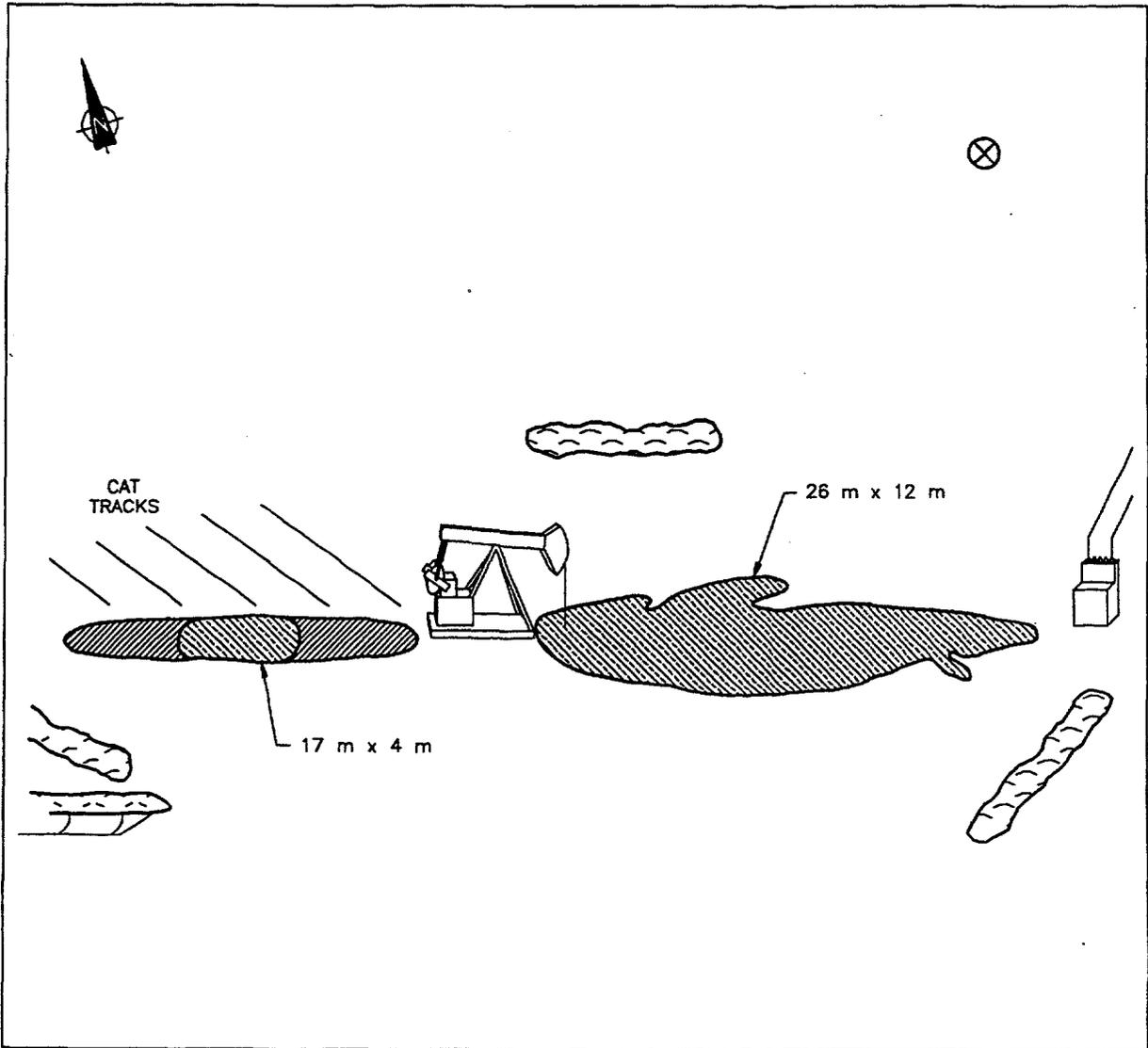


Photo / Sample Record :

Photos - Roll/Frames
C3/17-19
L6/13

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

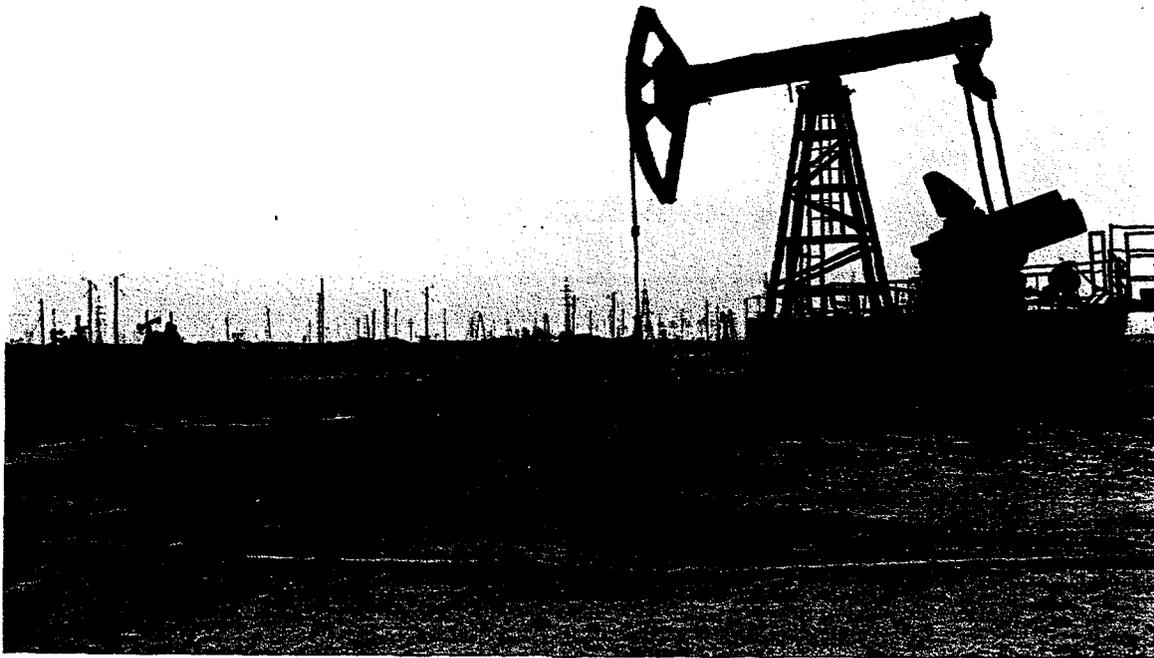
Tel (403) 248-4331

Fax (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : 4094



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 4, 1994

Location

Wellsite Identification : 234

Production Block within the Field : 3A

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 100 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill			X
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
			X

Percentage Vegetation : <1%

Comments: Leaking gathering pipeline nearby is the source
of most of the spilled oil in the vicinity.
Appears to be no direct road access to wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel: (403) 248-4331

Fax: (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 234

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth
C 10YR 6/4		0 cm
		70 cm
CL 10YR 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-70 cm	<1	1
70-100 cm	<1	1

VEGETATION

Species	% Cover
Artemisia	30

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 234

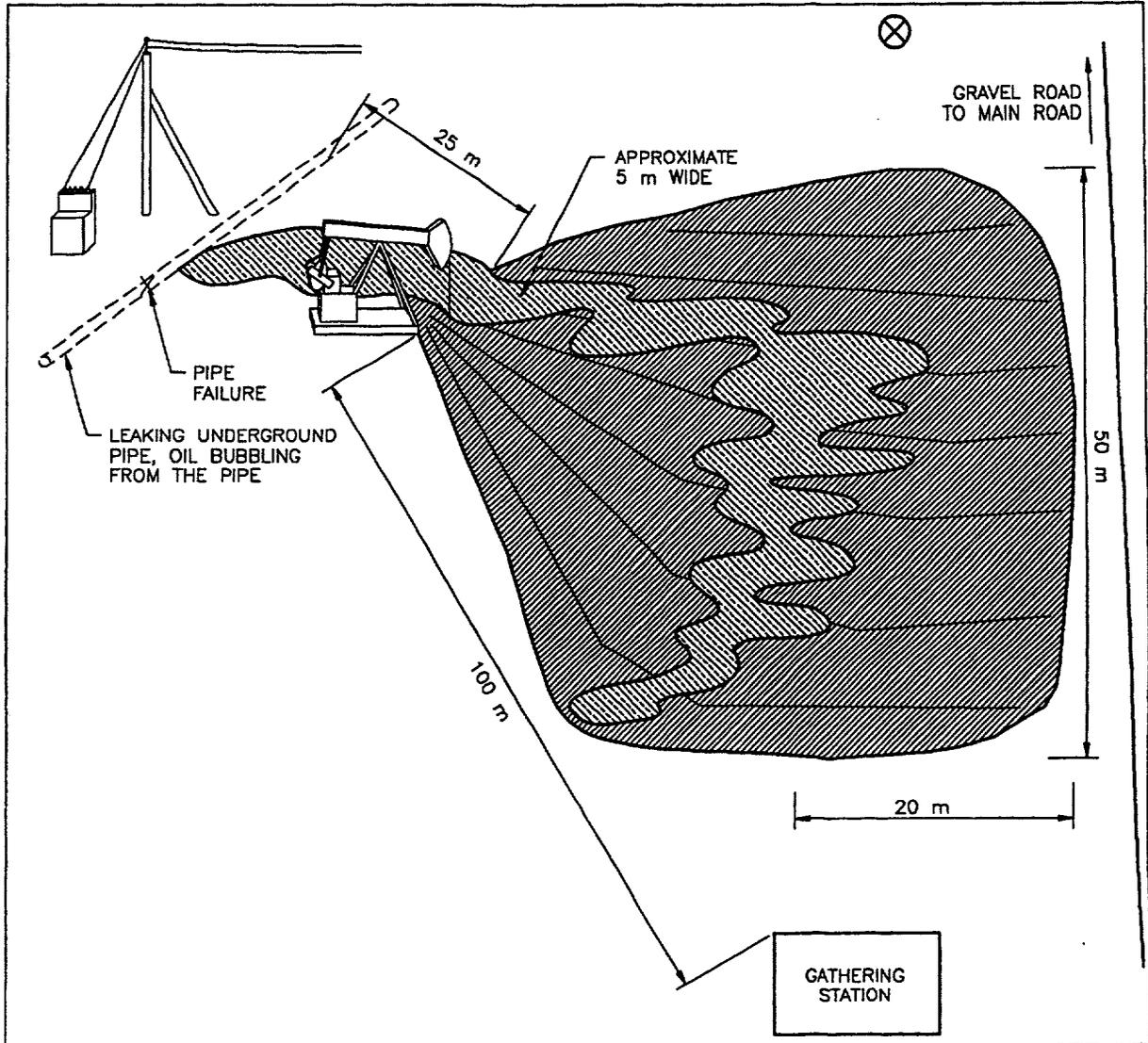


Photo / Sample Record :

Photos - Roll/Frames
C4/21, 22

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
234-1	0-15		
234-2	60-100		

HBT A GRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

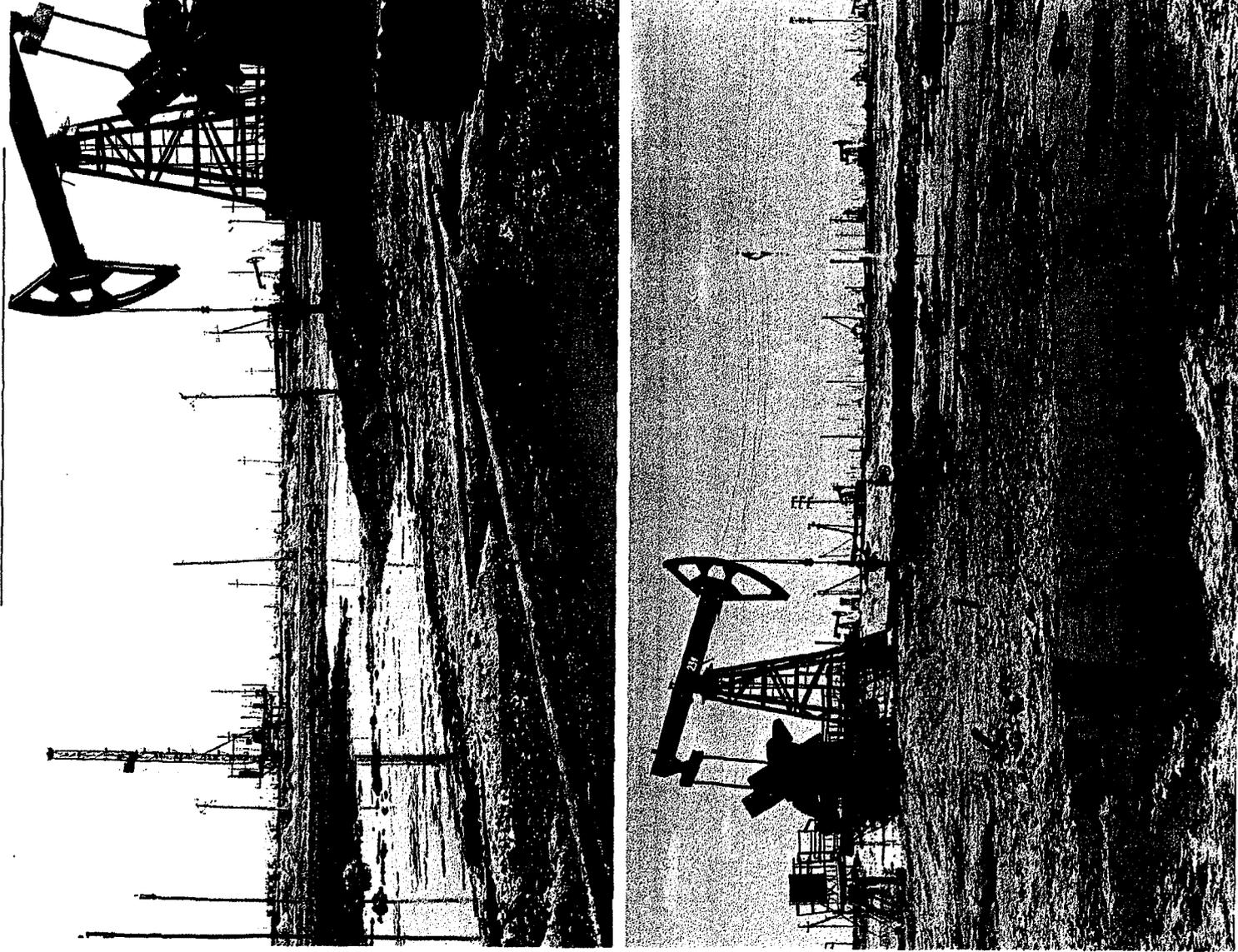
Tel: (403) 248-4331

Fax: (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : 234



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date

April 4, 1994

Location

Wellsite Identification : Unknown - 100 m SW of 2120

Production Block within the Field : 3A

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 20 m

Site Physiography

Topographic Position : Upland Plain

Slope : 1%

Aspect : NW

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other: Drilling Mud & Cuttings		X	

Housekeeping:	GOOD	FAIR	POOR
			X

Percentage Vegetation : <1%

Comments: Highly disturbed site with a lot of spilled oil.
Evidence of extensive attempts to disperse spilled oil
into soil surface creating several mounds.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2185

Phase I Site Reconnaissance Uzen Rehabilitation Project

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : Unknown - 100 m SW of 2120

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 15 cm

SOIL TEXTURE / COLOR		Depth
CL	Oil Staining - Variable color	0 cm
CL	10YR 7/3	30 cm
Sandstone		90 cm
		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-30 cm	25	2
30-90 cm	25-50	30-40

VEGETATION

Species	% Cover
Artemisia	60

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : Unknown - 100 m SW of 2120

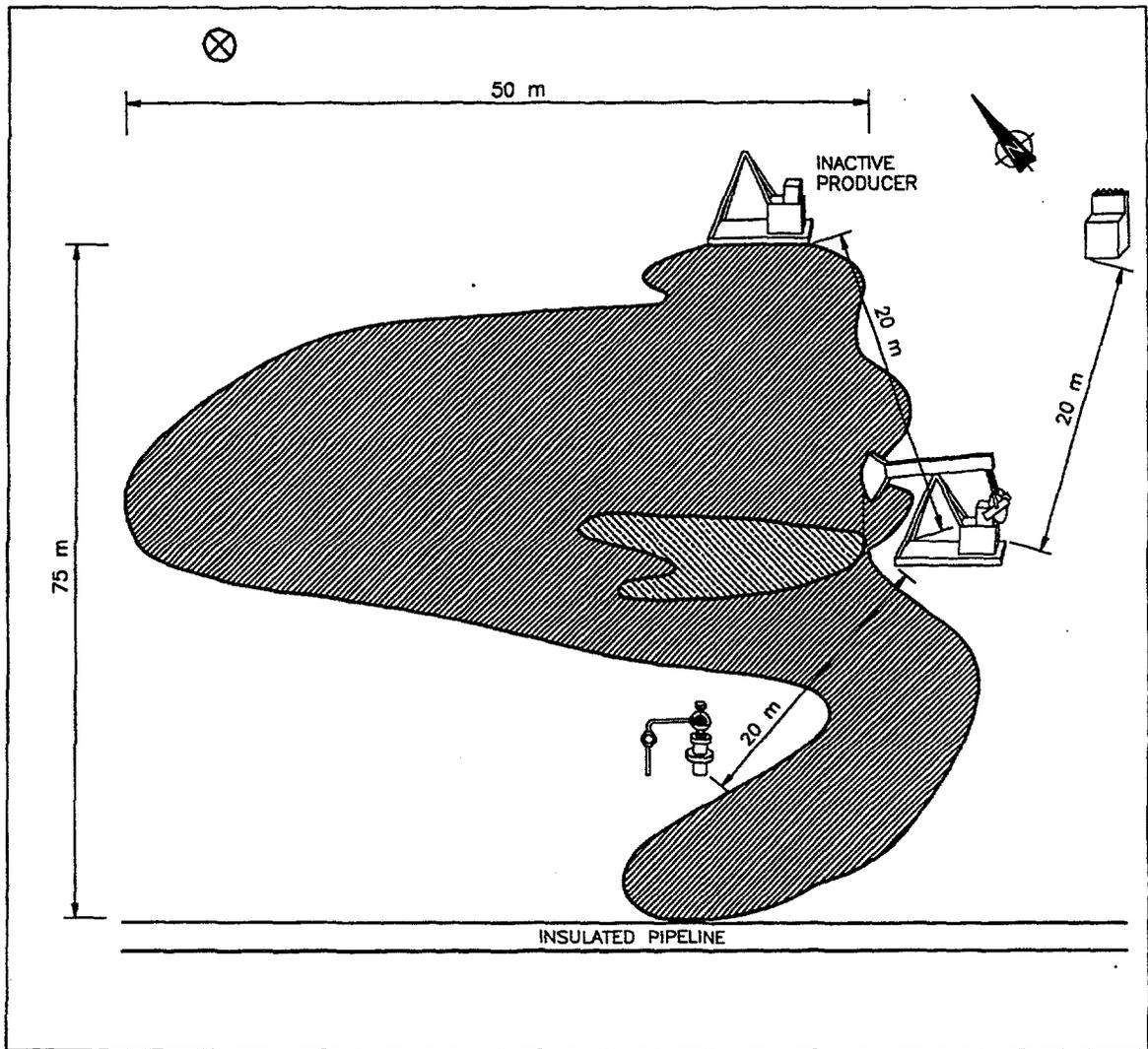


Photo / Sample Record :

Photos - Roll/Frames
C4/15,16

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

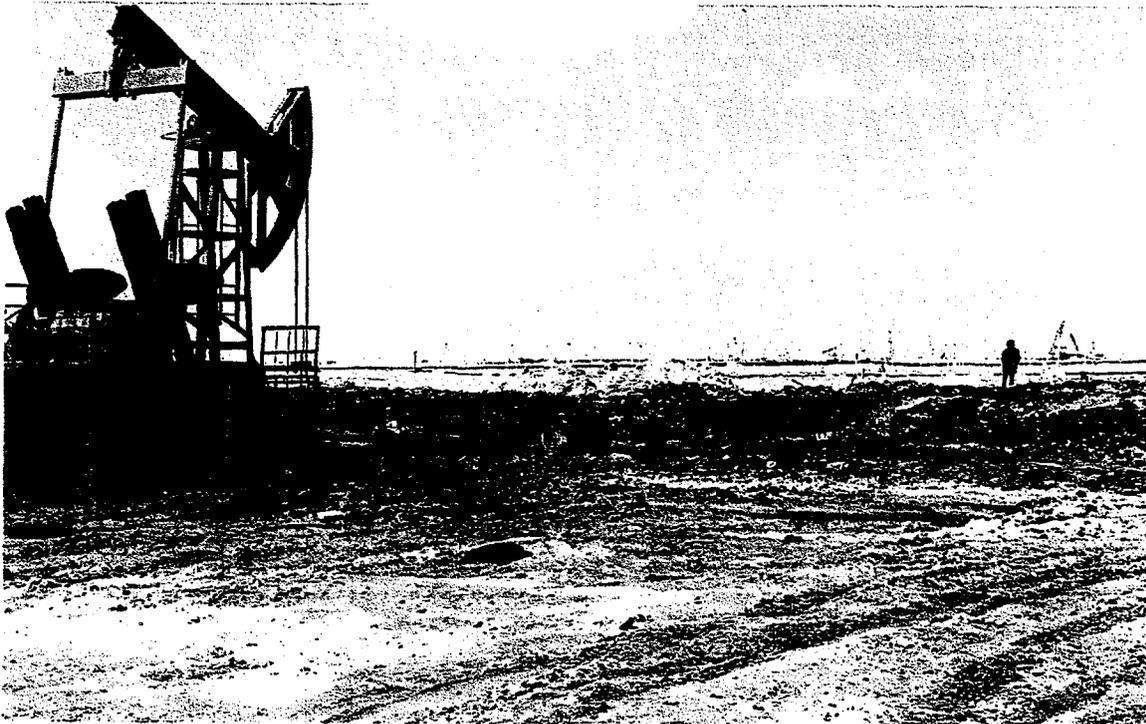
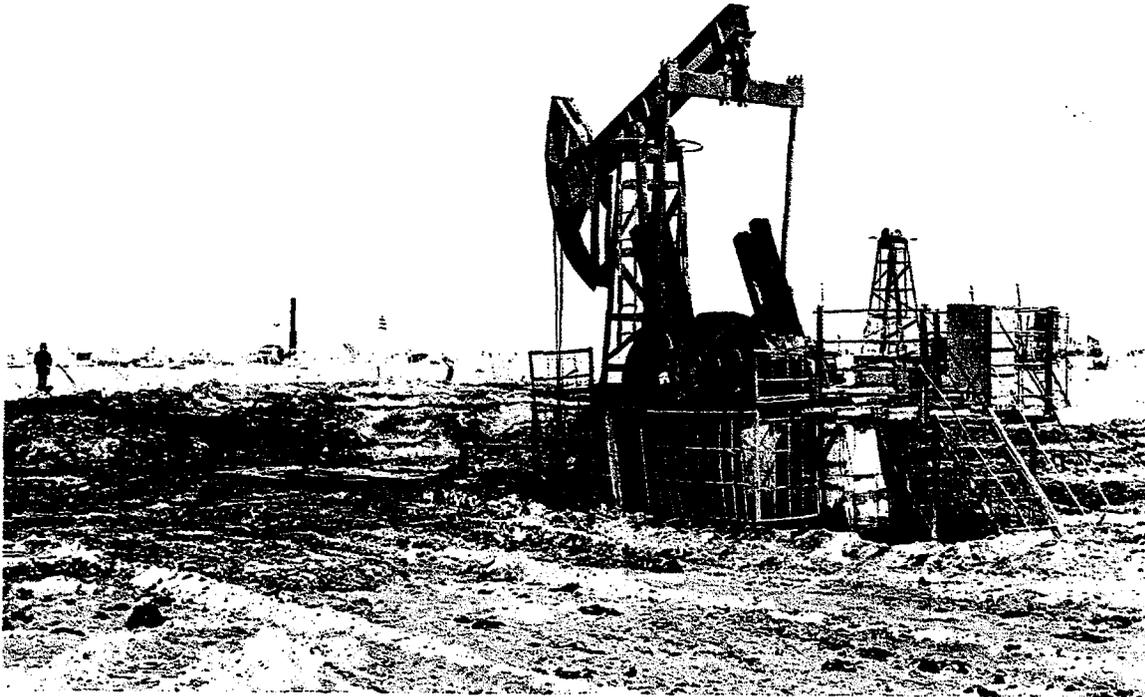
Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Photos

Wellsite Identification : Unknown - 100 m SW of 2120



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 4, 1994

Location

Wellsite Identification : 3242

Production Block within the Field : 3A

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 50 m

Site Physiography

Topographic Position : Upland Plain

Slope : 1%

Aspect : NW

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity		LOW	MEDIUM	HIGH
Oil Spill			X	
Produced Water Spill		X		
Brine Spill		X		
Mechanical / Physical				X
Erosion:	Water	X		
	Wind	X		
Other		X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 10%

Comments: Appears to be no direct road access into wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 3242

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth G cm
CL 10YR 6/4		40 cm
SCL 10YR 7/4		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-40 cm	<1	<1
40-100 cm	25	10

VEGETATION

Species	% Cover
Artemisia	30

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel: (403) 248-4331
 Fax: (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 3242

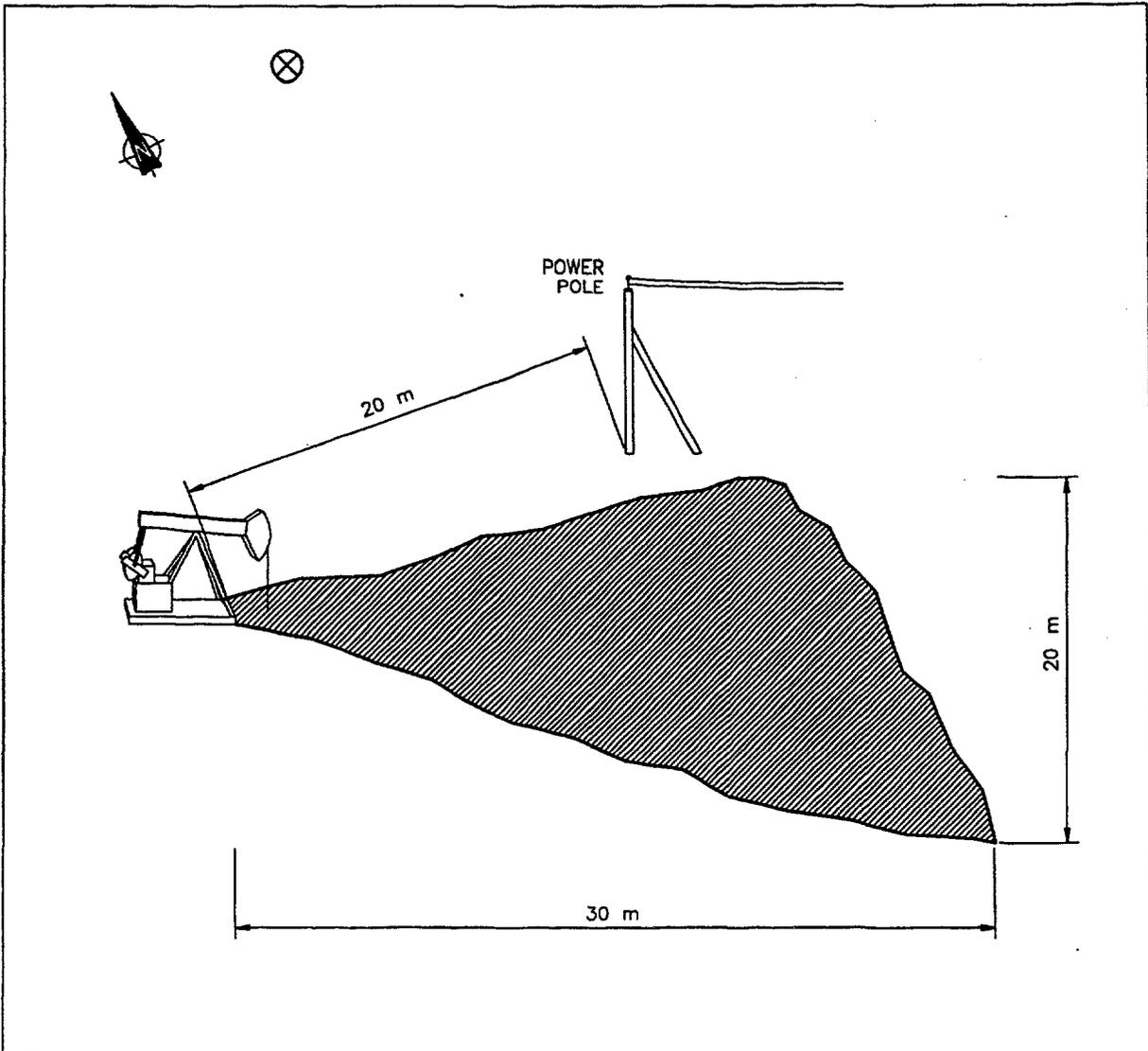


Photo / Sample Record :

Photos - Roll/Frames
C4/19,20

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

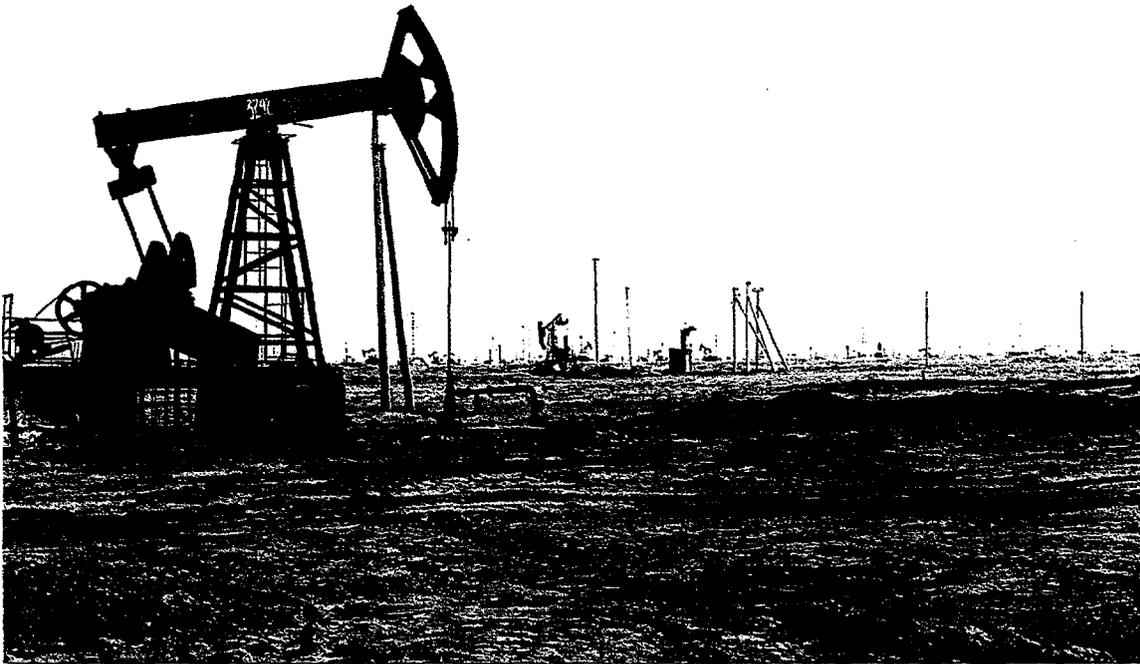
Tel (403) 248-4331

Fax (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : 3242



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 4, 1994

Location

Wellsite Identification : 3613

Production Block within the Field : 3A

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 100 m

Site Physiography

Topographic Position : Upland Plain

Slope : 1%

Aspect : NE

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : <1%

Comments: Highly disturbed site. Necessary to go 100 m from wellhead to observe natural soil & vegetation.
Heavy paraffin coating of stuffing box and adjacent soil.
Drilling mud observed on soil surface in surroundings.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 3613

SOILS

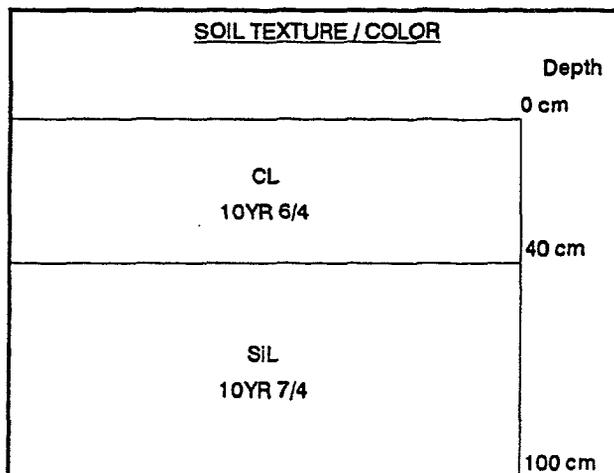
Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm



Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-40 cm	<1	1
40-100 cm	10	30-40

VEGETATION

Species	% Cover
Artemisia	20

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 3613

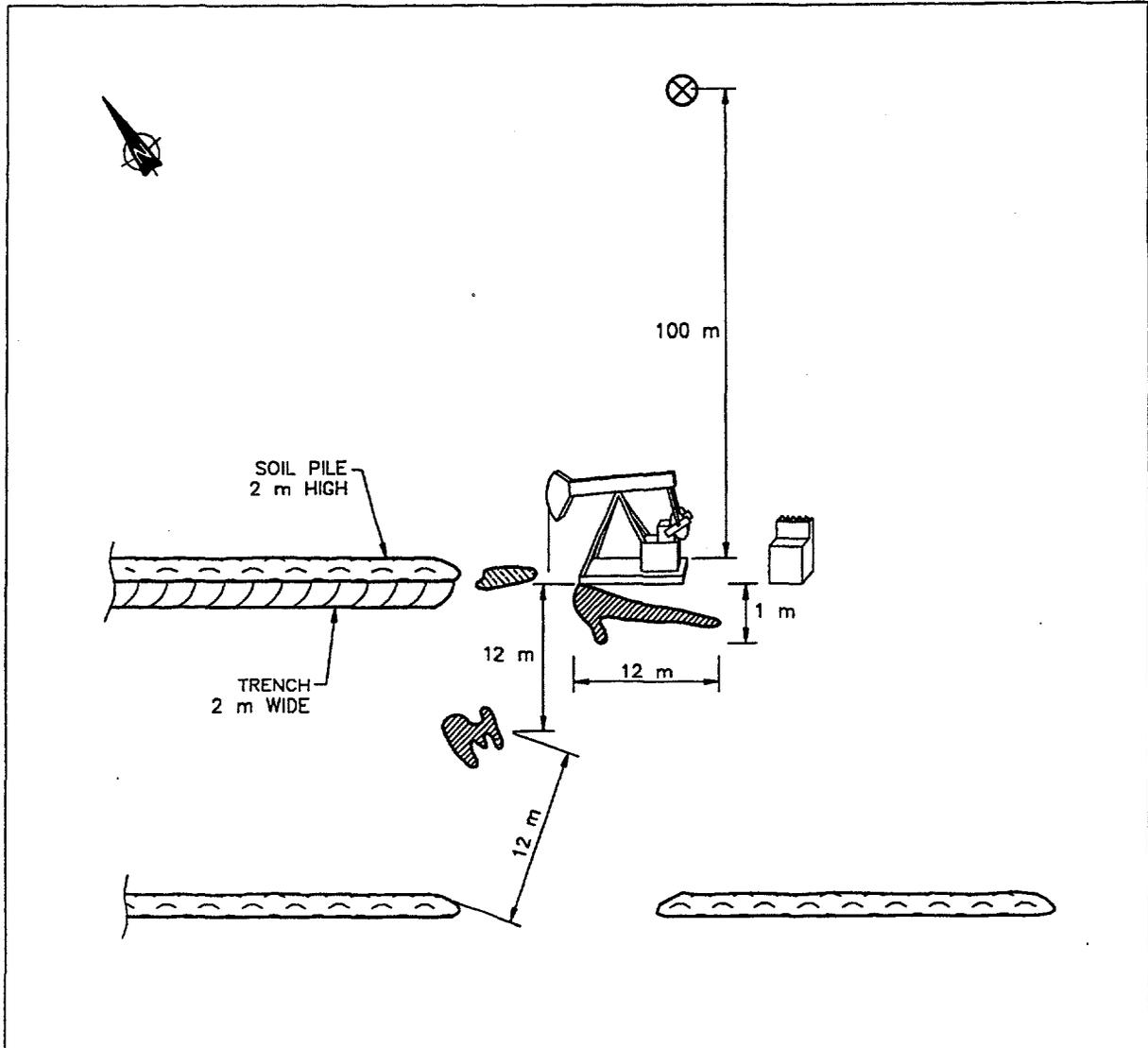


Photo / Sample Record :

Photos - Roll/Frames
C4/13,14
L8/4,5

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
3613-1	0-15	None	
3613-2	60-100		

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

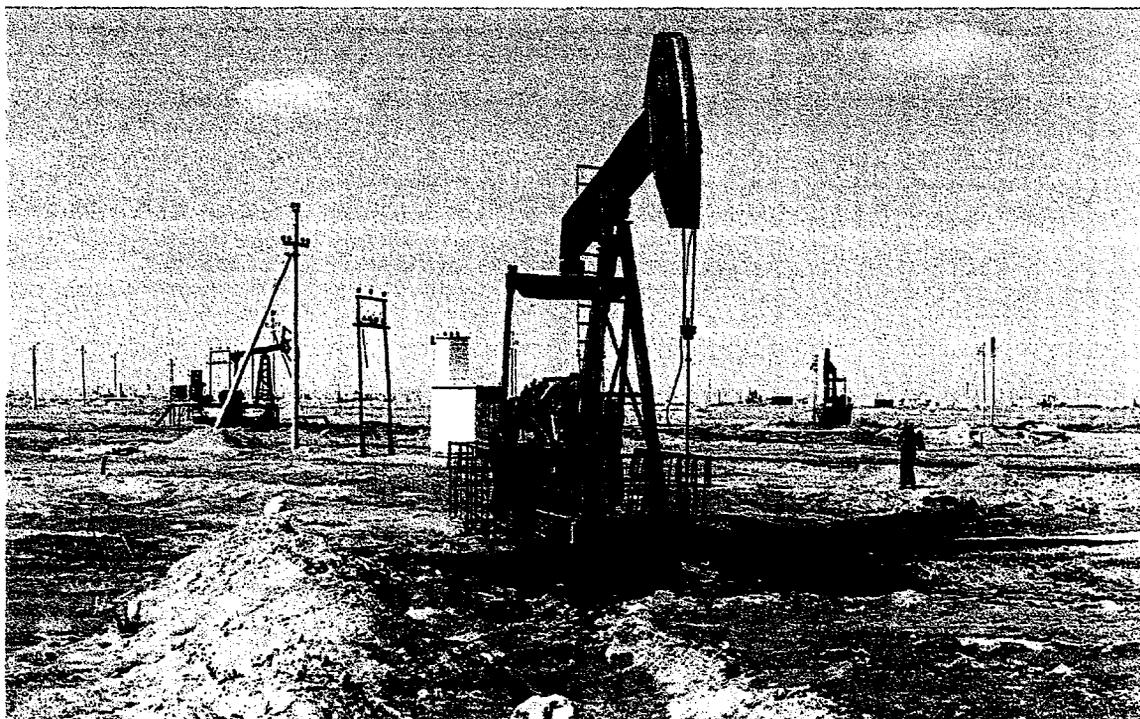
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 3613



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 3615

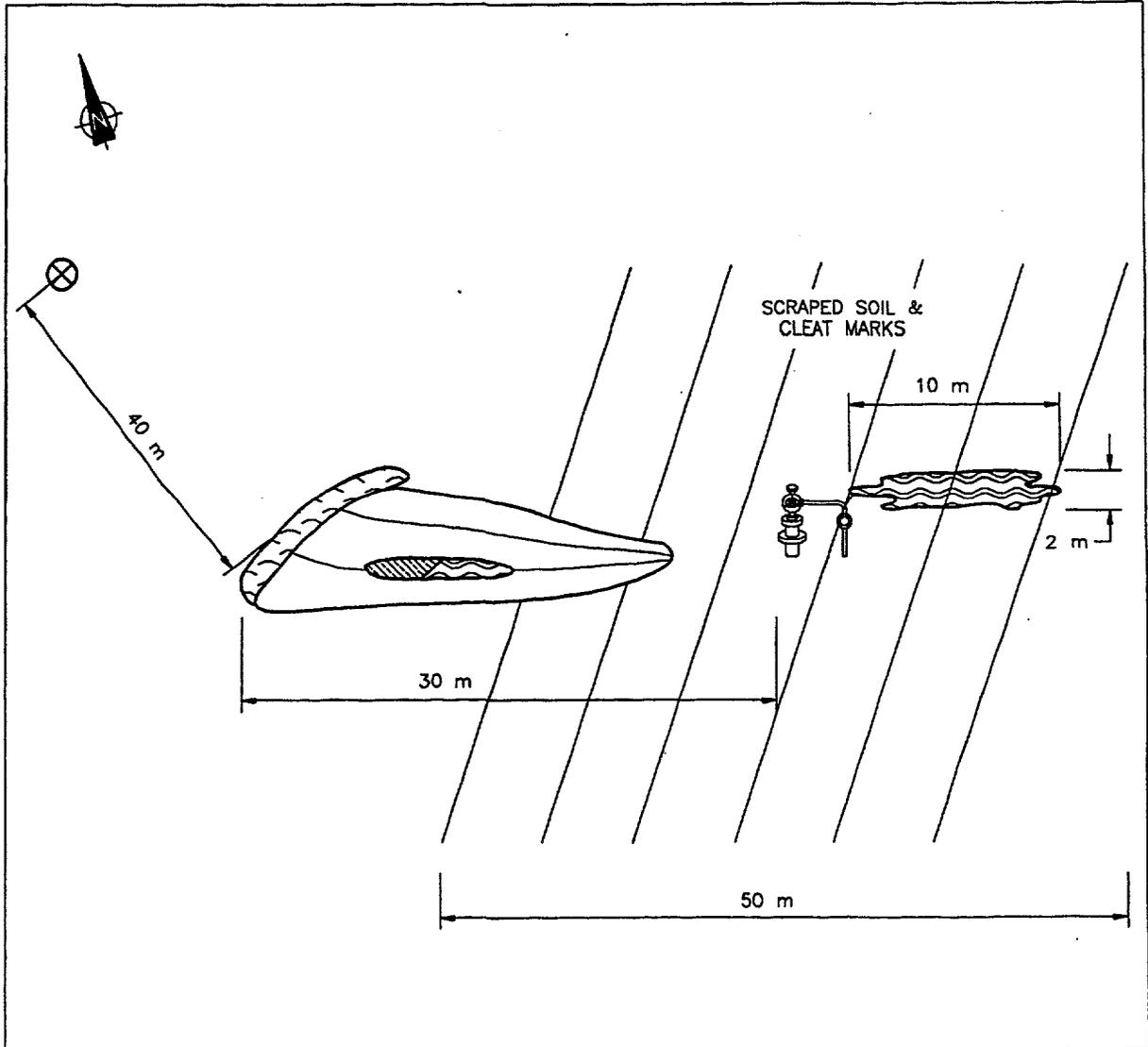


Photo / Sample Record :

Photos - Roll/Frames
C4/17,18

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
3615-1	0-15	None	
3615-2	60-100		

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date

April 4, 1994

Location

Wellsite Identification : 3615

Production Block within the Field : 3A

Current Wellsite Status : Active

Wellsite Type : Injector

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Upland Plain

Slope : 1%

Aspect : NW

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other: Drilling Mud		X	

	GOOD	FAIR	POOR
Housekeeping:		X	

Percentage Vegetation : <1%

Comments: Physical disturbance is the main problem with this site.
 Pool of free product and drilling mud may be
 from former sump.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel: (403) 248-4331

Fax: (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 3615

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : > 100 cm

Effective Rooting Depth : 15 cm

SOIL TEXTURE / COLOR		Depth
CL 10YR 6/4		0 cm
		50 cm
CL 10YR 7/4		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-50 cm	<10	2
50-100 cm	10-25	15

VEGETATION

Species	% Cover
Artemisia	50

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 3615



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date

April 4, 1994

Location

Wellsite Identification : 4021

Production Block within the Field : 3A

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Upland Plain

Slope : 1%

Aspect : NE

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : 5%

Comments: Most of the disturbance at this site is associated with the oil spill and mechanical cleanup attempts. Result is a 1 m high mound of oil contaminated soil.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 4021

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 10 cm

<u>SOIL TEXTURE / COLOR</u>		Depth
		0 cm
CL 10YR 6/4		50 cm
CL 10YR 7/4		100 cm

<u>Coarse Fragment Content</u>		
Layer	% Volume	Size (cm)
0-50 cm	<1	1
50-100 cm	<1	1

VEGETATION

Species	% Cover
Salsola	50

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance
Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 4021

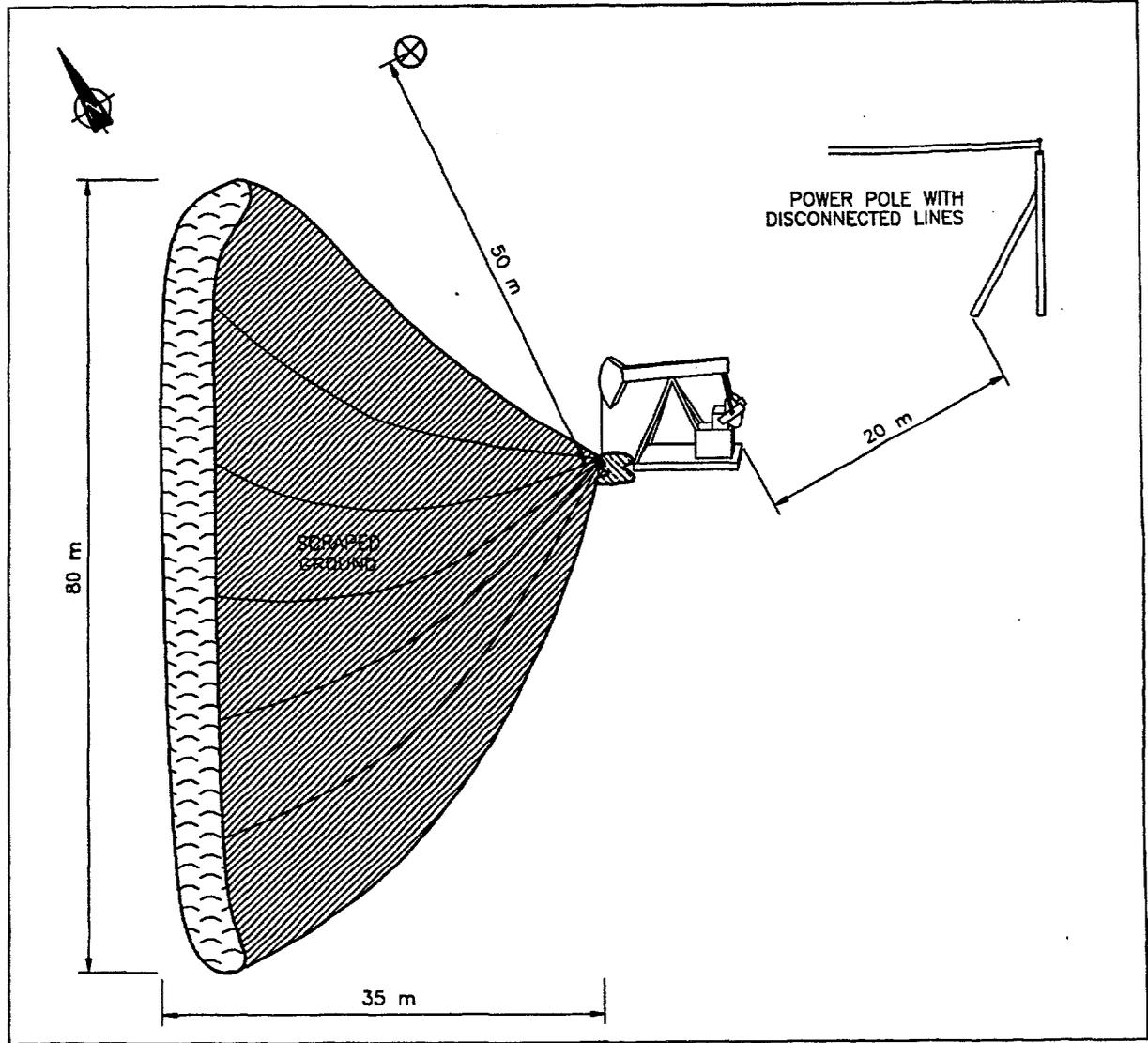


Photo / Sample Record :

Photos - Roll/Frames
C4/11,12
LB/4,5

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
4021-2	0-15	4021-1	0-15

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date April 1, 1994

Location

Wellsite Identification : 5787

Production Block within the Field : 4

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 60 m

Site Physiography

Topographic Position : Upland Plain

Slope : 2%

Aspect : SW

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other: Sump fluid			X

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : <1%

Comments: Sump fluid from well being drilled approximately 200 m uphill has killed most of the vegetation within 100 m of the wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

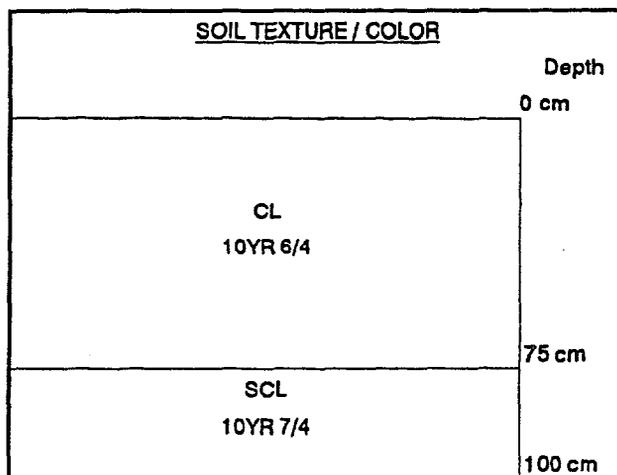
**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 5787

SOILS

Parent Material : Sandstone
Surface Expression : Slightly Inclined
Modifying Processes : None
Depth to Water Table : >100 cm
Effective Rooting Depth : <10 cm



Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-75 cm	<2	<1
75-100 cm	50-75	10-15

VEGETATION

Species	% Cover
Unknown Shrub (Dead)	50

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 5787

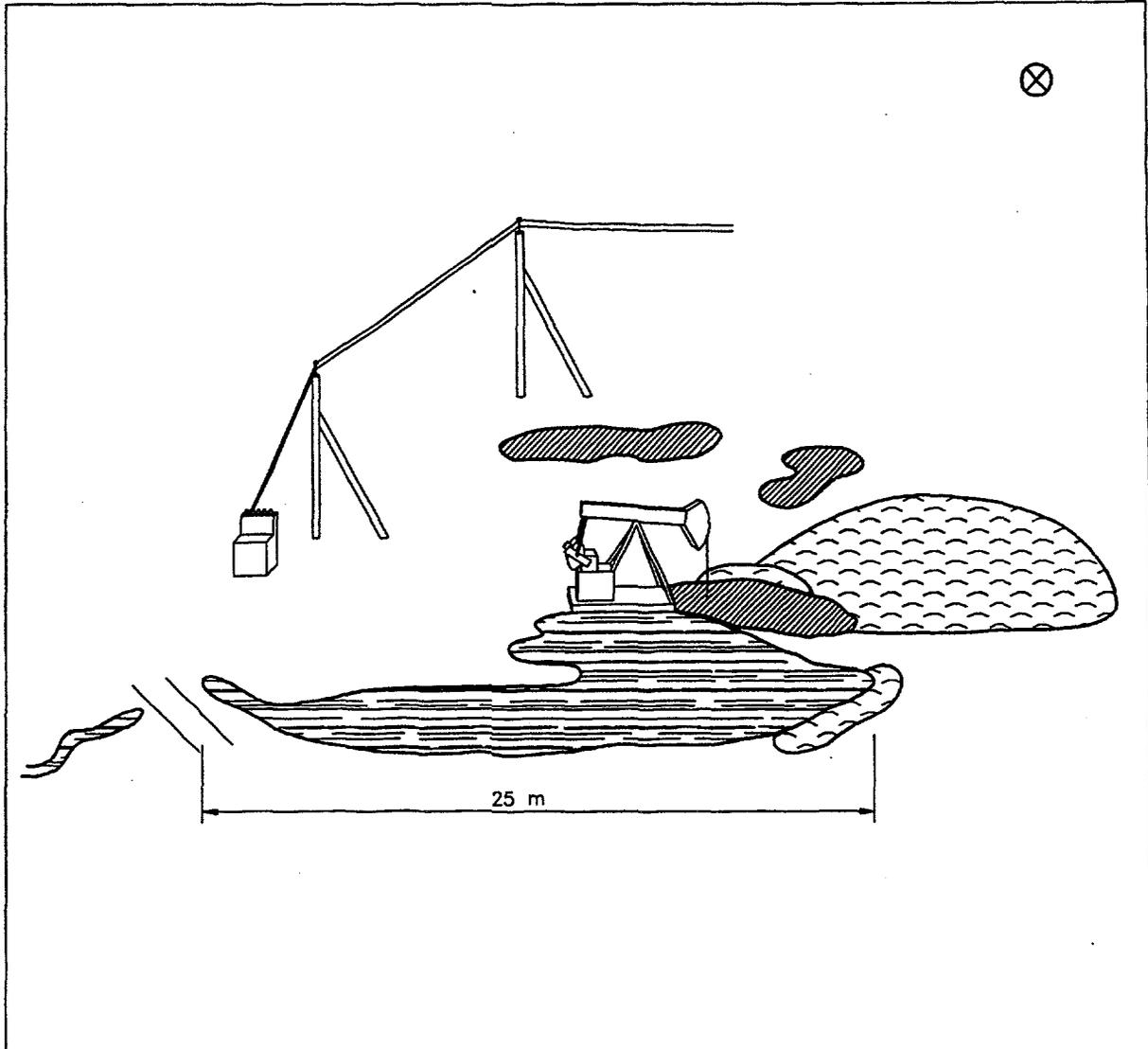


Photo / Sample Record :

Photos - Roll/Frames
C3/20-21
L7/0-5

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

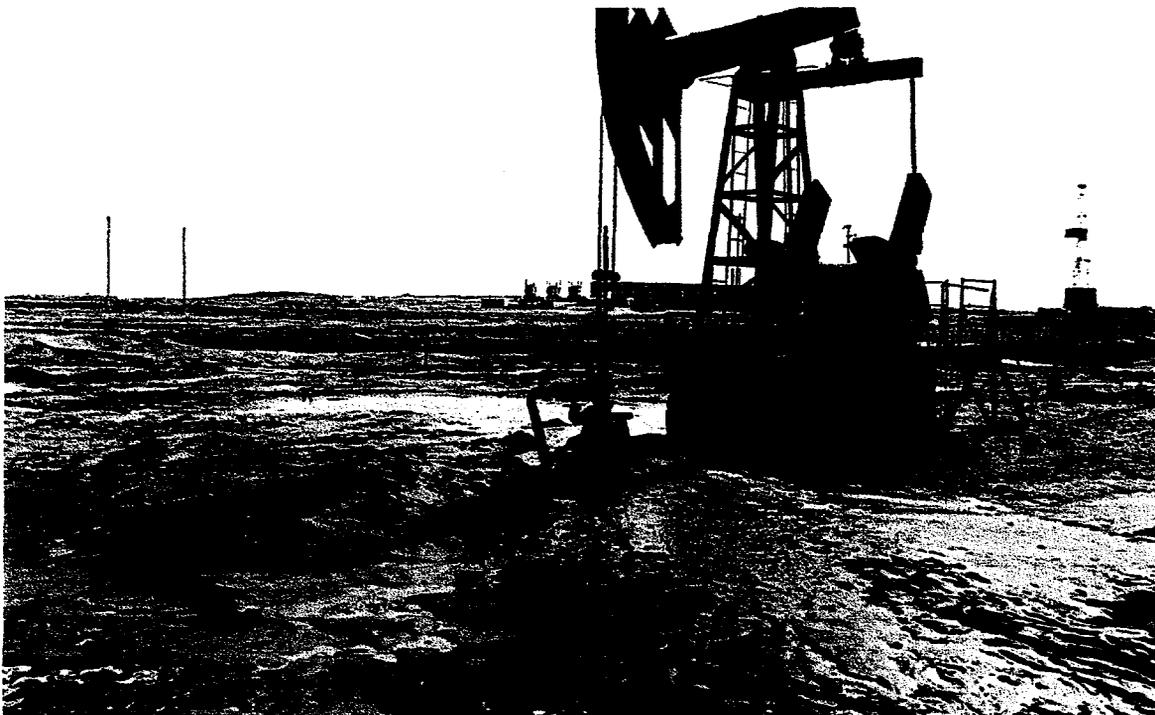
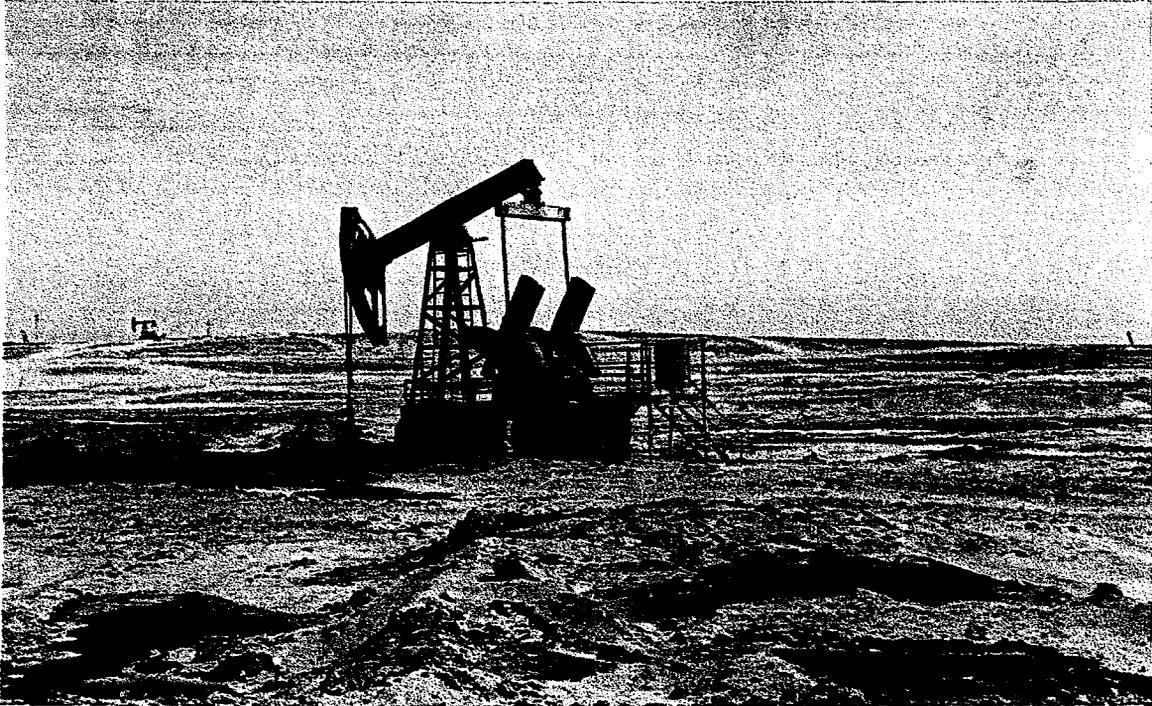
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 5787



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Assessment Date

April 1, 1994

Location

Wellsite Identification : 7490

Production Block within the Field : 6

Current Wellsite Status : Active

Wellsite Type : Injector

Distance to Nearest Wellsite : 400 m

Site Physiography

Topographic Position : Uzen Depression

Slope : 3%

Aspect : NE

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill	X		
Produced Water Spill	X		
Brine Spill		X	
Mechanical / Physical		X	
Erosion: Water	X		
Wind	X		
Other: Drilling fluids		X	

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 20%

Comments: A relatively clean site.

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 7490

SOILS

Parent Material : Limestone
 Surface Expression : Level
 Modifying Processes : None
 Depth to Water Table : > 100 cm
 Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth
CL 10YR 6/3		0 cm 30 cm
SL 10YR 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-30 cm	5	<1
30-100 cm	50-75	10-20

VEGETATION

Species	% Cover
Salsola	40

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 7490

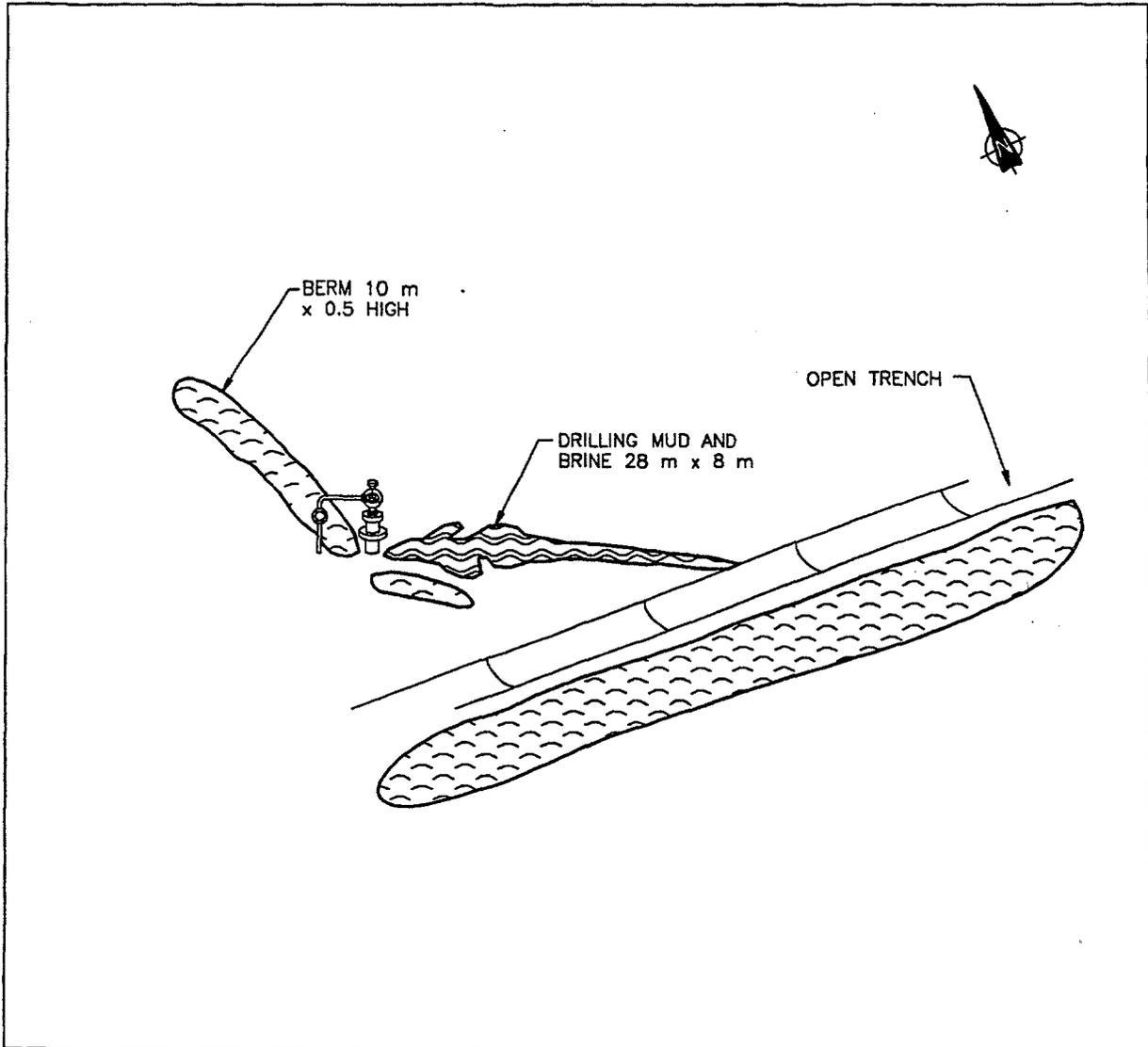


Photo / Sample Record :

Photos - Roll/Frames
C4/7-10

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

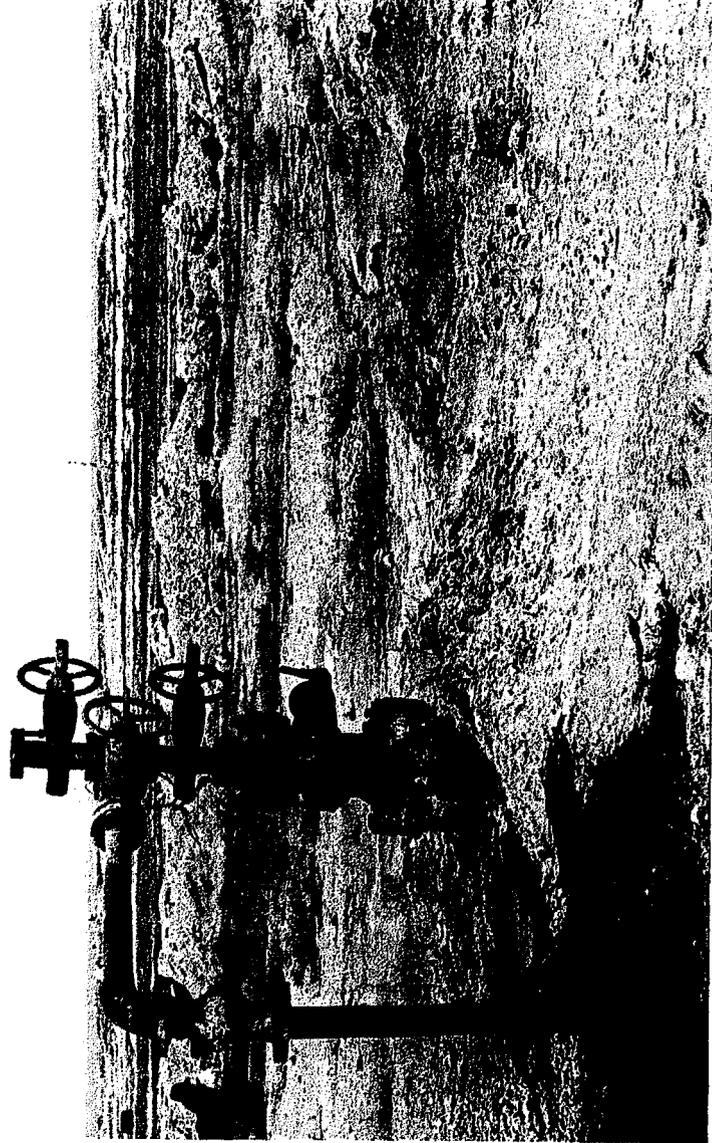
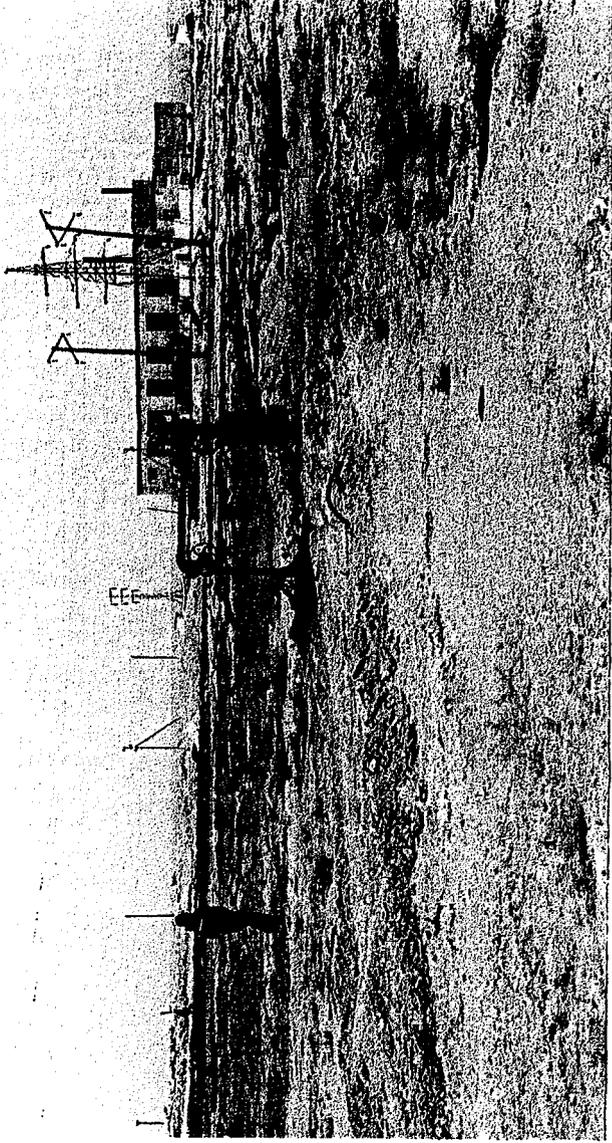
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 7490



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 683

SOILS

Parent Material : Sandstone
 Surface Expression : Level
 Modifying Processes : None
 Depth to Water Table : > 100 cm
 Effective Rooting Depth : 10 cm

SOIL TEXTURE / COLOR		Depth
		0 cm
CL 10YR 6/3		40 cm
SL 10YR 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-100 cm	<1	<1

VEGETATION

Species	% Cover
Salsola	30

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2186

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Assessment Date April 1, 1994

Location

Wellsite Identification : 683

Production Block within the Field : 7

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 200 m

Site Physiography

Topographic Position : Upland Plain

Slope : 2%

Aspect : N

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill			X
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
		X	

Percentage Vegetation : 10%

Comments: Large oil stained area north of wellhead may have been caused by a pipeline failure.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 683

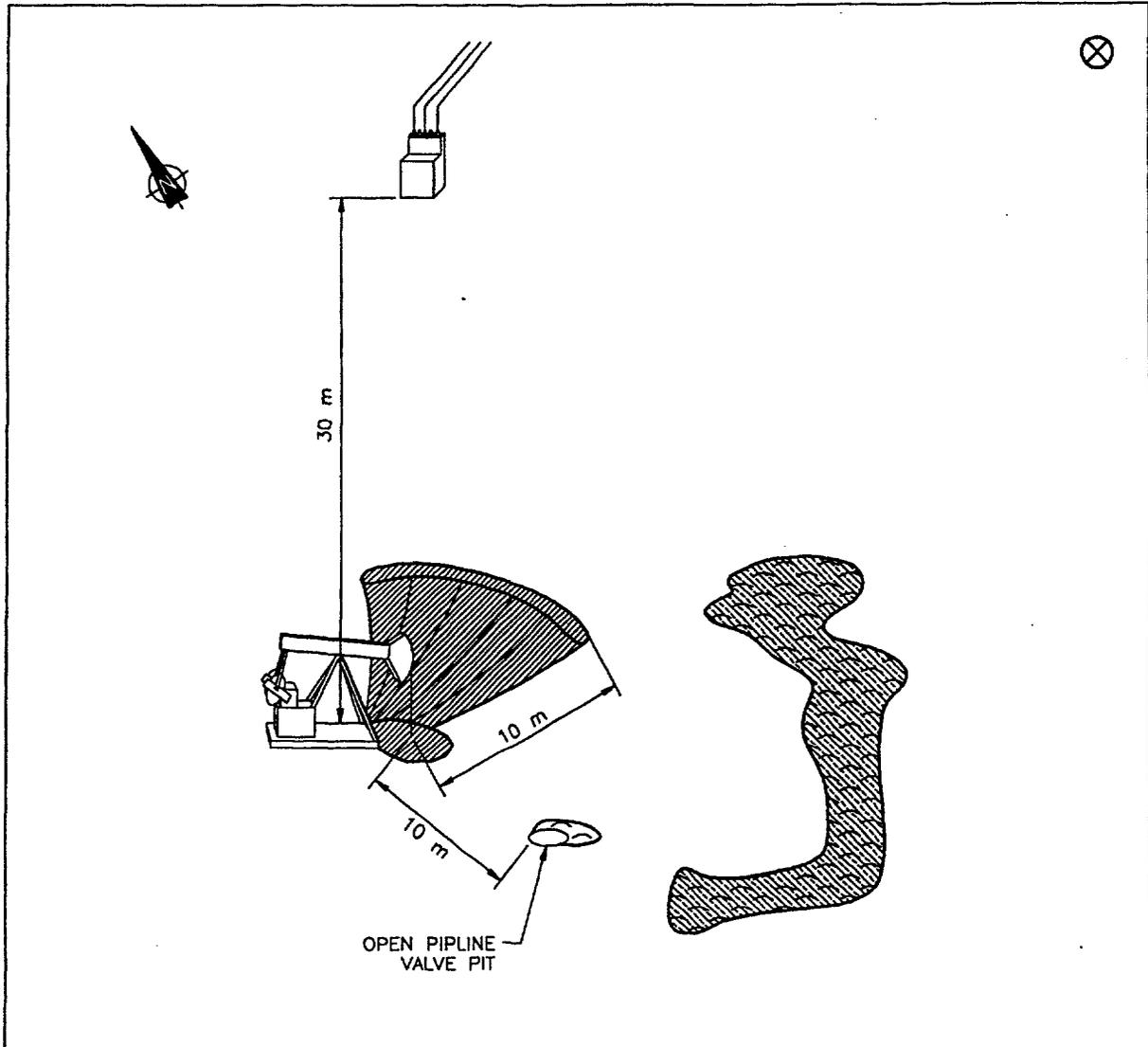


Photo / Sample Record :

Photos - Roll/Frames
C4/5,6
L7/18-22

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

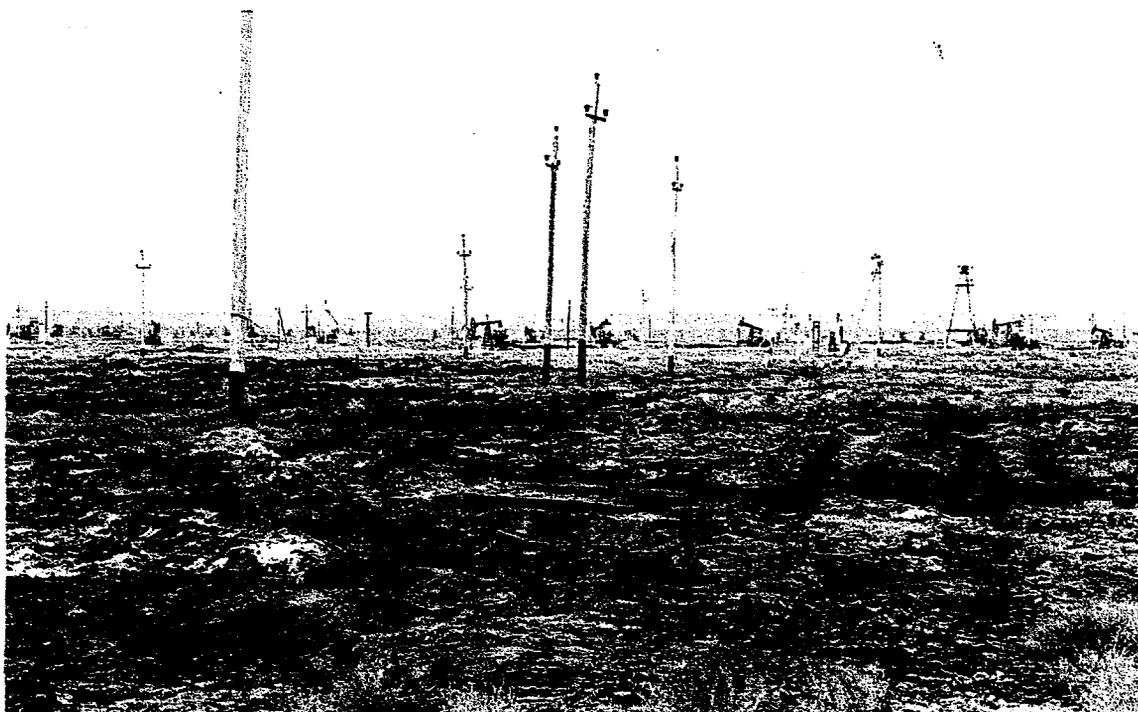
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 683



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Assessment Date

April 1, 1994

Location

Wellsite Identification : 5156

Production Block within the Field : 9

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill		X	
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : 10%

Comments:

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

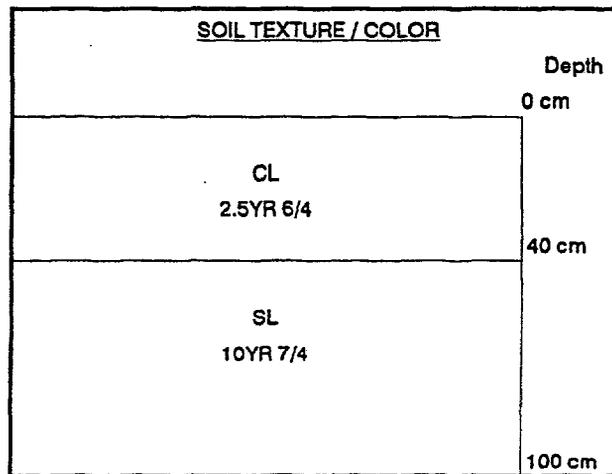
**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 5156

SOILS

Parent Material : Sandstone
 Surface Expression : Level
 Modifying Processes : None
 Depth to Water Table : >100 cm
 Effective Rooting Depth : 10 cm



Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-100 cm	<1	<1

VEGETATION

Species	% Cover
Stipa grass	60

HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 5156

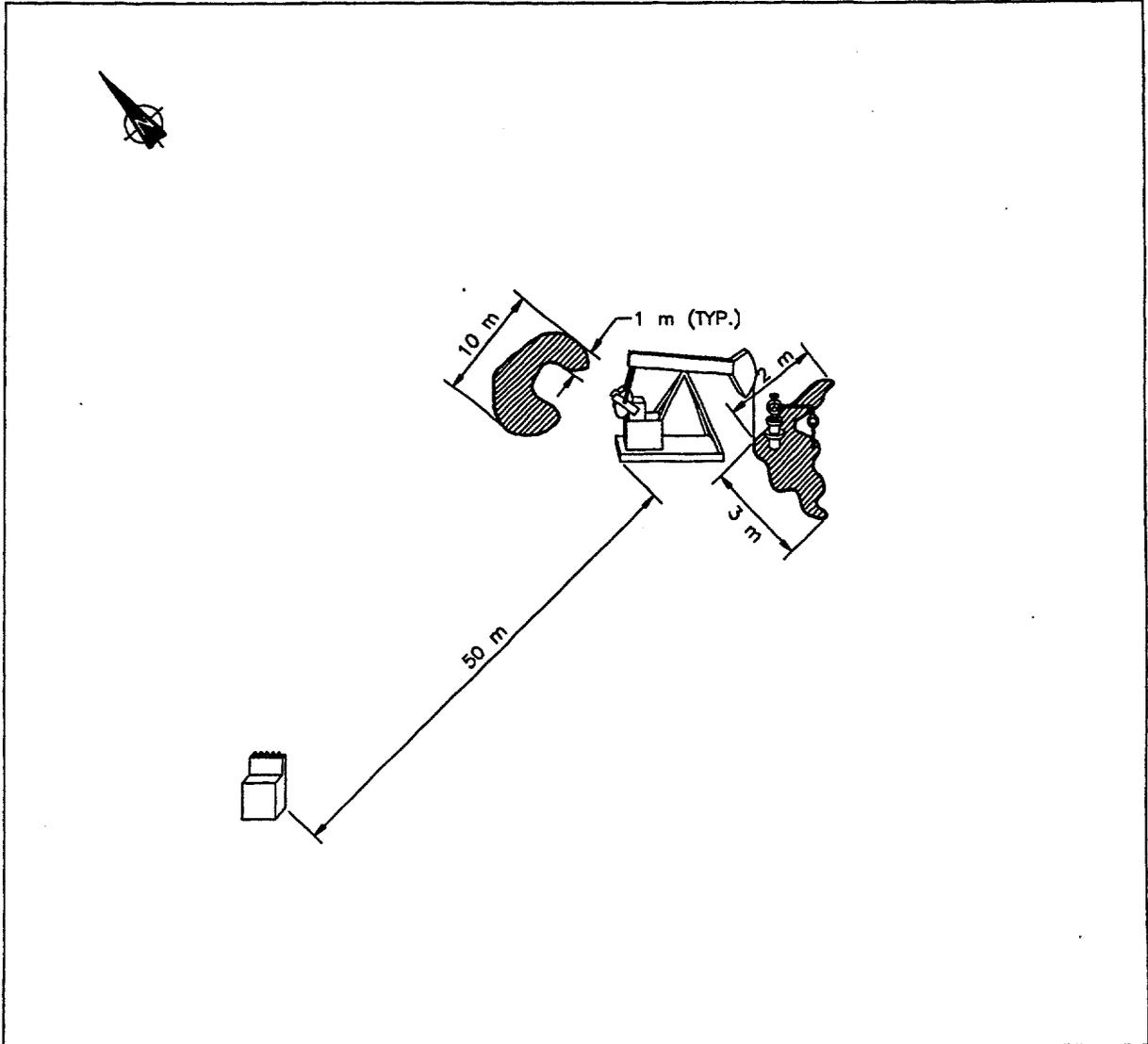


Photo / Sample Record :

Photos - Roll/Frames
C3/24
L7/15-17

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
5156-1	0-15	None	
5156-2	60-100		

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

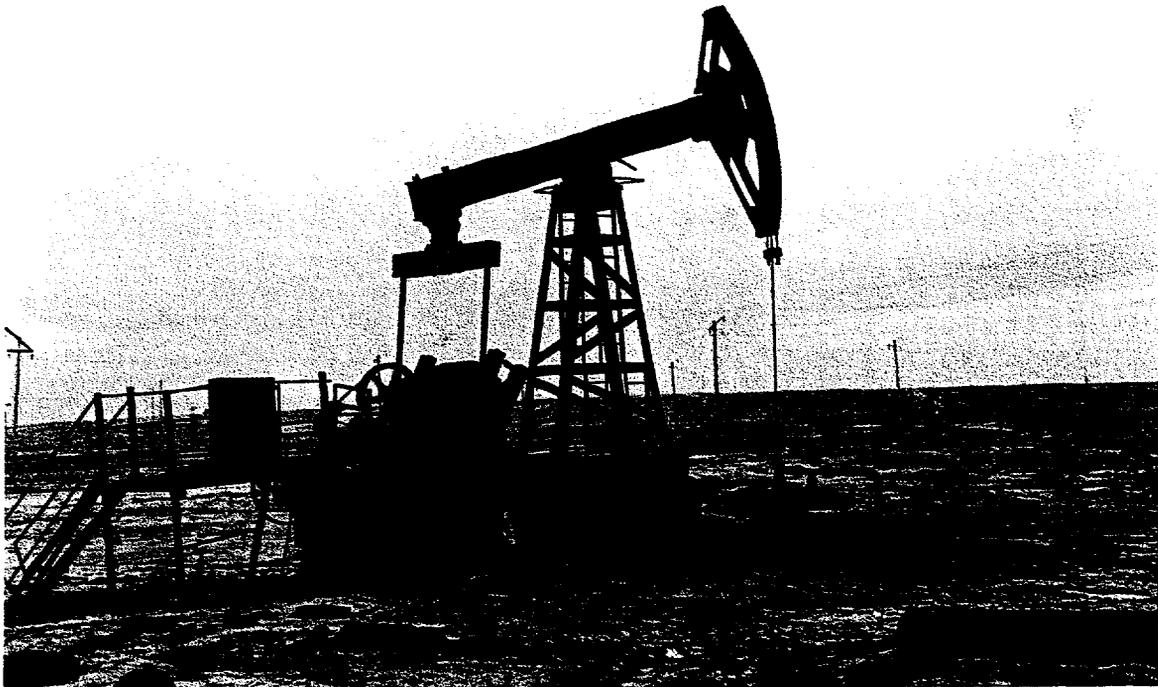
Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Photos

Wellsite Identification : 5156



HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Assessment Date April 1, 1994

Location

Wellsite Identification : 416

Production Block within the Field : 10A

Current Wellsite Status : Active

Wellsite Type : Producer

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Karamundabus Depression

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill	X		
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : 5%

Comments: Main disturbance on site is mechanical from vehicle tracks and mounding of soil. Two open trenches lead away from the wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 416

SOILS

Parent Material : Limestone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : >100 cm

Effective Rooting Depth : 5 cm

SOIL TEXTURE / COLOR		Depth
CL 2.5Y 6/3		0 cm
		30 cm
CL 2.5Y 7/3		100 cm

Coarse Fragment Content		
Layer	% Volume	Size (cm)
0-100 cm	<1	<1

VEGETATION

Species	% Cover
Salsola	60
Stipa grass	5

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 416

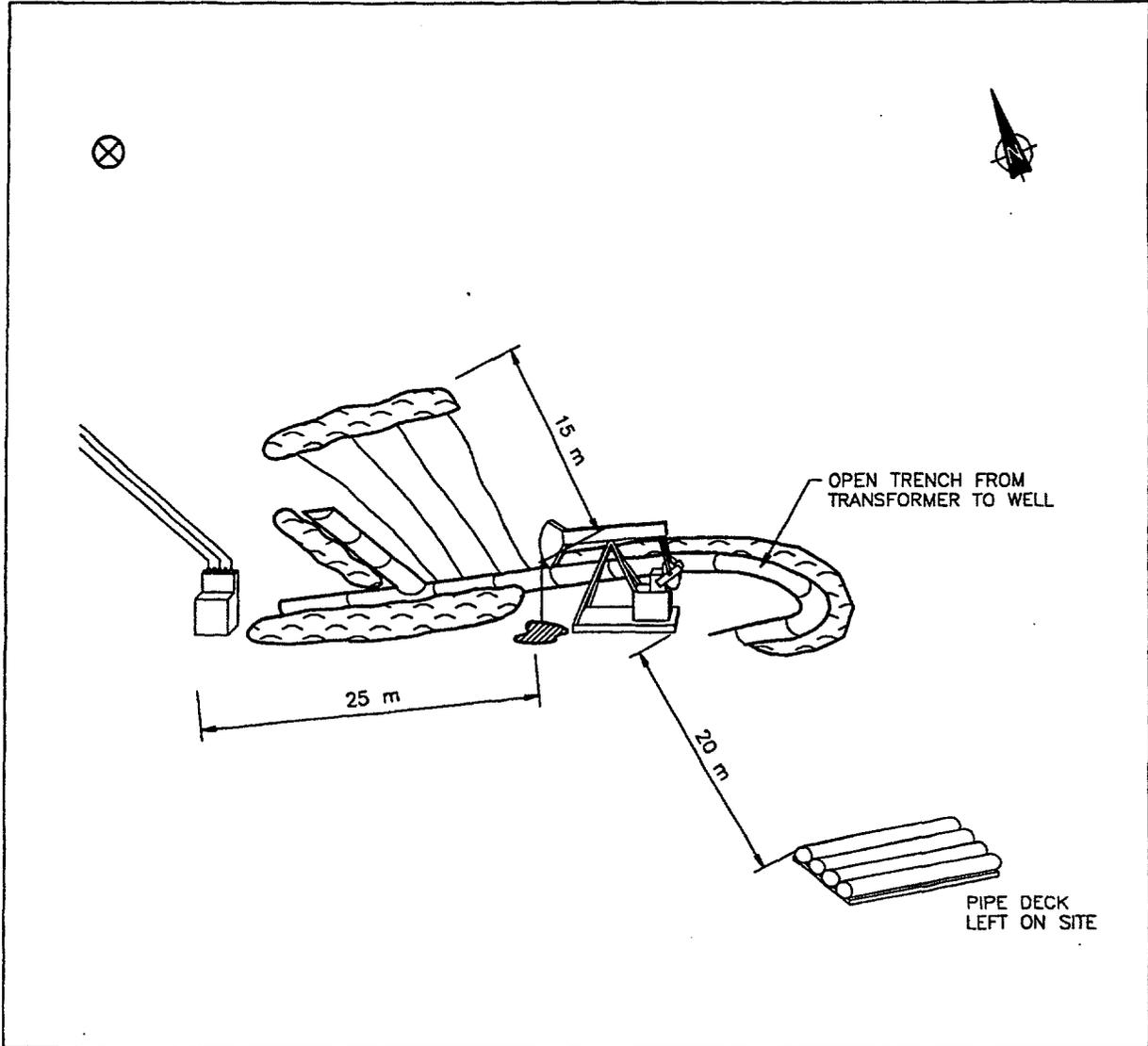


Photo / Sample Record :

Photos - Roll/Frames
C3/22-23
L7/7-11

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited
Engineering and Environmental Services

221 - 18th Street S.E.
Calgary, Alberta, Canada T2E 6J5

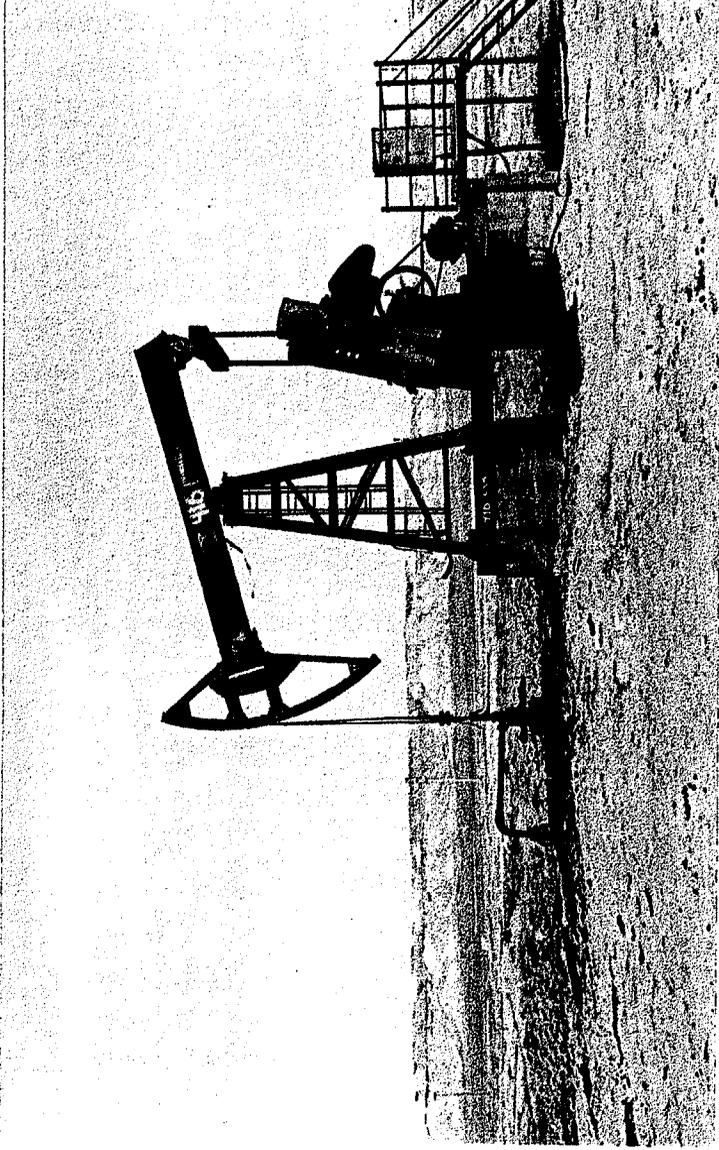
Tel (403) 248-4331

Fax (403) 248-2188

**Phase I Site Reconnaissance
Uzen Rehabilitation Project**

Site Photos

Wellsite Identification : 416



HBT AGRA Limited
 Engineering and Environmental Services
 221 - 18th Street S.E.
 Calgary, Alberta, Canada T2E 6J5
 Tel (403) 248-4331
 Fax (403) 248-2188

**Phase I Site Reconnaissance
 Uzen Rehabilitation Project**

Assessment Date

April 1, 1994

Location

Wellsite Identification : 5202

Production Block within the Field : 8

Current Wellsite Status : Inactive

Wellsite Type : Producer

Distance to Nearest Wellsite : 150 m

Site Physiography

Topographic Position : Upland Plain

Slope : <1%

Aspect : N/A

Biophysical Conditions Within 50 m of Wellhead

Disturbance Type / Severity	LOW	MEDIUM	HIGH
Oil Spill	X		
Produced Water Spill	X		
Brine Spill	X		
Mechanical / Physical			X
Erosion: Water	X		
Wind	X		
Other	X		

Housekeeping:	GOOD	FAIR	POOR
	X		

Percentage Vegetation : 45%

Comments: Appears to be no direct road access to wellhead.

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Site Sketch

Schematic drawing of site layout and sample locations. Not to scale.

Wellsite Identification : 5202

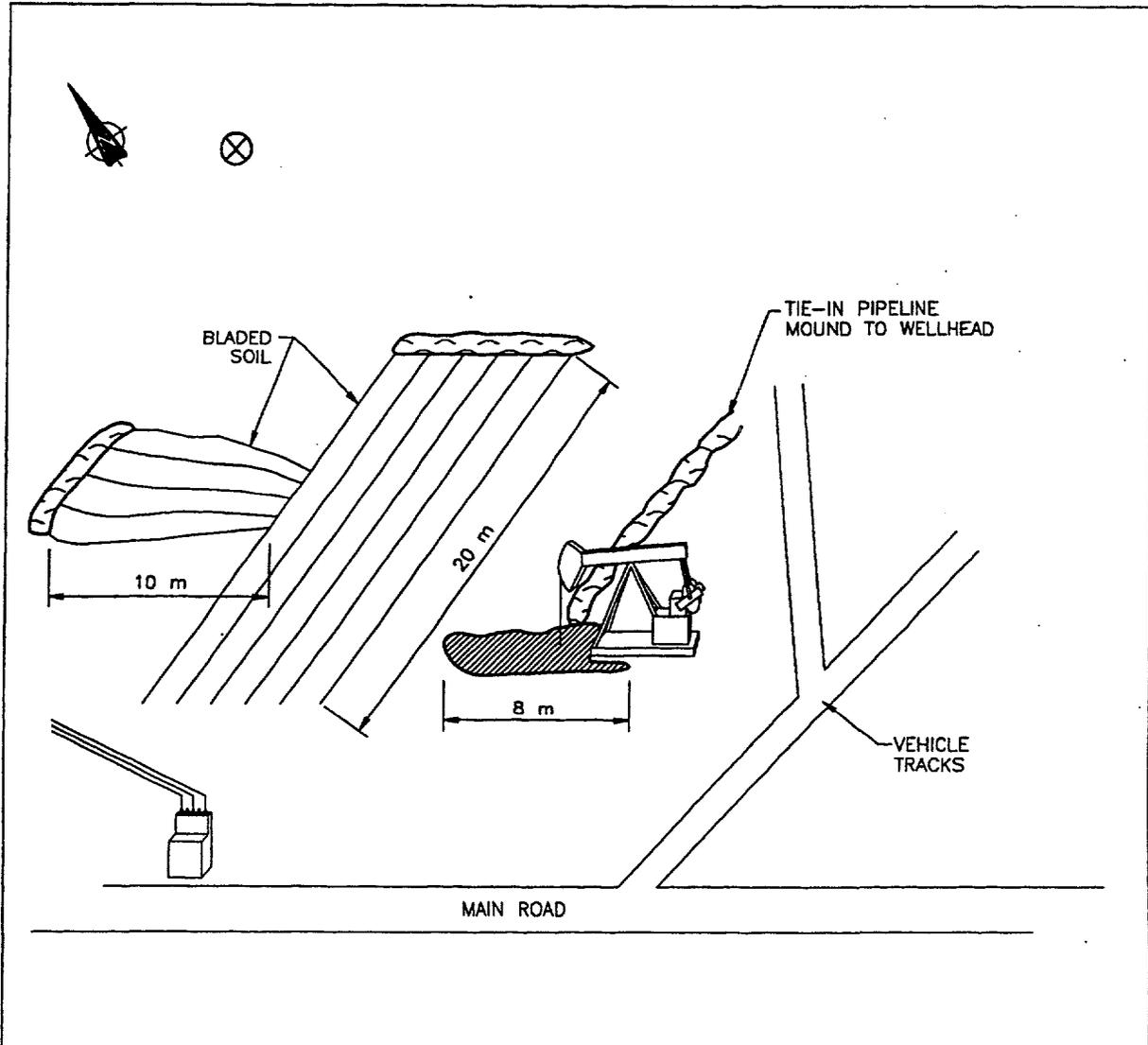


Photo / Sample Record :

Photos - Roll/Frames
CA/1-4

Samples from Undisturbed Area		Samples from Spill Area	
Sample #	Depth (cm)	Sample #	Depth (cm)
None		None	

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

Tel (403) 248-4331

Fax (403) 248-2188

Phase I Site Reconnaissance Uzen Rehabilitation Project

Biophysical Conditions in Adjacent Undisturbed Area

Wellsite Identification : 5202

SOILS

Parent Material : Sandstone

Surface Expression : Level

Modifying Processes : None

Depth to Water Table : > 100 cm

Effective Rooting Depth : 10 cm

<u>SOIL TEXTURE / COLOR</u>		Depth
		0 cm
CL 2.5YR 6/4		45 cm
SL 10YR 7/4		100 cm

<u>Coarse Fragment Content</u>		
Layer	% Volume	Size (cm)
0-100 cm	<1	<1

VEGETATION

Species	% Cover
Salsola	60

HBT AGRA Limited

Engineering and Environmental Services

221 - 18th Street S.E.

Calgary, Alberta, Canada T2E 6J5

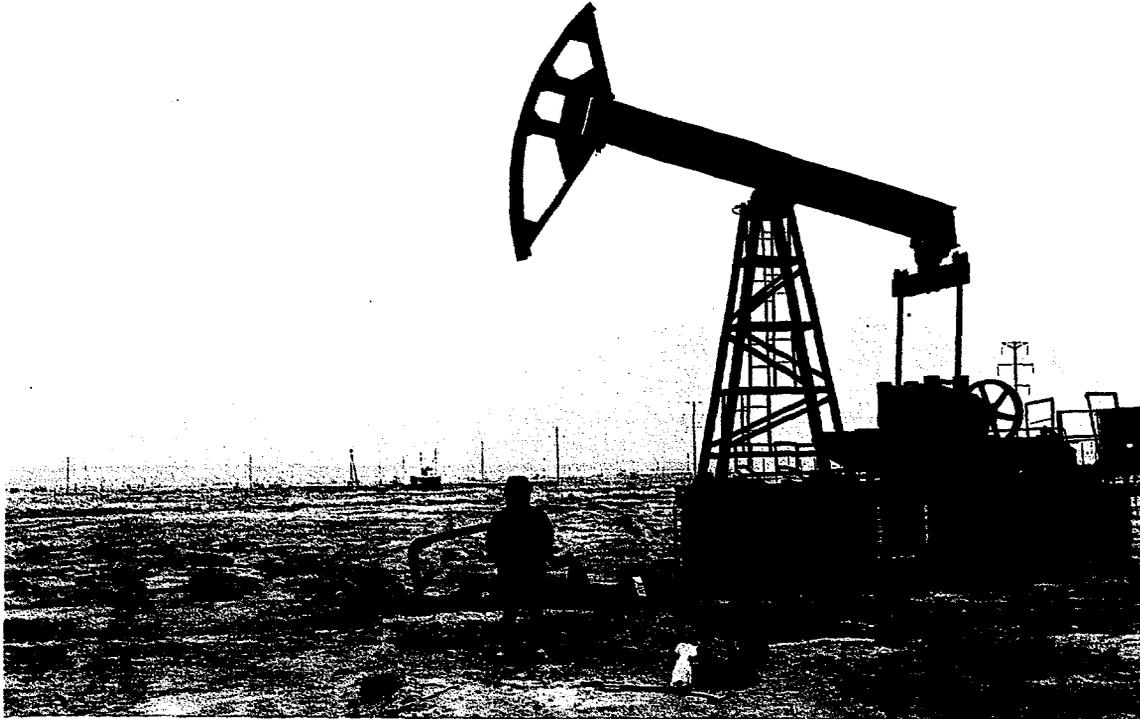
Tel (403) 248-4331

Fax (403) 248-2188

*Phase I Site Reconnaissance
Uzen Rehabilitation Project*

Site Photos

Wellsite Identification : 5202



APPENDIX E

**RECORDS OF INTERAGENCY/PUBLIC
NGO COMMUNICATIONS**

APPENDIX E

RECORDS OF CONSULTATIONS

by Marat Khabibullov, Ph.D.
AGRA Earth and Environmental

March 16 - April 2, 1994

Aims of consultations:

- * Inform on the project
- * Initiate consultation process
- * Identify issues of concern to be addressed in the study
- * Recognise what stake has an organisation's in the project
- * Understand an organization's function and possible role in the project implementation
- * Recognize needs and problems of an organisation

March 16 - Almaty

Meeting with Vladimir Litvak and *Mr. Mirshan Suyubaev, a chief of Department of Perspective Development and Ecology of the Munaigas State Holding Company* - Миршан Суюбаев, начальник Управления перспективного развития и экологии ГХК Мунайгаз. Tel. 69-4375, 25-5066 h.

Said he: Munaigas seems to hold *Mangystaugas* that appears to be a semi-independent production association within Munaigas. *Makash Orzhanovich Bige'ev* - head of its scientific-technical department (ecology too). Kaznipineft has a Lab of "ecological evaluations". It was suggested that Suyubaev will provide AGRA with a letter to *Mangystaugas* asking for the biophysical information. Also to ask the Ministries of ecology and energy to provide what they have, scarcely any. We may obtain geological info but not much on biological resources and socio-economics.

Ministry of Energy has a person responsible for environmental matters - *Ms. Nina Nikolaevna Inozemtseva, tel. 69-6162. Deputy Minister (Foreign affairs) Zagbad Suleimanovich Karabalin*

Key issues discussed:

1. I said about a difficulty in understanding what organization is the WB's partner, i.e. who is *responsible* to provide us with the information necessary for the EA. Litvaik says: The Bank is looking at establishing some enterprise which will be a direct target for the loan. Meanwhile the Ministry of Energy acts on behalf of the Government of Kazakhstan. However, the Bank also works directly with Munaigas and Mangystaugas.
2. All these organizations appear to have complicated and difficult interrelations. To facilitate mutual understanding and coordinate the Uzen rehabilitation project, I suggested to establish some form of consultation process between the parties involved. It could be a kind of "consultative committee". Litvak suggested that we will try this idea with officials at the Ministries of Ecology and Energy.
3. Litvak says: A key point to clear is to receive a directive from the Ministry of Ecology about criteria to be applied to the EIA. I suggested a heretical idea: what if we

ask the Ministry that our EA will not undergo a formal review process supporting this with informational deficiencies (that we anticipate) and what the WB's part of the whole rehabilitation plan is rather a pilot project to be followed by a complete EIA when a large petroleum partner(s) will get involved. We prepare an EA by the WB guidelines and provide it to the Ministry for information and informal review. This would resemble the Russian two-step review process, being a pre-project kind of "draft EIA". It was suggested that we will try this idea tomorrow at the meeting with Kireev.

March 17

10 am - meeting at the Ministry of Ecology and Bioresources. Present were:
Deputy minister- Madi Kireev, Litvak, Suyubaev.

Baekeshev, Anuarbek Sharapievich - Chief specialist of department of international cooperation and information. 63-2476, 67-3162 h, 63-5244 or 63-6973 fax.

Aidinov, Yuri - Chief of perspective development and project evaluation department.

Skakov, Amangeldy Amandinovich - General director of Republic Science-industrial and Information Center "KazEcology" Tel/fax 63-1201, 610706 h.

Someone Deripaskin

Litvak made an introduction to the project. Then I detailed the environmental program emphasising the points of the yesterday's conversation. 1 - consultation process, involvement of all stakeholder. 2- the EA: I suggested that since formally Kazakhstan as a loan recipient is to prepare the EIA on the project financed by the WB; but WB is willing to accept this task - it is not a standard situation when a foreign proponent should present the EIA for approval to the national organs. Second, the WB project is rather a pilot one, showing the way to later investors. Therefore lets take a non standard approach and make the EA that would be submitted to the Ministry for information and recommendations to implementing agencies. It would resemble a stage 1 of the Russian approach being a declarative pre-project document. After all we don't have adequate information and time for field work to prepare a full OVOS.

Litvak: However, the WB still needs the Ministry's approval to go ahead.

Discussion:

Kireev: There are three important issues: environmental situation, intensification of oil production, protection of subsurface resources. Environmental is of prime interest to Minecology. Minecology can not formally participate in project implementation. Involve "Kazecology". The Ministry's experts must be paid.

Baekeshev - The presented approach (openness, consultation process) is right. Local specialists must be involved in best interests of the project.

Skakov - involve local specialists who know it all about Kazakh requirements.

Eidinov - The presented program coincides with a new instruction of Minecology on expert evaluation. It is stage 2 - pre-OVOS. There are 4 stages all together. 1 - declaration, 3 - OVOS as part of TEO, 4 - EPP. The main task is not approving, but acceptance of approaches, recommendations. Technological part is necessary component of OVOS. We are ready for consultative work. A new instruction on review process has been passed - it is in press now and will be available in few days.

Baekeshev: Start with presentation of the OVOS program. Need conclusion of local control organs.

Suyubaev: We are interested in openness. Are ready to provide technical documentation.

At the end of discussion I privately with Kireev pointed out that this project is perhaps the best way to have AGRA satisfy need of Kazakhstan' Minecology in formulating its environmental policy etc.- that was discussed between us earlier. We will practically show the way it could work.

Baekeshev wrote a letter of endorsement to Aktau environmental committee asking for support to AGRA.

Thai meeting was followed by discussion between *Skakov, Litvak, Ms. Karlygash Tazhenovna Eleuova Ph.D., a Deputy general Director of "Kazecology" for science and international cooperation.*

Skakov informed about "Kazecology" (KE) expressing willingness to cooperate with us.

KE makes OVOS on Tengiz shelf. Made program of groundwater monitoring for Chevron. Heads "Aral" program.. System of regional ecological monitoring. Ecological zoning. Data base of eco-information. Make eco-information system for regions - ste JV with ESL - contract with "Alascom" to work on this project. Branches in all regions, owns a boat at Caspian sea, hotels. Project on biodiversity of Caspian sea - possible contributions from the WB. 5 years worked on Karachaganak - 900 volumes of materials, 2 v. of summaries. Prepared "Procedure of passing of ecological examination" for Caspian shelf. Prepares and publishes annual State of Environment reports.

March 18

Morning: Details of agreement with Kazecologia; terms of reference signed.

Afternoon: Met with *Mikhail Ivanovoch Bochkov, chief of environmental review of the Ministry of Ecology; Nurtan Sirazhev, chief expert.* Bochkov apparently got offended that he was bypassed by Kireev. Sirazhev asked why AGRA was contracted [without an approval of his department]. I explained. He "suggested" that other than Kazecology companies could have been subcontracted by us. I said we would gladly learn about them and took the coordinates of "Kazecoexp" - *Aiazbaev Erik Khusainovich - 25-4801, "Kazgiprograd" - Baizakov Tleukan Baizakovich - 42-1341.* I think I calmed both down by offering the continuous coordination and consultation with them.

Obviously things are not that straightforward as they looked yesterday. Seems Kazakh Minecology is following the same path as the Russian one, with a lesser magnitude though.

Learned from Skakov that the President's Council (a branch of state power which position I can't clearly see so far) is preparing a next reorganization of the Ministry - downgrading it to an "agency". It looks like there is an overlap, and consequently clash of interests between the executive branches {in environment} - a joint (?) environmental department of the President' Council and the Cabinet on one side and the Ministry on the other side.

I met with the chief of the above mentioned *ecological department of the Council and Cabinet, Mr. Atamurad Muralievich Shamenov.* We discussed the project and hopefully achieved his support in a case if we will have problems with the Ministry's undercurrents.

March 19

Meet with Eikos President, Tatiana Pilat - she was just elected to the parliament. She agreed to take the task of chemical analyses. Ok conditions: use of Eikos name, some promotion of their services. Eikos is taking this task as a marketing effort. I strongly suggest we may really suggest in our report using their services as a part of mitigation strategies for Uzen, and perhaps find a room for them in the pilot program if we get to this point. I didn't get to see their lab because it was closed for holidays. But I earlier got its specifications and have interviewed *Lubov Alexandrovna Erygina, Deputy manager and analyst* about the lab's equipment and capabilities. In words it looks adequate: they use newest equipment, best chemists, 4 rooms fully equipped with vacuum boxes etc., sterilized microbiological lab.

Actions and logistics: 1. We need to send Eikos a contract specifying kinds and volume of analyses to make. 2. Deliver samples to Almaty.

Learned about the only Kazakh green party *Tabigat: Mals Eleusizov - 63-1717.18 - 480012 Vinogradova, 85*. Skakov says they are not very active. Eleusizov is reportedly a Zhironovsky-kind of person. I didn't attempt to meet with him at this point. According to Skakov, Uzen does not have any NGO around. Whatever public eco-activism exists, it is at the north and east, where most Russians live and industry developed. Karachaganak has quite a bit.

Meet with a man who I new about for last several years - *Kim Fedorovich Elkin* who used to head a Geographic society and has numerous contacts in scientific community. He is now a consultant to the Supreme Soviet (lobby!) and also works in Kazecology.

March 28 - Aktau

Mangystaumunaigas

Present: *Begeev, Makhash Orzhanovich, head of dept. of Labour Safety and the Environmental Protection. Береев Махаш Оржанович*
Gabasov, Utesh Azhgerevich, head of the lab of Environmental protection of KazNIPIneft - Габасов Утеш Ажгеревич
Vladimir Litvak, IBRD

Main items of discussion:

- There has been almost no attention paid on protection of environment over 30 years of exploitation of Uzen field. There are no programs developed.
- Current practice of control by fines is not effective: enterprises have no money on their accounts. Managers do not consider economics of (pollution control) and let oilman pollute.
- There is no financial independence of production units - so economic mechanism can not work.
- Due to lack of funds, contracts with scientific organizations are not being continued.
- Losses in spills: about 1.5 thousand tons (per ?) of 8 to 8.5 thousand tons extracted. Losses are hard to measure; it is impossible to prove that the losses are due to breakages
- produced oil is just not delivered. (A room for steal - MK). Calculations are "by eye".
- Only breakages of main pipeline may be investigated. Daily small scale spills are routine.
- Pipes are worn out; breaks in electricity supply, tele technologies.

- Surface facilities are in bad shape. Fines can not help! In last 2 years payments for production are not being fully received.
- Negligence and irresponsiveness form top to bottom. Practically, it is not allowed to shut down facilities violating normal operational practices - "production at any cost" attitude prevails.
- Groundwater: Mangystaumunaigas has a lab of hydrogeology. Pollution may be only by drilling: groundwater horizons are lower 100 m. There is no soil water. Water sources are mainly salty with mineralisation up to 70-100 g/l; surface - up to 120 g/l
- Concern: need to develop a good practice of disposal of drilling fluids.
- Reclamation is supposed to be done only after end of production and decommission - no works now.
- Main cause of decile - collapse of USSR - economic links. Second reason - violation of technologies, destruction of organization of works. Control is impossible. Design project materials are not used as operational references. Sumps are created in violation of design propositions. Drilling sites are not concreted over. Chemical reagents are stored improperly - with no containment. Up to 1000 sumps - spontaneous.
- NGDU tries to attract companies to clean up sumps. One - AFI - American Fluids International - is setting a cost/revenue sharing deal. Estimate of volume of collected oil is made difficult due to absence of organised sumps. One estimate - 3 mln tons in Mangyshlak. - Exploration organizations disturbed all Mangyshlak - roads etc.
- MPE, MPD, Ecological Passports are elaborated; to be confirmed annually.
- Radiological safety: "VolkovGeologia" (near Almaty) made gamma-survey. Over 78 anomalies with over 120 mR/h were detected. Radiation is natural: a chemical process of clustering of Ba, Cs, Tr, Ra from sea water, oil. Ba is being accumulated in salts over time inside pipes. Over 1000 tons of such Ba-polluted scrap metal accumulated and spread over the field. No burial site. Construction of temporary storage facility is planned. Oil sludge is also contaminated. Concern: old pipes can be used by local people. Scrap dumps are not fenced or labelled.

29 March. Jana Uzen (New Uzen)

NGDU Uzennest. Dept. of Ecology. Head: *Erbol Tazhigaliyev*. Ербол Тажигалиев. The department is 2.5 years old. Functions: control of ecological situation: remediation of oil spills; radiological control. A small enterprise "Ekolog" is established to collect radioactive scrap metal. Head: *Sergei Yakovlevich Lepikov*, Сергей Яковлевич Лепиков. "Ekolog" works under a contract with NGDU. A site for the temporary storage has been selected, approved. Design by Kaznipineft.

In 1993 NGDU paid 277,325 tenge (approx. \$27,000) of compensations for spilled oil. The Jana Uzen city Upravlenie for Ecology and Bioresources is a control organ. They do regular inspections.

Gosgortekhnadzor. *Mormikhan Dzhaugashtiev* - inspector; *Borandai Tchelpikov* - chief inspector. Uzen group of Mangystau Oblast Gortekhinspection consists of 4 man. Monitors: oil production, gas processing, drilling, well overhaul. Controls labour safety, approves labour safety plans of enterprises, monitors implementation. Inspection 12-14 times per month. Non-compliance - warnings, fines to managers and chief engineer, shot-offs.

Concerns: low requirements to labour safety, training; lack of qualified personnel; good people quit the enterprise, drain to commerce where earnings are much higher and work

easier; decrease in labour productivity. It used to be taking up to 3 years to train a good technician, now the same rank is being given to people after 3 months. Technology and equipment are imperfect, need overhaul, new equipment. Technology bottlenecks: collectors corrode faster than should, weak well heads.

Recommend: increase labour productivity by bettering of social conditions and care, organize recreation, improve working conditions; keep good specialists; work with people. If a JV will be established, it will keep people, increase wage level, improve working conditions, technology etc.

Discussed a social collision of 1989 in Uzen. Decline in production is partially caused by the fact that qualified Osetians and the Lezgins from the North Caucasus, which were engaged in hard works, such as well repair and maintenance, were pushed out of Uzen. Why? Other North Caucasus nationals, the Chechens, were keeping well-earning positions in commerce and other best paying jobs. Communist party officials were also better off controlling distribution of goods - turning to themselves; they are blamed as the main cause of the social inequality that ultimately led to the riot. A possible nationalist soil is not a main reason - "small issue". When young Kazakhs were returning from the army service, they were facing unemployment, as many good positions were kept by the people from the North Caucasus. Social strains started to develop. The young unemployed local Kazakhs started to beat up on the Caucasians (people from the Caucasus). The conflict fired up. As a result, all Caucasians, including the "good" Osetians fled. There were no qualified people available to replace them. Russians kept neutrality. Currently there are no problems between them and the Kazakhs.

City council. City department (Upravlenie) of Ecology and Bioresources. Head: Oyakhlan Murzagalievich Bulekbaev. Олхтан Мурзагалиевич Булекбаев. Mayor: Ibragim Murasov - Ибрагим Мурасов.

His recommendations: to keep a connection with the city department of ecology that executes control over the Uzen field by an order of the Oblast Upravlenie of Ecology. Study well radiological conditions. Shortly inform public about the project through a local newspaper, ask for responses, letters of concern (such an article is written and given to Bulekbaev for publishing and collecting responses - MK).

Concerns: water. Daily water intake is up to 30,000 cub.m. from underground sources - Tuesu, Sauskan. 2/3 goes to industry, mixed with Volga water that comes via pipeline - bad and expensive water. Need water for irrigation, greening of the city. Suggested to think of small desalination devices.

Bulekbaev: Gamma survey revealed 78 spots of radioactivity. 4 with a highest level caused by the tank oil level Cs-based sensors, which were left on the ground, are deactivated. Other- scrap metals with Ba salts and sumps with oil sludge. Radioactivity is up to 1000 R/h. There is no safe burial place. The temporary storage was permitted.

City consumes 12 M cub.m of water annually. 708 ton of oil was spilled recently. 35 man are fined, compensation payments. 5% of fines goes to the department's bonus pool. Usually there are 3 inspections per month. In case of spill, NGDU is obliged to notify. Volume of oil is being determined "by eye". Large spills are subject to marksheider's survey. Sanitary state of the city is bad. Basements are filled with water - mosquitoes.

March 30. Trip to Fetisovo - Caspian Bay

On the way down, passed through a village Tenke inhabited mainly by workers of Uzenneft. Formerly it was an agricultural settlement - camels etc. Currently people keep livestock - mainly camels. Have seen herds of camels, few horses grazing in the steppe.

State Farm Kyzyl Uzen - village Butakoz

15 km S down the road to Fetisovo, 3 km to the E. Consultation with *Mr. Makmur Beklezhanov, director.* Махмур Беклежанов.

The farm exists since 1984 when it was established for camel milk production. Later it became engaged in breeding baktrians - two-hump camels, which have become rare. There are 3 parts of the farm with centers in Borzhakty, Zhatybai, Aktau. Butakoz (translated "a baby camel' eye") is the farm's headquarters. The state farms landuse area covers a territory from Aktau on the North to Aksu on the south. (Landuse map is made available - MK). There are about 1000 inhabitants, some are working in Uzen. 3,700 camels (baktrians and dromedars), 2,000 sheep, 500 horses, 100 pigs. Private stock consists of about 1,500 sheep, goats, 120 horses, 270 camels. The farm plans to open a sausage shop in Uzen, and currently has a milk store in this town. Plans to start privatization program in July.

The directors expressed his opinion that the possible expansion of the field operations in Uzen will not cause problems to his community. There is an excess of labour force, especially among women. Many young man work in Uzen, while their families (parents) live in the village. There is a demand for jobs in the village.

The farm currently suffers from "overproduction" of camel products. Earlier there was a state plan under which a factory in Actubinsk was buying fur. Now the farm has to market and sell it itself. potential buyers refuse to buy fur for the price that would make production economical - 12 tons of fur has been accumulated.

30% of income the farm obtains from the milk, supplying Uzen, Eralievo, Zhatybai. About 100 tons of meet is annually produced, of which 30% is used for barter. Camel skin is also produced, earlier it was being sent to Yugoslavia. Director is interested in a small dry milk production facility.

1/2 of inhabitants came in 1986-1987 from Turkmenistan (Krasnovodsk oblast) and Uzbekistan (Kara-Kalpak oblast). Some are engaged in carpet weaving for themselves.

There is a small first-aid medical center, school with 163 students. A kindergarten for 90 kids is build. Water comes through a pipeline from Uzen.

There is a demand in telephone and other communication, more electric power which all may come with construction of water pipeline. Construction of pipeline, maintenance, services - positive impact on the farm population.

Fetisovo - coast of the Caspian bay

Seasonal resort and recreational area. Several thousand people come from May to September. No commercial fisheries.

There are old (17-18 century??) burial grounds (Turkmenian?) on the edge of terrace over coastal plain, about 10 km N of Fetisovo.

March 31. Aktau. Mangystaumunaigas.

Asked head of Human resources department for employment dynamics data. Need authorization from the Chief Engineer. Data on employment in Uzen are also available from the Jana Uzen Center of Employment. Next day the authorisation was obtained and data became available.

Aktau Oblast Upravlenie of Ecology and Bioresources

Deputy head: *Sergei Georgievich Fedanov*. - Сергей Георгиевич Феданов.

Priority issues:

- Oil in ground sumps. Hard to evaluate amount. About 3 mln tons of oil-and-ground mass is accumulated in Mangyshlak. Mainly at Uzen.
- Radiological safety - practically all of the field is covered with radioactive anomalies. Problems to address: liquidation, processing, burial, deactivation.
- Utilization of oil field gas - flares.
- Water - drinking and technical. Quality of Volga water is unacceptable after a month of transportation over the pipeline. No treatment facilities. Use of drinking water for technical purposes is currently allowed.

EA should be submitted for approval to the Oblast Department (not Uzen city).

Needs: Laboratory - all equipment producers have become foreign to Kazakhstan. Only water is monitored by existing primitive equipment. A mobile air quality monitoring lab is expected to be (purchased).

Aktau Oblast Hunting Inspection

Head: *Ongarbai Shabgereevich Kodanov*- Онгарбай Шабгереевич Коданов; chief inspector: *Viktor Georgievich Rakitin*- Виктор Георгиевич Ракитин.

Main concern - communications: roads, pipelines, railroads. Cut migration routes of saiga, jeiran (goited gazelle). Usturt group of saiga - up to 130,000. Migrate from the south to the Volga downstream in spring. In November - back southwards. Up to 50,000 remain staying in Mangyshlak.

Because of seemingly effective protection, the number of hoofed animals increased ten times since the 1980-ties. There is no serious poaching problem. 13 inspectors, cars with radios (no big concern over equipment). Are allowed to hunt a limited number of animals for getting money.

The inspection was requested (by an official letter from Mangystaumunaigas) to provide information on game and wildlife, critical habitats and times, migration routes. - By April 10.

April 1. Oblast Fishery inspection

Deputy head: *Salavat Nasipovich Seitov*. - Салават Насипович Сеитов. Caspian bay is valuable feeding area for fish youths. Sturgeons youths are gathered there every fall. Water intakes should be more than 3 m deep. To be placed closer to Mys Tokmak, where slope is steeper.

There are currently 5 water intakes. Oil Processing Factory plans to build its own.

EA should be sent for approval to the regional head fishery inspection - Ural-Caspian

Fishery Inspection: 465027, Atyrau, 4 microrayon, 92.
Compensation payments shall be estimated.

Kaznipineft.

The Institute has a chemical lab for analysis of oil products by "methods of extraction".

Overview of available materials on Uzen field:

Investigation of physical-chemical properties of sump oils at Uzen. 1992:

Total area polluted with oil - 3,498.3 ha,
including sumps 179,5
very polluted grounds 512,4

The sump of CPF - 87 ha, average estimated depth 1 m. = 900,000 cub.m of oily substance.

20 samples. Water content 2 to 30 %. Max content of 'primesei' - 0.5-5%.

Results of processing on APH-2:

HK - 180 degrees C	3.29%	40 g	benzene
180-240	27.96	340	kerosene
240-350	10.96	130	diczel
350-550	20.15	245	
550	36.91	449	
gas and loss	1	12	

Aerial photography, 1989.

Made by: Бурунгойское авиапредприятие - Хан, Валерий Алексеевич, тел. 358480
Scale 1:500

Interpretation of aerial photos.

Maximum Permissible Emissions, 1994. Made by Kaznipineft by method of Ufa VNIISPneft:

Chemical composition of fuel (gas), |
volumes, time of burning; meteorological | --> computer (program purchased from
parameters etc - see below | Voeikov observatory,
St.Petersburg) --->

---> calculates MPE for 1000 points in parts of MPC (i.e. the desired output - lower than MPC - determines input.)

Input parameters into the program (all as SP - now, P1 - forecast 1, S2 - forecast 2):
Sources of emissions; working time per year; types of emissions; number of sources;
number on a map; height; diameter of the end of stack; parameters of gas-and-air
mixture: velocity, m/s, volume per stack, cub.m/s, temperature; coordinates of a map;
level of cleaning.

Emissions are calculated also for SP, S1, S2 - after mitigation.

Mr. Gabbasov said that the Novosibirsk University has a software for forecasting of concentrations of atmosphere contaminants, but Kaznipineft has no funds to buy it.

Memo on radiological situation as for 1.1.94: (Ecolog, S. Lepikov)

Uzenneft: total radioactive waste accumulated 1,070.3 tons, including

scrap metal	210
salts	0.3
oil sludge	130
grounds	730

Dynamics of accumulation of low-radioactive materials for burial on a temporary storage site:

scrap	290 tons
salts	0.2
sludge	26.5
other	300

Total: 5,285 cub.m/year /E. Tadgigaliev/

Ecological Passport - developed in 1991 by a firm "Sintreks": 364051 Grozny, Dagestanskaya str. 71

- is being approved now. Not of a high quality, contains almost entirely production specifications.

APPENDIX F

**LIST OF INDIVIDUALS AND
AGENCIES INTERVIEWED**

APPENDIX F

LIST OF INDIVIDUALS / AGENCIES INTERVIEWED

Institution	Name and Position	Contact
Ministry of Ecology & Bioresources	<ul style="list-style-type: none"> • Kireev Madi, Deputy Minister • Backeshev, Anuarbek Sharapievich, Chief Specialist of Department of International Cooperation and Information • Nurlan Sirazhew, Chief Expert • Mikhail Ivanvoch Bochkov, Chief of Environmental Review • Aidinov Yuri, Chief of Prospective Development and Project Evaluation Department 	Tel: 63-2476, 67-3162 h, 63-5244 or Fax: 63-6973
Ministry of Energy	<ul style="list-style-type: none"> • Nina Nikalaeвна Inozemtseva, Environment • Karabalin Zagbad Suleimenovich, Deputy Minister (Foreign Affairs) 	Tel: 69-6162
President Council and Cabinet of Ministers	<ul style="list-style-type: none"> • Atamurad Muralievich Shamenov, Chief of Ecological Department 	NPK
"Eikos"	<ul style="list-style-type: none"> • Tatiana Pilat, President, member of the Kazakhstan Parliament • Lubov Alexandrovna Erygin, Deputy Manager and Analyst about the lab's equipment and capabilities 	NPK
Munaigas State Holding Company	<ul style="list-style-type: none"> • Mirshan Suyubaev, Chief of Department of Perspective Development and Ecology • Vladimir Miroshnikov, Chief Engineer 	Tel: 69-4375, 25-5066 h.
Mangystaumunaigas	<ul style="list-style-type: none"> • Makash Orzhanovich Begaev, Head of Department of Labour, Safety and Environmental Protection 	NPK
"KazEcology" Republic Science-Industrial and Information Center	<ul style="list-style-type: none"> • Skakov, Amangeldy Amandinovich, General Director • Karlygash Tazhenovna Eleuova, Ph.D., Deputy General Director for Science and International Cooperation 	Tel/Fax: 63-1201, 61-0706 h.
"Kazecoexp"	<ul style="list-style-type: none"> • Aiazbaev Erik Khusainovich 	Tel: 25-4801
"Kazgiprograd"	<ul style="list-style-type: none"> • Baiizakov Tleukan Baiizakoviich 	Tel: 42-1341
KazNIPneft	<ul style="list-style-type: none"> • Gabasov Utesh Azhgarevich, Head of Lab of Environmental Protection 	
Kazakh Green Party Tabigat	<ul style="list-style-type: none"> • Mals Eleusizov 	Tel: 63-1717, 18-480012 Vinogradova, 85.

Institution	Name and Position	Contact
NGDU (Uzenneft) Production Association of Mangystaumunaigas	<ul style="list-style-type: none"> • Makhsut Burambaev, Head of NGDU • Aness Burkitbayey, Deputy Head of Environmental Department • Erbol Tazhigaliev, Head of Department of Ecology and Environmental Protection Division • Kolkanat Kulsaryev, Head of Geological Department • Mukhambet Soyimagambetov, Head of Occupational Health and Safety Division • Angureo Urinbayev, Deputy Director of Operations • Alimbai Zhailashev, Head of Oil and Gas Production Division 	NPK
"Ekolog" (under a contract with NGDU)	<ul style="list-style-type: none"> • Sergei Yakovlevich Lepikov 	NPK
Gosgortekhnadzor	<ul style="list-style-type: none"> • Borandai Tchelpikov, Chief Inspector • Mormikhan Dzhaugashtiev, Inspector 	NPK
Uzen Municipal Ecological Department	<ul style="list-style-type: none"> • Ivan Kharshin, Ecology and Bioresources Specialist 	NPK
Novy Uzen City Council	<ul style="list-style-type: none"> • Ibragim Murasov, Mayor • Oyakhtan Murzagalievich Bulekbaev, Head of City Department (Upravleniie) of Ecology and Bioresources 	NPK
Aktau Oblast Upravlenie of Ecology and Bioresources	<ul style="list-style-type: none"> • Sergei Georgievich Fedanov, Deputy Head 	NPK
Actau Oblast Hunting Inspection	<ul style="list-style-type: none"> • Ongarbai Shabgereevich Kodanov, Head • Viktor Georgievich Rakitin, Chief Inspector 	NPK
Oblast Fishery Inspection	<ul style="list-style-type: none"> • Salavat Nasipovich Saitov, Deputy Head 	NPK
State Farm Kyzyl Uzen	<ul style="list-style-type: none"> • Makhmut Beklazhanov, Director 	Vililage Butakoz

NPK = Telephone and fax numbers not presently known.