

Rezoning Information Package

File Number: 3360-20/20170029

Subject: Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017

Electoral Area: A

Date of Referral: October 6, 2017

Date of Application: September 8, 2017

Property Owner's Name(s): Orica Canada Inc. (Crown)

Applicant's Name: Dan Williams c/o Orica Canada Inc.

SECTION 1: Property Summary

Legal Description(s): That Parcel or Tract of Land East of District Lot 8003, Cariboo District, containing 16.589 ha More or Less (Lease/Permit/Licence # 516476)

Area of Application: 16.58 ha (40.97 ac)

Location: Parcel or Tract of Land East of DL 8003, Cariboo District, containing 16.589 ha More or Less

Current Zoning:
Resource/Agricultural (R/A)

Min. Lot Size Permitted:
32 ha (79.07 ac)

Proposed Zoning:
Heavy Industrial (M 3)

Min. Lot Size Permitted:
0.4 ha (0.99 ac)

Proposed Use: Storage of raw materials for the production of Ammonium Nitrates Emulsions that are used in the mining industry.

No. and size of Proposed Lots: One 16.58 ha (40.97 ac) lot

Name and type of existing road system: Gibraltar Mine Rd (paved, collector)

Services Available: Hydro, telephone sewage disposal and well.

Within the influence of a Controlled Access Highway: No

Within the confines of the Agricultural Land Reserve: Not within the ALR

Required to comply with the Shoreland Management Policy or Development Permit Areas:
Yes

Name of Lake/Contributing River and Lake Classification: N/A

Adjoining Properties: (Source: B.C.A.A.)

Land Use:

Lot Sizes:

- (a) Unsurveyed Crown Land
North
- (b) Unsurveyed Crown Land
South
- (c) Unsurveyed Crown Land
East
- (d) Unsurveyed Crown Land
West

SECTION 2: Planning Report

Planning Staff recommends approval of Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017.

Background:

It is proposed to rezone a ±16.58 ha Crown land lease area to the Heavy Industrial (M 3) zone as the land is used for the manufacturing and storing of explosives (ammoniate nitrate emulsions) employed by the mining industry. The proposal is shown in Appendix C. The improvements and buildings associated with the manufacturing, storage and processing of the explosives are confined to a fenced area.

Unsurveyed Crown lands are, by default, zoned Resource/Agricultural in CRD Rural Land Use Bylaws (RLUB) and in Zoning Bylaws. The Resource/Agricultural (R/A) zone permits resource extraction, including crushing and screening activities, but excludes further processing; hence the requirement for rezoning the property to a heavy industrial use.

Application History / Relevant Applications:

The land is associated with Crown Lease Application #5407807 to create proposed District Lot 13283. The proponent has been offered a Crown lease subject to rezoning of the property to an appropriate industrial zone that would reflect the existing industrial land uses. Fencing of the manufacturing area is a requirement of the Crown.

Location and Surroundings:

The proposal is located on Gibraltar Mine Road, adjacent to unsurveyed crown lands and in proximity to the Gibraltar mine, as shown in Appendix B. Appendix D shows that the property is mostly vegetated except for the area containing the industrial improvements. Appendix B shows some watercourses on the subject lands, and comments received by the Provincial Habitat Biologist indicate that a wetland may be present on the property near the western edge, and possibly two streams may be located within the lease area.

CRD Regulations and Policies:

The Central Cariboo Area RLUB provides policies with regards to Crown Lands and Resource Lands. For resource lands, the plan supports the objectives of the agencies responsible for the resource management.

Staff notes that the Shoreland Management Policy is not applicable to wetlands, but is applicable to streams. The applicant should provide proof from a Qualified Environmental Professional (QEP) whether streams are present or not on the proposed lease area (16.58 ha). If the QEP can confirm that streams are not present on the land, then exemption from compliance with the CRD Shoreland Management Policy, with respect to riparian protection, would be granted.

Rationale for Recommendations:

Planning staff is supportive of the rezoning amendment as the intent is to legalize an existing land use associated with the mining industry. The Lease area is in close proximity to Gibraltar mines. Further, the industrial improvements being located near the road within a small portion of the lease area, and combined with the Crown fencing requirement that limits the impact of the development on adjacent crown lands.

Recommendation:

That Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017 be considered for approval subject to the following condition:

The applicant offering to enter into and entering into a covenant to ensure compliance with the CRD Shoreland Management Policy with respect to riparian protection.

Further, that the cost of registration of the covenant be borne by the applicant.

SECTION 3: Referral Comments

Health Authority: -

Ministry of Transportation and Infrastructure: - November 1, 2017

The Ministry of Transportation and Infrastructure has no objections in principle with the above Rural Land Use Amendment Bylaw as it does not appear to impact any roads under this Ministry's jurisdiction.

Advisory Planning Commission:

See attached.

Ministry of Environment: - November 6, 2017

From aerial imagery, I suspect there is a wetland and two streams through the property. If further development occurs, the proponent should be aware that the *Water Sustainability Act* would apply to these, if they are present.

Otherwise, the habitat section has no further comments.

See attached email dated November 3, 2017 with attached map showing location of wetland.

Ministry of Energy and Mines: - November 1, 2017

See attached email.

Xats'ull/Cmetem' (Soda Creek Band): - November 6, 2017

I am interested in following-up on Crown #5407807, which allows for the storage of raw materials for the production of Ammonium Nitrates Emulsions. In order to accurately complete a referral, we require additional information on this application, including an environmental management plan and an archaeology review. I understand this site has been in existence for many years, so these plans may already exist. In addition, we would like details such as safety procedures, a description for the use of Nitrates and where, and why this particular location.

After receiving and reviewing these plans, we can move forward with the referral process.

Northern Shuswap Tribal Council (Secwepemc): -

T'exelc (Williams Lake Indand Band): - March 2, 2018

With regards to this referral the WLIB would like to ensure that if there is to be any ground disturbance occurring after the rezoning then the WLIB would like to see that the environment and any archaeological features are protected. Based on your email this can be accomplished by adjusting the access point as well as stipulating that for any ground disturbance an archaeological assessment will be required.

SECTION 4: Board Action

Date of Meeting: November 17, 2017

That consideration of Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017 be deferred for up to 90 days to allow First Nations consultation to occur.

Date of Meeting: February 16, 2018

That Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017 be deferred for up to 60 days to complete First Nations consultation.

Date of Meeting: March 23, 2018

That Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017 be read a first and second time this 23rd day of March, 2018. Further, that adoption be subject to the following:

The applicant offering to enter into and entering into a covenant to ensure compliance with the CRD Shoreland Management Policy with respect to riparian protection.

Further, that the cost of registration of the covenant be borne by the applicant.

Date of Meeting: July 13, 2018

That Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017 be read a third time this 13th day of July, 2018. Further, that adoption be subject to the following:

The applicant offering to enter into and entering into a covenant to ensure compliance with the CRD Shoreland Management Policy with respect to riparian protection.

Further, that the cost of registration of the covenant be borne by the applicant.

ATTACHMENTS

Appendix A: Bylaw No. 5121

Appendix B: General Map

Appendix C: Specific Map

Appendix D: Orthographic Map

Other: Applicant's supporting documentation

Email from Ministry of Energy, Mines and Petroleum Resources, dated Nov. 1, 2017

Email from FLNR dated November 3, 2017 with attached map showing wetland location

Email from Orica - BC Operations Lead, dated November 8, 2017 with attached:

- Preliminary Archaeological Field Reconnaissance Report
- Scope of Application: Gibraltar Site

APC Comments

Results of Public Hearing

Email regarding Follow-up Watercourse assessment at Orica's Gibraltar Site

Report from EDI (Environmental Dynamics Inc.) regarding Follow-up watercourse assessment at Orica's Gibraltar Site



CARIBOO REGIONAL DISTRICT

BYLAW NO. 5121

A bylaw of the Cariboo Regional District, in the Province of British Columbia, to amend Bylaw No. 3503, being the "Central Cariboo Area Rural Land Use Bylaw No. 3503, 1999".

WHEREAS the *Local Government Act* authorizes the Regional Board to amend a Rural Land Use bylaw after a public hearing and upon the affirmative vote of the Directors.

WHEREAS an application has been received to rezone property.

NOW, THEREFORE, the Board of Directors of the Cariboo Regional District, duly assembled, hereby enacts as follows:

1. CITATION

This bylaw may be cited for all purposes as the "Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017".

2. AMENDMENT

Bylaw No. 3503 of the Cariboo Regional District is amended by:

- i) rezoning That Parcel or Tract of Land East of District Lot 8003, Cariboo District, Containing 16.589 ha More or Less from Resource/Agricultural (R/A) zone to Heavy Industrial (M 3) zone; and
- ii) amending Schedule "C" accordingly.

READ A FIRST TIME THIS 23rd DAY OF March, 2018.

READ A SECOND TIME THIS 23rd DAY OF March, 2018.

A PUBLIC HEARING WAS HELD ON THE 5th DAY OF July, 2018.

READ A THIRD TIME THIS 13th DAY OF July, 2018.

ADOPTED THIS _____ DAY OF _____, 2018.

Chair

Manager of Corporate Services

I hereby certify the foregoing to be a true and correct copy of Bylaw No. 5121 cited as the "Cariboo Regional District Central Cariboo Area Rural Land Use Amendment Bylaw No. 5121, 2017", as adopted by the Cariboo Regional District Board on the _____ day of _____, 2018.

Manager of Corporate Services

OVERVIEW MAP



LEGEND



SUBJECT PROPERTY

0 500 1,000 2,000 m

Z17029



UNSURVEYED CROWN LAND

DL 3729

DL 3730

SUBJECT PROPERTY
PARCEL OR TRACT OF LAND EAST OF DL 8003,
CARIBOO DISTRICT, CONTAINING 16.589 ha More or Less

Cuisson Lake Rd

DL 9975
SOURAN LAKE

LEWIS LAKE

DL 9974
VALERIE LAKE

GIBRALTAR MINES

DL 9496

DL 9484

DL 9497

DL 9495

DL 9483

DL 9699

DL 4119

DL 3729

DL 4136

DL 4120

Gibraltar Mine Rd

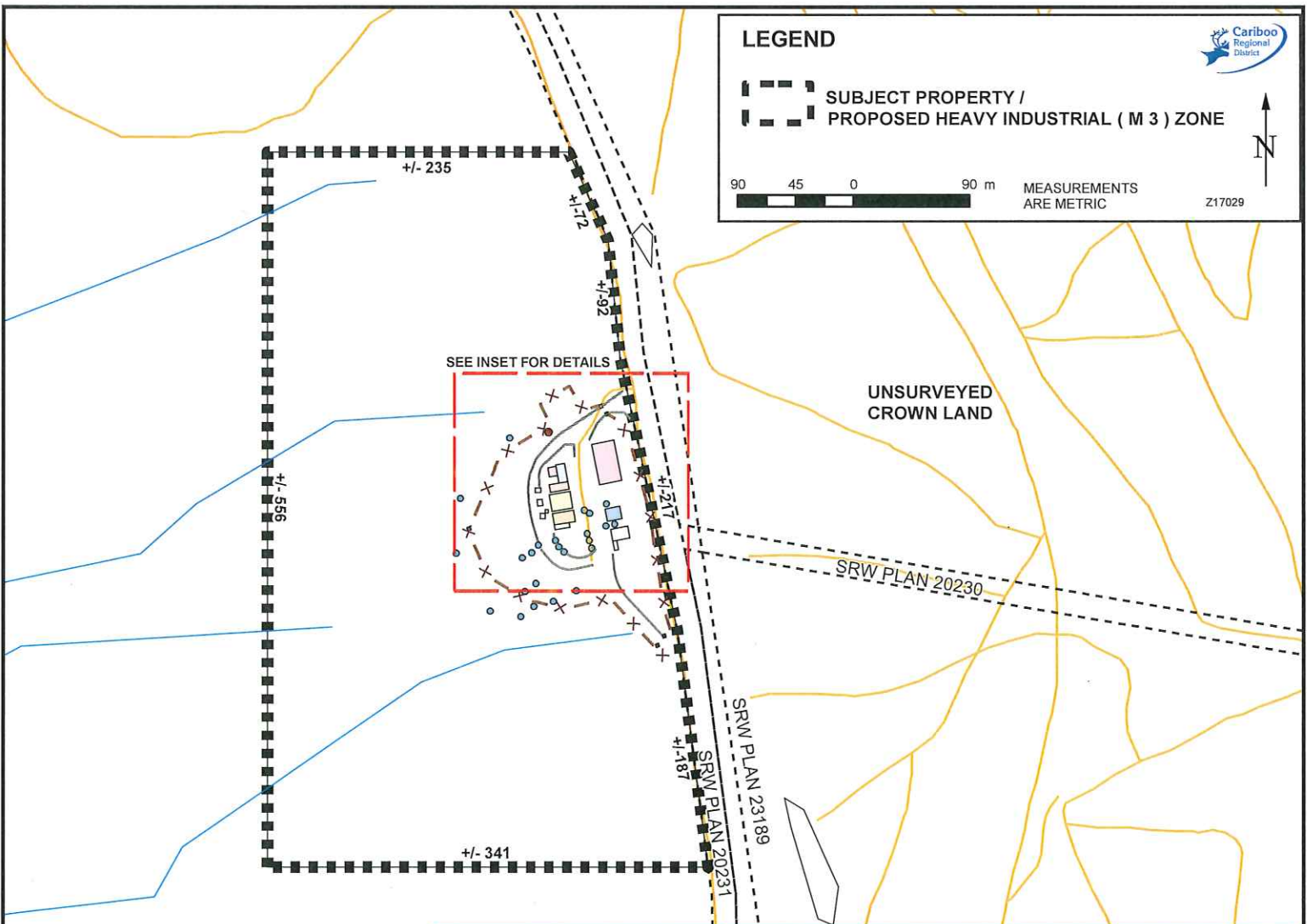
PIERCE CREEK

LEGEND

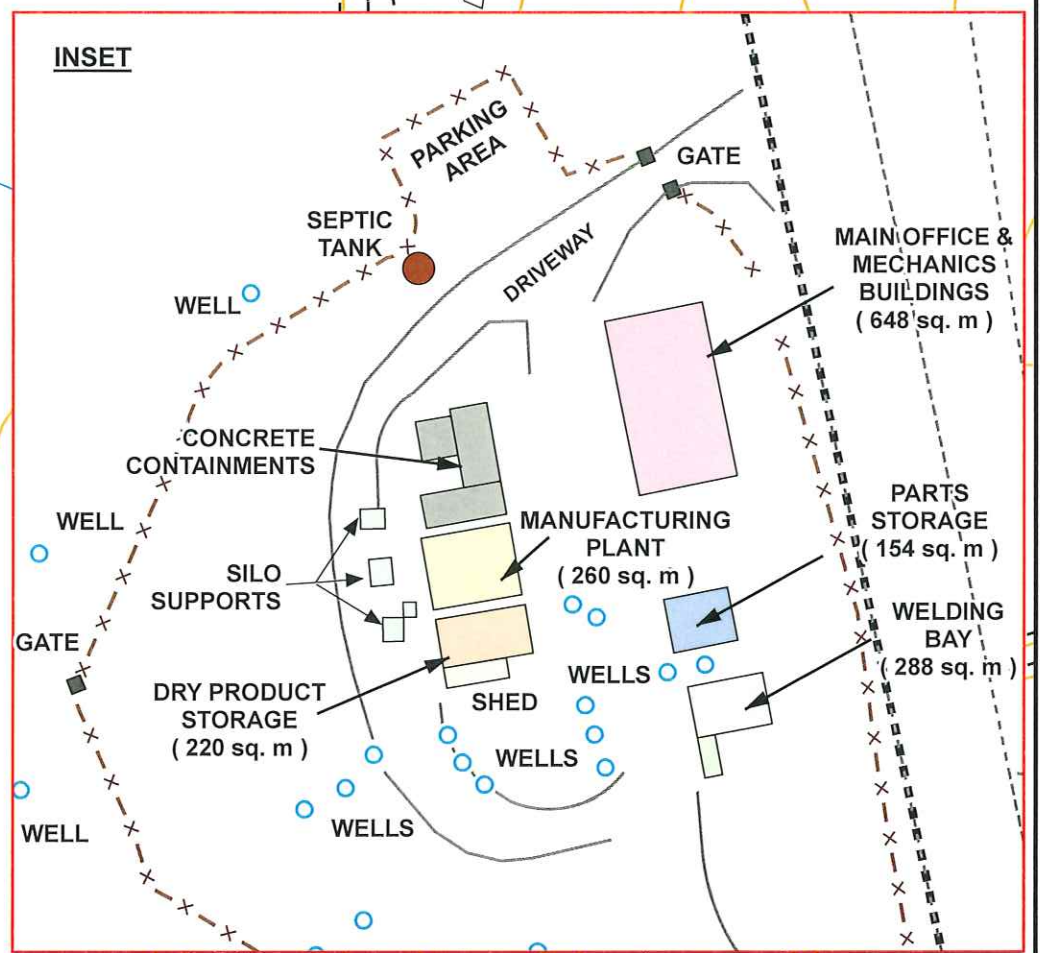
SUBJECT PROPERTY /
PROPOSED HEAVY INDUSTRIAL (M 3) ZONE

90 45 0 90 m MEASUREMENTS
ARE METRIC

Z17029



INSET





LEGEND



SUBJECT PROPERTY

0 375 750 1,500 m Z17029



SUBJECT PROPERTY
PARCEL OR TRACT OF LAND EAST OF DL 8003,
CARIBOO DISTRICT, CONTAINING 16.589 ha More or Less



Describe the existing use of the subject property and all buildings: The property is used to store raw materials for the production of Ammonium Nitrates Emulsions that are used in the mining industry. Buildings consist of raw materials storage, manufacturing plant, office and repair shops and parts storage.

Describe the proposed use of the subject property and all buildings: Proposed use of the property will remain the same as the current use of the property and buildings.

Describe the reasons in support for the application: Current zoning of the property does not capture the current use. Property is zoned for resource/agricultural use and this property is being used for heavy industry puposes. Re-zoning to Heavy Industry would better reflect the current use of the property.

Provide a general description of vegetation cover (i.e. treed, grassland, forage crop etc.): The area is surrounded by trees and forested woodland.

Provide general geographical information (i.e. existing lakes, streams, physical features etc.): Property is located within the Gibraltar Mines mineral claim approximately 47 klm NW of Williams Lake. Site is accessed from a road the mine uses at times to access their tailings dam. See attached overhead of site location.

Services Currently Existing or Readily Available to the Property (check applicable area)

** Readily Available means existing services can be easily extended to the subject property.*

| Services | Currently Existing? | | Readily Available?* | |
|------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| | Yes | No | Yes | No |
| Hydro | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Telephone | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community Water System | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Community Sewer System | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Sewage Disposal System | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Well | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please specify) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Francesca Sanna

From: McConnachie, Jennifer EMPR:EX <Jennifer.McConnachie@gov.bc.ca>
Sent: November-01-17 10:57 AM
To: Osmachenko, Linda FLNR:EX; Francesca Sanna
Cc: Howe, Diane J EMPR:EX; Golobic, Blythe EMPR:EX; Kamloops, MMD EMPR:EX
Subject: RE: E#479950 CRD - Orica - Gibraltar Mines

Thanks Linda. I missed the subject.

Francesca, can you please provide an update once the decision is made?

Thanks in advance,

Jennifer McConnachie, MSc, PAg

Manager, Reclamation
B.C. Ministry of Energy, Mines and Petroleum Resources
Mines and Mineral Resources Division
100 Cranbrook Street, 2nd floor, Cranbrook, BC, V1C 3P9
Phone: (250) 417-6035 Cell: (250) 640-0717
E-mail: Jennifer.McConnachie@gov.bc.ca

From: Osmachenko, Linda FLNR:EX
Sent: Wednesday, November 1, 2017 11:51 AM
To: McConnachie, Jennifer EMPR:EX; 'Francesca Sanna'
Cc: Howe, Diane J EMPR:EX; Golobic, Blythe EMPR:EX; Kamloops, MMD EMPR:EX
Subject: RE: E#479950 CRD - Orica - Gibraltar Mines

Hi Francesca:

Just to clarify, Orica was offered a lease for the land under the Land Act subject to the precondition of applying for and successfully receiving a rezoning for the purpose for which the land is being used. Should that application fail, the tenure cannot complete.

If you have any other questions, please do not hesitate to contact me.

Linda Osmachenko

Land Officer
Resource Authorizations
250-398-4259

From: McConnachie, Jennifer EMPR:EX
Sent: Wednesday, November 1, 2017 10:41 AM
To: 'Francesca Sanna'
Cc: Osmachenko, Linda FLNR:EX; Howe, Diane J EMPR:EX; Golobic, Blythe EMPR:EX; Kamloops, MMD EMPR:EX
Subject: RE: E#479950 CRD - Orica - Gibraltar Mines

Hi Francesca,

I have confirmation from Linda Osmachenko of FLNRORD that Orica holds tenure under the Land Act for the Crown land in question. As regulatory authority for environmental management and decommissioning of the land is held by FLNRORD, I can restate that EMPR has not objection to the rezoning of the land. The property will be removed from the M-40 Mines Act permit that is held by Gibraltar Mine.

Please do not hesitate to contact me with any concerns you may have or if you require anything further with respect to the rezoning decision.

Regards,

Jennifer McConnachie, MSc, PAg

Manager, Reclamation

B.C. Ministry of Energy, Mines and Petroleum Resources

Mines and Mineral Resources Division

100 Cranbrook Street, 2nd floor, Cranbrook, BC, V1C 3P9

Phone: (250) 417-6035 Cell: (250) 640-0717

E-mail: Jennifer.McConnachie@gov.bc.ca

From: Francesca Sanna [<mailto:FSanna@cariboord.bc.ca>]

Sent: Tuesday, October 31, 2017 2:35 PM

To: McConnachie, Jennifer EMPR:EX

Subject: RE: E#479950 CRD - Orica - Gibraltar Mines

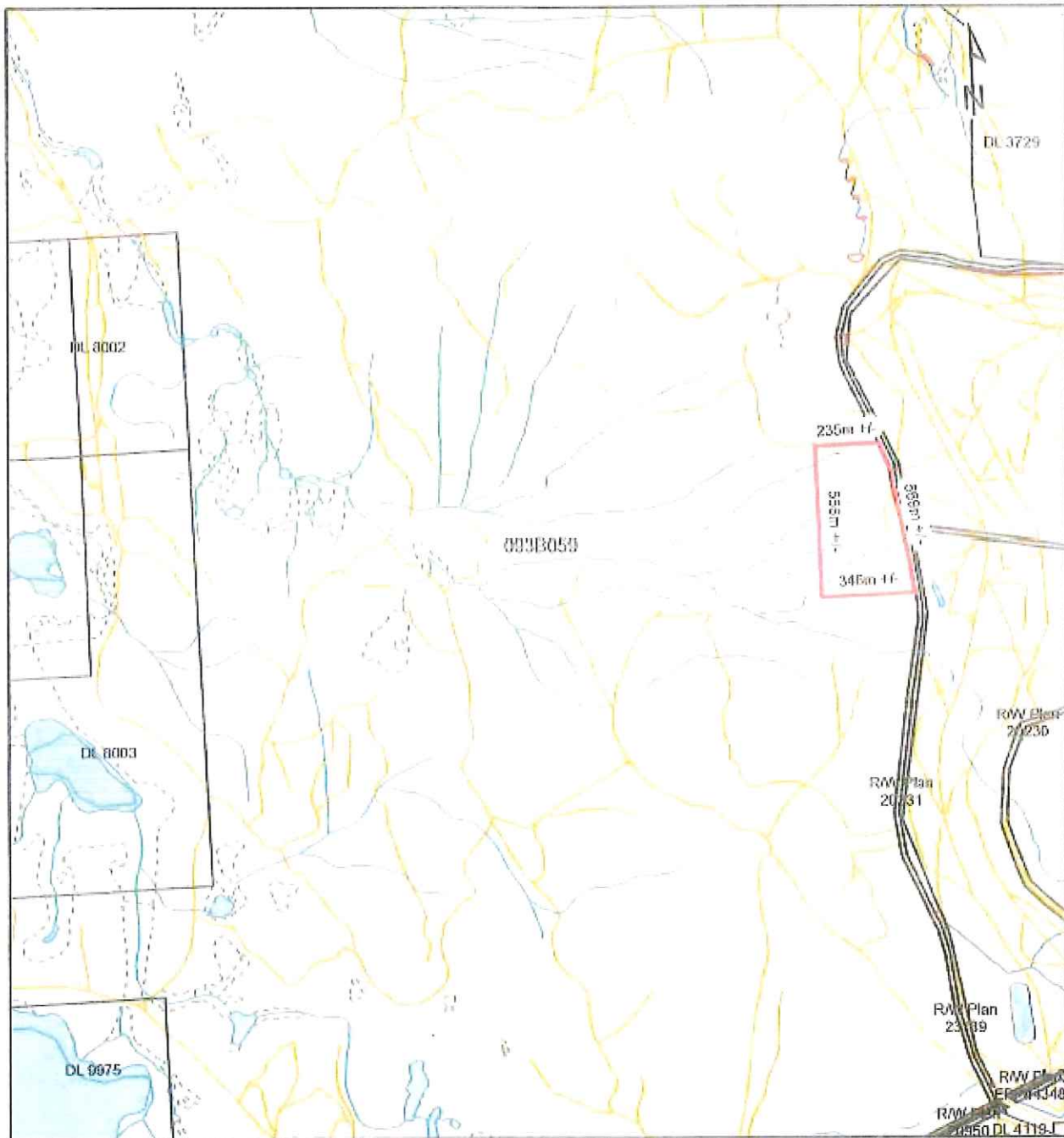
Jennifer, below is the Crown map and the Ministry File number. FLNRO Williams Lake office number is 250-398-4574.

Lease

LEGAL DESCRIPTION SCHEDULE

File Number: 5407807
Disposition Number: 924684

THAT PARCEL OR TRACT OF LAND EAST OF DISTRICT LOT 8003, CARIBOO DISTRICT,
CONTAINING 16.589 HECTARES, MORE OR LESS



Mapsheets: 93B.059

Scale: 1:20,000

Industrial

Page ____ of ____



Cariboo Regional District
Suite D, 180 North 3rd Avenue
Williams Lake, BC V2G 2A4
Phone: 250-392-3351 Ext 236
Fax: 250-392-2812



Please only print this e-mail if necessary!

From: McConnachie, Jennifer EMPR:EX [<mailto:Jennifer.McConnachie@gov.bc.ca>]

Sent: October-31-17 12:25 PM

To: Francesca Sanna <FSanna@cariboord.bc.ca>; Brenda Ethier <BEthier@cariboord.bc.ca>

Cc: Jungaro, Ray J FLNR:EX <Ray.Jungaro@gov.bc.ca>; Howe, Diane J EMPR:EX <Diane.Howe@gov.bc.ca>; Golobic, Blythe EMPR:EX <Blythe.Golobic@gov.bc.ca>; Kamloops, MMD EMPR:EX <MMD-Kamloops@gov.bc.ca>

Subject: E#479950 CRD - Orica - Gibraltar Mines

Hi Francesca,

MEMPR received the attached referral package for the Orica plant at Gibraltar Mine. The Orica footprint has been included in the Mines Act permit boundary with Gibraltar Mines previously because the surface tenure was not held by Orica. We now understand that the Orica footprint is owned by Orica (based on the referral package). MEMPR will amend Gibraltar's Mines Act permit boundary to remove the Orica parcel. MEMPR has no objection to the rezoning proposal if the land parcel is not within the Mines Act permit boundary.

I tried to give you a call a few minutes ago, though I realize we are in different time zones and you were likely on lunch. If you have any question or if I have stated anything above that is incorrect, please do not hesitate to contact me.

Regards,

Jennifer McConnachie, MSc, PAg

Manager, Reclamation

B.C. Ministry of Energy, Mines and Petroleum Resources

Mines and Mineral Resources Division

100 Cranbrook Street, 2nd floor, Cranbrook, BC, V1C 3P9

Phone: (250) 417-6035 Cell: (250) 640-0717

E-mail: Jennifer.McConnachie@gov.bc.ca

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*****DISCLAIMER*****

Brenda Ethier

From: Francesca Sanna
Sent: November-08-17 10:36 AM
To: Brenda Ethier
Subject: FW: E#479950 CRD - Orica - Gibraltar Mines
Attachments: gibraltar_wetland.docx

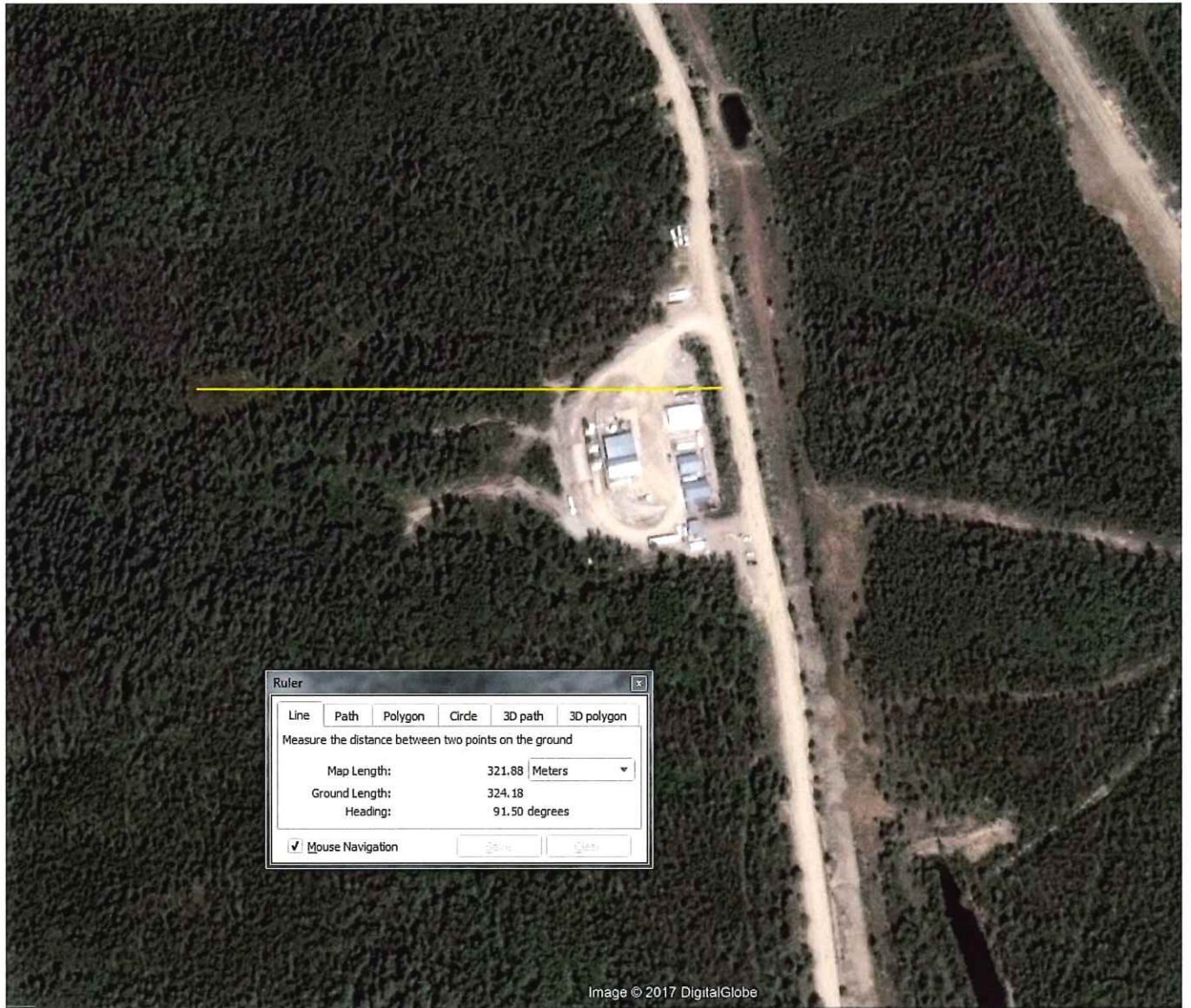
From: Lion, Christine FLNR:EX [mailto:Christine.Lion@gov.bc.ca]
Sent: November-03-17 9:13 AM
To: Francesca Sanna <FSanna@cariboord.bc.ca>
Subject: RE: E#479950 CRD - Orica - Gibraltar Mines

Hi Francesca,

I'm new to the region and the job, and haven't dealt with the Shoreland Management Policy too much. From what I can see in Google Earth, there is a wetland on the western edge. Would this be protected under the Shoreland Management Policy? I've attached a screenshot showing the wetland and the approximate distance from the road.

Feel free to give me a call if that's easier than writing an email.

Thanks,
Christine



Francesca Sanna

From: Dan Williams <dan.williams@orica.com>
Sent: November-08-17 9:17 AM
To: Kate Hewitt
Cc: Francesca Sanna; NR Manager
Subject: RE: Rural Land Use Amendment Bylaw No. 5121
Attachments: 17-1067 Orica PFR Gibraltar Site Expansion JUN-12-2017.pdf;
EMP_Gibraltar_FINAL.docx

Hi Kate,

Please find attached a copy of our Environmental Management Plan as well as the Archeological Study that was completed earlier this year on the site. This particular site has been in operation since the early 70's as an emulsion manufacturing plant. Over the years the plant has been upgraded due to production needs. We manufacture Ammonium Nitrate Emulsions (explosives) for the mining industry in Western Canada and deliver via highway tankers. We also supply the Gibraltar mine from this site via our Mobile Manufacturing Units (MMU's).

All of our storage tanks that we have on site are contained in concrete bunds that are designed to hold 110% of the tanks contents in case of a leak and all materials would be contained in the bunds to keep the materials from spilling out into the environment. Any contaminated water that is created on site is contained as well and disposed of through an evaporator system on site. All solid waste is placed in bags and destroyed at the mine during blasting procedures.

If you require further information in regards to this operation please do not hesitate to contact me directly. Thank you for your assistance in this process.

Regards,

Dan Williams
BC Operations Lead – Bulk and Mining
Orica Canada
800 Mission Flats Rd, Kamloops BC, V2C 1A9
Office: 250-372-2808 ext 209
Cell: 250-305-4196
email: dan.williams@orica.com



From: Kate Hewitt [mailto:referrals@xatsull.com]
Sent: November-06-17 2:28 PM
To: Dan Williams <dan.williams@orica.com>
Cc: fsanna@cariboord.ca; NR Manager <nrmanager@xatsull.com>
Subject: Rural Land Use Amendment Bylaw No. 5121

Good Afternoon Dan,

My name is Kate Hewitt and I work in the Natural Resources department at Soda Creek Indian Band.

I am interested in following-up on Crown #5407807, which allows for the storage of raw materials for the production of Ammonium Nitrates Emulsions. In order to accurately complete a referral, we require additional information on this application, including an environmental management plan and an archaeology review. I understand this site has been in existence for many years, so these plans may already exist. In addition, we would like details such as safety procedures, a description for the use of Nitrates and where, and why this particular location.

After receiving and reviewing these plans, we can move forward with the referral process.

Please let me know if you have any questions.

Thank you,

Kate Hewitt, HBA, EMX

Referrals Coordinator | Natural Resources Department

Xatśúll First Nation [Soda Creek Indian Band]

3405 Mountain House Rd | Williams Lake, BC V2G 5L5

Phone: 250 989 2323 ext. 123 | Fax: 250 989 1542

Email: referrals@xatsull.com Website: www.xatsull.com

Client and Project

| | | | | | |
|---|--|--|-----------------------------|---------------------------------|--|
| PROPOSER Orica Mining Services | | DEVELOPMENT TYPE Manufacturing facilities expansion | | FORESTRY ONLY FOREST LICENCE | |
| CONTACT Eric McMillan Operations Manager – British Columbia | | LOCATION McLeese Lake | NTS MAP 93B/9 | CUTTING PERMIT | |
| ADDRESS #100-1383 McGill Road Kamloops BC V2C 6K7 | | SCHEDULE Summer 2017 | REGION Central Interior | CUTBLOCK(S) | |
| PHONE 250-372-2808 | | OTHER I.D. | | | |
| FAX or EMAIL eric.mcmillan@orica.com | | AREA / LENGTH 18.95 ha | ELEVATION (a.s.l.) 980 m | BIOGEOCLIMATIC ZONE SBSdw2 | |

Assessment Summary

| | | | | | |
|--|-------------------------------------|---|------------------------|------------------------------------|-----------------------------------|
| SURVEY DATE(S) May 19, 2017 | | SURVEY CREW (AND AFFILIATION) Marvin Bob (Williams Lake Indian Band), Hank Sellars (Xat'sull First Nation) | | | |
| FIELD DIRECTOR(S) Kim Statham | | FIELD DIRECTOR LOCATION On site | | | CREW SUPERVISOR(S) Kim Statham |
| REASON FOR ASSESSMENT Client request | | PREVIOUSLY RECORDED SITES IN VICINITY (AND TYPES) FdRo-9 (lithics) | | | |
| TRAVERSE TYPE Judgmental | AVERAGE CREW TRAVERSE WIDTH 60 m | NUMBER OF AREAS OF ARCH POTENTIAL None | | NUMBER OF SUBSURFACE TESTS None | |
| PROTECTED SITES (AND TYPES) IN CONFLICT WITH DEVELOPMENT None | | NON PROTECTED SITES (AND TYPES) 1 post-1846 CMT | | | |
| REPORT AUTHOR(S) Kim Statham | | HCA PERMIT n/a | PROJECT OFFICER n/a | PERMIT HOLDER n/a | |

Additional Archaeological Work Recommended? No

Project Area Description

Orica Mining Services (Orica) is proposing an 18.95 ha expansion of their existing mining explosives manufacturing facility. The study area is located 2.1 km west of the Gibraltar Mines tailings pond, 2.0 km north of Lewis Creek, and 10.3 km east of the Fraser River (Figure 1). Construction of the expanded facilities will include removal of vegetation, soil stripping, grading, installation of building foundation, and the construction of access roads and fence lines, all of which have the potential to alter undocumented archaeological sites. The assessment was conducted at the request of the proponent.

Although there are no recorded archaeological sites within the study area, one documented site is located 4.5 km to the west. Archaeological site FdRo-9 consists of an isolated lithic find recorded by Matrix Research Ltd. in 2008; a single quartzite flake was observed in a tree throw located approximately 50 m northwest of a large wetland. The site was not fully assessed and was not recorded under permit. The study area had been predicted to have low archaeological potential according to the regional AOA model, *Archaeological Overview Assessment, Northern Secwepemc Traditional Territory* (IR Wilson 1998). A desk-based review indicates the presence of numerous west-flowing drainages, which may be associated with elevated, level terrain or microtopographical features (Figure 2).

Methodology

A desk-based review was conducted prior to fieldwork. The review consisted of a search for archaeological sites located in proximity to the proposed development using the Archaeology Branch's Remote Access to Archaeological Data (RAAD) application and a review of related archaeological reports available on the Provincial Archaeological Report Library (PARL). The desk-based review also utilized available satellite imagery and National Topographic System (NTS) maps in order to examine local topography.

During the field assessment, crew members were spaced at approximately 10 m intervals along survey transects, all ground exposures encountered were inspected for archaeological materials, and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas considered to have higher archaeological potential based on topographic and hydrological terrain features observed in the field.

Archaeological potential was assessed based on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope), and local knowledge.

A qualified field director was a member of the survey crew during this assessment.

Survey Results

The entire study area was assessed on foot. The forest cover comprises spruce, lodgepole pine, balsam fir, trembling aspen, paper birch, and Douglas fir. The understorey is relatively thick and includes gooseberry, Oregon grape, highbush blueberry, rose, and alder. Assessed lands throughout the development have been subject to previous disturbance, largely as a result of the existing Gibraltar mining explosives manufacturing facility, but also by industrial logging and access road construction (Photos 1–3).

Terrain within the northern and central portions of the study area is characterized by hummocky, gently-to-moderately sloping, and well-drained terrain with western and southwestern aspects. The southern portion consists of similar terrain; however, it was observed to be poorly drained. Several mapped drainages flow roughly east – southwest throughout the study area, but none of these drainages were observed during survey and these locations were not associated with incised channels. The lands adjacent to these mapped drainages are sloping and hummocky, and there were no raised, well-defined, or level landforms observed in any location within the project area. Based on the significant previous disturbance, and the presence of uneven and sloping terrain, archaeological potential is considered to be low throughout the entire study area.

A post-1846 culturally modified tree (CMT 01) consisting of a single blazed dead lodgepole pine was observed in the central portion of the study area (Figure 2; Photo 4). This modification is considered to post-date 1846 based on a visual inspection. The tree is very decayed and would not produce a viable increment sample if cored. Although not protected by the *Heritage Conservation Act*, CMT 01 may be of interest to First Nations communities.

Evaluation of Testing Program(s)

Not applicable

Impact Assessment and Recommendations

As there were no archaeological materials or areas of archaeological potential identified within the study area, no additional archaeological studies are recommended in advance of proposed development, provided the project footprint does not expand beyond study area boundaries.

Although the potential presence of archaeological sites is considered to be very low in the study area, no assessment can guarantee to identify all undocumented sites located in a particular area. Therefore, if archaeological materials are observed during any phase of development operations, all ground-altering activities in the vicinity of the materials must be halted immediately and a qualified archaeologist and the relevant First Nations contacted. If a qualified archaeologist considers the materials to be protected under the *Heritage Conservation Act*, ground-altering activities may only resume with approval of the Archaeology Branch. Supervisors and operators should be aware that sites and objects located on public or private land and associated with human habitation or use that might pre-date AD 1846 are automatically protected under Section 13 (2) of the Act and cannot be altered without a permit issued pursuant to Sections 12 or 14 of the Act.

Interpretations of the archaeological record are made without prejudice to Aboriginal Interests and are not intended to refute, alter, or recognize any Aboriginal treaty, title, or any other right. This assessment addresses the potential for the existence of physical evidence of past human activity and does not encompass traditional use or other heritage concerns of the First Nation communities. This information should be solicited directly from the First Nations.



Photo 1: Western view in the central portion of the proposed development footprint of typical heavily disturbed terrain.



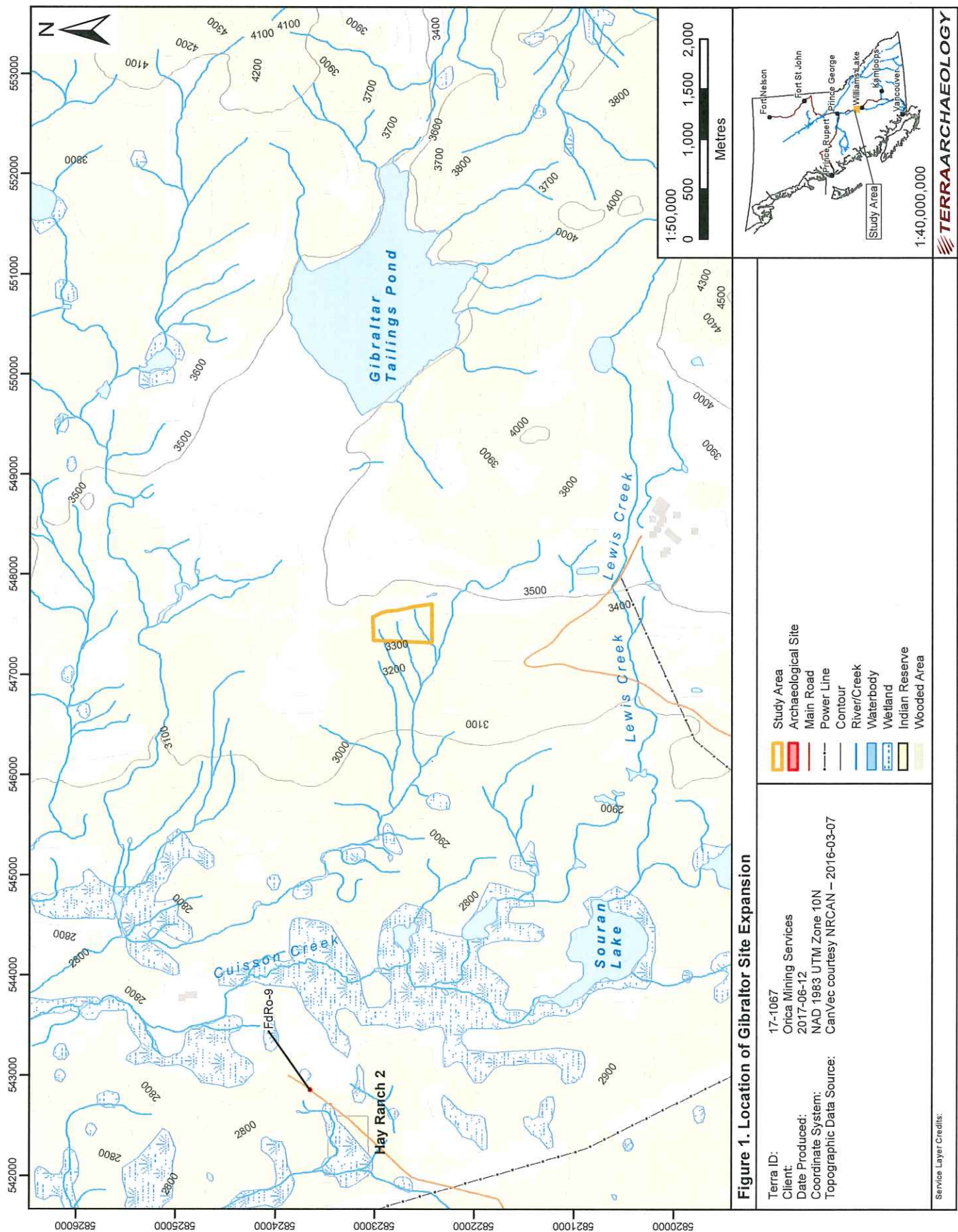
Photo 2: Eastern view toward the existing facilities showing previous disturbance.

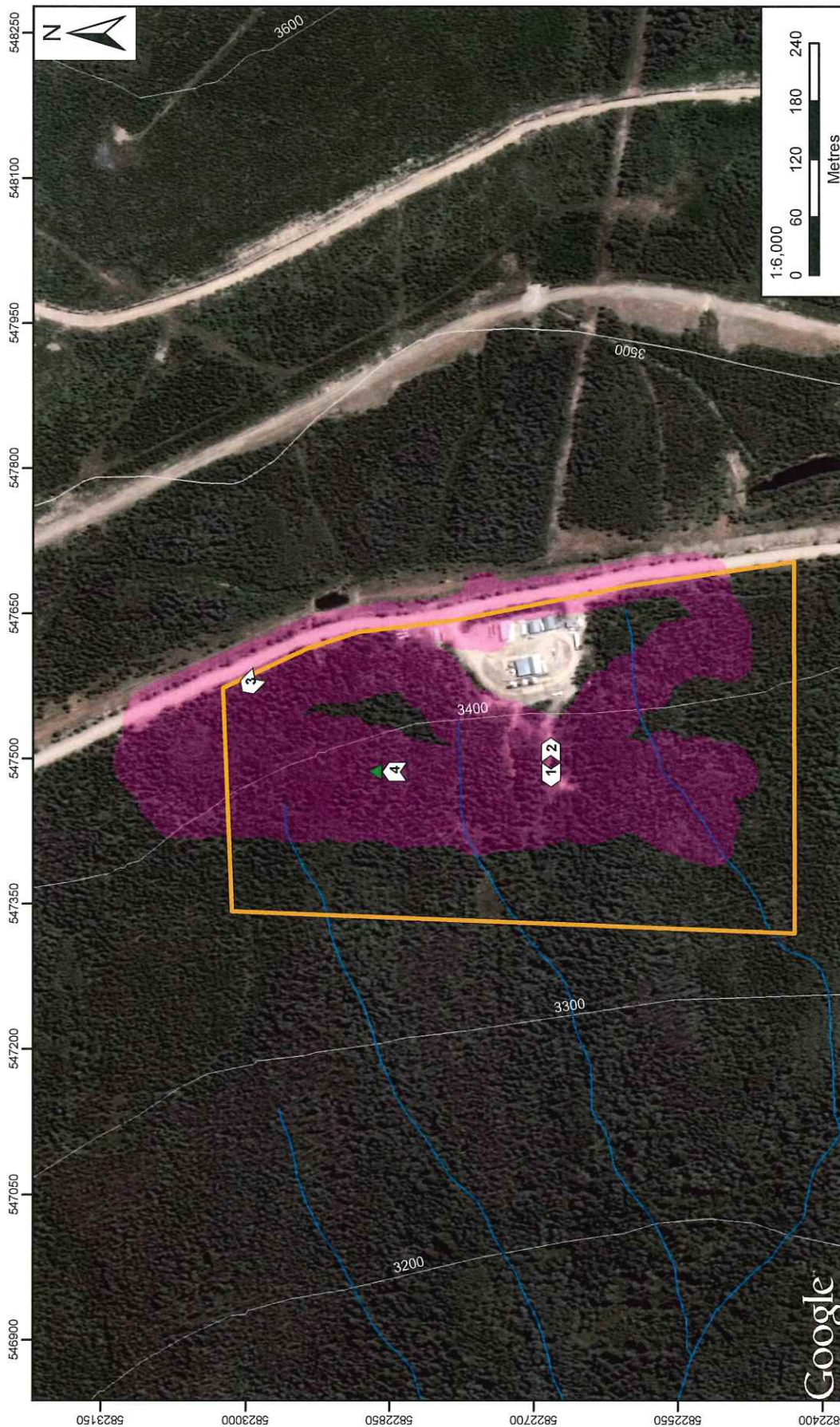


Photo 3: Northwestern view within the northeastern portion of the project showing mounding and disturbed soils, which have been artificially levelled, and steeply sloping intact lands visible in the left side of the photo.



Photo 4: Post-1846 CMT 01, a dead standing lodgepole pine with chop marks.





| | | |
|---|---|--|
| <p>1:650,000</p> <p>TERRAARCHAEOLOGY</p> | <p>Figure 2. Gibraltar Site Expansion</p> <p>Legend:</p> <ul style="list-style-type: none"> CMT (Post-1846) Study Area Survey Coverage Contour River/Creek Photo Location | <p>Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community</p> <p>Terra ID: 17-1067</p> <p>Client: Orica Mining Services</p> <p>Date Produced: 2017-06-12</p> <p>Coordinate System: NAD 1983 UTM Zone 10N</p> <p>Topographic Data Source: CanVec courtesy NRCAN – 2016-03-07</p> <p>Imagery Currency: 2014-09</p> |
|---|---|--|

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Gibraltar Site – Orica Canada

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1 PURPOSE OF THIS EMP

The purpose of this Environmental Management Plan (EMP) is to ensure that the Orica operations on the Gibraltar site have appropriate environmental management practices in place to minimise environmental impacts and prevent legal non-compliances.

This EMP is developed in accordance with the Orica SHES Management Procedure SHE-GBL-PRO-ENV-001 Environmental Management Plans.

2 APPLICATION AND SCOPE OF THIS EMP

The Gibraltar site is a mining service manufacturing site located in British Columbia, Canada. The site supplies products to British Columbia, Canada.

All activities conducted within the Orica site boundary (where Orica has operational control) are included in this EMP. This includes:

- Storage of raw materials
- Manufacturing of Gasser and AN Emulsion
- Load out of MMU's and ANE bulk trucks
- Maintenance including MMU
- Quality Control bench
- Waste water and septic management
- Waste management (haz and non-haz)

Activities excluded from the scope of the EMP are outlined below:

- Use of products on customer site
- Management of any waste or by-products after they have been discharged or transported from the site / area where Orica has operational control
- Transport of materials & products outside of the site boundary

3 SITE DESCRIPTION

3.1 Business Structure

The Gibraltar site is a part of Mining Services Canada Ltd. It is a primary manufacturing site which supports underground and open cut mining operations within British Columbia, it also supplies bulk ANE product to smaller field operations sites. Mining Services operates a numbers of comparable facilities within various regions of Canada. These sites are established to maximise support to customers and distribution of required product across the country.

3.2 Description of the Facility

The site Manufactures:

- Gasser
- AN Emulsion (distributed as bulk and also within MMU's to service the Gibraltar mine)

The site stores

- AN prill in bulk for use within the ANE manufacturing and for MMU load out
- Raw Materials (surfactants, sodium nitrite, AN solution, fuel oil)

Supporting Services

- Maintenance workshop (including hot work area) for plant equipment and MMU's
- Utilities (washroom, toilets, showers)
- Office

- Waste water

During normal operations the site is manned over two shifts with 10 personnel on site per shift including a lead hand and team leader. This includes all plant operators and MMU drivers.

Gasser Solution

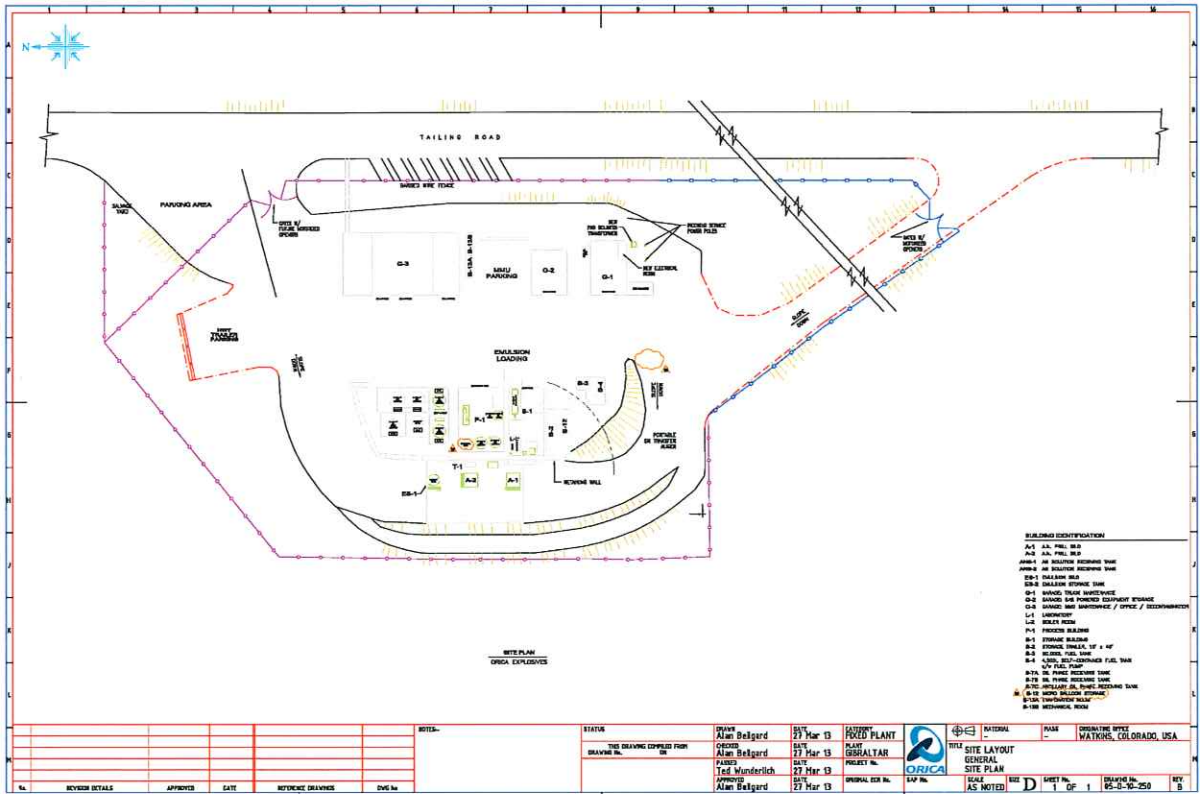
Gasser is manufactured through the mixing of Sodium Nitrite and Water. It is used within the MMU's when they load holes and is added on bench to provide a sensitiser to the load.

AN Emulsion

Ammonium Nitrate Emulsion (ANE) is manufactured through the blending of Oil and Ammonium Nitrate Solution (ANS) to make a solution. Acetic Acid may also be added as a pH stabiliser and microballons may be added to sensitize the product.

3.3 Location and land description

Tailings Road, Taesko Gibraltar Mine site, British Columbia, Canada.



3.4 Summary of Topography / Vegetation / Hydrogeology / Climate

The site has had a number of studies completed regarding the hydrogeology of the site. Very little other information is known regarding the environmental context of the site. The Hydro geological setting is outlined below. (information obtained from ARC Inc. environmental report 2001)

Hydrogeology

The site is comprised gravel and sand fill with some silt from surface to 0.9m below surface grade (bsg). This material was underlain by 0.4 to 5.2m of firm to very stiff, brown, moist silty till with some sand, little to trace clay, and occasional sand stringers. Very stiff clay and silt tills with some sand underlie the silty till. The very stiff clay and silt tills were encountered well below 16.5m (determined through bore hole investigations).

The aquifer of concern is represented by silty clay till interspersed with silty sand, sandy silt and sand layers. The depth to water bearing till varies from 3m to 9m below surface grade (bag). The thickness of the shallow water bearing unit is estimated at 8-10m. The water bearing unit is considered unconfined. Porosity of clay tills is estimated at 10-20% (Fetter, 1994). Groundwater levels in the subject aquifer fluctuate with seasonal variations in recharge (ARC Inc., 2001). Water from the shallow aquifer drains locally to two drainage channels (north and south gullies) immediately west of the site. Shallow groundwater generally flows similar to the surface topographic gradient, i.e. to the west and southwest (Figure 4, Attachment A); and sometimes south (December 1999) depending on the season.

3.5 Site surrounding land use

The surrounding land use is Mining Operations which are managed by Taseko Inc. (Gibraltar Mine). The land surrounding the site is mining lease with some cattle grazing beyond the mine boundary. Due to the federal and provincial regulations there are no sensitive receptors within 10km of the site.

3.6 Site ownership and history

There is a formal agreement in place for the land used with the land owner, Taseko Mines, with Orica assigned an area of land which is fenced. As the site manufactures product for the Gibraltar mine (land owner) and other customers, Orica pays a royalty for power used (supplied by Gibraltar mine).

3.7 Environmental studies or contamination assessments

| Study / Report Title and Author | Date | Report Filing Location |
|---|----------------|---|
| Detailed Site Investigation of Orica Facility at Gibraltar Mine Site, Mcleese Lake, British Columbia for Orica Canada Inc. 42pp. + Appendices (Arc Inc.) | 2001 | Orica Legal Department, Watkins, CO and on site ARC reports |
| Phase One (Natural Resources Canada) | | Unknown |
| Environmental Site Investigation Report (ARC Inc) | Mar & Jun 1999 | Orica Legal Department, Watkins, CO Legal |
| Environmental Site Inspection Gibraltar On-site Explosives Plant, Williams Lake, British Columbia 1992-09-22. LL Campbell Environmental Affairs, ICI Canada Inc. 12pp + maps. | 1992 | Unknown |
| Gibraltar Mine Memorandum to File: Underground Tank Removal at ICI Explosives Canada. T Wambolt, Environmental Engineer, Gibraltar Mine Limited, 4pp + attachments (photos and ASL Chemical Analysis Report F1085). | 1995 | Unknown |

A summary of the contamination at the Gibraltar site is listed below.

Diesel Contamination – Tier 4 Site Classification

ICI discovered an area of diesel contaminated land in 1998 soon after taking over the site's operations. The leak was determined to have come from an elbow in a buried (approx 2.4m) fuel line connecting AST to a Mixing Plant.

Investigation and remediation works commenced immediately with ARC Industries of Calgary engaged as the environmental contractor. A notice of Independent Remediation (NIR) was submitted for the spill cleanup on 3 September 1998. The site was registered in the BC site registry of Contaminated sites (Site ID Number 35357)

Initial works involved the installation of a series of recovery trenches in 1999. The site undertook a detailed environmental assessment of the impacted area in accordance with the MOE request for a DSI (dated 02/16/99), with the report including extensive delineation included. This report was submitted to MOE and not accepted a number of times, there was no appetite from Orica (Legal) and ARC to resubmit the report fourth time.

Removal of contaminated waters via vacuum truck commenced in October 2011 and is continuous.

In 2002 a meeting between BC, MOE, ARC and Orica set parameters for future works. Works involved the continuous withdrawal of water/oil from recovery wells which was a manual operation for a number of years. Up until 2008 approximately CAN\$500k was spent on the remediation.

Effluent Disposal Separator System

There was an effluent disposal separator for liquid effluents, including emulsion washings and maintenance oils and greases, operated to the south of the plant. This effluent disposal field was decommissioned 2013.

Underground Fuel Storage Tanks

The site has previously had underground tanks for fuel oil and diesel oil (ICI, 1992). The 11000 gallon underground fuel tank was removed in 1994 and 12 truckloads of contaminated soil sent to the Gibraltar Mine percolation site for remediation (ICI Environmental Management Manual photos, 1996). Two underground storage tanks, a 2000 gallon diesel tank and a 1000 gallon gasoline tank, were removed in May 1995. Approximately 150 m3 of contaminated soil was land disposed at the Gibraltar Mine site under authorisation from the BC Ministry of Environment, Lands and Parks (letter from D McIntosh, Assistant Regional Waste Manager, Cariboo Region to T Wambolt, Gibraltar Mines Ltd., dated 19 June 1995 is maintained in archived file at the Gibraltar site.)

4 CORPORATE AND SITE OBJECTIVES AND TARGETS

The following Orica Corporate and operational level environmental objectives and targets are relevant to the site

4.1 Corporate Environmental Policy

A copy of the Orica Environmental Policy SHE-GBL-POL-002 is shown below and is also available on the Orica website at: www.orica.com/sustainability



Policy

Environment

Orica understands that excellence in environmental performance is essential to our ongoing business success.

To manage our company responsibly, sustain growth, offer valuable products and services and maintain regulatory and community trust, we must embed environmental stewardship into everything we do. Our business plans will consider both the short and long-term impacts of our operations on the environment, and will support minimising our environmental footprint and legacies.

In particular, Orica will:

- Ensure that environmental management and stewardship is integrated into all aspects of our activities.
- Enable all people to know and understand their role in considering environmental management in their day-to-day work.
- Ensure environmental risks are identified, managed and monitored across our all aspects of our operations.
- Ensure site specific environmental management plans are in place for all our operations.
- Rehabilitate sites or areas disturbed by our activities.
- Comply with all applicable laws, regulations, licences, internal policies and contractual obligations as a minimum standard.
- Always look for opportunities to improve the environmental performance of our activities.
- Use our resources in an efficient and responsible manner, and minimize waste and the environmental footprint of our activities.
- Engage with our stakeholders in a proactive manner and through regular reporting of our environmental management and performance.
- Work with our customers to help them achieve their environmental goals.

Ian Smith
Managing Director and CEO
Orica Limited
July 2013

Orica Limited

4.2 Corporate Environmental Targets

Orica has the following Group-wide environmental targets. Site level improvement plans should include relevant initiatives and targets which contribute towards the achievement of Group targets.

| Environmental Performance Targets | 2010 Actual | 2011 Actual | 2012 Actual | 2015 Target |
|---|-------------|-------------|-------------|-------------|
| Reduce greenhouse gas emissions by 50% per tonne | 0.65 | 0.53 | 0.50 | 0.33 |
| Reduce potable water consumption by 50% per tonne | 2.11 | 1.62 | 1.91 | 1.06 |

4.3 Site Environmental Targets

Reduce AN prill spills during the AN unloading process---a new AN unloading procedure has been established to reduce and eliminate spills---close monitoring of unloading by site personnel. (Result of Incidents of Supply Truck drivers blowing out hose onto the ground).

Waste Water reduction---site has a new waste water evaporator to handle waste water from the garage and wash bay---will eliminate the need to directly dispose of waste water.

Reduce and eliminate any chance of Loss of Containment of raw material---with the new Gibraltar upgrade storage tanks have been bunded.

Reduce domestic and other waste by recycling wherever possible---get everyone involved with planning.

Direct Monitoring & Compliance Targets

| Environment (Ref: SHEC Improvement Plan) | Target | Stretch Target |
|---|---------------|-----------------------|
| Environmental incidents >CAT +2 | 2 | 0 |
| Environmental Complaints | 1 | 0 |
| Environmental Non Compliances | 3 | 0 |
| E2 Environmental Reporting | Annually | -1 month |

Environmental Project Specific Targets:

| Component | Target | Project |
|------------------|--|---|
| Waste | Feasibility Study Completed | Review all current waste streams to identify reduction / re-cycle opportunities not previously investigated |
| Waste | Reduce Water consumption Reduce Trade Waste discharge by ~9ML/Yr | Recycling opportunities |

The targets as listed above are included within the sites SHEC Improvement Plan available on the Manufacturing DMS. All environmental targets have been established in accordance with SHE-GBL-PRO-PGT-001 SHEC Objectives, Targets & Improvement Plans.

5 LEGAL AND OTHER REQUIREMENTS

The legal and other requirements relevant to the Gibraltar Site are described below.

5.1 General legal requirements

General legal requirements are applicable to the site and its operations. A copy of the applicable general requirements can be obtained from Site Factory Licence on office wall.

The following are the key general legal requirements are relevant to the Gibraltar Site operations:

Canadian Federal Requirements

- Canadian Environmental Protection Act, 1999
- Transportation of Dangerous Goods Act, 1992
- Hazardous Products Act
- Explosives Act and Regulations 2013

British Columbia Provincial Requirements

- Environmental Spill reporting
- WCB—Report Incidents involving explosives/blasting

Local Requirements / Regulations

- Requirements of the Contract with the Mine

The following licences and permits are held by the site relating to environmentally activities:

| Requirement / Licence | Issuing Authority | Licence Identifier | Date Issued | Expiry Date | Document Link / Stored |
|-----------------------------------|--------------------------|---------------------------|--------------------|--------------------|-------------------------------|
| Licence for Explosive Manufacture | Natural Resources Canada | 2017(03)-F217 | 10-21-2013 | 03-31-18 | Site office |

Site Specific conditions

All site specific conditions are listed within Form 3 of the approved licence for explosive manufacture 2017 (03)-F217

5.2 Voluntary obligations

The site currently does not subscribe to any voluntary obligations.

5.3 Reporting RequirementsRegulatory Reporting

The following regulatory reporting must be undertaken:

| Requirement | What to report? | Who to report to? | When to report? | Site person responsible | How to report? |
|--------------|--|--------------------|------------------------------|-------------------------|-------------------------|
| E2 reporting | Changes to ANP storage <u>quantity</u> | Environment Canada | When changes are implemented | Team Leader | Revised E2 – Schedule 2 |
| E2 reporting | Annual <u>Emergency Response Plan</u> test | Environment Canada | Annually | Team Leader | E2 – Schedule 5 |

Internal Reporting

The following internal reporting must be undertaken:

| Requirement | What to report? | Who to report to? | When to report? | Site person responsible | How to report? |
|--|-----------------------------------|------------------------------------|-----------------|-------------------------|-----------------------------------|
| Monthly Waste Report | All waste generated by the site | Waste & Energy Management Database | Month end | Team Leader | Complete database report |
| Monthly Environmental compliance Questions | All site environmental activities | NA SHES Team | Month end | Team Leader | Complete and submit questionnaire |

6 IDENTIFICATION OF ENVIRONMENTAL ASPECTS & IMPACTS

The site activities are reviewed to determine which may be environmentally relevant and need to be managed to minimise potential environmental impacts.

6.1 Substances used on site

A comprehensive list of substances handled on site can be found the site chemical register (red book) and the hazardous materials assessments (available on site).

Bulk materials on site which are environmentally significant include:

| Chemical | Storage type | Quantity |
|----------------|--------------|---------------|
| AN Emulsion | Bulk tank | 82,000 kg |
| AN Prill | Bulk silo | 130,000 kg |
| Diesel | Bulk tank | 50,000 litres |
| Sodium Nitrite | Bag | 4,000 kg |

| | | |
|---------------|-----|----------|
| Sulfamic Acid | Bag | 5,000 kg |
|---------------|-----|----------|

The site currently does not utilise any in ground or underground storage or process tanks. Historically the site has had diesel lines which were underground. These have been decommissioned following contamination found in 1998 due to a failure of the underground lines.

6.2 Method for identifying and assessing environmental aspects

The following steps were undertaken to establish the impact and aspects register (SHE-GTR-EMP-ENV-003) for the Gibraltar site operations:

- The site was divided into relevant areas and activities for review
- The Environmental Aspect Checklist (SHE-GTR-EMP-ENV-002) was completed for designated areas to understand potential impacts
- Environmental aspects and impacts for each area were assessed and documented in the Environmental Aspects and Impacts Register (SHE-GTR-EMP-ENV-003).
- Relevant controls for each impact were also documented in the aspect and impact register.

6.3 Significant Environmental Aspects and Controls

The site has defined a significant environmental aspect as

- environmental outcome of severity 2 or greater
- legal outcome of severity 1 or greater

The critical controls identified have been established following the risk hierarchy of controls.



A summary of significant environmental aspects and their applicable controls are listed below:

| Plant | Aspect | | Outcome Type | MCS | Controls | Severity (with controls in place) |
|--------------|--|---|--------------|-----|---|-----------------------------------|
| | Area | Detail | | | | |
| General site | Waste Management | Incompatible waste storage. <u>Products are kept separate so as not to create a reaction with incompatible products. IE: Sodium Nitrate and Sodium Nitrite</u> | ENV | 2 | Physical Controls: - Portable bunding - Separate labelled cleaning tools Administrative Controls: - Procedural protection - Several segregated and labelled locations for waste to be placed. Behavioural Controls Trained and knowledgeable employees | 1 |
| AN Silo's | Storage, unloading and loading | AN impacts ground from LOC during rain or windy weather, chemicals or fuel spills during loading, gate sticks or jams open during / after loading | ENV | 2 | Physical Controls: - Bitumen beneath silos to facilitate cleanup of spills Administrative Controls: - Procedure for unloading, including measures to prevent overloading silos. Procedure for loading trucks. - Operator in attendance during loading / unloading. - Spill management procedure. Maintenance of gate Behavioural Controls: - On the job training. | 1 |
| Wash bay | Wash down & Decontamination of MMU's and equipment | Contaminated waters overflowing and flowing out of building during decontamination activities or leak from building in floor drain to ground or impacting storm water | ENV | 2 | Physical Controls: Within a building with an impervious floor (Concrete) & berm Purpose built building Spill Kit Administrative Controls: Maintenance and spill response procedures Low volume of equipment / items requiring decontamination. Behavioural Controls: Operator on the job training | 1 |

| | | | | | | |
|-----------------------|---|--|-----|---|--|---|
| Fuel Storage | Loading, Storage & offloading | Impact to ground or stormwater from tank overfilling, LOC during filling, pipe work failure, bund leakage. | Env | 2 | <p>Physical Controls:</p> <ul style="list-style-type: none"> - Concrete containment 110% - Level indication / level switch - Drip / spill trays and kits <p>Administrative Controls:</p> <ul style="list-style-type: none"> - Procedure for unloading & transfers of materials. - Bunds inspected periodically - Operator in attendance during unloading. - Spill management procedure. <p>Behavioural Controls:</p> <ul style="list-style-type: none"> - On the job training. | 1 |
| Evaporator | Evaporation and storage of waste waters prior to processing and sludge after processing | Impact to ground or stormwater from system overfilling, LOC during filling, pipe work failure, bund or container leakage. | Env | 2 | <p>Physical Controls:</p> <ul style="list-style-type: none"> - Activities located within an enclosed building minimising potential impact <p>Administrative Controls:</p> <ul style="list-style-type: none"> - Procedural protection <p>Behavioural Controls:</p> <ul style="list-style-type: none"> - On the job training, culture / awareness | 1 |
| Raw materials storage | Liquids (ANS & Surfactants) Loading, storage and offloading (to plant) | Impact to ground from tank overfilling, LOC during filling, pipe work failure, bund leakage. | ENV | 2 | <p>Physical Controls:</p> <ul style="list-style-type: none"> - Containment berm which is lined, level alarms / switch on tanks, drip trays / pails at connection points, hose material design connections and hose type, spill kits, transfer on pavement, collision protection for tanks (bollard) <p>Administrative Controls:</p> <ul style="list-style-type: none"> - Operating procedures, spill response procedures, <p>Behavioural Controls:</p> <ul style="list-style-type: none"> - On the job training, culture / awareness | 1 |
| ANE Plant | Production line | Dust generated during transfer of microbaloons | ENV | 2 | Physical Controls: | 1 |
| ANE Plant | Process Waste Water Recycling | Leaching of nitrate rich waters to ground from in floor drains or overflows from the manufacturing area. Material captured in drains during wash down. | ENV | 2 | <p>Physical Controls:</p> <ul style="list-style-type: none"> - Activities located within an enclosed building minimising potential impact <p>Administrative Controls:</p> <ul style="list-style-type: none"> - <p>Behavioural Controls:</p> <ul style="list-style-type: none"> - | 1 |

7 MANAGEMENT OF ENVIRONMENTAL PERFORMANCE

The key controls and management approach for identified environmental aspects are described below:

7.1 Environmentally hazardous materials management

Environmentally hazardous materials are managed on the site in a controlled manner, where good management practices are established and the site is designed in such a way as to facilitate these practices. This includes

- installation of hazardous material storage in accordance with the relevant ERD Standard which also includes specialist storage cabinets where required,
- storage of materials in bulk where plausible,
- storage of non-bulk materials within buildings and in dedicated areas, and
- instrumentation and engineering controls to prevent loss of containment/overflow etc
- Secondary containment (bunds)...

All storage devices are inspected as a part of the sites housekeeping and inspection program, with any required maintenance scheduled through the site's "Red Book" maintenance program. Any changes in the standards are reviewed and then a site inspection scheduled to ensure the site remains compliant with all relevant storage and management requirements.

7.2 Air emissions management

Point source air emissions management

The Gibraltar site does not have any point source emission points.

Fugitive air emissions management

Fugitive emissions on site may arise from minor leaks, venting of tanks etc. The potential for emissions is considered within the site's hazard review process which was undertaken when the site was designed and built. Any alterations made to the plant or equipment through the alteration authority process gives consideration to any changes in emissions which may be experienced both during the change and as a result for the change. The ANP silo vents are not equipped with dust collectors

Odour emissions management

The site does not produce or store any materials which are highly odorous in nature. Minor odours which are not particularly pungent are experienced from the Ammonium Nitrate and fuels area. Given the minor nature of the odours there is no specific management plan applicable to odours and no mitigative measures implemented.

7.3 Wastewater management

The site captures wastewater in a 1360 litre container in the workshop area. Wastewater is transported to the Gibraltar Mine '4 Pond', where wastewater is treated prior to discharge to the mine tailings dam. ***Site has since commissioned a waste water evaporator system to aid in this process effective January 1, 2017. No waste water is disposed of on mine property.***

Agreement with the Gibraltar Mine for wastewater disposal was first agreed in October 1986 (letter to M Ryan from G P McKay dated 8 October 1986) and the initial agreement was signed in July 1987 (letter from Barry Weenk of Gibraltar Mines Limited, to Mr Jack Dunkin of C.I.L dated 20 July 1987).

Relevant Procedures: MFG-TOM-PRO-SHE-001 Waste management plan
 MFG-TOM-PRO-LAB-401 Waste water analysis
 MFG-TOM-PRO-HPO-064 Waste water treatment system

7.4 Stormwater management

The site does not have a stormwater management system on site. This is based on potential contaminants being managed up at the site and activity areas. Majority of all manufacturing and maintenance operations are conducted within enclosed buildings, greatly minimising the potential for any impact on stormwater. Activities which would have the potential to impact stormwater quality include: Unloading / Loading Operations. To manage potential impact in these areas's the site maintains a strict housekeeping and spill management approach.

7.5 Soil and groundwater management

Soil and groundwater on the site are managed through various approached.

Prevention

- Spill response and management training
- Bund / containment inspections and preventative maintenance
- Site sealed in key areas with impervious surfaces

Response

- The site maintains a spill response procedures and a site emergency response plan.

Monitoring

- Groundwater is monitored on the site. Practice has been that when site has a water truck wells below site are pumped out, samples are taken and analysed by the Mine and then water is disposed of in the Mine's water treatment system.

7.6 Waste management

There is a Waste Management system c/w monthly reporting to Orica DB and includes waste disposal and recycling. Hazardous waste, which is material generated by the manufacture of explosives, is disposed of down the bore hole and is burned up in the blast.

There is a recycling program which includes for example, paper and cardboard, bottles and cans, used oil, wooden pallets and scrap metal. Domestic waste is disposed of in the Mine's landfill.

Relevant Procedures: [MFG-TOM-PRO-SHE-001 Waste management plan](#)

| Waste Source | Controls in Place | Destination of Waste |
|---------------------|------------------------|----------------------------|
| Emulsion | Waste separator | Customers Site(bore holes) |
| Used Oils | Waste Oil Collection | Contractors Location |
| Non-hazardous waste | Waste containers | Mine landfill |
| | | |

7.7 Amenity Impact management

The site has not identified any amenities which are significant in nature or which require any specific management.

7.8 Raw materials use management

The site does not use a high level of non-renewable resources (water/ energy), or produce a high volume of greenhouse gases. Small volumes of fresh water are used on site as a part of product make-up.

7.9 Management of other environmentally relevant issues

The site does not have any environmentally hazardous materials such as Asbestos, PBC's, Poisons or Ozone depleting substances which require specific

8 MONITORING AND MEASUREMENT REQUIREMENTS

The site does not have a formal monitoring program. There is some monitoring undertaken to monitor the groundwater contamination on site. The approach for groundwater monitoring is described below

| Plant / Monitoring Point | Parameters Monitored | Monitoring Frequency | Units | How /Responsible |
|--------------------------|-----------------------------------|----------------------|-------|--|
| Numerous test wells | Within all boundaries of the site | Monthly Annual | | Site personnel 3 rd party environmental contractor |

9 EVALUATION OF PERFORMANCE

The site has processes to evaluate:

- Compliance with legal requirements and other obligations
- Environmental performance, impacts and trends
- Effectiveness of the site's environmental management system

9.1 Evaluation of legal compliance

The site undertakes the following processes to validate legal compliance to site specific and general legal obligations: ***Gibraltar Site has an annual review of the Federal (ERD) Factory Licence and its requirements prior to annual renewal of said Licence.*** This validation also ensures that critical environmental controls are effective and suitable for minimising environmental legal compliance risks from the activities being undertaken at the site.

9.2 Evaluation of environmental performance and impacts

The site has undertaken the following processes to validate the site's environmental performance and environmental impacts. ***Gibraltar site has done an entire Hazard Study suite as well as Risk Assessments (JSERAs) for all site processes. Any incidents with an environmental impact are investigated and actions are taken to put controls in place. The Alteration Authority system is used to ensure all changes or modifications have no adverse environmental impact.*** This validation also ensures that critical environmental controls are effective and suitable for minimising environmental impact risks from the activities being undertaken at the site.

9.3 Evaluation of environmental management system

The site undertakes the following processes to validate the effectiveness of the site's environmental management system:

The site's environmental management is under constant review. An annual update of the document and review of its currency is performance by the site SHEC Advisor. In addition a number of supporting reviews and assessment also feed information into this evaluation.

| Assessment / review | Period | Responsible Person | Last Completed |
|---------------------------------|----------|--------------------|----------------|
| SHES Management Systems Audit | 4 Yearly | Corporate | 2014 |
| Environmental Compliance review | Annual | Site SHES Advisor | 2017 |
| EMP Conformance | Yearly | Site Supervisor | 2017 |

Any actions determined from an audit and subsequent responses to close out actions are stored in the Action Management Database which is accessible by all Orica personnel.

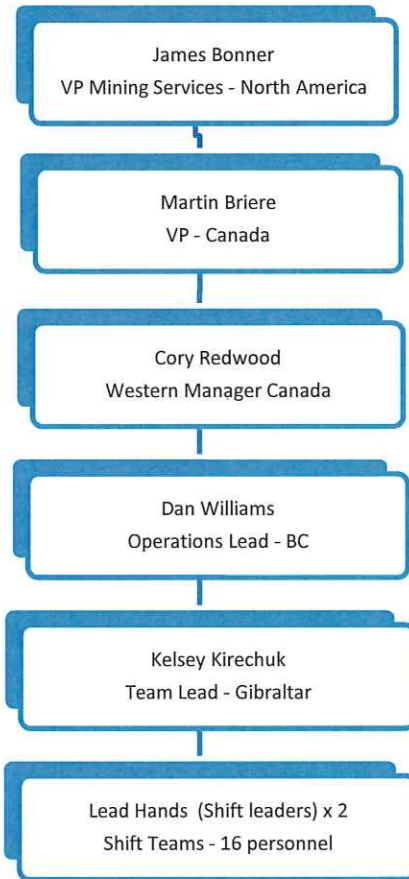
9.4 Environmental improvement plans

Where the site evaluation processes identify that site performance is not at the required level, improvement actions are identified and included in the Annual SHEC Improvement Plan. The sites SHES Improvement plan is developed in accordance with the procedure SHE-GBL-PRO-PGT-001 SHEC Objectives, Targets & Improvement Plans. A copy of the annual improvement plan can be found at the Site Leader's Office.

- Update of the site EMP
- Regulations check to ensure all required licenses and permits are held by the site.

10 ENVIRONMENTAL MANAGEMENT SYSTEM ELEMENTS

10.1 Organisational Structure



10.2 Environmental Roles & Responsibilities

The following table describes key site roles and responsibilities for environmental management and performance:

| Position | Environmental Responsibilities |
|------------------|---|
| Team Leader | Accountability for daily operations at site Communications & Updates for environmental improvement opportunities and environmental performance (including incidents) Identify potential trends in SHEC performance Ensure SHEC Audits are undertaken at required periods Report all environmental incidents (actual or potential) Review / Update site EMP as required |
| Senior operators | To comply with site EMP Assist in review / update of site EMP as required Promote environmental awareness for all operators Comply with site procedures Report all environmental incidents (actual or potential) |
| Operators | Comply with site procedures Undertake all site training to maintain awareness of environmental risks |

| | |
|--|--|
| | Report all environmental incidents (actual or potential) to the Senior operators or site Team Leader as per site procedures To comply with site EMP |
|--|--|

10.3 Environmental awareness, training and competence

| Training | Who | Frequency |
|------------------------------|----------|-----------|
| Site Induction - Environment | Everyone | Annual |
| Waste Management | Everyone | Annual |
| Factory Licence Awareness | Everyone | Annual |
| | | |

Note: Environmental Impacts are considered when site is developing procedures on site and that any relevant environmental aspects are written into the procedures.

10.4 Environmental Communications

The following internal and external communications are established to communicate environmental incidents / events / non-compliances, improvement opportunities, performance results, regulator interactions and risks

Internal Communications

Describe the kinds of internal / site communications used for environmental issues –

| Subject | Audience | Method | Frequency |
|--|-----------|-------------------|------------------|
| Toolbox Talks | Employees | verbal | Daily |
| Shift Handover Meeting | Employees | Verbal/documented | |
| Weekly Leadership Team meeting | | | |
| Site wide Monthly SHES Meeting | Employees | Printed Document | Bi-monthly |
| Annual Management Review / SHES Planning Meeting | | | |
| Incident 12/24 hour reports | | | |
| Significant Incident Alerts and Bulletins | Employees | Posted | As per frequency |
| Weekly SHES Report | | | |
| Monthly SHES Report | | | |

External Communications

The following external communication methods are used for external communication of site environmental issues:

| Subject | Audience | Method | Frequency |
|-----------|-----------------------|-----------|-----------|
| Incidents | Environment regulator | Data base | As req'd |

10.5 Control of relevant environmental documents and records

All environmentally relevant documents are stored within the sites document management system.

Controlled documents

The following table summarises key controlled environmental documents and their storage location:

| Document | Storage Location |
|---------------------------------|------------------|
| Environment Policy | Lunchroom |
| Environmental Management Manual | By office |

Environmental Records

The following table summarises key environmental records that are required to be maintained by the site and their storage location:

Include a reference to what licence or permit requires the record to be kept

| Record | Retention Time | Storage Location |
|-------------------------------|----------------|------------------|
| E2 Environmental Registration | Indefinite | Office |
| NRCan Factory License | Indefinite | Office |

Management of Change

Major plant changes or modifications are subject to the Alteration Authority (Orica Change Management Procedure RM-03) Process, with Hazard reviews (including HAZOP) completed where appropriate. Changes associated with day to day operations including maintenance activities are undertaken with like-for-like changes.

Updated or new management plans are required to be checked and signed off by relevant personnel within Orica. The site management team is responsible for ensuring that the management of change process is followed on site.

10.6 Emergency Preparedness and Response

The site maintains a detailed Emergency Response Plan, is regularly reviewed and tested on site at least annually. The emergency response plan has been established in accordance federal and provincial requirements and the Orica model procedure SR-11A Emergency Plans. Employees and contractors are provided training in the emergency procedures on site.

10.7 Managing Non-conformance and corrective actions

The site manages non-conformance and corrective actions in accordance with the Orica SHEC Management System procedure BG-06B Incident Management and Corrective Action.

10.8 Environmental Management Plan Review

The site completes both a targeted and comprehensive review of the EMP on a regular basis. Site Management responsible for ensuring relevant reviews are completed and comprehensive. The following activities will be completed during each review:

| Annual Targeted Review | Comprehensive Review (3 yearly) |
|---|--|
| Update site organisational structure (when changes occur) | Review all content in the EMP against the current version of the Group Procedure (SHE-GBL-PRO-ENV-001) and relevant guidelines, and update accordingly |
| Update any areas in which actions have impacted the content included in the EMP | Review all general and site specific legal requirements including new versions of requirements. Update accordingly. |

| | |
|--|---|
| Update licences / agreements including expiration / issue dates (when changes occur) | Review impacts and aspects register. Validate all significant impacts. |
| Update monitoring requirements (when changes occur) | Update any new improvement program processes (when changes occur) |
| Include any new impacts / aspects if activities have altered on site or new activities have been introduced. | Review training requirements and E training packages |
| Update references to controlled documents or files (when changes occur) | Review of standards in which monitoring is completed to, to ensure the method used is being followed and the site is in compliance. |

11 REFERENCES

Site

| | |
|---------------------|--|
| SHE-GTR-EMP-ENV-002 | Gibraltar Environmental Aspects Id |
| SHE-GTR-EMP-ENV-003 | Gibraltar Aspects and Impacts Register |

SHES Management System

| | |
|---------------------|-----------------------------------|
| SHE-GBL-POL-002 | Environment Policy |
| SHE-GBL-FOR-ENV-001 | Impact and Aspect Register |
| SHE-GBL-FOR-ENV-002 | Environmental Aspects Checklist |
| SHE-GBL-TEM-ENV-002 | Licence and Regulations Checklist |

SHES Model Procedure

| | |
|--------|---|
| BG-06B | Incident Management and Corrective Action |
| PI-12A | SH&E Critical Equipment |
| RM-03A | Management of Change |
| SR-11A | Emergency Plans |

NOV 08 2017

File No: 3360-20/20170029

Referred To

ADVISORY PLANNING COMMISSION RESPONSE FORM

Minutes of the meeting of the Electoral Area 'A' advisory planning commission held on
Nov. 7/17 in the *CRD office*, located at *Quesnel*, BC,
commencing at *6pm*

PRESENT:

Chair

Vinie Berlinguette

Members

*Dave Moffatt, Armand Berlinguette,
Mary Gorton*

Recording Secretary

Dany SERVIC

Owners/Agent, or

☐ Contacted but declined to attend**ABSENT:**

ALSO PRESENT: Electoral Area Director
Staff support (if present)

*Ted Armstrong***Agenda Items**

**REZONING APPLICATION – 3360-20/20170029 (That Parcel or Tract of Land East of
District Lot 8003, Cariboo District, Containing 16.589 ha More or Less)**

: "THAT the application to rezone the property be
~~supported/rejected~~ for the following reasons:

i)

ii)

*We support the application.*For: *5*Against: *0*CARRIED/DEFEATED**Termination**

: That the meeting terminate.

CARRIED

Time:

[Signature]
Recording Secretary*[Signature]*
Chair

RESULTS OF PUBLIC HEARING

File No: 3360-20/20170029

Date: July 5, 2018

Location: McLeese Lake Community Hall

Re: **CARIBOO REGIONAL DISTRICT CENTRAL CARIBOO AREA RURAL LAND USE
AMENDMENT BYLAW NO. 5121, 2017****Persons Present:**

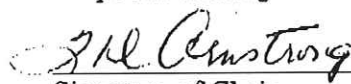
- ☒ Director:
☐ Owner(s):
☒ Agent:
☐ Public: See attached list
☐ Staff:
☒ No public in attendance (excluding owner/agent)
-

- ☐ Waited ten (10) minutes and then called the meeting adjourned.
- ☐ Welcome and introduction by the Area Director/Alternate
- ☐ The "Purpose of a Public Hearing", including the rules for the meeting and the specifics of the application were read out and the hearing was called to order at 7 PM.
- ☒ The Chair read out comments received from the referral process including CRD planning staff's comments and board actions to date.
- ☐ The Chair read out the following letters received from the public: (attached)(add additional sheet if required)
1) Date: _____ Name: _____
2) Date: _____ Name: _____
- ☐ The following verbal comments and questions were received: (add additional sheet if required)
Comments in favour:

Comments of concern/opposition:

- ☒ Attendees were asked three times for further comments and/or questions.
- ☐ The Chair called the meeting adjourned at 7:10.

I certify this is a fair and accurate report on the results of
the public hearing.


Signature of Chair

Nyree Alexander


From: Havan Surat
Sent: October-23-18 9:56 AM
To: Nyree Alexander
Cc: Shivani Sajwan
Subject: FW: Follow-up Watercourse assessment at Orica's Gibraltar Site

Nyree – we need to add this item for adoption for November as well.

Havan Surat, MRAIC, FIA
Manager of Development Services
hsurat@cariboord.ca



Cariboo Regional District
Suite D, 180 North 3rd Avenue
Williams Lake, BC V2G 2A4
Phone: 250-392-3351 Ext 283
Fax: 250-392-2812

 Please think about the environment before you print

From: Shivani Sajwan
Sent: October 23, 2018 9:55 AM
To: Havan Surat <hsurat@cariboord.ca>
Subject: FW: Follow-up Watercourse assessment at Orica's Gibraltar Site

F Y I

Shivani Sajwan, MCP, B.Arch.
Planning Officer
ssajwan@cariboord.ca



Cariboo Regional District
Suite D, 180 North 3rd Avenue
Williams Lake, BC V2G 2A4
Phone: 250-392-3351 Ext 264
Fax: 250-392-2812

Please think about the environment before you print

From: Mark Asquith | EDI <masquith@edynamics.com>
Sent: October 23, 2018 9:50 AM
To: Shivani Sajwan <ssajwan@cariboord.bc.ca>
Subject: RE: Follow-up Watercourse assessment at Orica's Gibraltar Site

Hello Shivani,

You are correct in saying that there are no streams adjacent to the Orica Facility near Gibraltar Mine.

On IMAP BC (<http://maps.gov.bc.ca/ess/sv/imapbc/>) it lists that there are two mapped watercourses on the west side of the facility. After the ground truthing exercise on September 21, 2018, it was determined that the mapped watercourses are in fact drainages. More specifically the northwestern drainage is an NCD (non-classifiable drainage) which has less than 100m of continuous stream channel throughout the drainage and the southwestern watercourse was an NVC (No visible channel).

May the CRD accept this email as an appendix to the "follow-up watercourse assessment at Orica's Gibraltar Site" Report published Oct. 1, 2018.

If you have any further questions or comments please do not hesitate to contact me.

Thank you for your time.

Mark Asquith | EDI Environmental Dynamics Inc. | t. 1.250.562.5412

The content of this email is the confidential property of EDI and should not be copied, modified, retransmitted, or used for any purpose except with EDI's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

From: Shivani Sajwan <ssajwan@cariboord.bc.ca>
Sent: October 23, 2018 9:08 AM
To: masquith@edynamics.com
Subject: Follow-up Watercourse assessment at Orica's Gibraltar Site

Good morning Mark,

This is in regards to the recent follow-up watercourse assessment conducted at Orica's Gibraltar Site. What I am understanding from your report is that there is no stream present on site. If this is the case, can you please send me a clear statement stating the same?
It will help the CRD Board to better understand the report's outcome.
You can either add a statement in the follow-up report as a conclusion or at least send me an email clarifying the result of watercourse assessment conducted on 21st September, 2018.

For your reference, I am attaching the same report that you have submitted.

Looking forward to hearing from you.

Thanks,

Shivani Sajwan, MCP, B.Arch.
Planning Officer
ssajwan@cariboord.ca



Cariboo Regional District
Suite D, 180 North 3rd Avenue
Williams Lake, BC V2G 2A4
Phone: 250-392-3351 Ext 264
Fax: 250-392-2812

Please think about the environment before you print

Memorandum



To: Matthew Isenor, TerraWest Environmental Inc
Dan Williams and Jeff Powers, Orica Limited

From: Mark Asquith, Environmental Technologist

Date: October 1, 2018

Project No: 18P0478

Re: Follow-up watercourse assessment at Orica's Gibraltar Site

EDI Environmental Dynamics Inc. conducted a follow-up site visit at the Orica Facility near the Gibraltar Mine on September 21, 2018 to gather additional information on the two mapped unnamed watercourses near the northwest and southwest extent of the facility. An overview assessment was conducted during the initial visit on August 11, 2018 where three non-classified drainages¹ (NCD) were identified on the west side of the laydown area (Drainages 1-3). The northern mapped watercourse (Watercourse 4) was defaulted to an S4 classification based on the characteristics observed within the assessed segment (approximately 200 m from the facility).

During the follow-up assessment, Watercourse 4 was assessed for approximately 1 km downstream from the facility. The watercourse originated at a culvert outlet associated with a perimeter drainage of the Orica office and shop building, and the defined channel continued for approximately 125 m (Photo 1). The discharge of concentrated runoff from the facility had resulted in the development of the defined channel. The channel was poorly defined from 125 m to 300 m downstream of the facility with areas heavily impacted by livestock use (Photo 2). Approximately 300 m downstream, flow went subsurface and a channel could not be located (Photo 3). Occasional surface water was observed between 300 m and 1 km downstream (Photo 4). Based on the characteristics observed during the follow-up assessment and the lack of downstream connectivity, the upper 1 km of this watercourse is classified as an NCD.

The mapped watercourse south of the laydown site was also assessed during the follow-up site visit. A channel was not observed during the assessment. The mapped watercourse is classified as a non-visible channel (NVC)¹.

Watercourse classifications for the mapped watercourses and the previously assessed drainages are provided in Figure 1. The track of the assessment completed on September 21, 2018 is also documented in Figure 1.

¹ Fish-stream Identification Guidebook, Second Edition. Available at:

<https://www.for.gov.bc.ca/ftp/HFP/external/!publish/FPC%20archive/old%20web%20site%20contents/fpc/fpcguide/FISH/FishStream.pdf>



We trust that the information provided within this memorandum meets your expectations. If you have any questions or comments regarding the information provided, please feel free to contact myself at masquith@edynamics.com. I may also be reached at our Prince George Office at (250) 562-5412 or on my cell at 250-640-1241.

Yours truly,

EDI Environmental Dynamics Inc.

A handwritten signature in black ink, appearing to read 'Mark Asquith', is positioned above the name.

Mark Asquith BSc, AScT

Yours truly,

EDI Environmental Dynamics Inc.

A handwritten signature in black ink, appearing to read 'Eric O'Bryan', is positioned above the name.

Eric O'Bryan, RPBio, Senior Biologist/Project Manager

Attachments:

- Photographs
- Figure 1. Map of the Follow-up Watercourse Assessment at Gibraltar Mine



Photo 1. Watercourse 4 defined channel (September 21, 2018).



Photo 2. Watercourse 4, poorly defined channel impacted by livestock (September 21, 2018).



Photo 3. Watercourse 4, no visible channel (September 21, 2018).



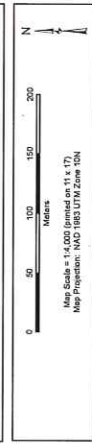
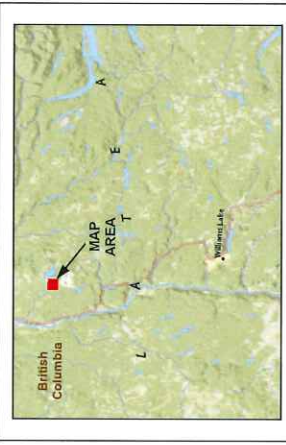
Photo 4. Watercourse 4, areas of pooled surface water, no defined channel (September 21, 2018).

Follow-up Watercourse Assessment at Gibraltar Mine

Terra West Environmental Management and Consulting

Legend

- Waypoint Stream Assessment
- Non-Classified Drainage (NCD)
- Non-Visible Channel (NVC)
- Track Area Surveyed
- Desktop Delineated Watercourse
- Watercourse



Data Sources

- Bing Maps Aerial Imagery Web Mapping Services
- British Columbia Ministry of Environment
- National Geographic World Map

Disclaimer
Terra West Environmental Dynamics Inc. has made every effort to ensure this map is free of error. Data has been derived from a variety of digital sources and, as such, EDI does not warrant the accuracy, completeness, or reliability of this map or its data.

Drawn: Y. Nguyen
Checked: M. Aquino
Figure 1
Date: 2018-09-26

