APPENDIX A

Study Team

APPENDIX A – Study Team

The following people participated in the production of this study:

SNC◆LAVALIN Environment Inc.

- Richard Fontaine, F. Eng.	Project Manager
- Claude Chamberland, Eng.	Noise
- Claude Côté, Eng.	Technological Risks
- Pascale Couroux-Smith, Biologist	Project Description
- Alexandre Couture, Technician	Noise Environment Readings
- Éric Delisle, Meteorologist	Air Quality
- Martine Fabri-Forget, Sociologist	Community Relations and Human Environment, Coordinator
- Rodrigue Haché, Logistics	Project Coordinator in Guinea
- Claude Hamel, Ph.D.	Biodiversity Professor
- Christian Laroche, Geographer	GIS Specialist
- Christian Laliberté, Geographer	GIS Specialist and Human Environment
- Chantal Roy, Biologist	Biological Environment
- Paul Willcott, Sociologist	Human Environment

Environmental Studies and Research Centre, Conakry University

- Sékou Moussa Keita, Biologist	Botanic Specialist

Rio Tinto

- John Merry	Manager, Health, Safety, Environment and Community
- Mario Gauthier	Environmental Coordinator
- Liz Wall	Regional Development Coordinator

Guinean Ministry of the Environment

- Sidibé Mouloukou Souleymane	Head of the Department for Environmental Evaluations and Social Studies (SNEEE)
- Abdel Kader Bangoura	General Director, Mount Nimba and Simandou Environmental Management Center

APPENDIX B

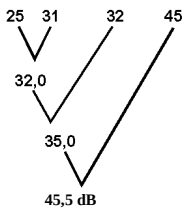
Noise Environment

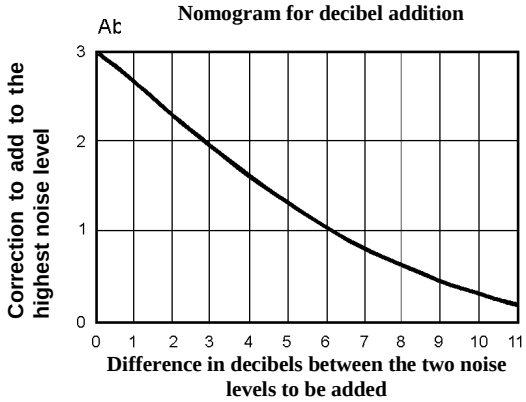
- Noise Glossary
- Instruments for Measuring Initial Sound Climate
- Sound Effect Intensity Evaluation Method

Appendix B - Noise Environment

NOISE GLOSSARY

Noise level addition: Noise levels cannot be added directly; they must be added logarithmically. A nomogram can be used for this purpose to add dB or dBA: e.g., adding 25, 31, 32 and 45 gives 45.5 dB.





Noise: All sounds perceptible by the human ear. Noise is generally associated with nuisance. The A-weighted decibel (dBA) is used as the noise measurement unit. The louder the noise, the higher its level in dBA. The noise scale usually ranges from 0 dBA – the threshold of hearing – to 140 dBA – the pain threshold.

Ambient noise: The all-encompassing noise existing in a given situation at a given time, usually a composite of noises from several sources, near and far.

Noise of interest: Ambient noise component that can be identified specifically and is associated with the source of interest (e.g., construction noise, project noise).

Baseline noise: Ambient noise before any changes to existing situation.

Fluctuating noise: Continuous noise whose sound pressure level varies significantly, but not in a pulsing way.

Intermittent noise: Noise that can only be heard during certain times and occurs at regular or irregular intervals, such that the duration of each occurrence is greater than about five seconds.

Impulsive noise: Noise characterized by short increases in sound pressure level.

Noise with tonal character: Noise characterized by discrete tones or narrow-band frequency components that emerge audibly from the ambient noise.

Frequency: Sound frequency is the number of cycles per second. The Hertz (Hz) is used as the unit of measurement. The human ear can perceive sounds at frequencies between 20 Hz and 20,000 Hz. A low-pitched sound will have a low frequency, and a high-pitched, a high frequency. For example, the low notes on a piano have a frequency on the order of 30 Hz while the high notes have a frequency of around 4,000 Hz. To simplify treatment, frequencies are grouped into bandwidths corresponding to an octave or 1/3 of an octave. One octave is a band whose upper frequency is twice the lower frequency; e.g., there is one octave between 2,000 Hz and 4,000 Hz; an octave on the piano has eight keys.

$L_{Aeq\ T}$: The A-weighted equivalent continuous sound pressure level for time interval T, expressed in dBA. It represents the time-average value of the sound pressure, in logarithmic form. At our present state of knowledge, it is this level that seems the best to use in assessing the annoyance caused by exposure to a long-term noise.

L_{Rdn}: Daily evaluation level (day/night), for a 24-hour period, expressed in dBA. This is the equivalent continuous sound pressure level $L_{Aeq\ 24h}$ to which correction terms have been added, including +10 dBA for the night time period from 10:00 pm to 7:00 am.

Evaluation level: Any measured or projected sound level to which a correction term has been added.

A-weighting: The human ear is not equally sensitive to sounds at all frequencies. To assign a number to the sound perceived by the ear, noise levels are adjusted using a standard "A" weighting curve.

Sound: Auditory sensation produced by a sound wave (e.g., an air vibration). Such vibrations are very small in comparison to the atmospheric pressure of the air.

Correction term: Any number, positive or negative, constant or variable, that is added to a measured or projected sound level to take certain sound characteristics, time of day, or type of source into account.

Appendix B - Noise Environment

INSTRUMENTS FOR MEASURING INITIAL SOUND CLIMATE

- Type 1 Larson-Davis Sound Level Meter, Model 820 (s/n : 0963)
  Larson-Davis Preamplifier, Model 828 (s/n: 1277)
  Larson-Davis Microphone, Model 2541 (s/n: 4863)

- Type 1 Larson-Davis Sound Level Meter, Model 820 (s/n : 1380)
  Larson-Davis Preamplifier, Model 828 (s/n: 2122)
  Bruël & Kjaer Microphone, Model 2541 (s/n: 1490)

- Bruël & Kjaer Calibrator, Model 4231(s/n : 2253479)

Appendix B - Noise Environment

SOUND EFFECT INTENSITY EVALUATION METHOD

The general methodology and the evaluation of the environmental impact of the project are described in Chapter 3, Section 3.6. The first step is to evaluate the intensity of the apprehended perturbation. The intensity can be low, medium, high or very high. Secondly, the extent and duration are combined with the intensity to obtain the significance of the environmental impact.

For the impact of noise, the evaluation of the intensity is mainly based on the ISO 1996-1 standard (Acoustic – Description, Measure and Evaluation of Environmental Noise, Part 1: Basic Quantities and Assessment Procedures). The following is taken directly from the norm:

"To be useful, all description methodologies, measurements and evaluations of the environmental noise shall be linked, by any available means, to the known human reaction to the noise."

Several studies have established dose-response relationships associated with noise (population reaction vs. noise level). One of the first was that of Schultz in 1978, for transportation noise. Later, other relationships were proposed (Finegold, Harris and Von Gierke, 1994 and Mieda and Vos, 1998); and, on average, "they confirmed the shape of the original Schultz curve".

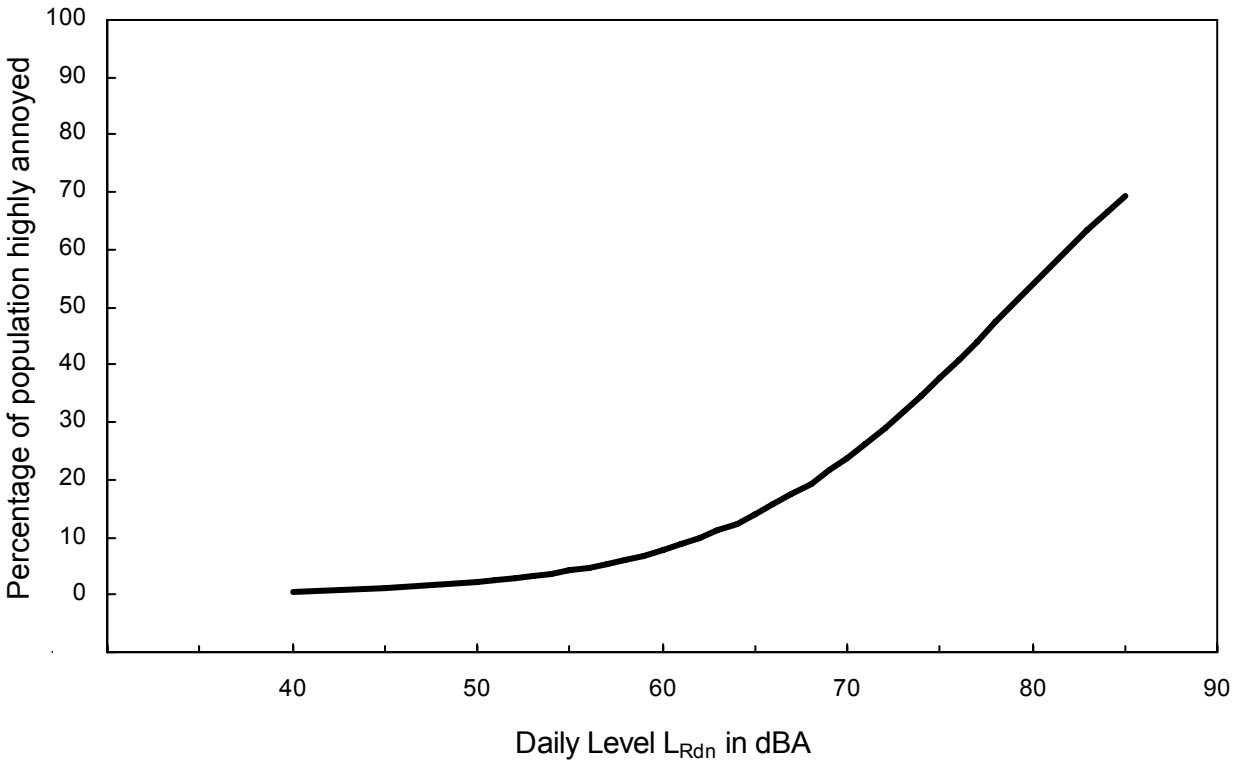
"For simplicity and because of its historic significance, the Schultz curve is the curve to use when defining the percentage of population highly annoyed by transportation noise as a function of the day/night noise level, L_{dn}."

"This cause-and-effect relationship can be used to evaluate annoyance of the population caused by other sources, if the suggested corrective terms have been applied."

The daily evaluation level (L_{Rdn}), was calculated based on the measurement results and the forecasted noise level of the project, to which several corrective terms have been applied, depending on the type of noise, the character of the source, the time of day, the introduction of new sources and the expectation of peace and quiet. The daily evaluation level of the initial and the projected situation (baseline noise plus project noise) was used to find the difference in the percentage of the population highly annoyed by the noise of the projected situation, as compared to the initial situation.

In order to evaluate the intensity of the impact in qualitative terms (low, medium, high and very high), the U.S. Department of Transportation methodology (Miller & Hanson, 1995) was used. Some criteria used in this methodology are found in international (WHO, 1999) and national (SCHL, 1981 and Comité consultatif fédéral – provincial de l'hygiène du milieu et du travail, 1989) publications. Essentially, intensity is determined by the magnitude of the change in the percentage of population highly affected by the introduction of the project noise (relative approach), and by fixed noise levels (absolute approach).

Schultz Dose-Response Relationship



Noise Impact Intensity

Intensity Level	Change in % of population highly annoyed from the initial to the projected situation		Fixed noise level of the projected situation
Low	2.0% and less	or	$L_{Rdn} \leq 55$ dBA
Medium	2.1 to 6.2%	and	$L_{Rdn} > 55$ dBA
High	6.3 to 13.9%	and	$L_{Rdn} > 55$ dBA
Very High	14% and more	and	$L_{Rdn} \geq 75$ dBA

APPENDIX C

Public Consultations and Meetings

- List of People and Guinean Governmental Organisations Consulted
- List of Beyla Prefecture Authorities Consulted during Public Consultations
- Summary of Minutes of Public Consultations
- Summary of Impact Study Workshop

Appendix C – Public Consultations and Meetings

LIST OF PEOPLE AND GUINEAN GOVERNMENTAL ORGANISATIONS CONSULTED

Sidibé Seydou Barrie	Juriste / Bureau de Coordination des Stratégies de la Planification et Prospective Département des Évaluations Environnementales et des Études d'Impacts Ministère de l'Environnement
Dieng Habib	Chef de la division Protection de l'environnement et sécurité minière Ministère des Mines et de la Géologie Direction Nationale des Mines
Fara Tolno	Chef de la Section Bases Aériennes et Navigation Direction Nationale de l'Aviation Civile Ministère des Transports
Dr. Condé Kabiné	Directeur adjoint du Bureau Stratégie et Communication Ministère de l'Environnement
Sidibé Mouloukou Souleymane	Chef de Département des Évaluations Environnementales et Sociales Bureau de Coordination des Stratégies de la Planification et Prospective Ministère de l'Environnement
Somparé Ahmed Tidieme	Ingénieur des mines Ministère des Mines et géologie, Mifergui / Nimba
Sékouba Camara	Chef de département suivi écologique et surveillance continue CEGENS
Elh Mamadou Saliou Bodié Diallo	Chef de division Ministère du Plan, Direction nationale
Mme Balolé Baldé H. Fta. Diop	Directrice nationale Ministère du Plan, Direction nationale
Seydou Doumbouya	Chef section des mines Ministère du Plan, Direction nationale
Bah Mamadou Tanou	Chef division développement local Ministère de l'Aménagement du territoire et du développement
Mohamed Lamine Condé	Chef section Programme de financement Bureau d'étude et programme / Ministère des Travaux publiques
Mamaoudou Diakité	Directeur MAB – Guinée
Dr. Kabiné Condé	Directeur général adjoint – Bureau de Coordination stratégies de la planification et prospective Ministère Environnement

LIST OF BEYLA PREFECTURE AUTHORITIES
CONSULTED DURING PUBLIC CONSULTATIONS

BEYLA

- GOVERNMENT

Préfet de Beyla :	M. Fadama Itala KOUROUMA
Directeur Préfectoral de Beyla, Environnement :	M. Antoine DIAWARA
Assistant Directeur Préfectoral de Beyla en Environnement :	M. Adama KANDÉ Stagiaire
Directeur Préfectoral des Eaux et Forêts :	M. Mory CONDÉ
Directeur Préfectoral de l'Habitat :	M. Bhomady KEITA
Chef Secteur Préfectoral des Eaux et Forêts	M. Mory CONDÉ
Chef de Section Promotion Agricole :	M. Billo SANGARÉ
Chef de Section Élevage :	M. Fassou CONDÉ
Assistant Chef de Section Élevage :	M. Mory CONDÉ
Chef de Section Mines et Carrières :	M. Mamadou Malal DIALLO

- BEYLA – MAYOR'S OFFICE

Maire de la Commune de Beyla :	M. Loucény KOUROUMA
Maire Adjoint de la Commune de Beyla :	M. Facely CAMARA
Conseiller de la Mairie de Beyla	M. Sékou Jo KOMARA
Directeur du Centre NAFA de Beyla	M. Karamoko KOUROUMA
Secrétaire Général de la commune Urbaine de Beyla	M. Adama KEITA

- CIVIL SOCIETY REPRESENTATIVES

Ingénieur Génie-civil	M. Mohamed KOUROUMA
Président de l'Union des Transporteurs routiers	M. Samouka KOUROUMA
Sec. Gén. De la Ligue Islamique Préfectorale	El Hadj Aliou KONÉ

KÉOULENDOU

Doyen Notable	M. Mory SOUMAORO
Chef de Secteur (fils du doyen)	M. Lanciné SOUMAORO

PIYARO

Doyen Notable	M. N'Valy TRAORÉ
Représentante des femmes	Mme Makoya KOUROUMA

NIONSONMORIDOU

Sous-Préfet	Lt. Goman CAMARA
Président CRD	M. Bongo Komano DONZO
Secrétaire Communautaire de la CRD	M. Daman KOUROUMA

MORIBADOU

Notable	M. Abdoulaye KEITA
Ancien du Village	M. Kaman SIDIBÉ
Chef District	M. Ousomane SOUMAORO
Chef Secteur	M. Diaké SAGNO

SUMMARY OF MINUTES OF PUBLIC CONSULTATIONS

Context Report: Environmental and Social Evaluation Joint Mission

A- SOMMAIRE ET METHODOLOGIE DES ACTIVITES

Suivant l'Ordre de Mission N0 080/CAB/ME du 14 août 2006

- ✓ **Projet Minier** : SIMFER/RIO TINTO/Beyla
- ✓ **Infrastructures ciblées :** Extension de la base vie Canga Est, voie d'accès Ouéléba (CRD de Nionsonmoridou) et la piste d'atterrissage près de la Commune urbaine de Beyla
- ✓ **Étude d'Impact Environnemental et social :** Équipe SNC-LAVALIN/ Canada
- ✓ **Procédures d'évaluation et de mitigation :** Simplifiées
- ✓ **Instruction et Méthodologie opérationnelles :** Département des évaluations environnementales et des études d'impact du BCSPP au Ministère de l'Environnement
- ✓ **Groupes d'évaluation de terrain 1 et 2 :** Socio-économie et biophysique
- ✓ **Participation des autorités administratives, politiques et populations :** Directions préfectorales de l'Environnement, Urbanisme et de l'habitat, Eaux et Forets, Agriculture, Élevage et Mines; les autorités communales de Beyla, les secteurs, districts de la CRD de Nionsonmoridou et les populations.
- ✓ **Étape de consultation préalable :** Prise de contact avec les cadres de la préfecture, de la mairie, de la société civile et, les notables des villages (Kéoulendou et Piyaro) site de la piste d'atterrissage a Km 7 de la ville de Beyla (réf PV N01 du 20-08-2006).
- ✓ **Journée d'audience publique :** Consultation et sensibilisation des populations et autorités (Piyaro, Kéoulendou et de la Commune urbaine de Beyla), avec plus de 121 participants.
- ✓ **Journées de description des milieux biophysiques :** Base vie (Canga Est), la piste d'atterrissage, située au bord de la route Beyla-Kérouané et, aux environs des villages (Piyaro et Kéoulendou) et la voie d'accès Moribadou – Ouéléba.
- ✓ **Visite de travail à Nionsomoridou :** Prise de contact avec les populations et autorités pour la préparation de la journée d'audience à Nionsomoridou et villages de proximité.
- ✓ **Journée d'audience publique à Moribadou :** Consultation et sensibilisation des populations; reconnaissance relative à la situation des périmètres agropastoraux, le long de la piste Moribadou au site de Ouéléba (réf PV N0 2 du 21-08-2006) dont 125 participants.
- ✓ **Séance de consultation complémentaire au village Traoréla :** Entretien de la mission avec quelques notables et femmes, afin de recueillir leur adhésion au projet minier, à la voie d'accès Canga–Est et les autres infrastructures envisagées. La participation a atteint environ une dizaine (note du 22-08-2006).
- ✓ **Journée d'audience à Nionsomoridou :** Mise en commun des consultations des districts et secteurs de la CRD, en vue de l'harmonisation des avis des populations, des autorités politiques et administratives; ainsi que les confessions religieuses et

notables sur les impacts attendus de la réalisation des trois petites infrastructures par SNC-Lavalin/RIO TINTO. (Réf PV N0 3 du 24-08-2006) avec 76 participants.

- ✓ **Journée de clôture des audiences à la préfecture de Beyla :** Synthèse des procès verbaux sur l'ensemble des sites et recueil des suggestions ou remarques de tous les participants et les représentants des organisations civiles à Beyla. En définitive, les avis convergent pour la réussite des activités du projet (Réf N0 4 du 25-08-2006), faisant 113 participants.
- ✓ Liste des participants
  - Kéoulendou et Piyaro 121
  - Moribadou 125
  - Nionsomoridou 76
  - Comme urbaine de Beyla 113

B- SYNTHESE DES PROCES VERBAUX DES AUDIENCES PUBLIQUES

Dans sa lettre en date du 02 août 2006 adressée à Monsieur le Ministre de l'Environnement, la société Rio Tinto SIMFER s'est engagée dans la réalisation d'une étude d'évaluation de l'impact environnemental et social des projets d'infrastructures suivants:

- une voie d'accès d'environ 7 km sur le site de Ouéléba à Beyla en vue de poursuivre les recherches géologiques et minières dans les limites de la concession minière qui lui a été affectée;
- l'extension de la base vie de Canga Est, située près de Beyla afin d'y avoir une plus grande capacité d'accueil des travailleurs et des services divers liés aux travaux à faire;
- une piste d'atterrissage et de stationnement pour petits avions à Beyla.

Dans le but de la réalisation de cette étude d'évaluation, une délégation s'est rendue dans les localités abritant les différents sites. A cet effet, quatre procès – verbaux ont été dressés respectivement les 20, 21, 24 et 25 août 2006, suite aux audiences publiques tenues.

Le 20 août 2006 à Morisangarédou

Cette audience publique a eu pour sujet la piste d'atterrissage à Kéoulendou et Piyaro. Elle a débuté par la présentation de la délégation aux autorités administratives et religieuses et au public de Morisangarédou/Beyla. Plusieurs intervenants se sont succédés.

D'abord, le Maire - adjoint, l'Imam de la ville et le directeur préfectoral de l'environnement ont adressé à la délégation des messages de bienvenue et exprimé leur souhait de voir la réalisation d'une telle œuvre dans leur localité.

Ensuite, Monsieur Mouloukou Souleymane SIDIBE, représentant le Ministère de l'Environnement, après avoir présenté son Département et les membres de la délégation, a expliqué les motivations du choix d'un espace rationnel pour la construction de l'aérodrome.

Selon lui, les experts en la matière mèneront une étude de faisabilité par rapport à la construction d'une voie de communication routière qui partira de Moribadou vers Ouléba et d'un espace devant être réservé à un personnel de 300 personnes.

En évoquant les différents volets de la mission, il a rassure l'assistance que les travaux ne rentreraient dans sa phase d'exploitation, seulement en une dizaine d'années.

Enfin, Monsieur Rodrigue HACHE, membre de la délégation, a remercié la population locale pour cet accueil chaleureux avant de laisser entendre qu'après l'exploration, des infrastructures de communication (voie d'accès aux mines, construction d'un aérodrome et d'une cité des travailleurs expatriés).

Parlant des différents corps de métier devant opérer sur le terrain, il a fait cas aux impacts que cette exploitation aura sur les communautés et a rassuré que les travaux seront effectués par les guinéens et en premier lieu par les citoyens de la localité.

Cette audience s'est achevée par une réjouissance populaire. La société Rio Tinto SIMFER a vivement bénéficié des remerciements de la population et des autorités locales.

L'Imam a dit des bénédictions très solennelles et a exprime ses vœux pour la réalisation effective du projet.

Ont signe :

Mamady SIDIBE, Président du district;

Lancine SOUMAORO, chef secteur Kéoulendou;

Amara TRAORE, chef secteur Piyaro;

Elhadj Mory SOUMAORO, doyen du village Kéoulendou;

Nvaly TRAORE, doyen du village Piyaro;

Makoya KOUROUMA, représentante des femmes du district;

Facely CAMARA, Maire-adjoint de la commune urbaine de Beyla;

Mohamed KOUROUMA, secrétaire de la séance.

Le 21 août 2006 à Moribadou

La séance de ce jour s'est ouverte par des bénédictions dites par Abdoulaye KEITA, Imam de la localité et l'honneur de la présentation de la délégation venue de Conakry à l'auditoire est revenue à monsieur Antoine DIAWARA, directeur préfectoral de l'environnement de Beyla.

Les responsables du district ont été présentés par Monsieur Siaka SAGNO, chef secteur. Plusieurs autres secteurs étaient présents à la rencontre. Chaque district invité était représenté par un chef secteur, un représentant des sages et celui des jeunes.

Le directeur préfectoral de l'environnement a fait un briefing sur la situation qui prévaut en ce moment au plan environnemental dans sa préfecture. Ainsi, on a pu noter :

- l'ouverture d'une route de 7 km de Kéoulendou à Ouéléba;
- l'agrandissement de la cité des travailleurs et construction d'une piste d'atterrissage entre Piyaro et Kéoulendou.

Les chefs secteurs présents, à leur tour ont eu l'occasion d'évoquer leurs véritables préoccupations vis-à-vis de la mise en œuvre du projet. Il a été retenu pour l'essentiel :

- l'alphabétisation des enfants dont la majorité est constatée illettrée;
- le recrutement des ouvriers au niveau local;
- l'éclaircissement de tout le contexte sur la construction de la route à Ouéléba et les enjeux d'une telle réalisation (inconvénients, avantages).

Il reviendra à la suite aux membres de la délégation de circonscrire toutes les inquiétudes des autorités locales et des populations concernées par lesdits travaux.

Monsieur Paul WELLCOTT, un des membres de la délégation dira que la présente mission a pour objet essentiel de prendre contact et de dialoguer avec les populations locales en vue de mieux cerner leurs problèmes et de trouver des voies et moyens pour les résoudre sans omission d'aucune couche socio-professionnelle (agriculteurs, éleveurs).

Monsieur John MERRY a mis en avant son expérience acquise dans la zone qui pourrait impulser une collaboration dynamique entre tous les acteurs. Il a rendu un vibrant hommage au Gouvernement pour l'accord donné, aux fins de l'exécution du projet.

Monsieur Rodrigue HACHE a vivement remercié la population tout en les rassurant aussi de la pérennité des emplois qui leur seraient attribués.

Au plan mesures d'accompagnement environnementales, l'accent a été mis sur le problème d'eau potable et la réinstallation des pâturages existants au pied du mont Simandou.

Avant de clore la séance, des bénédictions ont été dites pour que la réalisation de ces ouvrages soit effective.

Ont signe :

Sekou SAGNO, vice-président district;

Siaka SAGNO, chef secteur;

Seman TRAORE, responsable des jeunes;

Fatouma SAGNO, présidente des femmes;

Ansoumane SAGNO, village Lamadou, Macenta;

Ibrahima KOUROUMA, membre district Moribadou;

Djiba CONDE, chef secteur Kankoro;

Amara CONDE, responsable des jeunes Kankoro;

Bangaly CONDE, trésorier, Moribadou;

Abdoulaye KEITA, notable, Moribadou;

Djanko CAMARA, notable, Moribadou;

Amara SAGNO, conseiller, chef secteur Traorela;

Ansoumane TRAORE, chef secteur adjoint, Moribadou;

Djiba CONDE, conseiller islamique, Moribadou;

Amadou CAMARA, conseiller, Traorela;

Ngouasse BAMBA, chef secteur, Wataferedou;

Daman KOUROUMA, secrétaire communautaire, CRD Nionsomoridou;

Fassou SOUMAORO, vice- président, CRD Nionsomoridou.

Le 24 août 2006 à Nionsomoridou

Les débats ont porté sur le thème « Le camp de base et la route d'accès ».

Le Lieutenant N'Gomah CAMARA a souhaité la bienvenue à la délégation avant d'appeler les participants au calme et à une bonne écoute. Monsieur Daman KOUROUMA, secrétaire communautaire a présenté les invités des secteurs riverains et le directeur préfectoral de l'environnement a présenté à son tour, les membres de la délégation composée du Ministère de l'Environnement, de SNC-Lavalin, de la société Rio Tinto SIMFER et du CERE.

Le représentant du Ministère de l'Environnement, prenant la parole, a remercié les autorités locales et la population pour avoir répondu massivement à l'appel. Il a précisé que la délégation ici présente est celle mandatée par Rio Tinto SIMFER c'est à dire SNC-Lavalin représenté par monsieur Rodrigue HACHE venu pour :

- les travaux de construction de la piste d'atterrissage;
- la construction d'une cité des travailleurs de Rio Tinto SIMFER;
- la réalisation d'une route de 7 km de Moribadou (Canga Est) à Ouéléba.

Monsieur HACHE a commencé par remercier les sages et l'ensemble de la population locale de l'accueil chaleureux dont la délégation a été l'objet. Il a livré des explications utiles sur sa société qui selon lui, est présente dans de nombreux pays (plus de 50). Il a adressé des remerciements à la société Rio Tinto SIMFER pour avoir donné l'occasion à SNC-Lavalin d'être présent en Guinée. Il poursuivit en donnant les axes principaux de la mission de SNC-Lavalin et des détails sur la construction du chemin de fer. A cet effet, une étude de faisabilité sera effectuée dont un rapport sera soumis à la société Rio Tinto SIMFER. En outre, il appela la population à soutenir les efforts de Rio Tinto quand on sait que ces projets indiqués auront des intérêts certains sur tous les guinéens en général et particulièrement sur les populations des zones concernées par ces réalisations.

Monsieur John MERRY a rappelé sa présence sur le terrain depuis près de 10 ans au cours des quels il bénéficia d'une connaissance de toutes les populations de la contrée à travers des forums. Il a remercié le Gouvernement pour la confiance placée à la société Rio Tinto SIMFER en lui octroyant la réalisation de ce projet. Il a sensibilisé la population à envoyer leurs enfants à l'école, les instruire afin qu'ils puissent bénéficier dans l'avenir, des avantages liés à l'exploitation du gisement de fer du massif de Simandou.

Pour terminer Monsieur Fassou, vice-président de la CRD a donné la parole aux absents de l'audience de Moribadou et aux sages, qui ont exprimé leur volonté de soutenir le projet et même de le voir démarrer maintenant.

Ont signe :

Bigne CAMARA, vice-président, district Banko;

Aly KOUROUMA, chef des jeunes de Worono;

Sekou SOUMAORO, chef secteur de Mandou;

Elhadj Amadou FOFANA, sage Nionsomoridou;

Fanta CAMARA, présidente des femmes Nionsomoridou;

Hadja Bronke CAMARA, sage des femmes, Nionsomoridou;

Elhadj Moustapha SOUARE, notable, Nionsomoridou;

Bawa Mamady SOUARE, Imam, Nionsomoridou;

Daman KOUROUMA, secrétaire communautaire, CRD Nionsomoridou;

Bingo Karamo DONZO, président CRD Nionsomoridou;

Lieutenant Ngomah CAMARA, sous-préfet Nionsomoridou.

Le 25 août 2006 à Beyla

Ella a commencé par des bénédictions dites par l'Imam de la mosquée de Diakolidou Sobakönö pour la réussite du projet. Le Maire de la commune urbaine a souhaité la bienvenue à ces hôtes venus de Conakry avant de traduire tout le bonheur d'avoir le mont Simandou dans la préfecture de Beyla. Après avoir présenté la délégation constituée de Mouloukou Souleymane SIDIBE, John MERRY, Rodrigue HACHE, Chantal ROY, Paul WiLLCOTT et Moussa KEITA, il a fait comprendre toute l'attention que l'ensemble du pays porte sur ces travaux prévus et tout le plaisir de voir Beyla sortir de l'ornière ainsi que l'importance de sa circonscription administrative, compte tenu de sa situation géographique car située entre la savane et la forêt. Le Maire a rappelé que l'espace choisi pour abriter le camp de base est une partie intégrante de la commune urbaine de Beyla.

L'honneur est revenu à Mouloukou Souleymane SIDIBE de s'adresser aux participants. Au nom de la délégation, il a présenté le contexte de la création du Ministère de l'Environnement en 2004 et sa mission incontournable dans la protection des écosystèmes et la conservation de la biodiversité. Il précisera dans son intervention que le département a confié les travaux d'exploitation du mont Simandou à la société Rio Tinto SIMFER. Cependant, ces travaux devront être précédés par la réalisation de quelques ouvrages (ouverture d'une piste d'atterrissage, d'une route de 7 km de Moribadou à Ouéléba et l'extension de la cité des travailleurs expatriés).

Prenant la parole, Monsieur John MERRY a rappelé la longue présence de Rio Tinto dans la localité et que cette société qui a reçu la convention d'exploitation minière à la fin de l'année 2005.

Selon lui, ces trois infrastructures seront exécutées par SNC-Lavalin avant l'exploitation proprement dite des gisements de fer du Simandou.

Quant à Rodrigue HACHE, il a remercié les autorités politiques et administratives de Beyla ainsi que la population pour l'accueil réservé à la délégation. En expliquant les différentes étapes de la réalisation du projet, il sollicite la disponibilité de tous et de chacun. Il a rappelé que les études de faisabilité seront présentées à la société Rio Tinto SIMFER d'ici Mars 2007 pour approbation. Il promet que l'exploitation minière en réalité verra le jour seulement en 2013 ou 2014. A cet effet, des travailleurs à statuts temporaires et permanents seront recrutés à Beyla dans un rapport de compétence égale.

Madame Chantal ROY à son tour, a remercié les autorités politiques et administratives avant d'expliquer le motif de la mission. Elle a dit que la cartographie du site du projet fut faite avec la participation de Moussa KEITA. Elle a rassuré que la piste d'atterrissage sera faite sur une plaine boisée et qu'il n'existe en cela aucun obstacle majeur. Cependant, la voie d'accès présente des contraintes non négligeables à cause de l'existence des ravins, de hautes montagnes, des pentes fortes. Selon elle, plus de détails seront consignés dans le rapport de l'étude de faisabilité y afférente.

Moussa KEITA, va remercier les sages. Il soutient qu'aucun obstacle n'est à signaler par rapport au camp de base et à la piste d'atterrissage. Il conclut en appelant les bénéficiaires de ces ouvrages à soutenir les étrangers venus pour travailler et aider la Guinée dans le processus de son développement.

Monsieur WILLCOTT a ajouté que le rôle de la présente mission était d'écouter les populations et autorités locales afin de recueillir leur consentement quant à l'effectivité du

projet Simandou. Selon lui, partout dans la préfecture de Beyla, la délégation a rencontré des populations disponibles, hospitalières et enthousiastes.

La seule suggestion pertinente formulée est celle concernant l'utilisation de la population locale comme main d'œuvre.

Il est revenu à Messieurs le Maire et le président du syndicat des transporteurs de Beyla de prendre la parole pour exprimer leur réjouissance face au bonheur qui se profile ainsi à l'horizon et appeler leurs concitoyens à faciliter la tache aux travailleurs étrangers afin de sortir la préfecture de la léthargie actuelle.

La séance a été clôturée par les interventions de Mouloukou Souleymane SIDIBE et du secrétaire général des affaires administratives de la préfecture. Ils appelleront tous les fils de Beyla de privilégier l'intérêt collectif sur les intérêts individuels, à assurer la sécurité des biens, à promouvoir une agriculture autosuffisante et à scolariser les enfants en vue de lutter contre l'ignorance.

Ont signe :

Mohamed KOUROUMA, secrétaire de séance;

Longe KOUROUMA, maire commune urbaine de Beyla;

John MERRY, directeur HSSEC, RIO TINTO SIMFER;

Rodrigue HACHE, directeur des opérations SNC-LAVALIN;

Amara Soumis, secrétaire des Affaires Administratives de la préfecture de Beyla, représentant le préfet lors de cette séance de clôture.

Appendix C - Public Meetings and Consultations

SUMMARY OF IMPACT STUDY WORKSHOP

REGION ADMINISTRATIVE
N'ZEREKORE

PREFECTURE DE BEYLA

REPUBLIQUE DE GUINEE
Travail - Justice - Solidarité

PROCES VERBAL
De l'atelier de restitution du rapport d'Etude d'impact Environnemental et Social des travaux préparatoires du Projet SIMANDOU

L'an deux mil six et le mardi 19 décembre, s'est tenu dans la salle de conférence de la Maison des Jeunes de Beyla, l'Atelier de restitution du rapport d'Etude d'impact Environnemental et Social (EIES) des travaux préparatoires du projet Simandou, sous la présidence effective de Monsieur Fadama Itala KOUROUMA, Préfet de Beyla.

Cet atelier a regroupé les cadres des services de l'administration centrale, régionale et préfectorale, les élus locaux, la société civile et le secteur privé pour un effectif de 127 participants.

Les travaux préparatoires dudit projet portent sur l'aménagement de la piste d'atterrissage dans la commune de Beyla, l'ouverture d'une voie d'accès entre Canga Est et Ouéleba et l'extension du camp de base vie de Canga Est dans la C R D de Niosomoridou.

Il convient de rappeler que ces infrastructures relèvent de la catégorie C, c'est-à-dire des travaux n'exigeant qu'une étude d'impact environnemental et social simplifiée.

L'objet de l'atelier était de recueillir les remarques et

suggestions des autorités et populations concernées par le projet en vue d'améliorer la qualité du rapport d'une part, et d'autre part, faciliter leur adhésion à sa mise en oeuvre.

Monsieur le Préfet de Beyla, dans son intervention, a exhorté Rio Tinto / SIMFER S.A à tenir compte des aspects communautaires dans la mise en oeuvre des trois composantes du projet, telles que définies par les Directives de la Société Financière Internationale (SFI) et de Rio Tinto / SIMFER S.A. ; ensuite, il remerciera les participants et particulièrement le Ministère de l'Environnement pour une telle démarche de démocratie participative sur les questions de développement.

Le directeur Général du Centre de Gestion de l'Environnement des Monts Nimba - Simandou (CEGENS), Monsieur Abdel Kader BANGOURA, représentant Monsieur le Ministre de l'Environnement a exprimé le souhait de valider le rapport sous réserve de l'élaboration d'un Plan de mitigation, d'un Plan de Gestion Environnementale et Sociale avant le 31 Janvier 2007.

Suite à des débats fructueux et constructifs, des suggestions et amendements assortis de recommandations ont été formulées (ref: Procès verbal général de l'atelier). Toutefois, les plus pertinents en rapport avec le projet dans ses trois composantes des travaux préparatoires seront considérés par le rapport final.

Fait à BEYLA, le 19 décembre 2006
Ont signé :

1 - Monsieur le Préfet de Beyla

Fadama Itala KOUROUMA

2 - Monsieur le Sous-Préfet Niansomoridou

LINGoman CAMARA

3 - Monsieur le Maire de la Commune de Beyla

P/O

Facely CAMARA
Maire Adjoint

4 - Le Représentant de Monsieur le Ministre de l'Environnement

Abdel Kader BANGURA
Directeur Général
CEGENS

P/O Monsieur le Président de la CRD Niansomoridou
5 - Monsieur le Secrétaire Communautaire Représentant la CRD Niansomoridou

Daman KOUROUMA

6 - Représentant Société Rio Tinto SIMFER SA

Madame Liz WALL

7 - Bureau d'étude SNC-LAVALIN

Madame Chantal ROY

8 - Secrétaire PV

Seydou Bari SIDIBE
SNEEE/Ministère de l'environnement

APPENDIX D

Photographs

- Public Consultations
- Canga East Camp
- Airstrip
- Ouéléba Access Road

APPENDIX E

Floral Inventories

- Floral Inventory at Canga East Camp
- Floral Inventory at Airstrip
- Floral Inventory at Ouéléba Access Road

FLORAL INVENTORY AT CANGA EAST CAMP

Table E-1 List of Vegetation Species Inventoried in the Canga East Camp Sector

Parcelle:	**No 1**
Date:	**19-août-06**
Coordonnées:	**N: 513182 W: 945932**
Altitude:	**957 m**
Type végétal:	**Savane herbeuse**
Équipe:	**Dr Sékou Moussa Kéita, John Merry, Chantal Roy et Mamady Sagno**

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree						
Bush	*Schefflera barteri*	M*3 = Bolokoudour K *4= Gboolo	Araliaceae	2	Médicinal	
	Pterocarpus erinaceus	M et K = Gben	Caesalpiniaceae	2	Médicinal	
	Hymenocardia acida	M = Yègbè K = Timanin	Euphorbiaceae		Médicinal	
Grassy	*Aframomum latifolium*		Zingiberaceae	9		
	Hibiscus asper		Malvaceae	1		
	Indigofera trichopoda		Fabaceae	1		
	Commelina sp.		Commelinaceae	1		
	Aira caryophyllea		Poaceae	4		
	Loudetia kagerensis		Poaceae	70		
	Cyperus sp.		Cyperaceae	2		
	Fimbristylis sp.		Cyperaceae	1		
Other				6		
Bare Soil				1		

Parcelle:	**No 2**
Date:	**19-août-06**
Coordonnées:	**N: 513270 W: 945982**
Altitude:	**957 m**
Type végétal:	**Savane herbeuse**
Équipe:	**Dr Sékou Moussa Kéita, John Merry, Chantal Roy et Mamady Sagno**

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree	*Pterocarpus erinaceus*	M et K = Gben	Caesalpiniaceae		Médicinal	
Bush	*Schefflera barteri*	M*3 = Bolokoudour	Araliaceae	1		
	Hymenocardia acida	M = Yègbè K = Timanin	Euphorbiaceae	2		
	Albizzia zygia	M = Tombon gbèn	Mimosaceae	1		
Grassy	*Aframomum latifolium*		Zingiberaceae	4		
	Crotalaria sp.		Fabaceae	3		
	Commelina sp.		Commelinaceae	5		
	Aira caryophyllea		Poaceae	15		
		Wan (Koniaké)	Poaceae	50		
		Sön (Koniaké)	Poaceae	10		
	Cyperus sp.		Cyperaceae	2		
Other				6		
Bare Soil				1		

Parcelle:	**No 3**
Date:	**19-août-06**
Coordonnées:	**N: 513063 W: 945852**
Altitude:	**957 m**
Type végétal:	**Savane herbeuse**
Équipe:	**Dr Sékou Moussa Kéita, John Merry, Chantal Roy et Mamady Sagno**

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree						
Bush	*Pterocarpus erinaceus*	M et K = Gbèn	Caesalpiniaceae	1	Médicinal	
	Entada africana	K = Timanin M = Djalankambannin K = Bourgnèn	Mimosaceae	1	Médicinal Médicinal	
Herbacée	*Aframomum latifolium*		Zingiberaceae	5		
	Crotalaria sp.		Fabaceae	5		
	Hibiscus asper		Malvaceae	1		
	Indigofera trichopoda		Fabaceae	3		
	Commelina sp.		Commelinaceae	3		
	Aira caryophyllea		Poaceae	10		
	Loudetia kagerensis		Poaceae	60		
	Cyperus sp.		Cyperaceae	2		
Other				6		
Bare Soil				3		

Parcelle:	**No 4**
Date:	**19-août-06**
Coordonnées:	**N: 513404 W: 946014**
Altitude:	**952 m**
Type végétal:	**Savane herbeuse**
Équipe:	**Dr Sékou Moussa Kéita, John Merry, Chantal Roy et Mamady Sagno**

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree	*Lophira lanceolata*	M et K = Mana	Ochnaceae	5	Médicinal et cure-dent	
	Schefflera barteri	M*3 = Bolokoudour	Araliaceae	3	Médicinal	
Bush	*Entada africana*	M = Djalankambannin	Mimosaceae	5	Médicinal	
	Schefflera barteri	M*3 = Bolokoudour	Araliaceae	2	Médicinal	
	Pterocarpus erinaceus	M et K = Gbèn	Caesalpiniaceae	10	Médicinal	
	Lannea velutina	M et K = Bembé	Anacardiaceae	2	Commes-tible	
	Albizzia zygia	M = Tombon gbèn	Mimosaceae	6		
	Hymenocardia acida	M = Yègbè	Euphorbiaceae	3		
	Ficus vogeliana	M et K = Sèrè	Moraceae	3	Médicinal	
	Lophira lanceolata	M et K = Manan	Ochnaceae	2		
Grassy	*Aframomum latifolium*		Zingiberaceae	3		
	Hibiscus asper		Malvaceae	1		
	Commelina sp.		Commelinaceae	1		
	Loudetia kagerensis		Poaceae	4		
		Sön (Koniaké)	Poaceae	40		
	Cyperus sp.		Cyperaceae	7		
Other				2		
Bare Soil				1		

FLORAL INVENTORY AT AIRSTRIP

Table E-2 List of Vegetation Species Inventoried in the Planned Airstrip Sector

No 1
20-août-06
N: 530740 W: 961998
658 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Lophira lanceolata*	M et K = Manan	Ochnaceae	5	Médicinal et cure-dent	
	Nauclea latifolia	M et K = Badi	Rubiaceae	5	Médicinal	
	Vitex doniana	M et K = Kodo	Verbenaceae	3	Commes-tible	Monographie
	Hymenocardia acida	M = Yègbè	Euphorbiaceae	10		
Grassy	*Aframomum latifolium*		Zingiberaceae	5		
	Crotalaria sp.		Fabaceae	3		
	Lippia chevalieri		Verbenaceae	2	Médicinal	
		Baagbè		10		
		Tî kissè	Poaceae	50		
Other				5		
Bare Soil				2		

No 2
20-août-06
N: 531233 W: 961670
668 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Terminalia glaucescens*		Combretaceae	10	Commes-tible	
	Nauclea latifolia	M et K = Badi	Rubiaceae	5	Médicinal	
	Afrormosia laxiflora		Fabaceae	5	Médicinal	
	Parinari curateliifolia		Chrysobalanaceae	10		
	Entada africana	M = Djalankambannin	Mimosaceae	15	Médicinal	
Grassy	*Eriosema glomeratum*		Fabaceae	5		
	Afrormosia laxiflora		Fabaceae	3	Médicinal	
		Wan (Koniaké)	Poaceae	30		
		Tî kissè	Poaceae	10		
Other				5		
Bare Soil				2		

No 3
20-août-06
N: 531724 W: 961452
665 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Terminalia glaucescens*		Combretaceae	5	Commes-tible	
	Albizzia zygia	M = Tombon gbèn	Mimosaceae	5		
	Annona senegalensis		Annonaceae	6		
	Erythrina senegalensis		Fabaceae	6		
Grassy	*Eriosema glomeratum*		Fabaceae	3		
	Aframomum latifolium		Zingiberaceae	3		
		Wan (Koniaké)	Poaceae	40		
		Tî kissè	Poaceae	15		
Other				7		
Bare Soil				10		

No 4
20-août-06
N: 532094 W: 961476
658 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Nauclea latifolia*	M et K = Badi	Rubiaceae	10	Médicinal	
	Bridelia micrantha		Euphorbiaceae	5		
	Annona senegalensis		Annonaceae	10		
	Terminalia glaucescens		Combretaceae	3	Commes-tible	
	Albizzia zygia	M = Tombon gbèn	Mimosaceae	6		
	Vitex doniana	M et K = Kodo	Verbenaceae	10	Commes-tible	Monographie
	Entada africana	M = Djalankamban nin	Mimosaceae	3	Médicinal	
	Crossopteryx febrifuga		Rubiaceae	3	Médicinal	
	Hymenocardia acida	M = Yègbè	Euphorbiaceae	2		
Grassy	*Desmodium velutinum*		Fabaceae	4		
		Baagbè	Poaceae	4		
		Wan (Koniaké)	Poaceae	35		
Other				3		
Bare Soil				2		

No 5
20-août-06
N: 532018 W: 961617
657 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Terminalia glaucescens*		Combretaceae	5	Commes-tible	
Grassy		Moussouködö gbédé	Fabaceae	3		
	Imperata cylindrica		Poaceae	5		
		Wan (Koniaké)	Poaceae	80		
Other				5		
Bare Soil				2		

No 6
20-août-06
N: 531595 W: 961607
675 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	***Vitex doniana***	M et K = Kodo	Verbenaceae	5	Commes-tible	
	Crossopteryx febrifuga		Rubiaceae	3	Médicinal	
	Annona senegalensis		Annonaceae	5		
	Bridelia micrantha		Euphorbiaceae	5		
	Nauclea latifolia	M et K = Badi	Rubiaceae	5	Médicinal	
	Entada africana	M = Djalankamban nin	Mimosaceae	5	Médicinal	
	Terminalia glaucescens		Combretaceae	2	Commes-tible	
Grassy	*Desmodium velutinum*		Fabaceae	5		
	Aframomum latifolium		Zingiberaceae	5		
		Wan (Koniaké)	Poaceae	55		
Other				3		
Bare Soil				2		

No 7
21-août-06
N: 531219 W: 961891
666 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Entada africana*	M = Djalankamban nin	Mimosaceae	5	Médicinal	
	Crossopteryx febrifuga		Rubiaceae	5	Médicinal	
	Annona senegalensis		Annonaceae	5		
	Bridelia micrantha		Euphorbiaceae	5		
	Nauclea latifolia	M et K = Badi	Rubiaceae	4	Médicinal	
	Hymenocardia acida	M = Yègbè	Euphorbiaceae	3		
	Lophira lanceolata	M et K = Manan	Ochnaceae	3	Médicinal et cure-dent	
	Psorospermum glaberrima		Hypericaceae	3		
	Schefflera barteri	M*3 = Bolokoudounin	Araliaceae	3		
	Ficus sp.		Moraceae	3		
Grassy	*Aframomum latifolium*		Zingiberaceae	5		
		Wan (Koniaké)	Poaceae	5		
		Bingbè	Poaceae	40		
		Könönin na foni	Poaceae	6		
Other				2		
Bare Soil				3		

No 8
21-août-06
N: 530797 W: 962157
663 m
Savane herbeuse
Dr Sékou Moussa Kéita, Chantal Roy et Mamady Sagno

Stratus	Latin Name	Common Name in In*1	Family	% coverage*2	Uses	Protection Status
Tree				0		
Bush	*Entada africana*	M = Djalankamban nin	Mimosaceae	2	Médicinal	
	Bridelia micrantha		Euphorbiaceae	4		
	Nauclea latifolia	M et K = Badi	Rubiaceae	3	Médicinal	
	Hymenocardia acida	M = Yègbè	Euphorbiaceae	5		
	Lophira lanceolata	M et K = Manan	Ochnaceae	3	Médicinal et cure-dent	
	Albizzia zygia	M = Tombon gbèn	Mimosaceae	4		
	Erythrina senegalensis		Fabaceae	3		
	Phyllanthus discoideus		Euphorbiaceae	2		
Grassy	*Aframomum latifolium*		Zingiberaceae	3		
	Sporobolus pyramidalis		Poaceae	6		
		Wan	Poaceae	55		
		Bingbè	Poaceae	4		
Other				3		
Bare Soil				3		

FLORAL INVENTORY AT OUÉLÉBA ACCESS ROAD

Table E-3 List of Vegetation Species Inventoried in the Ouéléba Access Road Sector

Date:	**22 au 24 août 2006**			
Type végétal:	**Savane herbeuse**			
Équipe:	**Dr Sékou Moussa Kéita, Chantal Roy, Mamady Sagno, Sidiki Sagno et Sidiki Camara**			
GPS Coordinates	**Vegetation Type**	**Stratus**	**Dominant Species**	**Family**
N: 0511009	**Prairie de montagne parsemée d'arbustes**	**Herbacée**	Voir liste Kew Garden	Tableau 6.3
W: 0951369				
Alt.: 1147m		**Arbustive**	*Terminalia glaucescens*	Combretaceae
			Bridelia micrantha	Euphorbiaceae
			Crossopteryx fibrifuga	Rubiaceae
			Schefflera barteri	Araliaceae
			Lannea velutina	Anacardiaceae
N: 0511986	**Savane abustive I**		*Pterocarpus erinaceus*	Caesalpinaceae
W: 095895	(à environ 40 % de couverture		*Schefflera barteri*	Araliaceae
Alt.: 1074m	herbacée)		*Hymenocardia acida*	Euphorbiaceae
			Entada africana	Mimosaceae
			Lophira lanceolata	Ochnaceae
	Savane abustive II		*Hymenocardia acida*	Euphorbiaceae
	(avec quelques arbres et moins de 30% de couverture		***Vitex doniana***	Verbenaceae
	herbacée)		*Lophira lanceolata*	Ochnaceae
			Crossopteryx febrifuga	Rubiaceae
			Syzygium guineense	Myrtaceae
			Pterocarpus erinaceus	Caesalpinaceae
			Protea angolense	Proteacea
			Entada africana	Momisaceae
			Phyllantus discoideus	Euphorbiaceae
N: 0513069	**Savane arborée**		*Pterocarpus erinaceus*	Caesalpinaceae
W: 0952044	(arbres très espacés, peu		*Schefflera barteri*	Araliaceae
Alt.: 938m	d'arbustes avec beaucoup		*Hymenocardia acida*	Euphorbiaceae
	d'herbacées)		*Entada africana*	Mimosaceae
			Albizzia zygia	Mimosaceae
			Lophira lanceolata	Ochnaceae
N: 0515258	**Savane arborée**		Pterocarpus erinaceus	Caesalpinaceae
W: 09522106	(plus de 80% d'arbres)		*Schefflera barteri*	Araliaceae
Alt.: 910m			*Lophira lanceolata*	Ochnaceae
			Vitex doniana	Verbenaceae
			Lannea velutina	Anacardiaceae
			Syzygium guineense	Myrtaceae
			Afrormosia laxiflora	Fabaceae
N: 0513397	**Savane arborée**		*Ficus sp.*	Moraceae
W: 0952222	(plus de 90% d'arbres)		*Terminalia glausecens*	Combretaceae
Alt.: 893m			*Pterocarpus erinaceus*	Caesalpinaceae
			Schefflera barteri	Araliaceae
			Lophira lanceolata	Ochnaceae
			Lannea velutina	Anacardiaceae
N: 0513454	**Savane arborée**		*Afrormosia laxiflora*	Fabaceae
W: 0952486	(plus de 80% d'arbres)		*Schefflera barteri*	Araliaceae
Alt.: 870m			*Lophira lanceolata*	Ochnaceae
			Terminalia glausecens	Combretaceae
			Crossopteryx febrifuga	Rubiaceae
			Bridelia micrantha	Euphorbiaceae
			Parkia biglobosa	Mimosaceae
			Pterocarpus erinaceus	Caesalpinaceae

GPS Coordinates	Vegetation Type	Stratus	Dominant Species	Family
N: 0513719 **W: 0952471** **Alt.: 862m**	**Formation arborée serrée** (jeune bois en reconstitution uniforme)		*Lophira lanceolata* *Afrormosia laxiflora* *Pterocarpus erinaceus* *Schefflera barteri*	Ochnaceae Fabaceae Caesalpinaceae Araliaceae
N: 0514072 **W: 0952329** **Alt.: 845m**	**Savane arborée** avec Andropogon gajanus (Flanc de montagne)		*Parkia biglobosa* *Lophira lanceolata* *Schefflera barteri* *Terminalia glausecens* *Pterocarpus erinaceus*	Mimosaceae Ochnaceae Araliaceae Combretaceae Caesalpinaceae
N: 0514045 **W: 0952212** **Alt.: 862m**	**Savane arborée** avec Andropogon gajanus (Dessus de montagne)		*Parkia biglobosa* *Lophira lanceolata* *Schefflera barteri* *Terminalia glausecens* *Pterocarpus erinaceus* *Afrormosia laxiflora*	Mimosaceae Ochnaceae Araliaceae Combretaceae Caesalpinaceae Fabaceae
N: 0512067 **W: 0952143** **Alt.: 1048m**	**Ravin**		*Erythrophleum guineense* *Lannea velutina* *Sterculia tragacantha*	Caesalpinaceae Anacardiaceae Sterculiaceae
N: 0512081 **W: 0952298** **Alt.: 1045m**	**Ravin**		*Piptadeniastrum africanum* *Schefflera barteri* *Uapaca heudelotii* *Canarium schweinfurthii* *Phyllanthus discoideus*	Mimosaceae Araliaceae Euphorbiaceae Burseraceae Euphorbiaceae
N: 0512647 **W: 0952453** **Alt.: 997m**	**Ravin**		*Erythrophleum guineense* ***Vitex doniana*** *Markhamia tomentosa*	Caesalpinaceae Verbenaceae Bignoniaceae
	Bas-fonds		***Mitragina stipulosa*** *Rafia soudanica* *Uapaca heudelotii* *Newboutonia diaguescens*	Rubiaceae Palmaceae Euphorbiaceae Malvaceae

In each of these studies, we encountered two species recognised as endangered in the Guinean Monographie nationale. They are *Vitex doniana and Mitragina stipulosa* , which are found in large concentrations everywhere else. They therefore will not affect the project works.

APPENDIX F

Lists of Endangered Floral Species in Guinea

- IUCN Red List
- CITES List
- *Monographie Nationale* List
- List of Protected Forest Species Under Article 78 of the Forestry Code

Appendix F - Lists of Endangered Floral Species in Guinea

IUCN RED LIST

The IUCN Red List of Threatened Species™ Search Results

Sort results by . . .

Scientific Name Sort

Viewing results **1** to **29** of **29**.

Export

#	[Scientific Name]	Common Name(s)	Red List	Trend
1	Afzelia africana	AFZELIA (E) SAVANNA DOUSSIÉ (F)	VU A1d ver 2.3 (1994)	
2	Albizia ferruginea	ALBIZIA (E)	VU A1cd ver 2.3 (1994)	
3	Bafodeya benna		VU B1+2c ver 2.3 (1994)	
4	Baphia heudelotiana		VU B1+2c ver 2.3 (1994)	
5	Brachystephanus nimbae		VU B2ab(iii) ver 3.1 (2001)	
6	Cola reticulata		VU A1c, B1+2c ver 2.3 (1994)	
7	Copaifera salikounda		VU A1d ver 2.3 (1994)	
8	Cordia millenii	DRUM TREE (E) WEST AFRICAN CORDIA (E)	LR/lc ver 2.3 (1994)	
9	Cryptosepalum tetraphyllum		VU A1c, B1+2c ver 2.3 (1994)	
10	Diospyros feliciana		VU B1+2c ver 2.3 (1994)	
11	Entandrophragma angolense		VU A1cd ver 2.3 (1994)	
12	Entandrophragma candollei	CEDAR KOKOTI (E)	VU A1cd ver 2.3 (1994)	
13	Fleurydora felicis		VU B1+2c ver 2.3 (1994)	
14	Hallea stipulosa		VU A1cd ver 2.3 (1994)	
15	Homalium smythei		VU B1+2c ver 2.3 (1994)	
16	Irvingia gabonensis		LR/nt ver 2.3 (1994)	

17	Khaya grandifoliola	AFRICAN MAHOGANY (E) BENIN MAHOGANY (E) LARGE-LEAVED MAHOGANY (E) SENEGAL MAHOGANY (E) ACAJOU (F)	VU A1cd	ver 2.3 (1994)
18	Khaya senegalensis	AFRICAN MAHOGANY (E) BENIN MAHOGANY (E) DRY ZONE MAHOGANY (E) SENEGAL MAHOGANY (E)	VU A1cd	ver 2.3 (1994)
19	Milicia regia		VU A1cd	ver 2.3 (1994)
20	Millettia warneckei		VU A1c	ver 2.3 (1994)
21	Oricia suaveolens		LR/nt	ver 2.3 (1994)
22	Pavetta lasioclada		VU A1cd, B1+2c	ver 2.3 (1994)
23	Phyllanthus profusus		VU A1c, B1+2c	ver 2.3 (1994)
24	Pouteria altissima		LR/cd	ver 2.3 (1994)
25	Pterocarpus santalinoides	IBÁ-RÁ (S)	LR/lc	ver 2.3 (1994)
26	Terminalia ivorensis	BLACK AFARA (E)	VU A1cd	ver 2.3 (1994)
27	Trichoscypha bijuga		NT	ver 3.1 (2001)
28	Triplochiton scleroxylon		LR/lc	ver 2.3 (1994)
29	Vitellaria paradoxa	SHEA BUTTER TREE (E)	VU A1cd	ver 2.3 (1994)

Citation: IUCN 2006. *2006 IUCN Red List of Threatened Species.* <www.iucnredlist.org>. Downloaded on **16 October 2006**.

Disclaimer: To make use of this information, please check the Copyright and Data Disclaimer.

Feedback: If you see any errors or have any questions or suggestions on what is shown on this page, please fill in the feedback form so that we can correct or extend the information provided.

© International Union for Conservation of Nature and Natural Resources, Contact Information

Source : http://www.iucnredlist.org/search/search.php?kingname=PLANTAE&freetext=&modifier=phrase&criteria=wholedb&taxa_species=1&redlistCategory%5B%5D=all&redlistAssessyear%5B%5D=all&country%5B%5D=GN&aquatic%5B%5D=all&regions%5B%5D=all&habitats%5B%5D=all&threats%5B%5D=all&Submit.x=105&Submit.y=9

Appendix F - Lists of Endangered Floral Species in Guinea

CITES LIST

Base de données sur les Espèce CITES

Nouvelle Recherche **Aide**

CITES - listed plants: Guinea

Famille: ASCLEPIADACEAE

Ceropegia campanulata G. Don var. ***campanulata***

Ceropegia campanulata G. Don var. ***campanulata***

Ceropegia deightonii Hutch. & Dalz. ssp. ***conjuncta*** H. Huber

Ceropegia deightonii Hutch. & Dalz. ssp. ***conjuncta*** H. Huber

Ceropegia nigra N.E. Brown

Ceropegia nigra N.E. Brown

Ceropegia peulhorum A. Chev. var. ***peulhorum***

Ceropegia peulhorum A. Chev. var. ***peulhorum***

Ceropegia powysii D.V. Field

Ceropegia powysii D.V. Field

Ceropegia sankuruensis Schltr.

Ceropegia sankuruensis Schltr.

Ceropegia yorubana Schltr.

Ceropegia yorubana Schltr.

Famille: CYATHEACEAE

Alsophila manniana (Hook.) R.M.Tryon

Alsophila manniana (Hook.) R.M.Tryon

Cyathea dregei Kunze 1834 var. ***dregei***

Cyathea manniana Hook. 1865

Famille: ORCHIDACEAE

Eulophia lindiana Kraenzlin

Eulophia odontoglossa Reichb.f.

Habenaria angustissima Summerh.

Habenaria cirrhata (Lindley) Reichb. f.

Polystachya laxa R. Schuster

Avez-vous remarqué des erreurs dans ce que vous venez de lire? Ou avez-vous des informations supplémentaires sur l'espèce que vous voudriez voire inclure sur ce site? Vos commentaires nous sont précieux. Envoyez-nous vos remarques par courrier électronique.

Citation : UNEP-WCMC. 23 October, 2006. *UNEP-WCMC Species Database: CITES-Listed Species*
On the World Wide Web : http://www.unep-wcmc.org/isdb/CITES/Taxonomy/country_list.cfm?country=GN&col=all&source=plants&displaylanguage=FRA

Source: http://www.unep-wcmc.org/isdb/CITES/Taxonomy/country_list.cfm?country=GN&col=all&source=plants&displaylanguage=FRA

***MONOGRAPHIE NATIONALE* LIST**

Centre d'échange Guinée Convention sur la diversité biologique

MONOGRAPHIE NATIONALE DE LA DIVERSITÉ BIOLOGIQUE de la Guinée

---

5 - 2 - 2 - ESPECES DE PLANTES MENACEES DE LA GUINÉE

CLASSE	ORDRE	FAMILLE	GENRE	ESPECES	N. COMMUN
Magnoliopsida	Papaverales	Moraceae	Chlorophora	*C. excelsa*	Iroko
	Fabales	Cesalpinaceae	Afzelia	*A. africana*	Lingué
		Fabaceae	Lonchocorpus	*L. cyanecens*	N'gara
		Anacardiaceae	Spondias	*S. monbin*	Ninkon
		Cesalpiniaceae	Tamarindus	*T. indica*	Tombi
		Cesalpinaceae	Cassia	*C. podocarpa*	Kotambalin
	Sapindales	Meliaceae	Khaya	*K. sénégalensis*	Caïcédrat
				K. grandifolia	
			Antandrophragma	*A. cylindrica*	Sipo
				A. angolense	Tiama
				A. candolleii	Sapelli
				A. utile	Kossipo
		Sinaroubaceae	Irvingia	*I. gabonensis*	Boborou
		Meliaceae	Khaya	*K. ivorensis*	
				K. anthotheca	
			Gymnospermum	*G. zaizou*	Zaïzou
			Nezogordonia	*N. papavaifera*	Kotibé
	Myrtales	Combretaceae	Terminalia	*T. superba*	Fraké
				T. ivorensis	Framiré
			Guiera	*G. senegalensis*	
	Malvales	Sterculiaceae	Triplochiton	*T. scléroxylon*	Samba
		Bombacaceae	Bombax	*B. sp*	
	Rubiales	Rubiaceae	Mytragina	*M. stipulosa*	Popo
			Nauclea	*N. pobeguini*	

CLASSE	ORDRE	FAMILLE	GENRE	ESPECES	N. COMMUN
			Macrosphyra	*M. longistyla*	Dakounna
			Mitragyna	*M. inermis*	Djum
	Magnoliales	Anonaceae	Xylopia	*X. ethiopica*	Guilè
			Hexalobus	*H. monopetalus*	
	Scrophulariales	Pedaliaceae	Sesamum	*S. indica*	
	Theales	Ochnaceae	Ochna	*O. schewin*	
			Paulinia	*P. pinnata*	Fali wandjan
	Lamiales	Verbanaceae	Vitex	*V. doniana*	Kodoba
	Santales	Olacaceae	Ximenia	*X. americana*	Gbenou
	Gentianales	Apocynaceae	Landolphia	*L. dulcis*	Kodoudou
				L. heudolotii	Gbaï
	Guttiferales	Guttiferaceae	Harungana	*H. madagascariensis*	
	Euphorbiales	Euphorbiaceae	Anthostema	*A. guerstingii*	
Liliopsida	Zingiberales	Zingiberaceae	Aframomum	*A. melegueta*	Yaya
	Arecales	Palmae	Borassus	*B. aethiopum*	Sebé
Filicinées	Filicales	Azolaceae	Azolla	*A. africana*	Fougère
		Denstaticeae	Gleichenia	*G. leonnensis*	Fougère
	Isoctales	Isoetaceae	Isoeta	*I. pitotti*	Fougère

Source : http://bch-cbd.naturalsciences.be/guinee/implementation/documents/monogra1/chap522.htm#plantes

Appendix F - Lists of Endangered Floral Species in Guinea

LIST OF PROTECTED FOREST SPECIES UNDER ARTICLE 78 OF THE FORESTRY CODE

No	Common Name	Scientific Name
1	Lingué	Afzelia Africana
2	Acajous	Khaya spp.
3	Iroko ou simé	Clorophora regia & chlorophora excelsa
4	Niangon	Tarrieta utilis
5	Kosipo	Entandrophragma candollei
6	Sipo	Entandrophragma utile
7	Sapelli ou aboudikrou	Entandrophragma cylindricum
8	Tiama	Entandrophragma angolense
9	Makoré ou Douka	Tieghmella hekelii et T. africana
10	Aniègre	Aningeria robusta et A. altissimma
11	Dibétou	Lovoa trichilioides
12	Bossé	Guarea cedrata
13	Avodiré	Tuureanthus africana
14	Azobé	Lophira alata
15	Bété	Mansonia altissima
16	Movingui	Distemonenthus benthamianus
17	Vène	Pterocarpus erinaceus
18	Bois d'or	Sarcocephalus diderichii et S. pobeguini
19	Sau rouge	Isoberlina doka
20	Rônier	Borrasus aethiopium
21	Gobi	Carapa procera
22	Framiré	Terminalia ivorensis
23	Fraké	Terminalia superba
24	Bahia ou Popo ou Abura	Hallea (Mitragyna) ciliata et H. stipulosa
25	Samba	Tripolichiton scleroxylon
26	Kotibé	Pterygota macrocarpa
27	Dabema	Piptadenia africana
28	Ako	Antiaris africana
29	Sandan ou Sõ	Daniellia oliveri
30	Fromager	Ceiba pentandra
31	Kapokier	Bombax constatum
32	Rikio	Uapaca heudelotii
33	Aiélé	Canarium schweinfurthü
34	Ilomba	Pycnanthus angolensis
35	Lo	Parkia bicolor
36	Faro	Daniellia thurifera

APPENDIX G

Material Safety Data Sheets

- Sodium Hypochlorite
- Aluminum Sulfate
- Potassium Permanganate
- Diesel No. 2

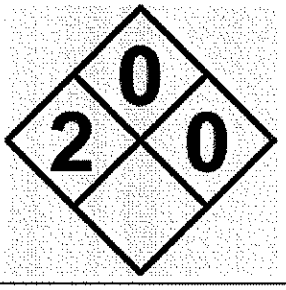
SODIUM HYPOCHLORITE

12.5% SODIUM HYPOCHLORITE SOLUTION

Material Safety Data Sheet

Emergency 24 Hour Telephone: CHEMTREC 800.424.9300

Corporate Headquarters: Hasa Inc.
23119 Drayton Street
Saugus, California 91350
Telephone • 661.259.5848
Fax • 661.259.1538



IDENTIFICATION OF PRODUCT	
Product Name:	HASA 12.5% Sodium Hypochlorite Solution
Common Chemical Names:	Hypochlorite solution sodium salt, sodium hypochlorite
Chemical Names of Ingredients [>1.0% by weight]:	Sodium hypochlorite
Chemical Family:	Inorganic halogen compound
CAS Registry Number:	7681-52-9
Empirical Formula:	NaOCl
Molecular Weight:	74.45

PHYSICAL AND CHEMICAL PROPERTIES			
Vapor Pressure:	12.1 mm Hg at 20°C [12.5% solution]	**Flash Point:**	Not Applicable.
Weight/Gallon:	10.0 lbs. (4.54 kg.)	**pH:**	11.2 – 11.4
Density [liquid]:	1.20 at 20°C (68°F)	**Odor:**	Slight Bleach
Bulk Density:	Not Applicable.	**Boiling Point:**	Decomposes
Melting Point:	Not Applicable.	**Freezing Point:**	-20° Fahrenheit
Physical State:	Liquid Solution	**Color:**	Straw Yellow
Solubility in Water:	Complete	**Stability:**	Stable

PHYSICAL HAZARDS	
Potential for Fire:	None. Nonflammable and combustible liquid.
Potential for Explosion:	None. Nonflammable and combustible liquid.
Reactivity:	Violent reactions with amines, ammonium aldehyde, ammonium carbonate, aziridine, methanol, phenylacetonitrile, ammonium nitrate, ammonium oxylate, ammonium phosphate, cellulose, ethylene imine. Do not mix acids, aqua ammonia, or other organic or inorganic chemicals with this product.

HEALTH HAZARDS	
Signs and Symptoms of Exposure:	Eyes and skin irritation. Chemical burns to broken skin.
Medical Conditions Aggravated by Exposure:	No data available.
Oral [ingestion] LD_{50}:	No data available.
Dermal [skin absorption] LD_{50}:	No data available.
Inhalation [breathing] LC_{50}:	No data available.
Eye Irritation:	Irritating. May cause eye damage.
Skin Irritation:	Mild irritation. Not considered to be a skin sensitizer.
OSHA PEL:	None established.
ACGIH TLV/TWA:	None established.

POTENTIAL ROUTE [S] OF ENTRY	
Inhalation [Breathing]:	Unlikely to occur. Vapor may cause irritation to upper respiratory tract.
Dermal [Skin]:	Contact with broken skin may cause burning, blistering, and tissue destruction if not washed off immediately.
Eyes:	Corrosive to eyes.
Ingestion:	Not anticipated. May cause severe chemical burns to esophagus and to stomach lining.

CARCINOGENIC [CANCER POTENTIAL] INFORMATION	
National Toxicological Program [NTP] ***Sixth Annual Report on Carcinogens:***	Not listed.
International Agency for Research on Cancer [IARC] Monographs**, V. 1-53, Supps. 1-8:**	Not listed.
Listed by Federal OSHA as Carcinogens:	Not listed.

Safe Drinking Water and Toxic Enforcement Act of 1986 **[Proposition 65, California only]:**

Small quantities – less than 100 ppm (parts per million) – of impurities, including bromates, may be found in all chlorinating products, including this product. Bromates are derived from bromides, which are present in sodium chloride (table salt) from which chlorine is manufactured. Additional small quantities of bromates may be generated during the disinfection process. Bromates are known by the State of California to cause cancer when administered by the oral (drinking or ingesting) route. Read and follow label directions and use care when handling or using this product. The US Environmental Protection Agency has established a maximum contaminant level (MCL) for bromates in drinking water at 10 ppb (parts per billion). Application of this product in accordance with label directions at use dilution will not exceed this level.

This warning is provided pursuant to Proposition 65, the Safe Drinking Water and Toxic Enforcement act of 1986, Chapter 6.6 of the California Health and Safety Code, which requires the Governor of California to publish a list of chemicals "known to the state to cause cancer or reproductive toxicity." This list is compiled in accordance with the procedures established under the proposition, and can be obtained on the internet from California's Office of Environmental Health Hazard Assessment at http://www.oehha.ca.gov. There are over 700 chemical substances on this list.

GENERAL PRECAUTIONS FOR SAFE USE AND HANDLING
Open containers carefully. Sodium hypochlorite solutions are packaged with vented closures. Do not use containers which are leaking or show evidence of having leaked. Mix only with water. Do not mix with other chemicals. Use clean, dry utensils when mixing. Do not discharge this product or mixtures of this product into lakes, streams, ponds, bays, estuaries, or the ocean. Sodium hypochlorite is toxic to aquatic organisms at very low levels.

PERSONAL PROTECTION AND HYGIENE
Wear goggles or face shield and rubber gloves when handling. Remove and wash contaminated clothing before reuse. Wash hands after handling.

CLEAN-UP OF SPILLS
Store this product in a cool, dry area, away from sunlight and heat to avoid deterioration. In case of spill, flood area where spill has occurred with large quantities of water. With permission from local authorities, diluted product may be flushed to a sanitary sewer. Product may also be absorbed with sand or diatomaceous earth. Absorbed products must be disposed of in accordance with applicable Federal, State, and/or local regulations. Contact HASA, Inc. for guidance.

FIRST AID	
Eye Contact:	Flush with water. Remove contact lenses [if applicable]. Hold eyelids open. Continue flushing with water for 15 minutes. Get prompt medical attention.
Skin Contact:	Wash affected area with water for 15 minutes. Get medical attention.
Ingestion [swallowing]:	Drink large quantities of milk or gelatin solutions. If these are not available drink large quantities of water. DO NOT induce vomiting. DO NOT give vinegar or other acids. Get prompt medical attention.

FEDERAL/STATE LISTS/REGISTRATION/S/REPORTING REQUIREMENTS	
CERCLA Hazardous Substance [Section 1010 [4], P.L. 96-510]:	RQ=100 lbs [80 gallons for 12.5% solution]
Extremely Hazardous Substance [40 CFR 355, Appendix A]:	Not listed.
Pesticide Product 7 U.S.C. 136 et seq.:	Registered as a pesticide product by Federal EPA.
Toxic Substance under TSCA:	Not reported.
Pesticide Product [various State Laws]:	Registered as pesticide product in states where marked.

MATERIAL CLASSIFICATION	
OSHA Hazard Communication Standard, Department of Labor, Occupational Safety and Health Division, 29 CFR 1910.1200:	Irritant

Hazardous Materials Transportation Regulations, Department of Transportation (Federal) 49 CFR 172.101	
Proper Shipping Description [1 gallon or less]:	Consumer Commodity, ORM-D
Proper Shipping Description [greater than 1 gallon]:	Hypochlorite Solutions, 8, UN1791, P.G. III

National Fire Protection Association NFPA 704 [1990]:	2-0-0
BOCA National Fire Prevention Code/National Building Code [1999 editions]:	Irritant
Standard Fire Prevention Code/Standard Building Code [1997 editions]:	Irritant
Uniform Fire Code/Uniform Building Code [1997 editions]:	Irritant
Uniform Fire Code Standards 79-3, Uniform Fire Code, V. II [1997 edition]:	2-0-0

RETURNABLE CONTAINERS
Returnable (deposit) containers must be resealed and the contents drained therefrom prior to return to the distributor or manufacturer for credit. Do not offer leaking or damaged containers for transportation.Call HASA, Inc. or your distributor for instructions.

Please Note: The information contained herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge and belief. NO WARRANTY OR GUARANTEE, expressed or implied, is made regarding the product performance, product stability, or as to any other condition of use, handling, transportation, and storage. Customer use, handling, transportation, and storage may involve additional safety and/or performance considerations. Our technical personnel will be happy to respond to questions regarding safe handling, storage, transportation and use procedures. The safe handling, storage, transportation and use procedures remain the sole responsibility of the customer. No suggestions for handling, storage, transportation or use are intended as or to be construed as recommendations which may infringe on any existing patents or violate any Federal, State, and/or local law and/or regulation, ordinance, standard, etc.. This Material Safety Data Sheet has been prepared by HASA, Inc. staff from test reports and other information available in the public domain.

ALUMINUM SULFATE

Material Safety Data Sheet - MSDS

Liquid Alum

MARSULEX

Section 1. Chemical Product and Company Identification

Trade name : Liquid Aluminum Sulphate

Material uses : Alum is used as a coagulating agent in municipal and industrial water and wastewater treatment and as an additive in papermaking.

Headquarters : Marsulex Inc.
111 Gordon Baker Road
Suite 300
North York, ON
M2H 3R1
(416) 496-9655
www.marsulex.com

Validation date : **2005-07-15.**

In case of emergency : Canada : CANUTEC 1-613-996-6666
US : CHEMTREC: 1-800-424-9300

Section 2. Composition, Information on Ingredients

Name	CAS #	% by weight
Aluminum Sulfate Hydrate	16828-12-9	45-55

This material is classified hazardous under OSHA regulations in the United States and the WHMIS Controlled Product Regulation in Canada.

See Section 8 for Exposure Limits.
See Section 11 for Toxicological Data.

Section 3. Hazards Identification

Physical state and Appearance : Liquid.

Emergency overview : CAUTION!
CAUSES EYE AND SKIN IRRITATION.
Do not get in eyes, on skin or on clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Irritating to eyes.

Skin : Irritating to skin. Aluminum is very poorly absorbed through the skin and toxic effects would not be expected following short-term skin contact. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

Inhalation : Mists and vapors cause varying degrees of irritation of the nose, throat and respiratory tract.

Ingestion : May cause irritation of the lining of the stomach. Ingestion is not a typical route of occupational exposure.

Potential chronic health effects : **Carcinogenic effects**: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogens effects: Not available.

Medical conditions aggravated by over-exposure : Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

Over-exposure signs/symptoms : Not available.

See Section 11 for Toxicological Data.

Continued on next page

Section 4. First Aid Measures

Eye contact : Immediately flush eyes with lukewarm, gently running water for a minimum of 5 minutes or until the chemical is removed. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Skin contact : Flush skin with lukewarm running water for a minimum of 5 minutes or until the chemical is removed. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing and obtain medical attention. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport.

Inhalation : Move victim to fresh air. If irritation persists, obtain medical attention immediately. Give artificial respiration ONLY if breathing has stopped. Give Cardiopulmonary Resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention IMMEDIATELY.

Ingestion : If irritation or discomfort occur, obtain medical advice immediately.

Notes to physician : Not available.

Section 5. Fire Fighting Measures

Flammability of the product : Non-flammable.

Auto-ignition temperature : Not applicable.

Flash points : Not applicable.

Flammable limits : Not applicable.

Products of combustion : Forms aluminum oxide, sulfur dioxide and/or sulfur trioxide at temperatures reported above 650°C (1200°F).

Fire hazards in the presence of various substances : Not applicable.

Explosion hazards in the presence of various substances : Liquid alum may react with some metals, to give flammable, potentially explosive hydrogen gas. Hydrogen gas can accumulate to explosive concentrations inside confined spaces. Follow appropriate NFPA codes.

Fire-fighting media and instructions : Use appropriate extinguisher for surrounding material.

Protective clothing (fire) : Wear a NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if vapors or mists are present. For fighting fires in close proximity to spill or vapors, use acid-resistant personal protective equipment. Evacuate residents who are downwind of fire. Prevent unauthorized entry to fire area. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents (see Deactivating Chemicals, Section 6). Cool containers that are exposed to flame with streams of water until fire is out.

Section 6. Accidental Release Measures

Small spill and leak : Cover with dry earth, sand or other non-combustible material. Use clean tools to collect material and place it into loosely covered plastic containers for later disposal.

Large spill and leak : Prevent liquid from entering sewers or waterways. Dike with inert material (sand, earth, etc.). Stop or reduce leak if safe to do so. Consider in situ neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases.
Deactivating Chemicals: Lime, limestone, soda ash, sodium bicarbonate, dilute sodium hydroxide or dilute aqua ammonia.

Section 7. Handling and Storage

Handling : Do not breathe dust or mist. Do not ingest. Do not get in eyes, on skin or on clothing. Aluminum sulfate in solution is acidic. Use corrosion-resistant transfer equipment. Use only with adequate ventilation. Wash thoroughly after handling.

Storage : Liquid alum may be received and stored in corrosion-resistant tanks. Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at temperatures below 40°C (104°F) and above 0°C (32°F).

Continued on next page

Section 8. Exposure Controls, Personal Protection

Engineering controls : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of the material below occupational exposure limits.

Personal protection

Eyes : Face shield.

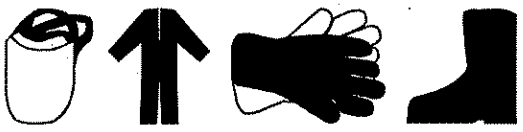
Body : Lab coat or coveralls.

Respiratory : A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, mist cartridges for concentrations up to 20 mg/m^3. An air-supplied respirator if concentrations are higher or unknown.

Hands : Gloves: Neoprene, PVC, vinyl or rubber.

Feet : Appropriate industrial footware.

Protective clothing (pictograms) :



Personal protection in case of a large spill : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

Exposure limits

Product name	Exposure limits
Aluminum Sulfate Hydrate	**ACGIH (TLV)** TWA: 2 mg/m^3 as Aluminium (soluble salts) **OSHA (PEL) (United States).** TWA: 2 mg/m^3 as Aluminium (soluble salts)

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and Appearance : Liquid.

Color : Clear.

Odor : Odorless.

Molecular formula : $Al_2(SO_4)_3$ 14 H_2O

pH : 1.9 to 2.3 [Acidic.]

Boiling/condensation point : 101°C (213.8°F)

Melting/freezing point : -16°C (3.2°F)

Specific gravity : 1.335 (Water = 1)

Vapor pressure : The highest known value is 2.3 kPa (17.5 mm Hg) (at 20°C) (Water).

Vapor density : The highest known value is 0.62 (Air = 1) (Water).

Odor threshold : Not available.

Evaporation rate : Not available.

LogK_{ow} : Not available.

Solubility : Completely miscible in water.

Section 10. Stability and Reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Strong bases such as sodium hydroxide. Reaction may be violent.

Hazardous decomposition products : Sulfuric acid vapors may be released upon heating and sulfur dioxide and sulfur trioxide may be released upon decomposition.

Hazardous polymerization : Will not occur.

Continued on next page

Section 11. Toxicological Information

Toxicity data

Ingredient name	Test	Result	Route	Species
Aluminum Sulfate Hydrate	LD50	>9000 mg/kg	Oral	Rat
	LD50	>9000 mg/kg	Oral	Mouse

Chronic effects on humans : See Section 3.

Other toxic effects on humans : Irritating to eyes and skin.

Section 12. Ecological Information

Ecotoxicity data

Ingredient name	Species	Period	Result
Aluminum Sulfate Hydrate	Goldfish (LC50)	72 hour/hours	100 mg/l

Products of degradation : These products are carbon oxides and water, sulfur oxides, phosphates. Toxicity is primarily associated with acidic pH. Acidic soil conditions can develop with the material present leading to release of some trace metals.

Toxicity of the products of biodegradation : The products of biodegradation are more toxic than the original product.

Section 13. Disposal Considerations

Waste information : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Consult your local or regional authorities.

Section 14. Transport Information

Canada (TDG) : RQ CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum Sulfate), 8, UN3264, PG III.

United States (DOT) : RQ CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum Sulfate), 8, UN3264, PG III.

ERG : 154

Section 15. Regulatory Information

WHMIS (Canada) : Class E: Corrosive liquid.
Class D-2B: Material causing other toxic effects (Toxic).
CEPA DSL: All components listed.
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

HCS Classification : Irritating material

U.S. Federal Regulations : TSCA 8(b) inventory: All components listed.
Clean Water Act (CWA) 311: Sulfuric acid

State Regulations : Pennsylvania RTK: Sulfuric acid: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Sulfuric acid
New Jersey: Sulfuric acid
California Prop. 65: No products were found.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)

Health	2
Fire hazard	0
Reactivity	0
Personal protection	C

National Fire Protection Association (U.S.A.)

Continued on next page

References : - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. ANSI Z400.1, MSDS Standard, 2004. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002. - Manufacturer's Material Safety Data Sheet.

Responsible name : **Kemika XXI Inc.**
Date of previous issue : **2004-12-14.**
Version : **2**

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

POTASSIUM PERMANGANATE

MSDS **Material Safety Data Sheet**

From: **Mallinckrodt Baker, Inc.**
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS

J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

POTASSIUM PERMANGANATE, VOLUMETRIC SOLUTIONS

1. Product Identification

Synonyms: Permanganic acid, potassium salt solution; Potassium Permanganate 0.1 Normal (N/10) Volumetric solution; Potassium Permanganate 1.0 Normal Volumetric solution; Potassium Permanganate, DILUT-IT® Analytical Concentrate
CAS No.: 7722-64-7
Molecular Weight: 158.03
Chemical Formula: KMnO4 (solution)
Product Codes:
J.T. Baker: 4677, 5651
Mallinckrodt: 5387, 6139

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Potassium Permanganate	7722-64-7	0.3 - 8%	Yes
Water	7732-18-5	92 - 99.7%	No

3. Hazards Identification

Emergency Overview

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate
Flammability Rating: 0 - None
Reactivity Rating: 3 - Severe (Oxidizer)
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Yellow (Reactive)

Potential Health Effects

The health effects from exposure to diluted forms of this chemical are not well documented. They are expected to be less severe than those for concentrated forms which are referenced in the descriptions below.

Inhalation:
No adverse effects expected. May cause mild irritation to the respiratory tract.
Ingestion:
Ingestion of solid or high concentrations causes severe distress of gastro-intestinal system with possible burns and edema; slow pulse; shock with fall of blood pressure. May be fatal. Ingestion of concentrations up to 1% causes burning of the throat, nausea, vomiting, and abdominal pain; 2-3% causes anemia and swelling of the throat with possible suffocation; 4-5% may cause kidney damage.
Skin Contact:
Causes irritation to skin. Symptoms include redness, itching, and pain.
Eye Contact:
Causes irritation, redness, and pain.
Chronic Exposure:
Prolonged exposure can cause dermatitis and defatting. Chronic manganese poisoning can occur after ingestion of large amounts. Affects the nervous system.
Aggravation of Pre-existing Conditions:
Persons with preexisting skin disorders may be more susceptible to these substances.

---

4. First Aid Measures

Inhalation:
Remove to fresh air. Get medical attention for any breathing difficulty.
Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard. This oxidizing material can increase the flammability of adjacent combustible materials. Contact with oxidizable substances may cause extremely violent combustion.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

---

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

---

7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
5 mg/m3 Ceiling for manganese compounds as Mn

- ACGIH Threshold Limit Value (TLV):
0.2 mg/m3 (TWA) for manganese, elemental and inorganic compounds as Mn

Ventilation System:
In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):
Not expected to require personal respirator usage.

Skin Protection:
Gloves and lab coat, apron or coveralls.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Purple solutions.

Odor:
Odorless.

Solubility:
Miscible in water.

Density:
ca. 1.0-1.6

pH:
No information found.

% Volatiles by volume @ 21C (70F):
90 (as water)

Boiling Point:
ca. 102C (ca. 216F)

Melting Point:
-2C (28F)

Vapor Density (Air=1):
No information found.

Vapor Pressure (mm Hg):
No information found.

Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Toxic metal fumes may form when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Reducing agents, flammables, reactive organic materials, metals, sulfuric acid.
Conditions to Avoid:
Heat, flames, ignition sources and incompatibles.

---

11. Toxicological Information

Potassium Permanganate: oral rat LD50: 750 mg/kg. Investigated as a mutagen, reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Potassium Permanganate (7722-64-7)	No	No	None
Water (7732-18-5)	No	No	None

---

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
For potassium permanganate: Dangerous to the environment. Very toxic to aquatic organisms; may cause long term adverse effects in the aquatic environment.

---

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: POTASSIUM PERMANGANATE SOLUTION
Hazard Class: 5.1
UN/NA: UN1490
Packing Group: II
Information reported for product/size: 4L

International (Water, I.M.O.)

Proper Shipping Name: POTASSIUM PERMANGANATE SOLUTION
Hazard Class: 5.1
UN/NA: UN1490
Packing Group: II
Information reported for product/size: 4L

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\--------

Ingredient	TSCA	EC	Japan	Australia
Potassium Permanganate (7722-64-7)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\--------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Potassium Permanganate (7722-64-7)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\--------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Potassium Permanganate (7722-64-7)	No	No	No	Manganese co
Water (7732-18-5)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\--------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Potassium Permanganate (7722-64-7)	100	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: Yes Pressure: No

Reactivity: No (Mixture / Liquid)

Australian Hazchem Code: None allocated.
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

---

16. Other Information

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **1** Other: **Oxidizer**
Label Hazard Warning:
DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION.
Label Precautions:
Store in a tightly closed container.
Do not store near combustible materials.
Keep from contact with clothing and other combustible materials.
Do not get in eyes, on skin, or on clothing.
Remove and wash contaminated clothing promptly.
Do not breathe dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.
Product Use:
Laboratory Reagent.
Revision Information:
MSDS Section(s) changed since last revision of document include: 3, 11, 12.
Disclaimer:
****

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT

TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
****

Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

DIESEL NO. 2

MSDS SUMMARY SHEET

Manufacturer:
Name: PHILLIPS PETROLEUM COMPANY
Address 1:
Address 2:
Address 3:
CSZ: BARTLESVILLE **State:** OK **Zipcode:** 74004
Emergency phone: (800) 424-9300
Business phone: 800-762-0942

Product:

Ferndale MSDS#: 1354 **Version # :** 6
Manufacturer MSDS#: 0041
Current? : 2002
Name:

NO. 2 DIESEL FUEL

Synonyms:

CARB **Diesel** TF3
CARB **Diesel**
CARB **Diesel** 10%
Diesel Fuel Oil
EPA Low Sulfur **Diesel** Fuel
EPA Low Sulfur **Diesel** Fuel – Dyed
EPA Off Road High Sulfur **Diesel** – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 **Diesel** Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur **Diesel** – Dyed
No. 2 Low Sulfur **Diesel** - Dyed
No. 2 Low Sulfur **Diesel** - Undyed
Crude column 3rd IR
Crude column 3rd side cut
Atmospheric tower 3rd side cut
Ultra Low Sulfur **Diesel** No. 2
Finished **Diesel**
DHT Reactor Feed
Straight Run **Diesel**
Diesel
Middle Distillate

Product/Catalog Numbers:
MSDS Date: 01/01/2002 **(received:** 01/14/2002)

NFPA codes:
Health: 0 **Flammability:** 2 **Reactivity:** 0

MATERIAL SAFETY DATA SHEET
No. 2 Diesel Fuel

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: No. 2 Diesel Fuel
Product Code: Multiple
SAP Code:
Synonyms:
1354
CARB Diesel TF3
CARB Diesel
CARB Diesel 10%
Diesel Fuel Oil
EPA Low Sulfur Diesel Fuel
EPA Low Sulfur Diesel Fuel – Dyed
EPA Off Road High Sulfur Diesel – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 Diesel Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur Diesel – Dyed
No. 2 Low Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel – Undyed
No. 2 Ultra Low Sulfur Diesel – Dyed
No. 2 Ultra Low Sulfur Diesel - Undyed
Intended Use: Fuel
Chemical Family:
Responsible Party: Phillip's Petroleum Company
Bartlesville, Oklahoma 74004
For Additional MSDSs: 800-762-0942
Technical Information:

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: 800-356-3120

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red
Physical Form: Liquid
Odor: Characteristic petroleum

HFPA Hazard Class:
Health: 0 (Least)
Flammability: 2 (Moderate)
Reactivity: 0 (Least)

HMIS Hazard Class
Not Evaluated

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	% VOLUME		EXPOSURE GUIDELINE	
		Limits	Agency	Type
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m3	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

*Proposed ACGIH (1999)

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 14).

Target Organs: There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders and kidney disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: >125°F/>52°
OSHA Flammability Class: Combustible liquid
LEL %: 0.3 / UEL %; 10.0
Autoignition Temperature: 500°F/260°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSIZ49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eyes/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red
Physical State: Liquid
Odor: Characteristic petroleum
pH: unavailable
Vapor Pressure (mm Hg): 0.40
Vapor Densisty (air=1):>3
Boiling Point/Range: 320-700°F /160-371°C
Freezing/Melting Point: No Data
Solubility in Water: Negligible
Specific Gravity: 0.81-0.88 @ 60°F
Percent Volatile: Negligible
Evaporation Rate (nBuAc=1): <1
Viscosity: 32.6-40.0 SUS @ 100°F
Bulk Density: 7.08 lbs/gal
Flash Point: >125°F / >52°C
Flammable/Expolsive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m3 TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent then the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container ?insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel Fuel, NA1983
Non-Bulk Package Marking: Diesel Fuel, 3, NA 1993, III

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
-- None known --		

California Proposition 65:
Warning: This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:
This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

EPA (CERCLA Reportable Quantity: None

16. OTHER INFORMATION

Issue Date: 01/01/02
Previous Issue Date: 05/15/01
Product Code: Multiple
Revised Sections: None
Previous Product Code: Multiple
MSDS Number: 0041

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Tosco Refining Company ***Ferndale Refinery***

UltraLow Sulfur Diesel Product Specification

Ferndale Product Code:34380xx (5) Product Code: ULSD2

(COMETS)

Specification	Unit	Limit	Test Procedure	Typical
Appearance				
Water & Sediment	Vol %	0.05 Max	D 2709	
Color	Number	3.0 Max	D 1500	
Haze Rating	Rating	2 Max	D 4176	
Composition				
Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility				
90% Recovered	Deg; F	540 Min	D 86	
	Deg; F	640 Min	D 86	
Flash Point	Deg; F	125 Min (1)	D 93	130 F
Gravity	API	30 Min	D 287, D4052	
Fluidity				
Pour Point	Deg; F	See Season Table (6)	D 97	
Cloud Point	Deg; F	See Season Table (6)	D 2500	10 F
Viscosity @ 104F	cSt	1.9 Min	D 445	
	cSt	4.1 Max	D 445	
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion				
Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D 976, D613	47.0
Corrosion				
Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants				
Total Sulfur	PPM	30 Max	D 2622, D4294	15-20ppm
Water & Sediment	Vol %	0.05 Max	D 1796	
Ash	Wt %	0.01 Max	D 482	
Additives				
Cetane Improver	Lb/MBbl	675 Max		
Dye		Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max

APPENDIX H

Correspondence from the Ministry of Environment

MINISTERE D'ETAT CHARGE
DE L'EQUIPEMENT
DE L'AMENAGEMENT DU TERRITOIRE
ET DE L'ENVIRONNEMENT

MINISTERE DE
L'ENVIRONNEMENT

N° ...../ME/CEGENS/200
0691

REPUBLIQUE DE GUINEE
Travail – Justice – Solidarité

23 NOV. 2006

Conakry, le 2006

LE MINISTRE

A

Monsieur Alain Pillevuit Directeur Résident
SIMFER S.A, Corniche Sud – Rue Ma 500

Conakry

Objet : Procédure simplifiée d'approbation de l'étude d'impact environnemental des travaux préparatoires au site minier de Canga Est

Monsieur le Directeur Résident,

Faisant suite à votre courrier du 13 novembre 2006, cité en objet, je rappelle que les travaux de construction visés par votre Société s'inscrivent dans les catégories C et D de la procédure simplifiée de réalisation de l'Etude d'Impact Environnemental (EIE) en Guinée.

Les étapes à suivre pour l'approbation du rapport consistent à la soumission du rapport au Ministère, dont l'examen est fait par une Commission interne, sanctionné par un procès verbal adressé à votre Société.

Lorsque la réalisation de l'Etude d'Impact Environnement (EIE) est jugée conforme à la procédure administrative et technique, il est organisé par le bureau de réalisation de l'étude, l'atelier de restitution du rapport dans la zone du projet. La restitution devra connaître la participation des services de l'environnement et de toutes les parties prenantes à l'étude d'impact (secteur public, privé et la société civile) au niveau local.

Une semaine avant, les documents devront être acheminés dans la zone du projet par le CEGENS et le Service des Etudes d'Impact et Evaluations Environnementales pour distribution.

La conduite technique de l'atelier sera assurée par le CEGENS en charge des questions d'environnement dans la région de Simandou, assisté du Service des Etudes d'Impact et Evaluations Environnementales.

Les frais relatifs aux démarches sont à la charge de SIMFER S.A, soumissionnaire du rapport de l'étude d'impact en objet.

Veuillez agréer, Monsieur le Directeur Résident, l'expression de ma considération distinguée.

MINISTERE DE L'ENVIRONNEMENT * LE MINISTRE * REPUBLIQUE DE GUINEE

MAMOUDOU KEITA

APPENDIX I

Project Partners' Policies and Directives

- Rio Tinto's Policies
- IFC Social and Environmental Sustainability Performance Standards

Appendix I – Project Partners' Policies and Directives

RIO TINTO'S POLICIES

Table I-1 Rio Tinto's Health, Safety, Environmental and Community Policies

Communities	This policy is designed to develop lasting relations with the communities in which Rio Tinto carries out its projects by establishing relations based on mutual respect, active partnership, and long-term commitment.
Employment	The purpose of this policy is to provide a healthy, safe and productive workplace free of accidents and of all forms of discrimination and harassment. Rio Tinto is also committed to promoting corporate values and practicing ethics that lead to good behavior at work.
Environment	Rio Tinto adopted this policy to comply with international laws, standards, and regulations governing the environment. Its environmental performance is based on a management system and partnership with the environment designed to prevent, reduce, or eliminate environmental risks resulting from its activities.
Human Rights	By adopting this policy, Rio Tinto is committed to respecting human rights and having its employees, partners and communities concerned do the same, in conformance with the U.N.'s Universal Declaration of Human Rights. The company must also ensure than no uses of its equipment or facilities violate these rights. Under this policy, the company also agrees to promote a better understanding of human rights.
Land Access	This policy ensures that the company will adopt an inclusive, consultative, and participatory process in order not to prejudice anyone's rights in the course of land acquisitions. To do so the company adopts a transparent process, based on tradition and legislation, to satisfy land claims and pay fair and equitable compensation. The company also acknowledges the importance of respecting areas that are protected or recognized as world heritage sites. Rio Tinto will also develop some land dedicated to purposes other than mining to meet employee and local community needs in matters of education, lodging, health and leisure, food production, forest exploitation, habitat protection, and biodiversity conservation. The company is committed to rehabilitating the land at the end of the operating period, in conformance with good environmental practices and existing laws and regulations.
Occupational Health	By applying this policy, the company wants to control and prevent diseases associated with the functions of its employees, thereby providing them with a workplace that contributes to the maintenance of good physical health. The company conforms to this policy through a training program and quality assurance measures (audits, observations, periodic reports).
Political Involvement	By supporting this policy, Rio Tinto promises not to contribute to any political party or promote any male or female politician. However, the company does plan to promote its commercial interests by way of public dialogue and contributing to the development of sound and effective legislation and regulations for society as a whole.

Safety	The ultimate goal of this policy is to provide employees with an accident-free workplace. In addition to providing continuous training and encouraging employee vigilance, the company also relies on a preventive approach to eliminating all workplace accidents by identifying potential hazards and risks.
Sustainable Development	Rio Tinto acknowledges the importance of contributing to sustainable development by incorporating this concept into its activity plans and decision-making process. By giving priority to the well-being of the local population, preservation of the environment, sustainable resource management, and management systems, the company ensures its compliance with local and international sustainable development standards.

IFC SOCIAL AND ENVIRONMENTAL SUSTAINABILITY PERFORMANCE STANDARDS

The IFC Performance Standards on Social and Environmental Sustainability cover matters of importance to the IFC's core objectives and provide IFC staff and Proponents with direction and guidance in pursuit of those objectives. The Performance Standards establish the Proponents' responsibilities and the parameters necessary to creating socially and environmentally sustainable projects. The IFC has established a set of Performance Standards on Social and Environmental Sustainability (8) which are briefly described in Table I-2.

Table I-2 IFC Social and Environmental Sustainability Performance Standards

Performance Standard 1	**Social and Environmental Assessment and Management System** A social and environmental management system must be applied throughout the life of the project. An effective management system is a dynamic, continuous process involving communication between all parties. The system must allow for the continuous evaluation of the project's social and environmental performance.
Performance Standard 2	**Labour and Working Conditions** This standard aims to establish the best possible worker-management relationship by respecting both national and international labour conventions and laws, by promoting fair treatment, equal opportunity, non-discrimination, and by promoting safe and healthy working conditions.
Performance Standard 3	**Pollution Prevention and Abatement** This standard outlines a project approach to pollution prevention and abatement by conforming to internationally-accepted technologies and practices. It aims to avoid or reduce negative impacts of pollution on human health and the environment by preventing and abating the pollution generated by project construction and operation, and by promoting the reduction of greenhouse gas emissions.
Performance Standard 4	**Community Health, Safety and Security** This standard addresses the responsibility of the project proponent throughout the life of the project to avoid or reduce the risks and potential impacts associated with project activities on personnel and property, in such a manner that avoids and minimizes risks to community health, safety and security.
Performance Standard 5	**Land Acquisition and Involuntary Resettlement** This standard aims to prevent involuntary resettlement and land acquisition from impoverishing the affected persons and from causing social tensions or environmental damage. The standard establishes policies for resettlement of people, mitigating the consequent negative social and environmental impacts, improving standards of living of those displaced, and reinstating their livelihood.
Performance Standard 6	**Biodiversity Conservation and Sustainable Natural Resource Management** This standard recognizes that "biodiversity conservation—the variety of life in all its forms, including genetic, species and ecosystem diversity—and its ability to adapt, is fundamental to sustainable development". The proponent thus has the responsibility to reduce and avoid impacts on biodiversity, to protect and conserve biodiversity, and to promote the sustainable use and management of natural resources.

Performance Standard 7	**Indigenous Peoples** Indigenous Peoples, as distinct and vulnerable social groups, are often prevented from participating in development and are exposed to different levels of risk and impacts. The standard aims to establish the methods necessary to ensuring that the Project respects these peoples, and to avoid affecting them negatively, while preserving their social, cultural and linguistic uniqueness.
Performance Standard 8	**Cultural Heritage** In recognizing the importance of cultural heritage, this standard establishes the policies for its protection from the adverse impacts of project activities, and for ensuring and maintaining its conservation.

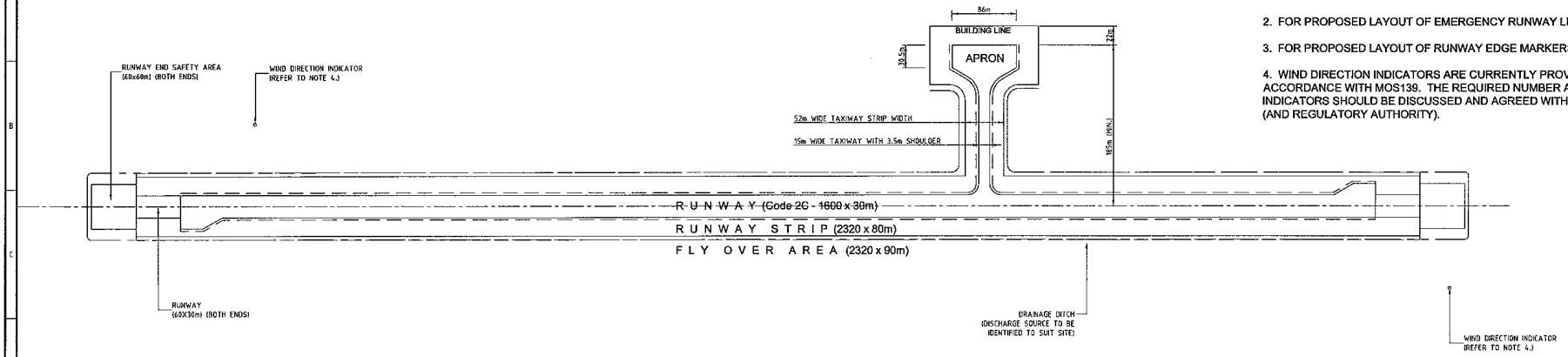
Source : International Finance Corporation (IFC 2006d). Performance Standards on Social and Environmental Sustainability.

APPENDIX J

Drawing - Airstrip

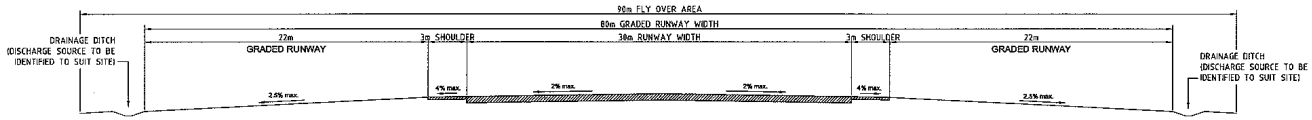
NOTES:

1. DRAWING TO BE READ IN CONJUNCTION WITH THE DESIGN REPORT AND SPECIFICATION.
2. FOR PROPOSED LAYOUT OF EMERGENCY RUNWAY LIGHTING REFER TO DRAWING NO. 2976-DD-009.
3. FOR PROPOSED LAYOUT OF RUNWAY EDGE MARKERS REFER TO DRAWING NO. 2976-DD-010.
4. WIND DIRECTION INDICATORS ARE CURRENTLY PROVIDED AT EITHER END OF THE RUNWAY, IN ACCORDANCE WITH MOS139. THE REQUIRED NUMBER AND LOCATION OF THE WIND DIRECTION INDICATORS SHOULD BE DISCUSSED AND AGREED WITH THE PROPOSED AIR SERVICES OPERATOR (AND REGULATORY AUTHORITY).



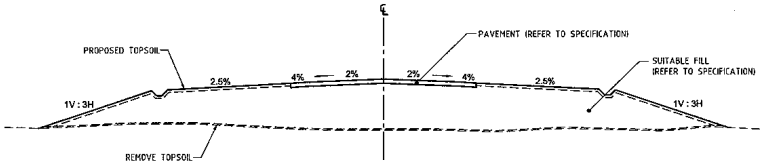
PLAN (RUNWAY - CODE 2C AIRCRAFT)

1:3000 (A1) 0 30m 60 90 120 150 180 210 240 270 300 330 360 390 420 450



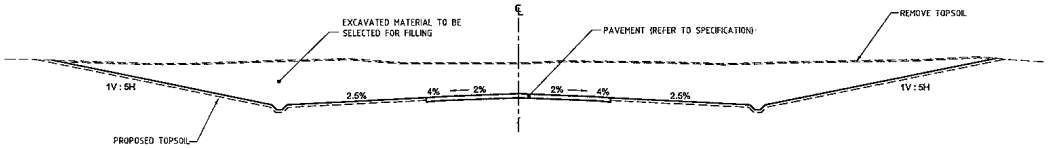
RUNWAY/RUNWAY TYPICAL CROSS SECTION

1:200



TYPICAL CROSS SECTION - FILL

N.T.S.



TYPICAL CROSS SECTION - CUT

N.T.S.

DETAILED DESIGN
FOR APPROVAL
NOT FOR CONSTRUCTION

REV	BY	DATE	DESCRIPTION	CKD	APP

REV	BY	DATE	DESCRIPTION	CKD	APP

SKM — Sinclair Knight Merz Pty Ltd, ACN 001 474 046, 263 Adelaide Tce, Perth Western Australia 6000, Ph (08) 9268 4400 Fax (08) 9268 4488

DRAWN	Jason Lam	Dec. 06
TRACED		
CHECKED		
SUPT DRAFT		
PROJ. ENG.		
APPROVED		
APP. FOR CONST.		

PILBARA IRON PTY. LIMITED ACN 107 216 535 — ASSET MANAGER FOR — HAMERSLEY IRON PTY. LIMITED ACN 004 558 276 — ROBE RIVER MINING COMPANY PTY. LIMITED ACN 088 694 246

SIMANDOU IRON ORE PROJECT
BEYLA AIRFIELD
DETAILED DESIGN (CODE 2C AIRCRAFT)
PLAN AND SECTION DETAILS

SCALE AS SHOWN
DRAWING NUMBER 2976-DD-004 REV
PROJECT NUMBER DE02976

SHEET SIZE A1 — REFERENCES — REVISIONS

I:\DEVN\Projects\DE02976\Deliverables\RioTinto\Simandou\Drawings\Autocad\Airstrip\Rev A\Airstrip - B 281106.dwg 12/15/2006 4:17 PM